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Stress and parenting during the global COVID-19 pandemic[⋆]

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A B S T R A C T

Background: Stress and compromised parenting often place children at risk of abuse and neglect. Child maltreatment has generally been viewed as a highly individualistic problem by focusing on stressors and parenting behaviors that impact individual families. However, because of the global coronavirus disease 2019 (COVID-19), families across the world are experiencing a new range of stressors that threaten their health, safety, and economic well-being.
Objective: This study examined the impacts of the COVID-19 pandemic in relation to parental perceived stress and child abuse potential.
Participants and Setting: Participants included parents ($N = 183$) with a child under the age of 18 years in the western United States.
Method: Tests of group differences and hierarchical multiple regression analyses were employed to assess the relationships among demographic characteristics, COVID-19 risk factors, mental health risk factors, protective factors, parental perceived stress, and child abuse potential.
Results: Greater COVID-19 related stressors and high anxiety and depressive symptoms are associated with higher parental perceived stress. Receipt of financial assistance and high anxiety and depressive symptoms are associated with higher child abuse potential. Conversely, greater parental support and perceived control during the pandemic are associated with lower perceived stress and child abuse potential. Results also indicate racial and ethnic differences in COVID-19 related stressors, but not in mental health risk, protective factors, perceived stress, or child abuse potential.
Conclusion: Findings suggest that although families experience elevated stressors from COVID-19, providing parental support and increasing perceived control may be promising intervention targets.

1. Introduction

It is well-established that stress plays an important role in child maltreatment potential (Rodriguez-Jenkins & Marcenko, 2014; Whipple & Webster-Stratton, 1991). Exposure to stressors can lead to cognitive, emotional, and physical fatigue, which may in turn

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place undue strain on the parent-child relationship (Deater-Deckard, 2004). Indeed, as parental stress levels rise, parents may be more likely to engage in harsh parenting (Beckerman, van Berkel, Mesman, & Alink, 2017), thereby increasing the risk of child maltreatment (Martorell & Bugental, 2006; Rodriguez & Green, 1997). However, certain factors, such as perceived control over stressful events or supportive family environments, may act as buffers to decrease distress and the risk of child maltreatment (Frazier et al., 2011; Li, Godinet, & Arnsberger, 2011). Despite ample evidence linking individual and family level stressors with poor parenting and child maltreatment, families across the world are collectively experiencing a new range of stressors that threaten their health, safety, and economic well-being due to the global coronavirus disease 2019 (COVID-19) pandemic. Although COVID-19 is not the only global public health challenge to threaten society, it will likely have long-term negative impacts on today's children and families. The greater awareness of the impact of stress as we all experience a global pandemic offers an opportunity to better understand how stressors external to the family increase risk of maltreatment. As such, this study examined the influence of risk and protective factors on parents' perceptions of stress and risk of child abuse potential during the COVID-19 pandemic.

Stress can accumulate as a result of a broad range of factors. In the context of child maltreatment, a large body of literature focuses on stressors at the individual and family levels (i.e., ontogenic and microsystem levels, respectively; Cicchetti & Lynch, 1993; Cicchetti & Rizley, 1981). That is, child maltreatment may occur from stressors that result from economic hardship, low education, single parenthood, or a large number of dependent children (Centers for Disease Control & Prevention, 2020b; Sedlak et al., 2010), among others, but that might not otherwise impact persons outside of the family. Research indicates that there is not a single factor that is related solely to child maltreatment; instead, the accumulation of risk factors is a more robust indicator of adverse outcomes (Patwardhan, Hurley, Thompson, Mason, & Ringle, 2017; Sameroff, 1979). Moreover, the extent to which co-occurring stressors affect adverse outcomes, such as poor parenting behaviors, may be due, in part, to the ways through which individuals perceive these events as stressful. In other words, the degree to which situations in one's life are appraised as stressful (i.e., perceived stress) can influence adaptive versus maladaptive outcomes (Cohen, Kamarck, & Mermelstein, 1983; Lazarus, 1977). Consequently, parents experiencing elevated levels of cumulative stress show more rigid and abusive parenting behaviors (Hutchison, Feder, Abar, & Winsler, 2016; Liu & Merritt, 2018; Yang, 2015).

The global COVID-19 pandemic is a stressor that originated outside of the family system but given the novelty and uncertainty concerning this disease, it is likely to be perceived as a significant stressor for many parents and children. In fact, emerging research has shown that parents' perceived impact of COVID-19 is associated with increased parenting stress and, in turn, increased risk of harsh parenting (Chung, Lanier, & Ju, 2020). Even for families who have not been directly exposed to the virus, they are likely to experience indirect effects of the COVID-19 pandemic (Van Bavel et al., 2020). For example, in countries outside of the United States, COVID-19 has led to serious mental health burden (e.g., Marazziti, Pozza, Giuseppe, & Conversano, 2020; Pierce et al., 2020), with the prevalence of anxiety, depression, and sleep problems ranging from 18 % to 35 %, especially among younger individuals who are preoccupied with thoughts regarding the disease (Huang & Zhao, 2020). Given that there are already mental health implications associated with the COVID-19 health crisis, children in families with more risk factors may be more vulnerable to child maltreatment. Indeed, parents with elevated stress and co-occurring anxiety and depressive symptoms have been shown to be less responsive to their children's needs, which in turn is a strong predictor of child abuse potential (McPherson, Lewis, Lynn, Haskett, & Behrend, 2008).

