Examining the Unique and Joint Associations between Parent-level Factors and Child Responses to Stress in the Context of the COVID-19 Pandemic

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This thesis titled

Examining the Unique and Joint Associations between Parent-level Factors and Child

Responses to Stress in the Context of the COVID-19 Pandemic

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Abstract

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The current study investigated the unique and joint relations between various environmental factors at the parent-level (i.e., parent psychopathology, parent stress, COVID-19 related worries) and five child responses to stress after controlling for child internalizing and externalizing symptoms. Analyses were conducted using archival data from a sample of 189 parents of a child between 4-11 years surveyed during the early months of the COVID-19 pandemic. Results indicated that COVID-19 catastrophizing worries experienced by parents was the only parent-level factor that was associated with four out of five child responses to stress ($\beta = |.14-.34|$). Parent anxiety was positively related to child involuntary engagement ($\beta = .41$). Child externalizing symptoms was negatively related to child secondary control coping ($\beta = -.18$) and positively related to child involuntary disengagement ($\beta = .22$). Child anxiety and parent stress were not related to any child response to stress. Limitations, implications for the potential longterm impact of the COVID-19 pandemic on children, and future directions are discussed.

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Examining the Unique and Joint Associations between Parent-level Factors and

Child Responses to Stress in the Context of the COVID-19 Pandemic

The ability to adapt to stress is an imperative element of successful child development and adjustment. Although exposure to nonnormative stressors and exposure to multiple stressors (i.e., cumulative risk) has been shown to be related to poor physical and psychological health (e.g., Evans et al., 2013; Grant et al., 2004; Schneiderman et al., 2005; Walker et al., 2011), not all who experience stress go on to experience negative outcomes. Thus, it is important to understand the underlying processes that may make an individual more or less susceptible to the negative impacts of stress. Though many different biological and psychosocial factors may affect this divergence, one process that has been shown to be influential is an individual's ability to cope and respond to stress in healthy and adaptive ways (Compas et al., 2001; Penley et al., 2002; Zimmer-Gembeck & Skinner, 2016).

Understanding how children respond to stress is of particular importance because it can have important implications for a child's overall developmental trajectory. Although research generally indicates that the frequent use of more maladaptive coping responses is associated with poorer adjustment and psychological well-being (e.g., Clarke, 2006; Compas et al., 2001; Compas et al., 2017), less research has examined the development of individual differences in responses to stress and specific factors that may contribute to the development of maladaptive versus adaptive coping responses. The current study will extend the extant literature by examining associations between child coping and responses to stress and factors at the level of the environment in the context of a global pandemic. Examining the potential relations between environmental factors and child responses to stress may be of particular importance during heightened times of stress, such as during/following a natural disaster like the 2019 coronavirus (COVID-19) pandemic because research suggests that it has generated a new range of stressors and challenges, especially for families (e.g., Brown et al., 2020; Weaver & Swank, 2021; Wu et al., 2020). Given the unique environmental concerns of the current times, the present study aimed to use an ecological systems perspective (Bronfenbrenner, 1979) to examine the relations between various factors within a child's environment (i.e., parent-level factors, COVID-19-related factors) and child responses to stress.

Coping and Other Responses to Stress in Childhood

Broadly speaking, coping refers to efforts to reduce distress and protect oneself from harm (Carver & Connor-Smith, 2010; Pearlin & Schooler, 1978). Rather than one unidimensional construct, coping is considered an organizational construct that includes multiple behaviors, cognitions, and perceptions that all work towards the common goal of responding to and managing stress (Pearlin & Schooler, 1978; Skinner et al., 2003). In general, researchers tend to agree that an individual can experience both involuntary and voluntary responses when exposed to stress and that the distinction between these responses is quite complex because initial volitional coping responses have the potential to become conditioned involuntary responses over time (Compas et al., 2001; Skinner, 1999). Because involuntary and voluntary responses to stress are both important in understanding how an individual manages stress, both will be examined in the current study. For clarity, *responses to stress* will be the broad term used when referencing all the potential ways individuals respond to stress. The term *coping* will be used to reference all voluntary efforts, and the term *involuntary* will be used to reference all other involuntary or automatic responses.

Previous research suggests that as a child develops, important changes in their ability to cope with and respond to stress occur (e.g., Skinner & Zimmer-Gembeck, 2007; Zimmer-Gembeck & Skinner, 2011). This research indicates that developmental models of coping and responses to stress must be guided by theoretical and empirical evidence on youth's cognitive, language, memory, emotional, social, and neuropsychological development (Compas et al., 2017; Skinner & Zimmer-Gembeck, 2007, 2009; Zimmer-Gembeck & Skinner, 2011, 2016) because these developmental changes likely impact the types of responses to stress children of different ages utilize. Grounded in these considerations, contemporary models of coping and responses to stress conceptualize the construct across different levels of measurement (e.g., domains, factors, and strategies; Compas et al., 2001; Compas et al., 2017; Skinner & Zimmer-Gembeck, 2007). Because research at the domain level may be too broad to determine whether specific responses to stress may only be beneficial or detrimental for certain individuals or in certain contexts (Compas et al., 2017), and research at the strategy level is just not feasible (i.e., at least 400 different coping strategies in the literature; Skinner et al., 2003), it is most practical to examine responses to stress at the factor level in order to be able to draw more precise conclusions than would be possible at the domain level, while still maintaining suitable feasibility.

One specific model of child and adolescent responses to stress that examines responses at the factor level and shows sizeable support is the Multidimensional Model of Responses to Stress described by Connor-Smith and colleagues (2000) and Compas and colleagues (2001) (see Figure 1). Within this top-down, dual-process model, responses to stress can be first categorized as voluntary (i.e., coping responses) or involuntary. Responses can then be further delineated on a second dimension of engagement or disengagement. Engagement responses are those directed towards one's self or one's environment, whereas disengagement responses are those directed away from one's self or one's environment. Finally, engagement coping responses can then be further categorized as primary control coping or secondary control coping. Primary control coping responses are those meant to directly alter one's environment or emotions, whereas secondary control coping responses are aimed at accepting the problem. Thus, the five factors delineated in the Multidimensional Model of Responses to Stress include involuntary disengagement (e.g., escape, inaction, cognitive interference out of one's control), involuntary engagement (e.g., physiological arousal, intrusive thoughts, rumination out of one's control), disengagement coping (e.g., denial, avoidance under one's control), primary control coping (e.g., problem solving, emotional expression under one's control), and secondary control coping (e.g., cognitive restructuring, acceptance under one's control). Because the Multidimensional Model of Responses to Stress is grounded in theory and has been well validated in diverse samples of children and adolescents and across various types of stressors (e.g., Connor-Smith et al., 2000; Santaigo et al., 2012; Valiente et al., 2009), this conceptualization of coping and responses to stress was used to guide the current study.

Figure 1

Multidimensional Model of Responses to Stress (Connor-Smith et al., 2000)



Note. Within this model, responses to stress can be categorized as involuntary engagement, involuntary disengagement, disengagement coping, primary control coping, or secondary control coping.

Given the evidence that suggests that coping and other responses to stress in childhood and adolescence is so complex, additional research is needed to better understand the influences that might contribute to individual differences in the ways in which youth respond to stress. Further, from an ecological systems perspective (Bronfenbrenner, 1979), children live in multifaceted environments that shape their development; therefore, it is crucial to better understand how specific elements of this environment might be associated with this important adaptive process.

Parent-level Factors and Child Responses to Stress

One critical factor within a child's microsystem that has been found to be related to child responses to stress is a child's parents or guardians (e.g., Kliewer et al., 1996; Langrock et al., 2002). Because the family context is likely the most proximal and salient environment for many children, it is important to understand the relative weight that various parent-level factors may be contributing to children's responses to stress. Two processes that are somewhat intrinsic to the parent but have been shown to be associated with youth outcomes are psychopathology and stress (Jaser et al., 2011; Kliewer et al., 2006; Langrock et al., 2002; Neece et al., 2012; Power, 2004; Zimmer-Gembeck et al., 2017).

Previous literature suggests that the ways in which a child responds to stress may be one underlying process implicated in the association between parent psychopathology and child outcomes (e.g., Langrock et al., 2002). In general, previous research has found negative relations between parent depression and adaptive youth responses to stress (e.g., primary control coping, secondary control coping) and positive relations between parent depression and more maladaptive responses to stress (e.g., involuntary engagement) (e.g., Henry et al, 2018; Langrock et al., 2002; Vreeland et al., 2019). Regarding associations between parent anxiety and child responses to stress, previous findings seem to be more mixed and limited and only appear to focus on voluntary coping responses rather than both voluntary and involuntary responses (e.g., Becker & Ginsberg, 2011; Buckley & Woodruff-Borden, 2006; Klieber & McCarthy, 2006).

Parent stress is another factor that has been shown to be related to a variety of child outcomes (e.g., Guajardo et al., 2009; Neece et al., 2012). Stress experienced by parents might be of particular importance in the context of specific stressful situations because empirical evidence suggests that children can be physiologically influenced by stress experienced by their parents even if they have not directly experienced that stress themselves (e.g., Waters et al., 2020). Previous research also suggests that parent stress

may be associated with child responses to stress such that increased levels of stress are related to less adaptive (e.g., secondary control coping, coping competence) child responses (Cappa et al., 2011; Moreland et al., 2016; Santiago et al., 2012). Notably, to my knowledge, Santiago et al., (2012) is the only study to examine family-level stress associations with both voluntary and involuntary child responses to stress.

Therefore, although previous findings point to important associations between parent psychopathology and parent stress and child responses to stress, they are limited. First, apart from few studies (e.g., Langrock et al., 2002; Santiago et al., 2012; Vreeland et al., 2019), previous research has examined only voluntary coping processes and have neglected to examine whether there may be differential relations between parent-level factors and child coping versus involuntary responses to stress. Second, much of the extant literature investigating the associations between parental psychopathology and child coping/involuntary responses to stress has appeared to focus on parent depression rather than parent anxiety, again overlooking the possibility of differential relations. Finally, because these parent-level factors do not often appear in isolation, additional research is needed to determine the relative weight each of these potential risk factors may contribute to the individual differences in child responses to stress in the context of one another in order to best support children and families at risk of negative outcomes.

Potential Mechanisms of Impact

Although it is beyond the scope of the current study to examine the potential mechanisms by which parent psychopathology and/or parent stress relates to child responses to stress, reviewing possible mechanisms can provide important rationale for the current study's hypotheses. First, it is possible that child responses to stress may be

influenced by parent psychopathology and/or stress through the mechanism of parental modeling of specific responses to stress (i.e., social learning theory; Bandura, 1977). Second, it is also possible that these parent-level factors may directly influence the way parents interact with their children (e.g., increased hostility, intrusiveness), thus influencing the types of responses to stress utilized by children. Third, emerging evidence suggests that the physiological stress responses of parents can be transmitted to their children via physiological synchronization (e.g., Lunkenheimer et al., 2021; Waters et al., 2020). Because experimental research has found that the stress responses of parents following a stressful laboratory test influenced their child's physiological stress responses even though the child did not directly experience this stress themselves (Waters et al., 2020), it is possible that this physiological synchronization may be another mechanism by which parent psychopathology and/or stress may relate to different child responses to stress. Fourth, research also suggests that variation in coping processes and other responses to stress may be partially driven by genetic heritability (e.g., Dunn & Conley, 2015; Shimanoe et al., 2019), suggesting that these parent-level factors may be associated with child responses to stress through genetic transmission from parent to child. Finally, it is also possible that these parent-level factors may be related to child responses to stress through the level of attachment security in the parent-child relationship (i.e., attachment theory; Ainsworth & Bell, 1970; Bowlby, 1969). For a more comprehensive review of these potential mechanisms please refer to Appendix A.

COVID-19 Related Worries in Parents

In addition to parent psychopathology and parent stress, factors specifically related to the COVID-19 pandemic may also be important to examine in relation to child responses to stress. Drawing from research examining past natural disasters, children appear to be a population that is highly vulnerable to negative outcomes following this type of stressor (e.g., Garrett et al., 2007; Jaycox et al., 2010; Norris et al., 2002). Past research has also found that more negative responses to stress following a natural disaster tend to be associated with more negative mental health effects (e.g., Evans & Oehler-Stinnett, 2006; Jeney-Gammon et al., 1993; Powell & Thompson, 2016; Terranova et al., 2009), thus indicating a need to examine whether similar patterns might be found during/following the COVID-19 pandemic. Preliminary research on the impacts of COVID-19 point to troubling relations between this pandemic and negative psychological outcomes in children (e.g., Jiao et al., 2020; Liang et al., 2020; Racine et al., 2020; Rajkumar, 2020; Salari et al., 2020). Given that early evidence surrounding the COVID-19 pandemic appears to suggest similar trends to those found in research regarding previous natural disasters, research is needed to better understand how various aspects of the current pandemic, such as specific COVID-19 related worries about health, financial, and catastrophic concerns, may be related to child responses to stress.