Although several public health efforts were taken to mitigate transmission of COVID-19 after its emergence, these efforts have had unintended consequences that could further impact parent-perceived stress and poor parenting. Specifically, actions included recommendations to increase physical distancing as well as to close schools, childcare agencies, and many customer service businesses. As a result, families are more likely to experience increased social isolation, the inability to access supportive and educational services, and economic difficulties, which may exacerbate stress in many households. In fact, social isolation increases susceptibility to stress and may have harmful effects on both mental and physical health (Hawkley & Cacioppo, 2010). Parents who are faced with competing demands of limiting social interactions and remaining at home with their children may be particularly vulnerable during this time; research shows that continual close contact under stress is a risk factor for aggressive behaviors and violence (Brooks et al., 2020; Greenaway, Jetten, Ellemers, & van Bunderen, 2014; Reynolds et al., 2008). Furthermore, some families are experiencing other challenges, such as working from home while also caring for and educating their children. Given that school and childcare professionals are central to identifying concerns of abuse and neglect (Fitzpatrick, Benson, & Bondurant, 2020; U. S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth, and Families, & Children's Bureau, 2020), children who may have once been identified as at risk in these settings may be more vulnerable to maltreatment as they spend most of their time at home. Some families are also experiencing more financial strain as a result of the changing economy and increasing unemployment. Although the stresses of poverty have long been associated with increased risk of child maltreatment, several specific economic indicators may be particularly implicated in abuse potential. For example, the rise in unemployment and foreclosure rates are associated with an increased likelihood of investigated and substantiated maltreatment (Frioux et al., 2014).

In addition to changes in the economy, other social conditions may worsen the impact of COVID-19 related stressors on overall perceptions of stress and parenting, particularly among minoritized populations. The Centers for Disease Control and Prevention (2020a) reported that COVID-19 disease burden is disproportionately high among racial and ethnic minority groups, such that Black/ African American and Latinx individuals are more likely than their White counterparts to acquire the illness, be hospitalized, and die from COVID-19 (Centers for Disease Control & Prevention, 2020a). Systemic inequities contribute to disparities in health outcomes among minoritized populations. For example, families of racial and ethnic minorities experience racism and discrimination (e.g., Brondolo, Gallo, & Myers, 2009) and may be less able to social distance due to increased segregation into residential housing, (Iceland, Goyette, Nelson, & Chan, 2010; Popescu, Duffy, Mendelsohn, & Escarce, 2018), limited paid sick leave (Bartel et al., 2019), and inadequate access to health insurance and health care (Lee, Ayers, & Kronenfeld, 2009; Phillips, Mayer, & Aday, 2000). These economic and social inequities may in turn place minoritized families at greater risk for increased stress and disparate outcomes during the

COVID-19 pandemic.

However, not all parents experiencing cumulative stressors from COVID-19 may be at risk of higher perceived stress or poor parenting, suggesting that protective factors may mitigate the impact of COVID-19 on parental stress and child abuse potential. Specifically, adaptive coping strategies and supportive family environments may serve as protective factors for families experiencing stress and may differentially influence abuse potential. For example, perceived control is a key construct in understanding stress and coping (Dijkstra & Homan, 2016). Indeed, the belief that one has influence over life events is related to different psychological and behavioral outcomes. Perceived control over present events is associated with decreases in overall stress, anxiety, and depression as well as better adjustment across situations (Ballash, Pemble, Usui, Buckley, & Woodruff-Borden, 2006; Frazier, Steward, & Mortensen, 2004; Grote, Bledsoe, Larkin, Lemay, & Brown, 2007). Similarly, other coping strategies, such as acceptance, or the ability to accept negative thoughts or experiences without judging them, are strongly and negatively associated with perceived stress (Donald & Atkins, 2016). In addition to adaptive coping strategies, supportive family environments may also be promotive in the context of parenting. Previous research shows that mother's perceptions of family support are associated with less parenting stress; thus, parents with more support are better able to engage in positive parenting (Deater-Deckard, 1998; Sanders, Kirby, Tellegen, & Day, 2014). Consistent with the ecological-transactional model of child maltreatment (Cicchetti & Lynch, 1993; Cicchetti & Rizley, 1981), risk and protective factors compete at each level of the ecology, namely the macrosystem (cultural level factors), exosystem (community level factors), microsystem (family level factors), and ontogeny (individual level factors) to affect maltreatment and developmental outcomes of children. Experiencing multiple risk factors across levels of the ecology may increase risk of child abuse potential in an additive manner. Importantly, however, certain factors may also protect a family from the accumulation of stress, thereby acting as main effects in decreasing the risk of maltreatment.

Despite a robust literature on myriad risk and protective factors implicated in parent-perceived stress and child maltreatment, little research has been done to examine the extent to which cumulative stressors from global pandemics shape overall perceptions of stress and impact parenting. Indeed, very few articles have been published to date regarding COVID-19 in relation to stress and family violence (e.g., Campbell, 2020; Prime, Browne, & Wade, 2020), particularly risk of child abuse potential. The current study offers exploratory evidence to address the following research questions: (1) are there demographic differences in COVID-19 risk factors, mental health risk factors, and protective factors?, (2) to what extent are demographic characteristics, COVID-19 risk factors, and mental health risk factors related to parental perceived stress and child abuse potential? and, (3) over and above demographic characteristics, COVID-19 risk factors, and mental health risk factors, to what extent are protective factors related to parental perceived stress and child abuse potential among families in the western United States?

2. Method

2.1. Procedure

Families were recruited from child- and family-serving agencies and educational settings in the Rocky Mountain region of the United States. Agency staff shared the study with families they served. Families were also contacted about the current study by phone or email if they had participated in previous studies conducted by the research team. Parents, aged 18 years or older, with a child under the age of 18 years were invited to participate in the study and provided an online survey link that was administered via Qualtrics. The survey was available from April 21, 2020 to May 9, 2020 and took approximately 20 min to complete. Participants were compensated with a $10 gift card after completion of the survey. Two hundred and sixteen participants began the survey; however, 33 participants were not included in final analyses for the following reasons: (1) they did not correctly complete a study validation question to ensure they were not completing questions at random ($n = 21$), (2) they indicated that another caregiver in the household completed the survey ($n = 4$); these participants were removed to eliminate interdependent data, and (3) they did not complete at least half of the survey ($n = 8$); participants could progress through the survey and select 'prefer not to answer' to questions they did not wish to answer in order to indicate study completeness. Therefore, the final sample included 183 parents. The study was approved by the Institutional Review Board at Colorado State University and informed consent was obtained from all participants.

2.2. Measures

2.2.1. Demographic characteristics

Basic demographic characteristics included parent age, gender, race/ ethnicity, education, relationship status, receipt of financial assistance, and number of adults and children in the household. The following variables were recoded for analyses: parent gender (0 = male, 1 = female), relationship status (0 = single or partner not living in the home, 1 = married or partner living in the home), and financial assistance (0 = not receiving financial assistance, 1 = receiving any financial assistance). In addition, because few participants identified as American Indian or Alaska Native ($n = 1$), Asian ($n = 4$), or other race/ ethnicity ($n = 1$), racial and ethnic categories were recoded as follows: 1 = American Indian or Alaska Native, Asian, mixed race/ ethnicity, or other race/ ethnicity ("other or mixed race/ ethnicity"), 2 = Black/ African American, 3 = Latinx, and 4 = non-Latinx White, with non-Latinx White as the reference category. Because no or few participants had no schooling ($n = 0$) or indicated the highest education completed was 1st – 8th grade ($n = 3$) or trade school ($n = 7$), education categories were recoded as follows: 1 = less than high school, 2 = high school graduate/ GED, 3 = some college, 4 = associates degree or trade school, 5 = four-year college degree, and 6 = post graduate degree. For each demographic characteristic, participants could also select "prefer not to answer"; these responses were subsequently recoded as missing.

2.2.2. COVID-19 risk factors

COVID-19 stressors were assessed using investigator developed questions. Using a checklist, parents were asked to indicate whether they or their children experienced any stressors as a result of COVID-19 stay-at-home restrictions and school and childcare closures in the following domains: 1) parent mood or stress, 2) parent physical health, 3) parent's relationship/ interactions with partner, 4) parent's relationship/ interactions with child(ren), 5) child(ren)'s physical health, and 6) child(ren)'s academics/ learning. Given prior research on cumulative risk in relation to child maltreatment (e.g., Lamela & Figueiredo, 2015), which postulates that poor outcomes are due to the accumulation of individual risk factors, items were dichotomously coded to indicate whether stressors in that category occurred (0 = no, 1 = yes); these items were subsequently summed to create a total COVID-19 risk score. Parents were also asked whether or not they knew someone who tested positive for COVID-19 (0 = no, 1 = yes) or who died from COVID-19 (0 = no, 1 = yes); these responses could include a partner or spouse, child, family member, friend, or someone else they know. Finally, parents were asked an open-ended qualitative question, "In general, how has your life been affected (e.g., mental, physical, financial health, relationship difficulties, etc.) by COVID-19 and recommendations to isolate?"

2.2.3. Mental health risk factors

Parent anxiety, depression, and sleep were assessed as possible mental health risk factors. Parental anxiety was measured by a single item from the General Anxiety Disorder-7 scale (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006): "During the past two weeks, I felt nervous, anxious, or on edge" (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day, 4 = prefer not to answer). The item was recoded into a dichotomous anxiety indicator where "not at all" was coded as 0 and "several days" to "nearly every day" were coded as 1. "Prefer not to answer" responses were coded as missing.

Parental depression was measured by a single item from the Center for Epidemiologic Studies Depression Scale (CESD-R; Radloff, 1977): "During the past week, I felt depressed" (1 = rarely or none of the time, 2 = some or little of the time, 3 = occasionally or a moderate amount of time, 4 = most or all of the time, 5 = prefer not to answer). The item was recoded into a dichotomous depression indicator where "rarely or none of the time" was coded as 0 and "some or little of the time" to "most or all of the time" were coded as 1. "Prefer not to answer" responses were coded as missing.

Poor parental sleep was measured by a single item indicator from the Center for Epidemiologic Studies Depression Scale (CESD-R; Radloff, 1977): "During the past week, my sleep was restless" (1 = rarely or none of the time, 2 = some or little of the time, 3 = occasionally or a moderate amount of time, 4 = most or all of the time, 5 = prefer not to answer). The item was recoded into a dichotomous depression indicator where "rarely or none of the time" was coded as 0 and "some or little of the time" to "most or all of the time" were coded as 1. "Prefer not to answer" responses were coded as missing.