Parental COVID-19 related worries about health, financial, and catastrophic concerns are important to consider when examining child responses to stress because these three domains appear to be particularly salient in the context of the pandemic (e.g., Gubler et al., 2020; Schmidt et al., 2021; Van der Vegt & Klienberg, 2020). For example, during the time of data collection, media coverage consistently publicized worrisome statistics about the spread of COVID-19, the number of overwhelmed hospitals throughout the country, and the number of deaths as a result of COVID-19 (e.g., Abelson, 2020; McMinn, 2020), likely leading to increased worries about the possible impacts of this virus on individuals' health and the health of their loved ones. Further, according to the United States Bureau of Labor Statistics (2020), in July of 2020, about 31 million people reported that they did not work at all or worked fewer hours in the last four weeks because of the COVID-19 pandemic, suggesting a high probability that the employment and income of many families throughout the United States had been adversely affected by the COVID-19 pandemic, likely adding a very important additional layer of stress to many families. Finally, because early research suggests troubling associations between increased worries, catastrophizing, and negative mental health outcomes for families (e.g., Achterberg et al., 2021; Gubler et al., 2020; Kämpfen et al., 2020; Li & Zhou, 2021), it is important to examine the extent to which these COVID-19 related worries, as reported by parents, may be associated with the responses to stress of children alone and in the presence of other relevant parent-level factors (i.e., parent psychopathology and parent stress).

Child-level Control Variables and Child Responses to Stress

In order to fully understand how parent psychopathology, parent stress, and parent-reported COVID-19 related worries might be uniquely associated with the ways in which a child responds to stress, it is crucial to control for important child characteristics that are known to be related to these responses. Two child-level variables that have been found to be associated with child responses to stress are internalizing and externalizing symptoms (e.g., Compas et al., 2017; Richardson et al., 2021). Because the extant literature provides consistent, albeit small to medium, relations between child responses to stress and internalizing/externalizing symptoms, I controlled for child Attentiondeficit/hyperactivity disorder (ADHD) symptoms as a proxy for child externalizing behaviors and child anxiety symptoms as a proxy for child internalizing behaviors in all models containing the aforementioned parent-level factors as independent variables. In doing so, the results will illustrate to what extent these parent-level factors might be uniquely associated with child responses to stress above and beyond that which may already be accounted for by these child behaviors.

The Current Study

The current study aimed to expand upon previous literature by examining the unique and joint contributions of parent depression, parent anxiety, parent stress, and three domains of subjective worry in response to COVID-19 (i.e., health, finances, catastrophizing) on child primary control coping (Aim 1), child secondary control coping (Aim 2), child disengagement coping (Aim 3), child involuntary engagement (Aim 4), and child involuntary disengagement (Aim 5) during the COVID-19 pandemic.

For Aim 1 and Aim 2, I hypothesized that negative associations would be found between each independent variable (i.e., parent psychopathology, stress, COVID-19 related worries) and child primary control coping as well as child secondary control coping. For Aim 3, I predicted that positive associations would be found between each independent variable and child disengagement coping; however, given the mixed evidence in the literature, this hypothesis was tentative. For Aim 4 and Aim 5, I hypothesized, albeit tentatively, that positive associations would be found between each independent variable and child involuntary engagement and child involuntary disengagement.

Finally, previous research on natural disasters and trauma responses in youth suggest that both general risk factors (e.g., parent distress/psychopathology) and specific

risk factors related to the trauma (e.g., perceived hurricane life threat, loss or disruption experiences) are all associated with trauma outcomes (e.g., Banks & Weems, 2014; Rowe et al., 2010; Spell et al., 2008). Given these findings, when examined jointly, I hypothesized that parent psychopathology, stress, and COVID-19 related worries will all be uniquely related to child responses to stress in the context of the COVID-19 pandemic.

Method

Participants

Archival data from the "Testing Uncertainty & Risk: An Exploratory Study" dataset (Schmidt et al., 2021) was used to assess the aims of the current study. This was a longitudinal study consisting of multiple waves of data collection using Amazon Mechanical Turk (MTurk). Subjects were eligible to participate if they were 18 years or older, lived in the United States, and had an approval rating of at least 95% with a minimum 100 surveys (i.e., Peer et al., 2014). In the current study, only data from a subset of participants who indicated that they were a parent of a child between the ages of 4-11 years was used. Further, because some demographic variables used as controls were only assessed at Wave 1, analyses were conducted on data from parent participants who completed the surveys at both Wave 1 and Wave 2.

A total of 953 participants resulted after merging the full data sets from the Wave 1 and Wave 2 timepoints. Three attention check items using both adversarial questioning (i.e., referring to alternative answers in the questions) and deliberate "typos" (e.g., selected) were included in each wave of the study because recent evidence suggests that conventional attention check items can be bypassed using "bot" responding. (e.g., Pei et al., 2020). Three hundred and sixty-five participants were then excluded for failing one or more attention check questions at either Wave 1 or Wave 2. An additional 220 participants were excluded for not being a parent of a child between the ages of 4-11 years. Finally, an additional 20 participants were removed for inconsistent responses across Wave 1 and Wave 2 (e.g., reported child between 7-11 years at Wave 1 and reported child between 4-6 years at Wave 2). Please refer to Figure 2 for a detailed

illustration of exclusion procedures.

Figure 2

Data Exclusion and Cleaning Procedures



The majority of participants from the final sample of 189 parents identified as female (63.0%), White (86.8%), and not Hispanic or Latino (93.1%). The mean age of parent participants was 37.41 years (SD = 6.41). For a detailed description of parent participant demographics, please refer to Table 1. As compared to the most recent

estimates of United States demographics as reported by the United States Census Bureau (2019), individuals identifying as Black or African American and individuals identifying as Hispanic or Latino appear to be underrepresented in the current sample. Additionally, individuals of a high Socioeconomic Status (i.e., higher education, higher income) appear to be overrepresented in the current sample. With respect to parent reported child demographics, there was an even split across child sex (50.8% male), the largest percentage of parents reported on a 4-year-old child (17.6%), and the smallest percentage of parents reported on a 8-year-old child (7.0%). For a detailed description of the breakdown of child participant age and sex, please refer to Table 2.

Table 1

Variable	M	SD
Age	37.41	6.41
	Ν	%
Sex at birth		
Male	69	36.5
Female	119	63.0
Prefer not to answer	1	0.5
Race ^a		
White or Caucasian	164	86.8
Black or African American	15	7.9
Asian	12	6.3
American Indian/Native American/Alaskan Native	4	2.1
Native Hawaiian or Other Pacific Islander	0	0.0
Other	0	0.0
Prefer not to answer	1	0.5
Ethnicity		
Hispanic or Latino	12	6.3
Not Hispanic or Latino	176	93.1
Prefer not to answer	1	0.5
Estimated Yearly Family Income		
\$10,000	4	2.1
\$15,000	3	1.6
\$20,000	8	4.2
\$25,000	2	1.1
\$30,000	10	5.3
\$31,000-40,000	13	6.9
\$41,000-50,000	48	25.4
\$51,000-75,000	12	6.3
\$76,000-100,000	8	4.2
\$101,000-125,000	40	21.2
\$126,000-150,000	17	9.0
\$151,000-175,000	9	4.8
>\$175,000	8	4.2
Prefer not to answer	7	3.7
Highest level of Education		
High school diploma or equivalent	14	7.4
Business/trade/technical school	5	2.6
Some college/two-year college degree	38	20.1
Four-year college degree	84	44.4
Graduate degree	48	25.4

Participant Demographics - Parents (N = 189)

Note. ^a Percentages do not sum to 100, as the racial categories were not mutually exclusive.

Table 2

33	
33	
	17.6
30	16.0
27	14.4
23	12.3
13	7.0
20	10.7
19	10.2
22	11.8
96	50.8
92	48.7
1	0.5
_	27 23 13 20 19 22 96 92 1

Participant Demographics - Children (N = 189)

Measures¹

Parent-level Factors

Psychopathology.

Generalized Anxiety Disorder-7. The Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006) was used to assess self-reported anxiety severity in parents. The GAD-7 is a brief, 7-item screening tool to assess generalized anxiety disorder symptoms (see Appendix B.1). Participants were asked to rate how often they've been bothered by each problem over the last two weeks on a scale from 0 (*Not at all*) to 3 (*Nearly every day*). If participants endorsed any symptom, a follow-up question assessing functional impairment on a scale from 0 (*Not difficult at all*) to 3 (*Extremely difficult*) was also

¹ Copies of all measures can be found in Appendices B.1-B.8.

asked. In typical practice, a total score for the GAD-7 is created by summing the scores of the seven items.

Total scores on the GAD-7 between 0-4 indicate minimal anxiety, scores between 5–9 indicate mild anxiety, scores between 10–14 indicate moderate anxiety, and scores between 15–21 indicate severe anxiety. A clinical cutoff score of 10 on the GAD-7 has been found to maximize sensitivity and specificity (Spitzer et al., 2006). The GAD-7 has been found to demonstrate good construct validity as evidenced by its association with measures of impairment, the Beck Anxiety Inventory, and the anxiety subscale of the Symptom Checklist-90 (Spitzer et al., 2006). In the current sample, the average total score on the GAD-7 was 1.95 as calculated using Robust Maximum Likelihood (MLR) estimation, suggesting that this sample reported minimal anxiety. Internal consistency was also found to be acceptable ($\omega = .91$). Because item-level missing data on the GAD-7 ranged from 13.2% to 15.3% missing, a latent variable for "Parent Anxiety" was estimated using these items for use in the primary analyses.

Inventory of Depression and Anxiety Symptoms. The Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007) was used to assess self-reported symptoms of depression in parents. The IDAS is a 64-item self-report measure that assesses how much an individual has felt or experienced various psychopathological symptoms over the last two weeks. The IDAS encompasses 11 domains of symptoms to capture the heterogenous and multidimensional nature of depressive symptoms. In addition to these 11 subscales, the IDAS also includes a broader "General Depression" domain that was used in the current analyses (see Appendix B.2). The 20-item General Depression subscale consists of 10 items from the dysphoria scale, and 2 items a piece from the suicidality, lassitude, insomnia, appetite loss, and well-being scales. Participants were asked to rate each item on a scale from 1 (*Not at all*) to 5 (*Extremely*), with higher total scores indicating a greater degree of symptom severity. The two items on the well-being scale were reverse scored.

The General Depression subscale has been shown to demonstrate good construct validity as evidenced by its strong associations (e.g., rs = .81-.83) with other measures of depression such as the Beck Depression Inventory – II (Watson et al., 2007; Watson et al., 2008). More recent evidence also suggests that the General Depression subscale demonstrates a strong ability to predict a Major Depressive Disorder diagnosis and that a clinical cutoff score of \geq 56 provides the best balance of sensitivity and specificity for screening purposes (Stasik-O'Brien et al., 2019). In the current sample, the average total score on the IDAS General Depression subscale was 38.80 as calculated using MLR estimation, suggesting that this sample's reported depressive scores did not meet the clinical cutoff. Internal consistency was found to be acceptable ($\omega = .95$). Because item-level missing data for the IDAS General Depression subscale ranged from 13.8% to 25.4% missing, a latent variable for "Parent Depression" was estimated using these items for use in the primary analyses.

Stress.

Perceived Stress Scale. The Perceived Stress Scale (PSS; Cohen & Williamson, 1988) was used to assess levels of perceived stress in parents. The PSS is a 10-item selfreport instrument that measures one's perceived stress over the last month (see Appendix B.3). Participants were asked to rate how often they felt or thought a certain way on a scale from 0 (*never*) to 4 (*very often*). The PSS is scored by reverse coding four positively worded items (i.e., items 4, 5, 7, & 8) and summing across all items. Higher scores indicate a higher level of perceived stress. Adequate convergent and divergent validity has also been supported for the PSS as evidenced by associations with the State-Trait Anxiety Inventory – Trait version and the Multidimensional Health Locus of Control scales (Roberti et al., 2006). In the current study, item-level missing data for the PSS ranged from 17.5% to 22.2% missing and thus, a latent variable for "Parent Stress" was estimated. Further, following preliminary analyses, item number 7 was removed from analyses due to a weak factor loading with the other items. Internal consistency was found to be acceptable after this removal ($\omega = .84$).

COVID-19 Related Worries. The COVID-19 Impact Battery (CIB) Worry Scale (Schmidt et al., 2021; see Appendix B.4) was used to assess participants' subjective worries associated with COVID-19 across three domains.