2.2.4. Protective factors

Parental support, perceived control over the COVID-19 pandemic, and acceptance were assessed as possible protective factors. Parental support was measured using the parental support subscale from the Parent-Child Relationship Inventory (PCRI; Gerard, 1994). The parental support subscale consists of nine items measuring the level of emotional and social support a parent receives. Parents indicate the extent to which they agree or disagree with each item (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). Example items include: "When it comes to raising my child, I feel alone most of the time", "I sometimes feel overburdened by my responsibilities as a parent", and "I have someone to help me do chores around the house." Three items are reverse coded, items are summed, and higher scores indicate positive parenting characteristics (i.e., higher parental support). In this sample, the PCRI parental support subscale demonstrated acceptable reliability (α = .71).

Perceived control over the COVID-19 pandemic was measured by the present control subscale of the Perceived Control Over Stressful Events Scale (Frazier et al., 2011). The present control subscale consists of eight items measuring the extent to which individuals believe they have control over a current event; we asked parents to respond to each item with regard to the COVID-19 pandemic and how they have felt in the past two weeks (1 = strongly disagree, 2 = disagree somewhat, 3 = agree somewhat, 4 = strongly agree). Example items include: "There isn't much I can do to help myself feel better about the event", "How I deal with this event now is under my control", and "When I am upset about the event, I can find a way to feel better." Four items are reverse coded, items are summed, and higher scores indicate better perceived control over the stressful event. In this sample, the present control subscale demonstrated acceptable reliability (α = .79).

Parental acceptance was measured by the acceptance subscale of the Cognitive Emotion Regulation Questionnaire-Short Form (CERQ/SF; Garnefski, Kraaij, & Spinhoven, 2001). The acceptance subscale consists of two items measuring an individual's thoughts and cognitive strategies after having experienced a negative event (1 = never, 2 = sometimes, 3 = regularly, 4 = often, 5 = always). Items include: "I think that I have to accept that this has happened" and "I think I have to accept the situation." Items are summed and higher scores indicate better coping (i.e., higher acceptance). In this sample, the CERQ/SF acceptance subscale demonstrated acceptable reliability (α = .78).

2.2.5. Primary outcomes

Perceived stress and child abuse potential were assessed as the primary outcomes of the study. Perceived stress was measured by the Perceived Stress Scale (PSS-10; Cohen et al., 1983). The PSS-10 consists of 10 items measuring individuals' thoughts and feelings regarding potentially stressful situations that occurred in the past month (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often). Example items include: "In the last month, how often have you been upset because of something that happened unexpectedly?", "In the last month, how often have you felt nervous and stressed?", and "In the last month, how often have you found that you could not cope with all the things that you had to do?" Items are summed and higher scores indicate greater perceived stress.

In this sample, the PSS-10 demonstrated good reliability (α = .83).

Child abuse potential was measured using a revised version of the brief Child Abuse Potential Inventory (CAP Inventory; Milner, 1986; Ondersma, Chaffin, Simpson, & LeBreton, 2005). The original CAP Inventory (Milner, 1986) consists of 160 total items, which are shown to distinguish parents who may be abusive from those who may not (Milner & Wimberely, 1980). The CAP Inventory can be divided into factor scales describing psychological difficulties and interactional problems (e.g., distress, rigidity, family conflict, loneliness). To reduce participant burden, for this study, 10 items were used from a brief version of the CAP Inventory (Ondersma et al., 2005), specifically from the loneliness, rigidity, and family conflict factor scales in which participants were asked whether they agree or disagree with several statements. Example items include: "My family fights a lot", "Children should never disobey", and "A child needs very strict rules." Items are summed and higher scores indicate greater child abuse potential. In this sample, the revised CAP Inventory demonstrated good reliability (α = .80).

Table 1
Sample Characteristics.

Characteristic	*n* (%)
Parent Gender	
Male	19 (10.4)
Female	164 (89.6)
Parent Race/ Ethnicity	
Black/ African American	9 (4.9)
Latinx	39 (21.3)
Non-Latinx White	122 (66.7)
Other or mixed race/ ethnicity	13 (7.1)
Parent Education	
Less than high school	12 (6.6)
High school graduate/ GED	30 (16.4)
Some college	40 (21.9)
Associates degree or trade school	23 (12.6)
Four-year college degree	53 (29.0)
Post graduate degree	25 (13.7)
Relationship Status	
Single or partner not living in home	39 (21.3)
Married or partner living in home	142 (77.6)
Financial Assistance	
Food stamps	61 (33.3)
Free or reduced cost childcare	25 (13.7)
Women, Infants, and Children (WIC)	56 (30.6)
Unemployment	20 (10.9)
Cash assistance/ Temporary Assistance to Needy Families (TANF)	20 (10.9)
Medicaid coverage	63 (34.4)
Housing assistance	14 (7.7)
Alimony/ child support	9 (4.9)
Other	9 (4.9)
COVID-19 Related Stressors	
Parent mood or stress	157 (85.8)
Parent physical health	96 (52.5)
Parent's relationship/ interactions with partner	114 (62.3)
Parent's relationship/ interactions with child(ren)	116 (63.4)
Child(ren)'s physical health	38 (20.8)
Child(ren)'s academics/ learning	86 (47.0)
Know Someone who Tested Positive for COVID-19	101 (55.2)
Know Someone who Died from COVID-19	51 (27.9)
High Anxiety Symptoms (past two weeks)	148 (80.9)
High Depressive Symptoms (past week)	126 (68.9)
Poor Sleep (past week)	158 (86.3)
	M (SD), Range
Parent Age	35.37 (7.30), 18−55
Number of Adults in the Household	2.06 (.72), 1−5
Number of Children in the Household	1.99 (1.12), 1−7
Cumulative Stressors from COVID-19	3.51 (1.50), 1−6
Perceived Stress Scale	19.14 (6.59), 0−37
Child Abuse Potential Inventory (revised)	2.59 (2.61), 0−10
Parent-Child Relationships Inventory – Parent Support Subscale	22.77 (4.56), 8−34
Perceived Control Over Stressful Events – Present Control Subscale	23.66 (4.38), 12−32
Cognitive Emotion Regulation Questionnaire – Acceptance Subscale	6.86 (1.96), 2−10