Health. The Health Worries subscale within the CIB Worry Scale (Schmidt et al., 2021) was used to assess participants' subjective health-related worries associated with COVID-19. The CIB Health Worries subscale consists of 4 items rated on a five-point scale from 0 (*Not at all*) to 4 (*Very Much*), and a total score was created by summing responses to each of the four items. The Health Worries subscale has demonstrated acceptable construct and convergent validity evidenced by positive associations with demographic questions related to COVID-19 fear, the negative affect scale within the Positive and Negative Affect schedule, and the Brief Penn State Worry Questionnaire (Schmidt et al., 2021). Discriminant validity has also been evidenced by a nonsignificant association with the Attentional Control Scale – Short form. Acceptable internal validity

has also been found using longitudinal measurement invariance. Internal consistency was found to be excellent (ω = .92) in the current sample.

Finances. The Financial Worries subscale within the CIB Worry Scale (Schmidt et al., 2021) was used to assess participants' subjective financial-related worries associated with COVID-19. The CIB Financial Worries subscale consists of 4 items rated on a five-point scale from 0 (*Not at all*) to 4 (*Very Much*), and a total score was created by summing responses to each of the four items. The Financial Worries subscale also demonstrated acceptable construct and convergent validity evidenced by positive associations with demographic questions related to COVID-19 economic fear, the negative affect scale within the Positive and Negative Affect schedule, and the Brief Penn State Worry Questionnaire (Schmidt et al., 2021). Discriminant validity has been evidenced by a nonsignificant association with the Attentional Control Scale – Short form. Acceptable internal validity has also been found using longitudinal measurement invariance. Internal consistency was found to be excellent (ω = .92) in the current sample.

Catastrophizing. The Catastrophizing Worries subscale within the CIB Worry Scale (Schmidt et al., 2021) was used to assess participants' subjective catastrophizing worries associated with COVID-19. The CIB Catastrophizing Worries subscale consists of 3 items rated on a five-point scale from 0 (*Not at all*) to 4 (*Very Much*), and a total score was created by summing responses to each of the four items. Acceptable construct and convergent validity has also been evidenced by positive associations with demographic questions related to COVID-19 fear and loneliness due to social isolation, the negative affect scale within the Positive and Negative Affect schedule, and the Brief Penn State Worry Questionnaire (Schmidt et al., 2021). Discriminant validity has been evidenced by a nonsignificant association with the Attentional Control Scale – Short form. Acceptable internal validity has also been found using longitudinal measurement invariance. Internal consistency was found to be good (ω = .89) in the current sample.

Child-level Factors

Psychopathology.

The Strengths and Weakness of ADHD-symptoms and Normal Behavior. An adapted version of the Strengths and Weakness of ADHD-symptoms and Normal Behavior (SWAN; Swanson et al., 2001) rating scale was used to assess symptoms of ADHD in the participants' children (see Appendix B.5). For the purposes of the current study, results from this measure were used to capture child externalizing symptoms. In the original SWAN, the items from the Swanson, Nolan, and Pelham (SNAP; Swanson, 1992; Swanson et al., 1983) rating scale were positively reworded to capture variation in the natural population that was being missed by the wording in the SNAP (e.g., "Often is forgetful in daily activities" vs "Remembers daily activities"). Further, in the original SWAN, scoring was extended to a 7-point scale anchored to average behavior to capture both strengths and weaknesses. In the adapted version of the SWAN used in the current study, the reworded items were maintained (i.e., items positively valenced), but a truncated 4-point scale was used for scoring. The adapted version of the SWAN is an 18item parent-report instrument that asks participants to rate how much each item describes their child over the past six months on a 4-point scale from Not at all to Very much. For each item given a response of "Not at all" or "Just a little", the item was scored as a 1. For each item given a response of "Quite a bit" or "Very much", the item was scored as a 0. Total scores were then summed and higher scores indicated more severe externalizing symptoms.

Evidence suggests adequate test-retest reliability, and convergent validity for the original 7-point SWAN as evidenced by associations with the Disruptive Behavior Rating Scale and the Hyperactivity/Inattention subscale of the Strengths and Difficulties Questionnaire (Arnett et al., 2013; Lakes et al., 2012). Discriminate validity has also been evidenced by small and nonsignificant correlations with the Emotional Symptoms subscale of the Strengths and Difficulties Questionnaire. Adequate predictive validity for no, general, and specific concern levels has also been found for the SNAP (e.g., Bussing et al., 2008). Parent and teacher ratings on the SNAP have also been found to accurately distinguish children with behavioral/emotional concerns from those without, and similar factor structures and distributions for the SNAP and adapted 4-point version of the SWAN have also been demonstrated (Swanson et al., 2012). Internal consistency was found to be excellent (ω = .90) in the current sample. Because the dependent variable in the current study accounts for child age in the scoring procedures of the measure, the authors age standardized participant SWAN scores to control for potentially important effects of child age. To accomplish this, total SWAN scores were regressed on child age and the standardized residuals were saved and used in the primary analyses.

The Spence Children's Anxiety Scales. The Spence Preschool Anxiety Scale (PAS; Spence et al., 2001) and the Spence Children's Anxiety Scale – Parent Version (SCAS-P; Nauta et al., 2004) were used to assess severity of anxiety symptoms in participants' children. The PAS is a 28-item parent-reported instrument that asks participants to choose a response that best describes their child on a scale from 0 (*Not*

true at all) to 4 (*Very often true*) and was used to assess anxiety symptoms in children aged 4-6 years (see Appendix B.6). The total anxiety score for the PAS has also demonstrated adequate construct and convergent validity as evidenced by moderate correlations with the Child Behavior Checklist (Spence et al., 2001). The SCAS-P is a 38-item parent-reported instrument that asks participants to choose a response that best describes their child on a scale from 0 (*Never*) to 3 (*Always*) (see Appendix B.7). The SCAS-P was used to assess anxiety symptoms in children aged 7-11 years. The total anxiety score on the SCAS-P has demonstrated good convergent validity as evidence by moderate correlations with the Child Behavior Checklist (Nauta et al., 2004). Discriminant analyses have also demonstrated that a high percentage of children can be correctly classified based on anxiety diagnoses using the SCAS-P.

Although the PAS and the SCAS-P both derive subscale scores, only the total anxiety score from each measure was used for the purposes of the current study. In the current sample, internal consistency was found to be excellent (ω = .96, .97), for the PAS and SCAS respectively. Using normative samples, the authors of the PAS and SCAS-P have calculated T-scores for these measures based on procedures outlined by Achenbach & Rescorla (2001). Child sex and age were considered in T-score calculations and a cut point T-score of 60 (i.e., 84th percentile) would suggest elevated child anxiety. In the current sample, the PAS/SCAS-P scores of 36 children were at or above the T-score cut point of 60 suggesting that about 19% of parents reported elevated anxiety levels in their children. Because the PAS and SCAS-P both capture the construct of anxiety but use slightly different items and scaling, total scores for the PAS and SCAS-P were first created by summing responses from each item, then an age standardized score for child

anxiety symptoms was created by regressing the total PAS score and total SCAS-P score on child age and the standardized residuals were saved. Finally, the saved residuals from the PAS and SCAS-P were merged into a single "Child Anxiety" variable to then be used in the primary analyses.

Child Responses to Stress

The Responses to Stress Questionnaire. The COVID-19 Version of the Responses to Stress Questionnaire (RSQ; Connor-Smith et al., 2000) was used to assess responses to stress in participants' children based on the Multidimensional Model of Responses to Stress framework. The RSQ is a 57-item parent-report instrument that asks parents to rate how much their child does/feels each thing described in each item on a scale from 1 (*Not at all*) to 4 (*A lot*) (see Appendix B.8). Prior to presenting the core 57 items, the RSQ primes parents by listing several potentially stressful aspects of COVID-19. Parents are asked to indicate how stressful each aspect has been for their child over the last six months on a scale from 1 (*Not at all*) to 4 (*Very*). Parents are asked to reference these answers when responding to the core 57 items of the RSQ. The RSQ yields five subscales that tap into the five factors (i.e., primary control coping, secondary control coping, disengagement coping, involuntary engagement, and involuntary disengagement) delineated in the Multidimensional Model of Responses to Stress (Compas et al., 2001; Connor-Smith et al., 2000).

Acceptable test-retest reliability and convergent validity has been demonstrated for the RSQ with significant correlations with the COPE and heart rate reactivity. Extensive support for the five-factor structure of the RSQ has also been demonstrated via confirmatory factor analyses in multiple independent samples across different age groups,

ethnicities, and presenting concerns (e.g., Benson et al., 2011; Connor-Smith et al., 2000; Compas et al., 2017; Valiente et al., 2009; Wadsworth, Rieckmann, et al., 2004; Xiao et al., 2010; Yao et al., 2010). Significant cross-informant correlations between youth selfreport and parent-report of child responses to stress have also been demonstrated (e.g., Compas et al., 2006; Compas et al., 2014; Connor-Smith et al., 2014). Further, although Compas and colleagues (2017) did find significant correlations between child coping and child internalizing and externalizing symptoms, these effects were small to medium in size (r = |.13 - .30|) indicating that child coping and child psychopathology are distinct constructs. In the current sample, internal consistency was found to be acceptable for primary control coping ($\omega = .77$), good for secondary control coping ($\omega = .82$), good for disengagement coping ($\omega = .80$), excellent for involuntary engagement ($\omega = .96$), and excellent for involuntary disengagement ($\omega = .94$). Consistent with previous research, because base rate differences exist in the endorsement of responses to stress, proportion scores for each factor were calculated as the total score for each subscale divided by the total score on the RSQ (Connor-Smith et al., 2000).

Procedure

All procedures were approved by the Institutional Review Board of Ohio University. In April of 2020, researchers posted two HITs (i.e., potential job postings) to Amazon Mturk to prompt the collection of Wave 1 data. HIT number one was only available to Amazon Mturk participants who indicated that they were a parent of a child between the ages of 4-11 years. HIT number two was available to all eligible participants. Once the Amazon Mturk participants clicked on the HIT, they were directed to a survey which was hosted on the Qualtrics platform. Informed consent was provided electronically, and participants then completed a battery of self-report questionnaires within the Qualtrics survey. For the purposes of the larger study, from which this archival data was taken, planned missingness was used across all waves of data collection based on recommendations by Rhemtulla and Little (2012). These procedures were used to increase the number of constructs assessed without increasing each participant's burden. Thus, all participants were randomly given approximately 80% of the items on the GAD-7, IDAS, and PSS. Participants recruited through HIT number one completed additional questionnaires specifically related to their child and were compensated \$5.50 for completing the Wave 1 survey. Participants recruited through HIT number two were compensated \$4.25 for completing the Wave 1 survey. The participants recruited through HIT number the ages of 4-11 years were given the opportunity to receive an additional \$1.25 for completing the additional questionnaires relating to their child.

Approximately three months after completing the Wave 1 survey (i.e., summer of 2020), researchers notified Wave 1 participants using the Workers feature available through turkprime.com. This notification was sent directly to the participants' Amazon Mturk worker's ID and informed them that the next wave of a longitudinal study that they previously participated in is available. Participants were then able to complete the Wave 2 survey, again through the Qualtrics platform. Like the Wave 1 compensation procedures, participants who completed the additional child-specific questionnaires in the Wave 2 survey were compensated \$5.50 for completing the survey and all other participants were compensated \$4.25 for completing the Wave 2 survey.

Data Analytic Approach

First, patterns of missing data and descriptive statistics for each of the variables considered in this study were examined and addressed using Robust Maximum Likelihood (MLR) in Mplus version 8.4. Due to the use of planned missingness in our design resulting in up to 20% missing data for the GAD-7, IDAS, and PSS, latent variables were created using the items in these measures to estimate parent anxiety, parent depression, and parent stress. To examine potential concerns related to multicollinearity, zero-order correlations were computed among each of the variables considered in this study and Variance Inflation Factor (VIF) values were calculated by hand for each independent variable using the equation $VIF_i = \frac{1}{1-R^2}$ where R² is the coefficient of determination of variable (\mathbf{x}_i) on each of the other independent variables (Alin, 2010).

To test each of the primary hypotheses, I then conducted five separate regression models in Mplus using MLR estimation to examine the unique and joint contributions of the independent variables on each of the five factors of the Multidimensional Model of Responses to Stress (i.e., primary control coping, secondary control coping, disengagement coping, involuntary engagement, involuntary disengagement). All independent variables in the models were allowed to covary. Several fit indices were used to assess overall model fit. A nonsignificant Yuan-Bentler scaled (Y-B) χ^2 indicates that the overall test of model fit is acceptable. A comparative fit index (CFI) greater than or equal to .95, square root mean residual (SRMR) below .08, and root mean square error of approximation (RMSEA) below .06 also indicate acceptable overall model fit (e.g., Hu & Bentler, 1999). Modification Indices greater than 10.0 were examined to guide potential modifications to improve model fit.