Note. N = 183; percentages that do not equal 100 % indicate missing data; categories of financial assistance and stressors from COVID-19 are not mutually exclusive.

Table 2
Pearson Correlation Matrix of Key Variables.

	1. Child Abuse Potential	2. Parental Perceived Stress	3. Cumulative COVID-19 Stressors	4. Know Someone who Tested Positive from COVID-19	5. Know Someone who Died from COVID-19	6. Anxiety Symptoms	7. Depressive Symptoms	8. Poor Sleep	9. Parental Support	10. Perceived Present Control	11. Acceptance
1											
2	.39***										
3	.03	.32***									
4	−.10	.14	.12								
5	.09	.18*	.11	.54							
6	.32***	.48***	.23**	−.10	.02						
7	.42***	.49***	.06	.04	.13	.34***					
8	.20**	.24**	.11	.13	.20**	.15*	.31***				
9	−.48***	−.62***	−.26**	.00	−.06	−.35***	−.36***	−.26***			
10	−.46***	−.49***	−.05	.12	−.04	−.34***	−.46***	−.16*	.50***		
11	−.07	−.16*	−.02	−.03	.07	−.08	−.21**	−.09	.18*	.29***	

Note. *p <.05, **p < .01, *** p < .001.

3. Data analysis

Descriptive statistics (means, standard deviations, and percentages) were used to describe the sample demographic characteristics and study variables. Because emerging research has shown that families of diverse racial and ethnic identities may be disproportionately impacted by the COVID-19 pandemic, chi-square and one-way ANOVA analyses were conducted to examine whether there were racial and ethnic differences in COVID-19 risk factors, mental health risk factors, and protective factors. Next, relationships among risk and protective factors and study outcomes were examined using Pearson's bivariate correlations. Finally, hierarchical multiple regression analyses were conducted to test correlates of: (1) parental perceived stress and (2) child abuse potential. For each of the two regression models, correlates were entered sequentially in four steps: first, demographic characteristics; second, COVID-19 risk factors; third, mental health risk factors; and fourth, protective factors. This allowed for an assessment of the unique relationships between COVID-19 and mental health risk factors and study outcomes as well as whether protective factors mitigated perceived stress and child abuse potential over and above these risks. Prior to conducting hierarchical multiple regression analyses, we examined variables for missingness using Little's test of missing completely at random (MCAR; Little, 1988) and found that values were not missing at random ($p = .39$); therefore, missing data were handled with listwise deletion.

To examine responses to the single open-ended question regarding how participants' lives have been affected by COVID-19 and recommendations to isolate at home, qualitative template analysis was used to explore stressors as well as potential positive experiences. Common themes were then identified within these categories, which allowed for a hierarchical method of coding in which broad themes were used to encompass more specific codes and/or patterns (Padgett, 2008). The themes identified were then summed across participant responses to calculate their frequencies and percentages. Two of the authors coded a subset of the responses with high rates (85 %) of interrater reliability.

4. Results

4.1. Sample characteristics

Detailed sample characteristics are provided in Table 1. Participants included parents, ages 18–55, of a child under the age of 18 years. The majority of participants were mothers and racially/ ethnically identified as non-Latinx White, followed by Latinx, other or mixed race/ ethnicity, or Black/ African American. Participants were mostly married or had a partner living in the home and had some college or higher education. Participants indicated that they received some form of financial assistance, with most participants

Table 3
Demographic, Risk, and Protective Correlates of Parental Perceived Stress.