Results

Preliminary Analyses

Because data used in the current study came from the second wave of a larger longitudinal study, attrition analyses were conducted to examine potential differences in key variables between the participants used in the current sample and those that dropped out after the first wave of data collection. After initial data cleaning (i.e., only parent participants, only participants who completed all attention check questions), 159 participants were found to have dropped out after Wave 1. When compared to the 189 participants who comprised the sample used in the current study, demographic differences were found across parent sex, $X^2(1, N = 347) = 10.54$, p = .001, race, $X^2(5, N = 348) = 11.16$, p = .049, and ethnicity, $X^2(1, N = 343) = 19.28$, p <.001. Results revealed that those identifying as female, White only (as compared to Black/African American only), and Not Hispanic or Latino were more likely to be in the current study's sample.

When key parent-level variables were examined, participants who dropped after the first wave of data collection reported significantly higher scores on each factor of the CIB Worry Scale than did participants who were in the current sample, t(344) =4.33, p < .001, t(345) = 3.42, p < .001, and t(345) = 6.43, p < .001 (financial worries, health worries, catastrophizing worries respectively). Parents who dropped after the first wave also reported significantly higher scores on the PSS (Wald $\chi^2 = 9.92, p =$.002), IDAS (Wald $\chi^2 = 22.70, p < .001$), and GAD-7 (Wald $\chi^2 = 13.27, p < .001$). With respect to key child-level variables, results indicated that participants who dropped after the first wave of data collection reported significantly higher child anxiety scores on both
the PAS and the SCAS-P than did participants who were in the current sample, t(114) = 4.24, p < .001 and t(192) = 4.36, p < .001, respectively.

Each of the independent variables were then examined for approximation of normality before primary analyses were conducted. See Table 3 for descriptive statistics for all variables. The five manifest variables that were included as independent variables in the regression models (i.e., child externalizing symptoms, child anxiety, COVID-19 financial worries, COVID-19 health worries, COVID-19 catastrophizing worries) and the five dependent variables (i.e., primary control coping, secondary control coping, disengagement coping, involuntary engagement, involuntary disengagement) were examined for approximation of normality in SPSS version 28.0 using the skewness and kurtosis rules of thumb (skewness > 3 and kurtosis > 10 indicated non-normal distribution; Kline, 2015). Results did not suggest that any of these variables violated the assumption of normality. To examine approximation of normality in the three latent variables estimated in MPlus version 8.4 (i.e., parent depression, parent anxiety, parent stress), item level skewness and kurtosis were examined for non-missing values in SPSS version 28.0. Results of item-level examination indicated that two (i.e, two items assessing suicidality on the IDAS) out of the 37 items across these three measures exhibited skewness and/or kurtosis values above these rules of thumb. Given the small number of items that exhibited elevated skewness and/or kurtosis values and given that it is theoretically reasonable that the distribution of scores on these two items would not be normal, the decision was made to include these items in analyses. MLR estimation was used to account for potential violations of the assumption of normality in Mplus and transformations of the data were not conducted.

Table 3

Descriptive Statistics of Variables included in Regression Models

Variable	п	Possible Range	Possible Range Actual Range		SD	Skewness	Kurtosis	
Family Income ^a (% $\$41k - 50k$)	189			25.4%		259	177	
Parent Sex ^a (% <i>female</i>)	189			63%		.541	-1.73	
Child Sex ^a (% male)	189			50.8%		.032	-2.02	
Child Externalizing Symptoms (SWAN total score)	189	0-18	0-18	5.55	4.94	.773	431	
Child Anxiety Symptoms (4-6yr PAS total score) (7-11yr SCAS-P total score)	87 102	0-112 0-114	0-99 0-107	23.18 19.51	21.51 19.10	1.67 2.48	2.46 7.40	
IDAS General Depression ^b GAD-7 ^b PSS ^b	189 189 189			38.80 1.95 14.41	1.16 .244 .490			
CIB Financial Worries CIB Health Worries	187 189	0-16 0-16	0-16 0-16	4.92 5.91	4.76 5.02	.639 .512	814 959	
CIB Catastrophizing Worries	189	0-12	0-12	2.29	3.18	1.44	1.16	
Primary Control Coping	189	0-1	.140300	.208	.035	.194	527	
Secondary Control Coping	189	0-1	.129423	.278	.053	222	.014	
Disengagement Coping	189	0-1	.091235	.149	.025	.018	.050	
Involuntary Engagement	189	0-1	.142345	.206	.038	.962	1.21	
Involuntary Disengagement	189	0-1	.109229	.159	.030	.561	539	

Note. ^a For categorical variables, the mode is reported; ^b For latent variables, the mean structure and standard error are reported as calculated in Mplus using MLR estimation.

Bivariate correlations were then computed in Mplus using MLR estimation (Table 4). Because the majority of parent participants identified as female, parent sex was dichotomized such that females were compared against all other reported sexes. Because the majority of participants reported on their male child, child sex was dichotomized such that males were compared against all other reported sexes. The strongest correlation among two independent variables was found between CIB financial worries and CIB health worries (r = .80). Although no calculated VIF values for the independent variables were found to be at or above the threshold for concern (i.e., VIF \geq 10; Hair et al., 1995; Neter et al., 1989), a slightly elevated VIF value (4.69) was found for parent depression when all other independent variables were allowed to covary. Further, after running the full regression models with all independent variables included, suppression effects were observed. To correct for this multicollinearity concern, the regression models were respecified by removing parent depression. After recalculating VIF values and re-running the full regression models, slightly elevated values were still found for CIB financial worries (VIF = 3.36) and CIB health worries (VIF = 3.10) and suppression effects were still observed. Thus, the models were again respecified by removing CIB financial worries. VIF values were then recalculated and the full regression models were re-run. Suppression effects were still observed, so the models were re-specified once more by removing the independent variable that had the smallest zero-order correlations with the dependent variables. Thus, CIB health worries was removed from the analyses in order to reduce the negative effects of multicollinearity without reducing the overall predictive power of the models.

Table 4

Correlation Matrix among all Model Variables

	0														
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Parent sex ^a															
2. Family Income	.098														
3. Child sex ^b	075	.144*													
4. Child Externalizing	053	083	163*												
5. Child Anxiety	.024	069	035	.082											
6. Parent Depression	017	223***	151*	.129	.669***										
7. Parent Anxiety	030	088	133	.198*	.609***	.786***									
8. Parent Stress	005	134	176*	.098	.575***	.794**	.700***								
9. CIB Financial Worries	008	303***	145*	.072	.386***	.513***	.485***	.487***							
10. CIB Health Worries	096	244***	008	.011	.391***	.526***	.463***	.424***	.803***						
11. CIB Catastrophizing Worries	.157	208***	147*	.027	.466***	.537***	.431***	.545***	.436***	.356***					
12. Primary Control Coping	.039	.049	.123	133	340***	406***	373***	352***	209**	173*	374***				
13. Secondary Control Coping	011	.109	.067	245**	468***	479***	532***	492***	238**	155	449***	.300***			
14. Disengagement Coping	056	.003	093	.103	.073	.116	.098	.113	.001	065	.150*	526***	407***		
15. Involuntary Engagement	.001	087	047	.173*	.533***	.564***	.636***	.530***	.282***	.273***	.437***	477***	829***	.172**	
16. Involuntary Disengagement	.017	136*	123	.277***	.476***	.498***	.478***	.508***	.303***	.178*	.544***	640***	710***	.277***	.593***

Note. All correlations ran in MPlus using MLR estimation; ^a Parent Sex dichotomized (females vs all other); ^b Child Sex dichotomized (males vs all other); * p < .05, ** p < .01, *** p < .001

Following respecification of models to correct for multicollinearity, all models demonstrated poor model fit (i.e., significant χ^2 values, CFI < .77, SRMR > .09, RMSEA > .09). Examination of modification indices suggested the addition of six correlations among residuals across the GAD-7 and PSS. Five of these correlations were between similarly valenced (positively framed vs. negatively framed) items on each of these measures (PSS Item 4 and Item 5; PSS Item 4 and Item 8; PSS Item 5 and Item 8; PSS Item 6 and Item 10; GAD-7 Item 1 and Item 3). Given the plausibility of shared residual variance among these items, a decision was made allow the residuals between these items to be correlated in subsequent models, resulting in improved fit across models.

Primary Aims

Results of the unique associations found in the five primary regression models can be found in Table 5.

Table 5

Regression models I redicting Child Res	ponses to stress				
	Primary Control	Secondary Control	Disengagement	Involuntary	Involuntary
	Coping	Coping	Coping	Engagement	Disengagement
Variables	β	β	β	β	β
Covariates/ Child-level Factors					
Family Income	046	.018	.060	007	017
Parent Sex	.064	013	079	.013	004
Child Sex	.057	060	066	.068	.007
Child Externalizing Symptoms	073	177**	.088	.079	.217***
Child Anxiety Symptoms	116	135	013	.164	.164
Parent Psychopathology					
Parent Anxiety	169	234	032	.413**	.115
Parent Stress					
Perceived Stress	007	135	.055	.071	.106
COVID-19 Related Worries					
CIB Catastrophizing Worries Score	243**	206**	.150	.140*	.344***
R^2 of full model	.214***	.392***	.045	.463***	.436***

Regression Models Predicting Child Responses to Stress

Note. All reported results are "StdYX" standardized values with exception of parent and child sex which are "StdY" standardized values; * p <.05, ** p <.01, *** p <.001

Aim 1 (Primary Control Coping)

In the model predicting child primary control coping responses, the SRMR value (.060) indicated good model fit whereas other fit indices suggested model fit that was less than good (Y-B χ^2 = 330.12, df = 196, scaling correction factor = 1.25, *p* < .001; CFI = .90; RMSEA = .060). The full model explained a significant proportion of the variance in child primary control coping responses, *R*² = .214, *p* < .001. In the presence of each of the other independent variables, only COVID-19 catastrophizing worries (β = -.243, *p* = .004) was a significant unique predictor of child primary control coping.

Aim 2 (Secondary Control Coping)

In the model predicting child secondary control coping responses, the SRMR (.059) and RMSEA (.058) values indicated good model fit whereas other fit indices suggested model fit that was less than good (Y-B χ^2 = 321.45, df = 196, scaling correction factor = 1.21, *p* < .001; CFI = .91). The full model explained a significant proportion of the variance in child secondary control coping responses, *R*² = .392, *p* < .001. In the presence of each of the other independent variables, child externalizing symptoms (β = - .177, *p* = .003), and COVID-19 catastrophizing worries (β = -.206, *p* = .001) were each significant unique predictors of child secondary control coping.

Aim 3 (Disengagement Coping)

In the model predicting child disengagement coping responses, the SRMR value (.060) indicated good model fit whereas other fit indices suggested model fit that was less than good (Y-B χ^2 = 331.02, df = 196, scaling correction factor = 1.20, *p* < .001; CFI = .90; RMSEA = .060). The full model did not explain a significant proportion of the variance in child disengagement coping responses, R^2 = .045, *p* = .134 and in the presence

of each of the other independent variables, nothing was a significant unique predictor of child disengagement coping.

Aim 4 (Involuntary Engagement)

In the model predicting child involuntary engagement responses, the SRMR value (.059) indicated good model fit whereas other fit indices suggested model fit that was less than good (Y-B χ^2 = 330.95, df = 196, scaling correction factor = 1.22, *p* < .001; CFI = .91; RMSEA = .060). The full model explained a significant proportion of the variance in child involuntary engagement responses, *R*² = .463, *p* < .001. In the presence of each of the other independent variables, parent anxiety (β = .413, *p* = .005), and COVID-19 catastrophizing worries (β = .140, *p* = .029) were each significant unique predictors of child involuntary engagement.

Aim 5 (Involuntary Disengagement)

In the model predicting child involuntary disengagement responses, the SRMR value (.060) indicated good model fit whereas other fit indices suggested model fit that was less than good (Y-B χ^2 = 328.00, df = 196, scaling correction factor = 1.22, *p* < .001; CFI = .91; RMSEA = .060). The full model explained a significant proportion of the variance in child involuntary engagement responses, R^2 = .436, *p* < .001. In the presence of each of the other independent variables, child externalizing symptoms (β = .217, *p* < .001), and COVID-19 catastrophizing worries (β = .344, *p* < .001) were each significant unique predictors of child involuntary disengagement.

Discussion

The ability to adaptively respond to stress is an important component of a child's development. Previous research has found associations between various child responses to stress and the potential for negative outcomes such as psychopathology (e.g., Compas et al., 2017). However, less research has examined the potential differential relations between various environmental factors and child responses to stress to begin to better understand individual differences in child responses to stress. In the current study, we examined the differential relations between parent-level factors (i.e., parent psychopathology, parent stress, and COVID-19-related worries) and child coping and other responses to stress.

Primary Aims

In general, the overall patterns of results were consistent with hypotheses. For Aims 1 and 2, negative relations were found between some independent variables and child primary control coping and child secondary control coping. Although not every independent variable was significantly related to these child coping responses, the results are consistent with previous literature that suggests that primary control coping and secondary control coping may generally be considered more adaptive responses to stress (e.g., Compas et al., 2017; Langrock et al., 2002; Santiago et al., 2012). Conversely, for Aims 4 and 5, positive relations were found between some independent variables and child involuntary engagement and child involuntary disengagement suggesting that these responses may generally be considered more maladaptive. Hypotheses for Aim 3 were not supported as no independent variables were found to be significantly related to child disengagement coping when zero-order correlations were examined or when regressions were examined. See below for potential interpretations of these null findings.

Aim 1 (Primary Control Coping)

In the model predicting child primary control coping (e.g., problem solving, emotional expression under one's control), approximately 21% of the variance in child primary control coping was accounted for by all of the independent variables in the model suggesting that a remaining 79% of the variance was still unexplained. Thus, future research is needed to understand what other factors may be important contributors to the use of this child coping response. In the context of the COVID-19 pandemic, perhaps there are other more specific factors related to the pandemic (e.g., child's ability to socialize with peers, child's school situation, parental behaviors regarding COVID-19 guidelines) that were not examined in the current study but may still be important to consider in relation to this specific coping factor.

When unique associations were examined, COVID-19 catastrophizing worries was the only independent variable that was significantly uniquely associated with child primary control coping (β = -.24). Contrary to findings in the extant literature (e.g., Compas et al., 2017) child-level factors such as externalizing symptoms or internalizing symptoms were not found to be related to child primary control coping when the other independent variables were also in the model. One likely reason for this discrepancy is the context of the time of data collection. During this time of heightened stress related to the COVID-19 pandemic, it is possible that many parents were so preoccupied with the specific aspects of the pandemic that other more general parent-level and child-level negative thoughts, emotions, and behaviors were less salient and thus, not related to child primary control coping when more specific factors such as COVID-19 related worries were also accounted for.

Aim 2 (Secondary Control Coping)

When unique associations were examined in the model predicting child secondary control coping responses (e.g., cognitive restructuring, acceptance under one's control), child externalizing symptoms (β = -.18) and COVID-19 catastrophizing worries (β = -.21) were each uniquely associated such that increased levels of these independent variables was associated with decreased levels of child secondary control coping. Compared to the pattern of results found for child primary control coping responses, in addition to COVID-19 catastrophizing worries, child externalizing symptoms was also found to be an important factor to consider in relation to this child response. It is possible that this additional variable was found to be uniquely associated with child secondary control responses because this type of response was reported at a higher frequency as compared to the other child responses to stress in the current sample. It is also possible that this coping response may be difficult for parents to observe behaviorally, suggesting that other child-level factors (e.g., ADHD behaviors) may be influencing their perception of their child's secondary control coping responses.

These findings align with previous research that suggests that secondary control coping may be especially valuable in the context of uncontrollable stressors because they center on *adapting* to the stressor/response rather than *altering* the stressor/response (e.g., Thomsen et al., 2002; Wadsworth & Compas, 2002). Given that previous research suggests that secondary control coping may be especially beneficial in response to uncontrollable stressors and that the current results suggest that children with greater

externalizing behaviors and parents with COVID-19 catastrophizing worries are associated with children who are less likely to engage in this adaptive response, future research is needed to determine if the improvement of child externalizing behaviors and parent catastrophizing worries may in turn improve child secondary control coping. In other words, taken together, the results suggest that improving child externalizing behavior and improving parent catastrophizing worries may potentially impact the use of this critical child response to stress thus leading to more positive child adjustment. Future longitudinal research is needed to parse out the causal mechanisms linking these important constructs in order to understand how to best support children and families in their use of this beneficial response to stress.

With respect to child externalizing symptoms, because this data is cross-sectional in nature and the direction of effects cannot be determined, these results might suggest that children who were responding to the COVID-19 pandemic by using secondary control coping responses were more protected against externalizing behavior problems during this time. It might also suggest that higher externalizing symptoms might have interfered with a child's ability to engage in secondary control coping strategies or might have interfered with how parents perceived this coping response in their children. Thus, it is possible that the differential relations found between child externalizing symptoms and child primary control coping and child externalizing symptoms and child secondary control coping were due to the fact that the COVID-19 pandemic is a stressor out of one's control and thus, secondary control coping may be a more favorable response than primary control coping.

Aim 3 (Disengagement Coping)

In the model predicting child disengagement coping responses, the full model did not account for a significant amount of variance in child disengagement coping and no independent variable was found to be significantly related to this coping response. One potential explanation for this finding is that the factors included as independent variables in this model were just not important to the use of this child coping response. Although these findings do contradict previous findings that point to significant, albeit small, positive associations between child psychopathology and child disengagement coping (Compas et al., 2017), it is likely that this difference is due to the context of the stressor (i.e., the COVID-19 pandemic) used in the current study.

Because disengagement coping includes strategies such as denial and avoidance, it is possible that elements of the pandemic that were not assessed in the current study may have directly impacted child use of disengagement coping responses or parent reports of this coping response thus confounding the current findings. For example, it is possible that parent behavior related to the COVID-19 pandemic may have been especially important to consider with respect to this coping response. During the summer of 2020, many families in the United States had just experienced months of school closures, employment and financial instability, and nonstop exposure to troubling media representations of the COVID-19 pandemic. For parents who were feeling particularly fatigued by the pandemic, it is possible that these parents were modeling behaviors that more closely aligned with strategies captured under disengagement coping (i.e., denial and avoidance) thus potentially impacting their child's use of this response. Conversely, for parents who were engaging more frequently with information related to the pandemic, it is possible that the modeled behavior of these parents, and their interactive behaviors with their children, inhibited their children's use of these more avoidant strategies captured under disengagement coping. Descriptively, the results also suggested that the overall mean of reported child disengagement coping responses was comparatively lower than that of the other child responses to stress in this sample, thus potentially leading to restricted findings for this model. Additional research is needed to understand if factors more specific to the COVID-19 pandemic such as parental feelings, beliefs, and/or behaviors may be more important predictors of child disengagement coping in the context of the COVID-19 pandemic.

Aim 4 (Involuntary Engagement)

In the model predicting child involuntary engagement responses (e.g., physiological arousal, intrusive thoughts, rumination out of one's control), the full model accounted for approximately 46% of the variance in this response. It is possible that the combination of independent variables used across all models accounted for the greatest percentage of variance in this child response to stress as compared to the other four models because this type of response may be the most influenced by biological/physiological predispositions captured within many of the parent-level independent variables. Because involuntary engagement responses to stress have been found to be related to physiological measures of reactivity (e.g., heart rate reactivity; Connor-Smith et al., 2002) and because physiological stress responses have been found to transmit from parent to child (Waters et al., 2020), it is possible that the significant findings in this model may be the result of a physiological reactivity transmission from parent to child. Stated differently, because the only significant unique associations found in this model were between parent anxiety ($\beta = .41$) and COVID-19 catastrophizing worries ($\beta = .14$), these associations may have resulted from the accompanying physiological reactivity experienced by parents that was then transmitted to their child. Future research that takes a multi-method approach to investigate these parent-level and child-level constructs as well as parent-level and child-level physiological responses is needed to better understand the mechanisms underlying the strong associations found in this model.

Aim 5 (Involuntary Disengagement)

When unique associations were examined in the model predicting child involuntary disengagement responses (e.g., escape, inaction, cognitive interference out of one's control), child externalizing symptoms ($\beta = .22$), and COVID-19 catastrophizing worries ($\beta = .34$) were each uniquely associated such that increased levels of these independent variables was associated with increased levels of child involuntary disengagement. It is possible that the significant association found between child externalizing symptoms and child involuntary disengagement may have resulted from similarities across some ADHD signs and symptoms (i.e., externalizing symptoms) and involuntary disengagement strategies. Stated differently, it is possible that parents may have conflated signs of child inattention with examples of cognitive interference (e.g., "When stressed...mind goes blank...hard to concentrate") and/or inaction (e.g., "When stressed...can't get around to doing things supposed to") and signs of impulsivity with examples of escape (e.g., "When stressed, have to get away"). Although the measure of responses to stress used in the current study has been well-validated, future research is needed to understand the extent to which item-wording overlap may influence

associations between child responses to stress (involuntary responses in particular) and other child-level behaviors. If possible, future research examining these constructs should use multiple informants and/or multi-method approaches for assessment to correct for these concerns.

Taken as a whole, differential relations were found among the independent variables included in each model and each child response to stress. These differential relations are significant because few previous studies have investigated both child coping and child involuntary responses to stress, yet the current results indicate that they are both important to consider when attempting to fully understand this construct. Because involuntary responses to stress have the ability to promote or constrain one's ability to engage in more adaptive voluntary coping responses, researchers should endeavor to include them in future studies investigating child coping in order to capture a more comprehensive picture of the responses to stress utilized by children. Further, because positive associations were found between some independent variables included in the current study and child involuntary engagement and involuntary disengagement, this might suggest that children engaging in more involuntary stress responses could be at an increased risk for negative outcomes such as emotional and behavioral problems.

Interestingly, COVID-19 catastrophizing worries was uniquely associated four out of five child responses to stress. Because data was collected during the summer of 2020, during a time of heightened stress, worry, and fatigue related to the COVID-19 pandemic, this pattern of findings suggests that many parents may have been extremely preoccupied with worries related to potential negative outcomes of the pandemic which may have subsequently influenced how their children were responding to the stress of the pandemic. It is plausible that parents who reported increased COVID-19 catastrophizing worries may have been modelling patterns of responses to stress that parallel this type of thinking (e.g., involuntary engagement), thus influencing the responses utilized by their children as posited by social learning theory. This finding has important implications for our understanding of the potential long-term effects of the COVID-19 pandemic on children and families. If the COVID-19 related worries of parents are causally impacting the pattern of responses to stress utilized by children such that increased COVID-19 related worries in parents are related to more maladaptive child responses (e.g., involuntary disengagement and involuntary engagement) and less adaptive child responses (e.g., primary control and secondary control coping), the results point to the potential for a very concerning long-term impact. Because this data suggests that the COVID-19 related worries of parents may impact their children's risk for developing maladapting patterns of responses to stress and subsequent mental health concerns, future research should investigate these patterns over time to better understand how these parental worries may impact child development during/following the COVID-19 pandemic.

However, because the direction of effects cannot be parsed apart in the current findings, it is also plausible that this pattern of findings suggests that parents' levels of COVID-19 catastrophizing worries may have been influenced by the responses to stress they were observing in their children. In other words, perhaps parents of children who were utilizing more maladaptive responses to stress were engaging in more catastrophic thinking about the pandemic because they were more concerned about how their children were responding to this stressor as compared to parents of children who were utilizing more adaptive responses to stress. Additional longitudinal research is needed to determine the direction of these results and the potential mechanisms in action.

Contrary to findings in the extant literature (e.g., Compas et al., 2017; Moreland et al., 2016; Santiago et al., 2012) no unique associations were found between child anxiety or parent stress and any child response to stress. Although many factors likely contributed to these nonsignificant findings, because child anxiety and parent stress were both found to be individually associated with most child responses to stress when zeroorder correlations were examined, the current results suggest that these factors may not be as related to child responses to stress when other factors are also considered. In models that also contained other independent variables such as child externalizing behaviors and COVID-19 related worries, results indicated that the broader latent factor of general parent stress and the internalizing symptoms of child anxiety were comparatively less important to the understanding of child responses to stress. Further, this pattern of findings underscores the importance of considering the context of the stressor when investigating responses to stress. It is likely that the patterns of responses to stress utilized by children differs depending on the stressor (e.g., financial stress, family conflict, COVID-19 pandemic). Consequently, it is also likely that the environmental factors that contribute to engaging in said responses might also differ depending on the context of the stressor, thus contributing to the significant associations found for COVID-19 catastrophizing worries and the nonsignificant associations found for parent stress.

Finally, because parent depression, COVID-19 financial worries, and COVID-19 health worries were removed from the regression models to correct for concerns related to multicollinearity, we could not investigate how the inclusion of these variables may

have impacted the patterns of results. Given previous research that suggest that parent depression tends to be related to child responses to stress (e.g., Langrock et al., 2002), additional research is needed to understand how these important variables may be differentially associated with child responses to stress in the context of the pandemic while also accounting for these other important variables (i.e., child externalizing symptoms, parent anxiety, COVID-19 catastrophizing concerns).