	B (SE)	β	95 % CI
Correlates			
Block 1: Demographics			
Age	−.04 (.06)	−.05	−.17 – .09
Gender (male)	1.99 (1.27)	.10	−.52 – 4.50
Black/ African American (non-Latinx White)	−2.53 (1.88)	−.08	−6.24 – 1.19
Latinx (non-Latinx White)	.55 (1.10)	.04	−1.63 – 2.73
Other or mixed race/ ethnicity (non-Latinx White)	−1.17 (1.54)	−.05	−4.21 – 1.88
Financial assistance (no financial assistance)	.27 (.97)	.02	−1.63 – 2.18
Education	.54 (.34)	.12	−.13 – 1.21
Married or partner living in home (single or partner not living in home)	.66 (1.03)	.04	−1.38 – 2.71
Number of adults in household	−.26 (.56)	−.03	−1.37 – .85
Number of children in household	−.06 (.39)	−.01	−.84 – .72
Block 2: COVID-19 Risk Factors			
Cumulative stressors from COVID-19	.56 (.28)*	.13	.01 – 1.11
Know someone who tested positive from COVID-19 (do not know someone)	.88 (.94)	.07	−.98 – 2.74
Know someone who died from COVID-19 (do not know someone)	.29 (1.01)	.02	−1.71 – 2.29
Block 3: Mental Health Risk Factors			
Anxiety symptoms (no anxiety symptoms)	2.14 (1.14)	.12	−.11 – 4.38
Depressive symptoms (no depressive symptoms)	3.05 (.98)**	.21	1.11 – 4.99
Poor sleep (no sleep problems)	.09 (1.23)	.004	−2.35 – 2.53
Block 4: Protective Factors			
Parent support	−.61 (.10)***	−.41	−.81 – -.40
Perceived present control	−.25 (.11)*	−.17	−.48 – -.03
Acceptance	−.20 (.21)	−.06	−.61 – .21
Constant	31.66 (5.18)***		21.41–41.91
Total R^2	.58		

Note. $N = 157$; B = unstandardized coefficient, (SE) = standard error, $β$ = beta (standardized coefficient), CI = 95 % confidence interval; total R^2 = R Square for the final retained model from Block 4; reference category indicated in ().
* $p < .05$.
** $p < .01$.
*** $p < .001$.

receiving Medicaid coverage, followed by food stamps, Women, Infants, and Children (WIC), free or reduced cost childcare, unemployment, cash assistance/ Temporary Assistance for Needy Families (TANF), housing assistance, alimony/ child support, or other financial assistance. Regarding stressors from COVID-19, participants reported experiencing approximately 3.5 stressors, on average, which most often included stressors due to changes in parent mood or general stress, followed by changes in parent's relationship/ interactions with child(ren) and with partner, parent physical health, and child(ren)'s academics/ learning and physical health. Over half of the sample knew someone who tested positive for COVID-19 and slightly over one-quarter of the sample knew someone who died from COVID-19. Most participants also indicated that they experienced high levels of anxiety symptoms, depressive symptoms, and poor sleep in the past one to two weeks. Participants reported that there were on average approximately two adults and two children in their households.

Regarding racial and ethnic differences in COVID-19 risk factors, mental health risk factors, and protective factors, there were no significant differences across racial and ethnic groups for knowing someone who tested positive, $X^2(3) = 4.03, p = .26$; or died from COVID-19, $X^2(3) = 2.50, p = .48$; anxiety symptoms, $X^2(3) = 5.90, p = .12$; depressive symptoms, $X^2(3) = 1.23, p = .75$; poor sleep, $X^2(3) = 3.12, p = .37$; parental support, $F(3) = 1.16, p = .33$; perceived present control, $F(3) = .69, p = .56$; or acceptance, $F(3) = .99, p = .40$. However, there were significant differences in COVID-19 related stressors, $Welch's\ F(3, 21.63) = 5.72, p < .01, n^2_{partial} = 0.05$. Because equal variance was not assumed (Levene's test $p < .05$), a Games-Howell post hoc test revealed that the mean score for COVID-19 related stressors for parents who identified as Latinx ($M = 3.71, SD = 1.73$) was significantly higher than the mean score of COVID-19 related stressors for Black/ African American parents ($M = 2.14, SD = .90; 95\ \%\ CI, .28–2.85$). The mean score for COVID-19 related stressors for non-Latinx White parents ($M = 3.60, SD = 1.41$) was also significantly higher than the mean score of COVID-19 related stressors for Black/ African American parents ($M = 2.14, SD = .90; 95\ \%\ CI, .28–2.62$).

4.2. Bivariate correlations among key study variables

Results of the bivariate correlations among risk and protective factors and study outcomes can be found in Table 2.

4.3. Correlates of perceived stress and child abuse potential

The first hierarchical multiple regression model regressed parental perceived stress on demographic characteristics, COVID-19 risk factors, mental health risk factors, and protective factors. Results for each block are reported separately in text, while results for the hierarchal multiple regression model retained from the fourth block can be found in Table 3. The first block with demographic characteristics revealed a poor fitting model such that demographics were not significantly associated with perceived stress, $F(10, 146)$

Table 4
Demographic, Risk, and Protective Correlates of Child Abuse Potential.