Limitations

Although the current findings provide a valuable addition to the extant literature on child responses to stress, there are a few limitations that must be considered: 1) the cross-sectional nature of data collection 2) the shared method variance resulting from the single parent informant and 3) characteristics of an online Amazon MTurk sample pulled from the second wave of a longitudinal study.

Because the data used in the current study was primarily collected at one time point, causal conclusions cannot be drawn. As was previously discussed, the significant associations found across the regression models could be bi-directional. Given the methodology of the current study, it is unclear whether the findings indicate that specific child-level, parent-level, and/or COVID-19 related worries differentially influence child responses to stress or whether specific child responses to stress differentially impact the aforementioned factors. Additional studies are needed to disentangle these relationships to understand the potential mechanisms in action. These findings could then be used to inform important lines of future prevention/intervention research to benefit children and families who may be at an increased risk for negative outcomes following the COVID-19 pandemic. It is also possible that some of the significant findings in the current study could be attributed to shared method variance and/or potential biases in parental reports of child level factors because a single parent informant was used to report on all parent-level and child-level factors. It is possible that parents may not have accurately reported some child responses to stress (e.g., secondary control coping, involuntary engagement/disengagement), as these may be less easily observed. It is also possible that the reports of parents with increased symptoms of stress/psychopathology may have been biased as a function of their symptoms (e.g., De Los Reyes & Kazdin, 2005; Ringoot et al., 2015). Although this is a significant limitation of the current study, some key

previous findings suggest that the current results are still valid and meaningful.

First, in a meta-analysis examining coping, emotion regulation, and psychopathology in children and adolescents, Compas and colleagues (2017) investigated whether informant type moderated the associations between coping factors and child internalizing and externalizing symptoms across numerous cross-sectional studies and found no significant moderator effects. In this same meta-analysis, although Compas and colleagues (2017) did find significant correlations between child coping and child internalizing and externalizing symptoms, these effects were small to medium in size (r =|.13-.30|) indicating that child coping and child psychopathology do appear to be distinct constructs, even as reported by a single informant. Of note, only voluntary coping responses were examined in this meta-analysis and thus, it is possible that informant type may be a more substantial methodological consideration when examining involuntary child responses to stress. Related, it is also possible that the manifestations of strategies included in each of these factors may look similar to parent informants. For example, strategies such as denial or avoidance (i.e., captured within disengagement coping) may be very comparable to strategies such as escape or inaction (i.e., captured within involuntary disengagement) from a parent's perspective. Although previous research has confirmed this five-factor structure in samples of parent informants (e.g., Connor-Smith et al., 2000) suggesting that these factors are distinct types of responses to stress that can be perceived by parents, given the medium to large correlations among the five factors of child responses to stress in the current sample, it is possible that overlap in the perceptions of these responses to stress may have impacted these results.

Second, four previous studies using the RSQ have demonstrated significant crossinformant correlations between youth self-report and parent-report of child responses to stress, suggesting that parents can be reliable reporters of child coping and responses to stress (Compas et al., 2006; Compas et al., 2014; Connor-Smith et al., 2000; Jaser et al., 2005). Of note, despite finding adequate convergent validity coefficients when comparing adolescent reports to parent reports on the RSQ, Jaser and colleagues (2005) did find that on average, parents in this sample reported higher levels of adolescent involuntary engagement responses and lower levels of secondary control coping responses than their child's reports. Because the sample investigated in this study consisted of parents with depression, it is possible that discrepancies in these reports may have been a function of parental depressive symptoms. The fact that parental psychopathology symptoms may have biased parental reports of child-level factors in the current study cannot be discounted.

Additionally, because previous research does suggest that increased levels of parental psychopathology and or stress may bias ratings of child-level factors (e.g., De

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Los Reyes & Kazdin, 2005; Ringoot et al., 2015), it is possible that associations found in the current study may have been conflated. However, experimental findings by Waters and colleagues (2020) provide evidence for the direct impact of parents on their children, thus providing credence to the associations resulting from the current findings. Stated differently, although it is possible that the associations found in the current study may have resulted from biases in the reports of parents with increased levels of depression, anxiety, and or stress, the experimental findings by Waters et al. (2020) provide evidence to suggest that parents can directly influence the physiological stress responses of their children. This study provides evidence to support the current findings by empirically demonstrating that a child can be directly impacted by the stress of a parent even if the child is not directly exposed to that stress themselves. Thus, the associations between parent-level factors and child responses to stress found in the current study may be genuine relationships as opposed to erroneous relationships that may have resulted from bias or shared method variance. Although taken together, these findings suggest that the current results are still meaningful despite the fact that all measures were reported by the parent, future research using a multi-method approach is warranted.

It is also important to acknowledge the limitations associated with an online sample of Amazon MTurk participants drawn from the second wave of a longitudinal study. A few common concerns associated with the use of an MTurk sample include inattention and insufficient effort in answering survey questions, self-selection bias, selfmisrepresentation, vulnerability to web robots ("bots"), and high attrition (Aguinas et al., 2020). Although these limitations should be carefully considered when interpreting the results of the current study, methodological decisions were made to address many of these concerns including the use of a data collection platform that engages in practices to profile and qualify consistent MTurk workers (Chandler et al., 2019), the use of planned missingness (Rhemtulla & Little, 2012), the use of high-quality attention check questions (Pei et al., 2020), and manual inspection and cleaning of inconsistent responses across time points. Regarding high attrition and differential drop-out patterns seen from Wave 1 to Wave 2 in the current study, it is also important to acknowledge that the sample used in the current study may represent a higher functioning group of participants as compared to those who did not complete Wave 2 (i.e., lower levels of reported stress/psychopathology). Thus, it is possible that the results may have differed in a more representative sample. Additional research is needed to better understand and address the limitations associated with online data collection in order to balance the feasibility of longitudinal research with the quality of collected data.

Finally, it is important to acknowledge that several fit indices indicated that the models tested in the study did not provide good fit to the data. As such, results should be interpreted with caution. However, it should be noted that the majority of fit indices were very close to values that are considered to reflect good fit to the data. Further, the general pattern of results did not change substantially when modifications were made to the models to improve fit. Thus, it is unlikely that incremental improvements to model fit would impact the findings of the study.

Conclusion

The factors that contribute to child responses to stress in the context of the COVID-19 pandemic differ depending on the type of response that is being examined. The current study found that when all independent variables were examined jointly,

COVID-19 catastrophizing worries was the only factor that was uniquely related to four out of five child responses to stress. Child externalizing symptoms was found to be uniquely related to secondary control coping and involuntary disengagement. Parent anxiety was also found to be uniquely related to involuntary engagement. Overall, in the context of the COVID-19 pandemic, the patterns suggest that child primary control and secondary control coping may be more adaptive responses to stress as compared to involuntary engagement and involuntary disengagement.

The current findings add to the extant literature in four main ways. First, the current study extends previous literature that has examined associations between parent psychopathology and child coping/responses to stress by extending the somewhat mixed and limited findings on parent anxiety. The current study provides additional evidence to suggest that parent anxiety may be an important construct to examine in relation to child responses to stress and in particular, child involuntary engagement. Second, the current study adds to the dearth of evidence on child involuntary responses to stress by providing findings that indicate that these types of responses do seem to be related to various childlevel and parent-level constructs, thus suggesting that they are important to examine alongside voluntary coping responses. Third, the current study takes an ecological systems perspective to extend previous findings by examining the joint associations between various factors at the environmental level and five child responses to stress to better understand the relative contributions of each of these factors in the context of one another. Fourth, the current study adds to the extant literature on the impact of the COVID-19 pandemic on families. Because the results indicate that some specific COVID-19 related worries experienced by parents seem to be related to many child

responses to stress, the current findings point to important implications for the development of child adaptive processes and risk/resilience following the pandemic. Overall, the current findings point to an important need for future research to examine the potential mechanisms driving these differential associations so they can continue to inform our understanding of how different child responses to stress may contribute to risk and resilience.

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Appendix A: Potential Mechanisms of Impact (expanded)

Although it is beyond the scope of the current study to examine the potential mechanisms by which parent psychopathology and/or parent stress relates to child responses to stress, reviewing the possible mechanisms provides important rationale for the current study's hypotheses. Four potential mechanisms by which these parent-level factors may relate to child responses to stress are 1) parental modeling (i.e., social learning theory) 2) parental behavior 3) biological/physiological transmissions from parent to child and 4) parent-child attachment (i.e., attachment theory).

Indirect theoretical support for the possible mechanism by which parent psychopathology and parent stress relates to child responses to stress comes from social learning theory. According to social learning theory, children learn behavior by observing and imitating the behavior of others (Bandura, 1977). Consistent with this modeling process, it is plausible that parent psychopathology and parent stress may be associated with child responses to stress through the ways in which the parent responds to and expresses stress themselves (e.g., Kliewer et al., 1996; Kliewer et al., 2006; Santiago et al., 2021). When reviewed alongside findings that suggest that individuals with psychopathology tend to utilize less effective coping strategies (e.g., Buckley &Woodruff-Borden, 2006; Garnefski et al., 2002), it is plausible that the children of parents experiencing psychopathology may utilize less adaptive responses to stress as a result of their parents modeling less adaptive responses to stress.

Another potential mechanism by which parent psychopathology and/or parent stress may be associated with child responses to stress is through parent behavior. Stated differently, it is plausible that increased symptoms of parent anxiety/depression or parent

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stress may influence parent behavior, thus impacting the ways in which parents interact with their children and the subsequent development of their children's responses to stress. Previous research has found that parental psychopathology and stress are both associated with more negative parenting behaviors such as hostility, criticism, and disengagement (e.g., Lovejoy et al., 2000; Sahithya et al., 2020; Wilson & Durbin, 2010; Williams et al., 2012; Woodruff-Borden et al., 2002) and that more negative parenting (e.g., harsh/intrusive) appears to be related to less adaptive child coping strategies (e.g., secondary control coping; Henry et al., 2018; Langrock et al., 2002). Thus, it is plausible that parents with increased levels of psychopathology and/or stress may interact with their children in more negative ways, thus leading to the utilization of more maladaptive child responses to stress and/or less adaptive child responses to stress.

Physiological transmissions from parent to child may be an additional potential mechanism by which parent psychopathology and/or parent stress may be associated with child responses to stress. Budding research suggests that parents can influence their child's affective states through the synchronization of physiological responses from parent to child (Li et al., 2020; Lunkenheimer et al., 2021; Waters et al., 2014; 2020; Woody et al., 2016). Physiological synchronization refers to reciprocal coordinated physiological activity between partners during social interaction (Feldman et al., 2011). Research suggests that parent-child physiological synchrony begins during infancy and can then facilitate co-regulation, parent-child attachment, social bonding, and child emotion regulation (Feldman, 2007). Further, because previous research has found that the physiological stress responses of parents can be transmitted to their children (Waters et al., 2020) and that this synchronization can be disrupted by parental psychopathology

(Woody et al., 2016), it is possible that parental psychopathology and/or stress may impact parental physiological stress responses which in turn impacts the physiological stress responses experienced by their children thus impacting the responses to stress these children engage in.

Parent psychopathology and parent stress may also be associated with child responses to stress through genetic heritability. Although there is currently a dearth of research on genetic associations with responses to stress, recent studies point to support for the role of genetic variation in coping differences (Dunn & Conley, 2015; Shimanoe et al., 2019). Dunn and Conley (2015) conducted a systematic review to examine candidate gene studies investigating variation in the coping phenotype and found support for a nonadditive genetic component to coping. Shimanoe et al. (2019) conducted the first large genome-wide association study on coping behaviors in adults and found a significant genetic contribution for the domains of emotional expression and disengagement. They also found evidence to suggest that single nucleotide polymorphisms (SNPs) in specific genes (e.g., FBXO45) might also play an important role in coping behaviors displayed in response to stress. Further, given that research also suggests that psychopathologies such as depression and anxiety have moderate heritability (e.g., Meir & Deckert, 2019; Mullins & Lewis, 2017), it is plausible that these parent-level factors may be associated with child responses to stress through genetic variabilities.

Finally, parent-child attachment may be another potential mechanism by which parent psychopathology and/or parent stress is associated with child responses to stress. According to Attachment Theory (Bowlby, 1969), infants form an emotional attachment to their caregiver based on the responsivity and sensitivity of that caregiver. In general, a more securely attached parent-child relationship has been found to predict more adaptive child social-emotional adjustment and more effective child coping and emotion regulation abilities (e.g., Cooke et al., 2019; McElwain et al., 2014; Zimmer-Gembeck et al., 2015). Conversely, more avoidantly or ambivalently attached parent-child relationships have been found to predict more maladaptive child adjustment and less effective child coping and emotion regulation abilities. Further, research also suggests that parental depression and stress appear to be related to a less secure parent-child attachment (e.g., Coyl et al., 2002; Radke-Yarrow et al., 1985; Teti et al., 1995) thus suggesting that parental psychopathology and/or stress could impact the security of the parent-child attachment consequently influencing the child's responses to stress and their ability to adaptive respond to stress.