	B (SE)	β	95 % CI
Correlates			
Block 1: Demographics			
Age	−.01 (.03)	−.02	−.07 – .05
Gender (male)	−.84 (.62)	−.10	−2.06 – .37
Black/ African American (non-Latinx White)	.10 (.97)	.01	−1.82 – 2.01
Latinx (non-Latinx White)	−.92 (.53)	−.14	−1.97 – .14
Other or mixed race/ ethnicity (non-Latinx White)	−.42 (.75)	−.04	−1.89 – 1.05
Financial assistance (no financial assistance)	.98 (.47)*	.17	.05 – 1.90
Education	.15 (.16)	.08	−.18 – .48
Married or partner living in home (single or partner not living in home)	−.35 (.50)	−.05	−1.34 – .65
Number of adults in household	−.04 (.28)	−.01	−.58 – .50
Number of children in household	−.10 (.19)	−.04	−.48 – .28
Block 2: COVID-19 Risk Factors			
Cumulative stressors from COVID-19	−.07 (.14)	−.04	−.34 – .20
Know someone who tested positive from COVID-19 (do not know someone)	−.22 (.46)	−.04	−1.13 – .69
Know someone who died from COVID-19 (do not know someone)	.01 (.49)	.001	−.97 – .98
Block 3: Mental Health Risk Factors			
Anxiety symptoms (no anxiety symptoms)	.53 (.56)	.07	−.57 – 1.63
Depressive symptoms (no depressive symptoms)	.80 (.48)	.13	−.14 – 1.74
Poor sleep (no sleep problems)	.07 (.60)	.01	−1.11 – 1.25
Block 4: Protective Factors			
Parent support	−.23 (.05)***	−.36	−.33 – -.13
Perceived present control	−.11 (.06)*	−.18	−.22 – -.001
Acceptance	.11 (.10)	.08	−.09 – .31
Constant	9.61 (2.51)***		4.65 – 14.57
Total R^2	.45		

Note. $N = 156$; B = unstandardized coefficient, (SE) = standard error, β = beta (standardized coefficient), CI = 95 % confidence interval; total R^2 = R Square for the final retained model from Block 4; reference category indicated in ().

* $p < .05$.
*** $p < .001$.

$= .87, p = .57$ ($R^2 = .05$). The second block with COVID-19 risk factors revealed a good fitting model, $F(13, 143) = 2.12, p < .05$ ($R^2 = .16$), with the addition of COVID-19 risk factors accounting for significant variance beyond the demographics and constant-only models (R^2 change $= .11, p < .01$). Specifically, analyses indicated that cumulative stressors resulting from COVID-19 were significantly and positively associated with perceived stress ($B = 1.38, p < .001$). The third block with mental health risk factors revealed a good fitting model, $F(16, 140) = 6.06, p < .001$ ($R^2 = .41$), with the addition of mental health risk factors accounting for significant variance beyond COVID-19 risk factors, demographics, and constant-only models (R^2 change $= .25, p < .001$). Anxiety symptoms ($B = 4.08, p < .01$) and depressive symptoms ($B = 5.54, p < .001$) were significantly and positively associated with perceived stress. Finally, the fourth block with protective factors revealed a good fitting model, $F(19, 137) = 10.09, p < .001$ ($R^2 = .58$), with the addition of protective factors accounting for significant variance beyond mental health and COVID-19 risk factors, demographics, and constant-only models (R^2 change $= .17, p < .001$). Specifically, parental support ($B = -.61, p < .001$) and perceived control over the COVID-19 pandemic ($B = -.25, p < .05$) were significantly and negatively associated with perceived stress, indicating that these factors may mitigate and protect against higher perceived stress.

The second hierarchical multiple regression model regressed child abuse potential on demographic characteristics, COVID-19 risk factors, mental health risk factors, and protective factors. Results for each block are reported separately in text, while results for the hierarchal multiple regression model retained from the fourth block can be found in Table 4. The first block with demographic characteristics revealed a good fitting model such that demographics were significantly associated with child abuse potential, $F(10, 145) = 2.73, p < .01$ ($R^2 = .16$). Receipt of financial assistance was significantly and positively associated with abuse potential ($B = 1.52, p < .01$). The second block with COVID-19 risk factors revealed a good fitting model, $F(13, 142) = 2.51, p < .01$ ($R^2 = .19$). However, the addition of COVID-19 risk factors did not account for significant variance beyond the demographics and constant-only models (R^2 change $= .03, p = .18$). The third block with mental health risk factors revealed a good fitting model, $F(16, 139) = 3.94, p < .001$ ($R^2 = .31$), with the addition of mental health risk factors accounting for significant variance beyond COVID-19 risk factors, demographics, and constant-only models (R^2 change $= .12, p < .001$). Anxiety symptoms ($B = 1.25, p < .05$) and depressive symptoms ($B = 1.60, p < .01$) were significantly and positively associated with abuse potential. Finally, the fourth block with protective factors revealed a good fitting model, $F(19, 136) = 5.82, p < .001$ ($R^2 = .45$), with the addition of protective factors accounting for significant variance beyond mental health and COVID-19 risk factors, demographics, and constant-only models (R^2 change $= .14, p < .001$). Specifically, parental support ($B = -.23, p < .001$) and perceived control over the COVID-19 pandemic ($B = -.11, p < .05$) were significantly and negatively associated with abuse potential, indicating that these factors may mitigate and protect against increased risk of child abuse potential.

4.4. Experiences regarding COVID-19

Participants were asked to describe how their life has been affected by COVID-19 and recommendations to isolate at home. Several themes were identified from the single open-ended question inquiring about their experiences. Table 5 provides the frequency and percentages of themes that emerged from participant responses. Participants reported that they experienced increased stressors in the areas of: (1) loss of employment or income/ inability to provide for family, (2) uncertainty about the future, (3) inability to see family or friends or socialize with others, (4) relationship difficulties, (5) general stress and feeling tired, (6) poor mental health, (7) poor physical health, (8) meltdowns and/or boredom from children, (9) difficulties managing children's academics, (10) fear of contracting the virus or hearing about people dying from the virus, (11) lack of supports, and (12) difficulties managing work from home. Loss of employment or income and an inability to provide for their family was the most salient stressor. For example, one parent stated, "It's been difficult trying to pay my bills with being unemployed at the moment." Another parent said, "[Our] financial health has been very

Table 5
Frequencies and Percentages of Qualitative Themes from Participants' Experiences regarding COVID-19.