Taken together, these potential mechanisms highlight important rationale for the current study. Although it is beyond the scope of the current study to test these mechanisms, the present findings will add considerably to the literature by providing preliminary evidence that can then inform future work. By first understanding *what* factors are associated with child responses to stress, future work can then examine exactly *how* these factors may be associated, thus informing future prevention/intervention work for children and families at risk of negative outcomes following the COVID-19 pandemic.

Appendices B.1-B.8: Copies of Measures

Appendix B.1: Generalized Anxiety Disorder- 7 (GAD-7)

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all

Somewhat difficult

Very difficult

Extremely difficult

Appendix B.2: The Inventory of Depression and Anxiety Symptoms (IDAS):

General Depression Subscale

Select the option that best describes <u>how much</u> you have felt or experienced things this way <u>during the past two weeks, including today</u>.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
I felt depressed	0	1	2	3	4
I felt inadequate	0	1	2	3	4
I felt fidgety, restless	0	1	2	3	4
I blamed myself for things	0	1	2	3	4
I felt discouraged about things	0	1	2	3	4
I had little interest in my usual hobbies or activities	0	1	2	3	4
I had trouble concentrating	0	1	2	3	4
I had trouble making up my mind	0	1	2	3	4
I talked more slowly than usual	0	1	2	3	4
I found myself worrying all the time	0	1	2	3	4
I had thoughts of suicide	0	1	2	3	4
I slept very poorly	0	1	2	3	4
I had trouble falling asleep	0	1	2	3	4
I thought about hurting myself	0	1	2	3	4
I did not have much of an appetite	0	1	2	3	4
I felt like eating less than usual	0	1	2	3	4
I looked forward to things with enjoyment	0	1	2	3	4
I felt like I had a lot of energy	0	1	2	3	4
I felt exhausted	0	1	2	3	4
It took a lot of effort for me to get going	0	1	2	3	4

Appendix B.3: Perceived Stress Scale (PSS)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
In the last month, how often have you felt that things were going your way	0	1	2	3	4
In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Appendix B.4: COVID-19 Impact Battery (CIB) Worry Scale

Instructions: During this time of heightened vigilance of COVID-19, some individuals may experience worry at greater levels than others. Please read through the following items and rate how distressing each item has been to you.

Health Worries Subscale	Not at all	Very little	Some	Much	Very much
I worry that I will get sick and be unable to take care of my family	0	1	2	3	4
I worry that I am not going to get the medical attention I need	0	1	2	3	4
I worry that my family members will not receive adequate help during this time	0	1	2	3	4
I worry that I am going to contract COVID- 19	0	1	2	3	4
Financial Worries Subscale	Not at all	Very little	Some	Much	Very much
I worry I will be unable to provide for my family during this time of COVID-19	0	1	2	3	4
I worry that I will lose my employment	0	1	2	3	4
I worry that my family will not have enough food	0	1	2	3	4
I worry that I will not have enough money or access to resources to survive this time	0	1	2	3	4
Catastrophizing Worries Subscale	Not at all	Very little	Some	Much	Very much
I worry that if I go into quarantine, I will go crazy	0	1	2	3	4
I am worried that I will not be able to handle being in quarantine	0	1	2	3	4
I am worried I will lose friends due to social distancing	0	1	2	3	4

Appendix B.5: The Strengths and Weakness of ADHD-Symptoms and Normal

Behavior (SWAN) (ADAPTED)

For each item, check the column that best describes this child over the past six months.

	Not at all	Just a little	Quite a bit	Very much
1. Gives close attention to detail and avoids careless mistakes				
2. Sustains attention on tasks or play activities				
3. Listens when spoken to directly				
4. Follows through on instructions and finishes school work and chores				
5. Organizes tasks and activities				
6. Engages in tasks that require sustained mental effort				
7. Keeps track of things necessary for activities (doesn't lose them)				
8. Ignores extraneous stimuli				
9. Remembers daily activities				
10. Sits still (controls movement of hands or feet or controls squirming)				
11. Stays seated (when required by class rules or social conventions)				
12. Modulates motor activity (inhibits inappropriate running or climbing)				
13. Plays quietly (keeps noise level reasonable)				
14. Settles down and rests (controls constant activity)				
15. Modulates verbal activity (controls excessive talking)				
16. Reflects on questions (controls blurting out answers)				
17. Awaits turn (stands in line and takes turns)				
18. Enters into conversation and games without interrupting or intruding				

Appendix B.6: Spence Preschool Anxiety Scale (PAS)

Below is a list of items that describe children. For each item, please select the response that best describes your child. Please answer all the items as well as you can, even if some do not seem to apply to your child.

	Not true at all	Seldom true	Sometimes true	Quite often true	Very often true
Has difficulty stopping him/herself from worrying	0	1	2	3	4
Worries that he/she will do something to look stupid in front of other people	0	1	2	3	4
Keeps checking that he/she has done things right (e.g., closed a door, turned off a tap)	0	1	2	3	4
Is tense, restless or irritable due to worrying	0	1	2	3	4
Is scared to ask an adult for help (e.g., preschool or school teacher)	0	1	2	3	4
Is reluctant to go to sleep without you or to sleep away from home	0	1	2	3	4
Is scared of heights (high places)	0	1	2	3	4
Has trouble sleeping due to worrying	0	1	2	3	4
Washes his/her hands over and over many times each day	0	1	2	3	4
Is afraid of crowded or closed-in places	0	1	2	3	4
Is afraid of meeting or talking to unfamiliar people	0	1	2	3	4
Worries that something bad will happen to his/her parents	0	1	2	3	4
Is scared of thunderstorms	0	1	2	3	4
Spends a large part of each day worrying about various things	0	1	2	3	4
Is afraid of talking in front of the class (e.g., show and tell)	0	1	2	3	4
Worries that something bad might happen to him/her (e.g., kidnapped), so he/she won't be able to see you again	0	1	2	3	4
Is nervous of going swimming	0	1	2	3	4
Has to have things in exactly the right order or position to stop bad things from happening	0	1	2	3	4
Worries that he/she will do something embarrassing in front of other people	0	1	2	3	4
Is afraid of insects and/or spiders	0	1	2	3	4

Has bad or silly thoughts of images that keep coming back over and over	0	1	2	3	4
Becomes distressed about your leaving him/her at preschool/school or with a habysitter	0	1	2	3	4
Is afraid to go up to a group of children and join their activities	0	1	2	3	4
Is frightened of dogs	0	1	2	3	4
Has nightmares about being apart from you	0	1	2	3	4
Is afraid of the dark	0	1	2	3	4
Has to keep thinking special thoughts (e.g., number or words) to stop bad things form happening	0	1	2	3	4
Asks for reassurance when it doesn't seem necessary	0	1	2	3	4

Appendix B.7: Spence Children's Anxiety Scale – Parent Version (SCAS-P)

Below is a list of items that describe children. For each item, please select the response that best describes your child. Please answer all the items.

		r		
	Never	Sometimes	Often	Always
My child worries about things				
My child is scared of the dark				
When my child has a problem, s(he) complains				
of having a funny feeling in his/her stomach				
My child complains of feeling afraid				
My child would feel afraid of being on his/her				
own at home				
My child is scared when s(he) has to take a test				
My child is afraid when s(he) was to use public				
toilets or bathrooms				
My child worries about being away from us/me				
My child feels afraid that s(he) will make a fool				
of himself/herself in front of people				
My child worries that s(he) will do badly at				
school				
My child worries that something awful will				
happen to someone in our family				
My child complains of suddenly feeling as if				
s(he) can't breathe when there is no reason for				
this				
My child has to keep checking that s(he) has				
done things right (like the switch is off, or the				
door is locked)				
My child is scared if s(he) has to sleep on				
his/her own				
My child has trouble going to school in the				
mornings because s(he) feels nervous or afraid				
My child is scared of dogs				
My child can't seem to get bad or silly thoughts				
out of his/her head				
When my child has a problem, s(he) complains				
of his/her heart beating really fast				

My child suddenly starts to tremble of shake			
when there is no reason for this			
My child worries that something bad will			
happen to him/her			
My child is scared of going to the doctor or			
dentist			
When my child has a problem, s(he) feels			
shaky			
My child is scared of heights (e.g., being at the			
top of a cliff)			
My child has to think special thoughts (like			
numbers or words) to stop bad things from			
happening			
My child feels scared if s(he) has to travel in			
the car or on a bus or train			
My child worries what other people think of			
him/her			
My child is afraid of being in crowded places			
(like shopping centers, the movies, buses, busy			
playgrounds)			
All of a sudden, my child feels really scared for			
no reason at all			
My child is scared of insects or spiders			
My child complains of suddenly becoming			
dizzy or faint when there is no reason for this			
My child feels afraid when s(he) has to talk in			
front of the class			
My child complains of his/her heart suddenly			
starting to beat too quickly for no reason			
My child worries that s(he) will suddenly get a			
scared feeling when there is nothing to be			
afraid of			
My child is afraid of being in small, closed			
spaces like tunnels or small rooms			
My child has to do some things over and over			
again (like washing his/her hands, cleaning or			
putting things in a certain order)			
My child gets bothered by bad or silly thoughts			
or pictures in his/her head			
My child has to do certain things in just the			
right way to stop bad things from happening			
My child would feel scared if s(he) had to stay			
away from home overnight		1	

Appendix B.8: COVID-19 Version - Responses to Stress Questionnaire (RSQ)

This is a list of things about COVID-19 that teenagers and children sometimes find stressful or a problem to deal with. Please circle the number indicating how stressful the following things have been for your child in the past 6 months.

	Not at all	A little	Somewhat	Very
a. Our family has experienced financial problems because of COVID-19 (e.g., job loss, reduced family income, difficulty paying expenses)	1	2	3	4
b. My child was unable to spend time in person with his/her friends or family because of COVID-19	1	2	3	4
c. My child was unable to participate in social activities and normal routines because of COVID-19 (e.g., school events, sports, hobbies, spiritual services, live entertainment events)	1	2	3	4
d. Having to change, postpone, or cancel important plans or events because of COVID-19 (e.g., school graduation, extracurricular events or sports, family events, travel or vacation)	1	2	3	4
e. Challenges at home or with others because of COVID-19 (e.g. conflict, lack of privacy, lack of personal space)	1	2	3	4
f. Our family has experienced trouble getting groceries or other needed supplies because of COVID-19 (e.g., food, medicine, household goods)	1	2	3	4
g. Watching or hearing distressing news reports about COVID-19	1	2	3	4
h. Not being sure about himself/herself or someone close to him/her getting COVID-19	1	2	3	4
i. He/she or someone close to him/her having symptoms or being diagnosed with COVID-19	1	2	3	4
j. Trouble getting medical care or mental health services because of COVID-19	1	2	3	4
k. He/she is not sure about when COVID-19 will end or what will happen in the future	1	2	3	4
1. Difficulty completing his/her school work online	1	2	3	4
m. Unable to complete school requirements because of COVID-19 (e.g., standardized tests, coursework)	1	2	3	4
n. Needing to take on greater family responsibilities because of COVID-19	1	2	3	4
o. Other:	1	2	3	4

Circle the number that shows how much control he/she generally thinks he/she has over these problems. 1 2 3 4

A lot

Think of all the stressful parts of COVID-19 that have been stressful for your child lately that you checked off above. For each item below, circle one number from 1 (not at all) to 4 (a lot) that shows how much he/she does or feels these things when he/she has the problems with COVID-19 like the ones you indicated above. Please let us know about everything he/she does, thinks, and feels, even if you don't think it helps make things better.

	How much does he/she do			ie do
		thi	s?	
WHEN DEALING WITH THE STRESS OF COVID-19:	Not at all	A little	Some	A lot
1. He/she tries not to feel anything	1	2	3	4
2. He/she feels sick to her stomach or gets headaches	1	2	3	4
3. He/she has to think of different ways to change or fix the situation Write one plan:	1	2	3	4
4. When faced with the stress COVID-19, he/she doesn't feel anything at all, it's like he/she has no feelings	1	2	3	4
5. He/she wishes that he/she were stronger and less sensitive so that things would be different	1	2	3	4
6. He/she keeps remembering what happened with COVID-19 or can't stop thinking about what might happen	1	2	3	4
 7. He/she let someone or something know how he/she feels. (remember to circle a number.) Check all he/she talked to: Parent Friend Brother/Sister Pet Clergy Member Teacher God Stuffed Animal Other Family Member None of these 	1	2	3	4
8. He/she decides he/she is okay the way he/she is, even though he/she is not perfect	1	2	3	4
9. When he/she is around other people he/she acts like COVID- 19 never happened	1	2	3	4
10. He/she just has to get away from everything when he/she is dealing with the stress of COVID-19	1	2	3	4
11. He/she deals with the stress of COVID-19 by wishing it would just go away, that everything would work itself out	1	2	3	4
12. He/she gets really jumpy when he/she is dealing with the stress of COVID-19	1	2	3	4
13. He/she realizes that he/she just has to live with things the way they are	1	2	3	4
14. When he/she is dealing with the stress of COVID-19, he/she just can't be near anything that reminds him/her of what is happening	1	2	3	4

15. He/she tries not to think about it, to forget all about it	1	2	3	4
16. When he/she is dealing with the stress of COVID-19, he/she really doesn't know what he/she feels	1	2	3	4
 17. He/she asks other people or things for help or for ideas about how to make things better. (remember to circle a number.) Check all he/she talked to: Parent Friend Brother/Sister Pet Clergy Member Teacher God Stuffed Animal Other Family Member None of these 	1	2	3	4
18. When he/she is trying to sleep, he/she can't stop thinking about the stressful aspects of COVID-19 or he/she has bad dreams about COVID-19.	1	2	3	4
19. He/she tells himself/herself that he/she can get through this, or that he/she will be okay	1	2	3	4
 20. He/she let his/her feelings out. (remember to circle a number.) He/she does this by: (Check all that he/she did.) Writing in his/her journal/diary Drawing/painting Complaining to let off steam Being sarcastic/making fun Listening to music Punching a pillow Exercising Yelling Crying None of these 	1	2	3	4
21. He/she gets help from other people or things when he/she tries to figure out how to deal with his/her feelings. (remember to circle a number.) Check all that he/she went to: Parent Friend Brother/Sister Pet Clergy Member Teacher God Stuffed Animal Other Family Member None of these	1	2	3	4

You're half done. Before you keep working, look back at the first page so you remember the aspects of having COVID-19 that have been stressful for your child lately. Remember to answer the questions below thinking about these things.

	How much does he/she do			
	this?			
WHEN DEALING WITH THE STRESS OF COVID-19:	Not at all	A little	Some	A lot
22. He/she just can't get himself/herself to face the stress of COVID-19	1	2	3	4
23. He/she wishes that someone would just come and take away the stressful aspects of COVID-19.	1	2	3	4
24. He/she does something to try to fix the stressful parts of COVID-19 Write one thing he/she did:	1	2	3	4
25. Thoughts about COVID-19 just pop into his/her head	1	2	3	4

26. When he/she is dealing with the stress of COVID-19, he/she feels it in his/her body. (remember to circle a number.) Check all that happen: His/her heart races His/her breathing speeds up None of these	1	2	3	4
He/she feels hot or sweaty His/her muscles get tight				
27. He/she tries to stay away from people and things that make him/her feel upset or remind him/her of the stressful aspects of COVID-19.	1	2	3	4
28. He/she doesn't feel like himself/herself when he/she is dealing with the stress of COVID-19, it's like he/she is far away from everything	1	2	3	4
29. He/she just takes things as they are; he/she goes with the flow	1	2	3	4
30. He/she thinks about happy things to take his/her mind off the stressful parts of COVID-19 or how he/she is feeling	1	2	3	4
31. When something stressful happens related to COVID-19, he/she can't stop thinking about how he/she is feeling	1	2	3	4
 32. He/she gets sympathy, understanding, or support from someone. (remember to circle a number.) Check all he/she went to: Parent Friend Brother/Sister Pet Clergy Member Teacher God Stuffed Animal Other Family Member None of these 	1	2	3	4
 33. When something stressful happens related to COVID-19, he/she can't always control what he/she does. (remember to circle a number.) Check all that happen: He/she can't stop eating He/she can't stop talking He/she does dangerous things He/she has to keep fixing/checking things None of these 	1	2	3	4
34. He/she tells himself/herself that things could be worse.	1	2	3	4
35. His/her mind just goes blank when something stressful happens related to COVID-19, he/she can't think at all.	1	2	3	4
36. He/she tells himself/herself that it doesn't matter, that it isn't a	1	2	3	4
37. When he/she is faced with the stressful parts of COVID-19,right away he/she feels really: (remember to circle a number.)Check all that he/she feels:AngrySadNone of theseWorried/anxiousScared	1	2	3	4
38. It's really hard for him/her to concentrate or pay attention when something stressful happens related to COVID-19	1	2	3	4
39. He/she thinks about the things he/she is learning from COVID- 19, or something good that will come from it	1	2	3	4
40. After something stressful happens related to COVID-19, he/she can't stop thinking about what he/she did or said.	1	2	3	4
41. When stressful parts of COVID-19 happen, he/she says to himself/herself, "This isn't real."	1	2	3	4

42. When he/she is dealing with the stressful parts of COVID-19, he/she ends up just lying around or sleeping a lot.	1	2	3	4
 43. He/she keeps his/her mind off stressful parts of COVID-19 by: (remember to circle a number.) Check all that he/she does: Exercising Seeing friends Watching TV Playing video games Doing a hobby Listening to music None of these 	1	2	3	4
44. When something stressful happens related to COVID-19, he/she gets upset by things that don't usually bother him/her	1	2	3	4
 45. He/she does something to calm himself/herself down when he/she is dealing with the stress of COVID-19. (remember to circle a number.) Check all that he/she does: Take deep breaths Pray Walk Listen to music Take a break Meditate None of these 	1	2	3	4
46. He/she just freezes when he/she is dealing with stressful parts of COVID-19, he/she can't do anything.	1	2	3	4
47. When stressful things happen related to COVID-19, he/she sometimes acts without thinking.	1	2	3	4
48. He/she keeps his/her feelings under control when he/she has to, then let them out when they won't make things worse.	1	2	3	4
49. When something stressful happens related to COVID-19, he/she can't seem to get around to doing things he/she is supposed to do.	1	2	3	4
50. He/she tells himself/herself that everything will be all right.	1	2	3	4
51. When something stressful happens related to COVID-19, he/she can't stop thinking about why this is happening.	1	2	3	4
52. He/she thinks of ways to laugh about it so that it won't seem so bad	1	2	3	4
53. His/her thoughts start racing when he/she is faced with the stressful parts of COVID-19	1	2	3	4
54. He/she imagines something really fun or exciting happening in his/her life	1	2	3	4
55. When something stressful happens related to COVID-19, he/she can get so upset that he/she can't remember what happened or what he/she did	1	2	3	4
56. He/she tries to believe that it never happened.	1	2	3	4
57. When he/she is dealing with the stress of COVID-19, sometimes he/she can't control what he/she does or says	1	2	3	4

Appendix C: Additional Statistical Analyses

Power Analysis

An a priori power analysis was conducted using G*Power 3.1.9.6 to determine the necessary sample size for the current study to have power of 80% and an alpha of .05. Because secondary control coping may be one of the most adaptive responses in uncontrollable situations (e.g., Wadsworth & Compas, 2003; Weisz et al., 1994) and thus may provide the most meaningful relations in the context of the COVID-19 pandemic, the power analysis was conducted based on the proposed regression model for child secondary control coping responses. It was estimated that the total sample size needed to detect a medium ($f^2 = .1429$) increase in the predicted variance of secondary control coping scores when parent depression, parent anxiety, parent stress, COVID-19 related catastrophizing worries, and COVID-19 related financial worries are added to a regression model already containing child sex, child externalizing symptoms, and child internalizing symptoms with a power of 80% and an alpha of .05 is 96, suggesting that my sample of 189 participants should be adequate.

Moderation Analyses

Exploratory moderation analyses were also conducted to examine the potential moderating influences of child age, child sex, and parent sex. Results can be seen in Tables 6, 7, and 8, respectively. Given that these results were exploratory in nature, that few interaction terms were significant, and that no interaction terms remained significant after correcting for familywise Type I error, moderation results were not explored further.

Table 6

Primary Control Secondary Involuntary Involuntary Disengagement Coping Control Coping Coping Engagement Disengagement Variables В В В В В Covariates/ Child-level Factors Family Income .000 .001 .000 .000 -.001 Parent Sex .004 -.003 -.004 .001 .001 .007 -.002 .002 Child Sex -.005 -.002 Child Externalizing Symptoms -.011* .002 -.001 .006 .005* Child Anxiety Symptoms -.007 -.003 -.001 .004 .007* Parent Psychopathology Parent Depression .005 .001 -.004 -.001 -.007 -.007 -.017 .002 Parent Anxiety .005 .003 Parent Stress Perceived Stress .001 -.016* .000 .010* .005 **COVID-19** Related Worries .000 .001 -.001 **CIB** Financial Worries Score .000 -.114 .187** CIB Catastrophizing Worries Score -.004** -.004* .002* .004*** Interaction Terms Child Age dichotomized -.017* .004 .012* .000 .000 Child Age X Child Externalizing .000 .010 -.001 -.010* .001 Child Age X Child Anxiety .007 -.016 .002 .010 -.003 Child Age X Parent Depression -.020* -.018 .012 .016 .010 Child Age X Parent Anxiety .007 -.001 -.010 .000 .006 Child Age X Parent Stress .001 .013 .001 -.016* .000 Child Age X CIB Financial Worries .000 .001 -.001 -.001 .000 Child Age X CIB Catastrophizing Worries .002 -.001 -.001 .001 -.002

Child.	Age	Mode	eration	Anal	vses	within	each	Reg	ression	Mo	de
Child	150	1110000	1 011011	1111011	y 5 C 5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	cuch	105	0001011	11100	$\mathcal{A}\mathcal{C}$

Note. All reported results are unstandardized values; * p <.05, ** p <.01, *** p <.001

Table 7

	Primary Control	Secondary	Disengagement	Involuntary	Involuntary
	Coping	Control Coping	Coping	Engagement	Disengagement
Variables	В	В	В	В	В
Covariates/ Child-level Factors					
Family Income	001	.001	.000	.000	.000
Parent Sex	.005	003	005	.003	.000
Child Sex	.020*	024	.001	.002	.001
Child Externalizing Symptoms	001	013	002	.011	.005
Child Anxiety Symptoms	.008	.007	006	007	003
Parent Psychopathology					
Parent Depression	011	.000	.007	013	.016
Parent Anxiety	015	010	.003	.016	.006
Parent Stress					
Perceived Stress	004	010	007	.024	004
COVID-19 Related Worries					
CIB Financial Worries Score	.004	004	.000	.000	.001
CIB Catastrophizing Worries Score	.000	004	.004*	.000	.001
Interaction Terms					
Child Sex X Child Externalizing	.000	.002	.003	006	.001
Child Sex X Child Anxiety	008	012	.004	.010	.006
Child Sex X Parent Depression	.003	.006	005	.009	013
Child Sex X Parent Anxiety	.007	005	002	.000	001
Child Sex X Parent Stress	.004	001	.005	014	.006
Child Sex X CIB Financial Worries	002*	.004*	.000	.000	001
Child Sex X CIB Catastrophizing Worries	001	.000	002	.001	.002

Child Sex Moderation Analyses within each Regression Model

Note. All reported results are unstandardized values; * p < .05, ** p < .01, *** p < .001

Table 8

	Primary Control	Secondary	Disengagement	Involuntary	Involuntary
	Coping	Control Coping	Coping	Engagement	Disengagement
Variables	В	В	В	В	В
Covariates/ Child-level Factors					
Family Income	001	.001	.000	.000	.000
Parent Sex	016	003	.001	.009	.008
Child Sex	.004	004	003	.003	.000
Child Externalizing Symptoms	001	016	.007	.004	.008
Child Anxiety Symptoms	.003	.008	010	002	.000
Parent Psychopathology					
Parent Depression	011	012	.010	.013	001
Parent Anxiety	.017	027	010	.019	.000
Parent Stress					
Perceived Stress	.005	006	.001	001	.002
COVID-19 Related Worries					
CIB Financial Worries Score	004*	.001	.001	001	.001
CIB Catastrophizing Worries Score	006**	005	.002	001	.006*
Interaction Terms					
Parent Sex X Child Externalizing	002	.006	003	001	001
Parent Sex X Child Anxiety	004	013	.006	.007	.003
Parent Sex X Parent Depression	.004	.013	007	009	.000
Parent Sex X Parent Anxiety	017	.010	.007	004	.003
Parent Sex X Parent Stress	003	004	.000	.004	.003
Parent Sex X CIB Financial Worries	.003*	.000	001	001	001
Parent Sex X CIB Catastrophizing Worries	.002	.001	.000	001	002

Parent Sex Moderation Analyses within each Regression Model

Note. All reported results are unstandardized values; * p < .05, ** p < .01, *** p < .001



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