Theme	n (%)
Stressors	
Loss of employment or income /inability to provide for family	52 (34.7)
Uncertainty about the future	9 (6.0)
Inability to see family or friends or socialize with others	25 (16.7)
Relationship difficulties	6 (4.0)
General stress and feeling tired	26 (17.3)
Poor mental health (e.g., feelings of depression)	19 (12.7)
Poor physical health (e.g., lack of physical activity, poor eating)	14 (9.3)
Meltdowns and/or boredom from children	17 (11.3)
Difficulties managing children's academics	22 (14.7)
Fear of contracting the virus or hearing about people dying from the virus	16 (10.7)
Lack of supports (e.g., childcare)	4 (2.7)
Difficulties managing work from home	21 (14.0)
Positive or neutral change	
More time with children and family	15 (10.0)
Not much change	12 (8.0)

Note. $N = 150$; qualitative themes from participants reporting on their experiences from COVID-19 are not mutually exclusive.

poor with both of us out of work and not qualified for unemployment. This leads to greater stress." Some parents reported negative impacts on their own health and well-being in order to care for their children. Specifically, one parent expressed that "to make sure my baby is taken care of during this time…I sometimes go without food." The inability to see family or friends or socialize with others was also a common stressor among participants. One parent stated, "I have found myself to be stressed and on edge constantly. I miss interacting with people outside my home and office." Parents reported that their mental health has also been impacted by the stay-at-home restrictions. One parent reported, "Depression has affected us in our household." Other parents reported experiencing multiple stressors that intersect across themes. For example, a parent expressed "experiencing fear and anxiety about contracting the virus." This parent also stated, "I was laid off my job, so I feel worried financially about the future." One parent described that the inability to go outside increases stress and "more meltdowns" from their children. Another parent reported:

"It's been mentally and physically stressful dealing with quarantine. Small house. My husband has been recovering from…[an] injury and now has to be a teacher, housekeeper, and try to heal himself at the same time. It's hard for me to go to work every day as an essential worker and be exposed to potential infection. Finances are a mess and we are relying on food stamps and food banks/ free dinners."

Despite participants reporting an increase in stressors, some parents reported no change or positive change as a result of recommendations to self-isolate and stay at home. Positive or neutral themes emerged as follows: (1) more time with children and family and (2) not much change. For example, one parent stated, "We are happier, less stressed, less busy, enjoying more time together, enjoying working, relaxing, and recreating according to our moods and individual rhythms." Other parents expressed that they "get more time with their [children]" and "some days are better than others."

5. Discussion

This study examined risk and protective factors implicated in parental perceived stress and child abuse potential during the COVID-19 pandemic. Findings indicate that parents experienced cumulative stressors due to COVID-19. Regarding specific stressors, approximately 21%–47% of parents reported that their children experienced changes to their health and learning, respectively, as a result of COVID-19. The most prevalent stressor among parents included changes to their mood and general stress levels. Likewise, a majority of parents reported experiencing symptoms of anxiety and depression as well as poor sleep. These results are consistent with prior research examining the effects of public health crises on the health and well-being of individuals (Earls, Raviola, & Carlson, 2008; Lau et al., 2008).

Differences were found between Black/ African American parents and Latinx parents and between Black/ African American parents and non-Latinx White parents in the average number of COVID-19 related stressors. Indeed, Latinx parents reported the highest average number of COVID-19 related stressors than other racial and ethnic groups. These group differences may be trivial due to the relatively small effect size as well as the small sample of Black/ African American parents in the study. However, results could provide preliminary support to suggest racial and ethnic differences in families' experiences of COVID-19. Growing evidence suggests that minoritized communities are disproportionately impacted by COVID-19 (e.g., Centers for Disease Control & Prevention, 2020a; Hooper, Napoles, & Pérez-Stable, 2020), and several studies indicate that stress processes in families may differ both within and across racial and ethnic groups (Gomel, Tinsley, Parke, & Clark, 1998; Goosby, Caldwell, Bellatorre, & Jackson, 2012). Particularly for Latinx families, *Familismo* is commonly recognized as a core Latinx value. *Familismo* involves strong identification with and attachment to a nuclear extended family as well as an obligation to provide both material and emotional support to one's family (Calzada, Tamis-LeMonda, & Yoshikawa, 2012). The absence of family support due to the stay-at-home restrictions and physical distancing could explain Latinx parents' higher report of COVID-19 related stressors compared to other racial and ethnic groups. However, the cultural context regarding physical distancing and social support were not systematically assessed in this study and should be considered in future research examining the impact of COVID-19 on domains of parenting, health, and wellness.

Although information concerning COVID-19 is continuing to evolve, results were somewhat unexpected with regard to participants' reports of knowing someone who tested positive or died from COVID-19; over half of the sample reported knowing someone who tested positive for the virus, with approximately one-quarter of the sample knowing someone who died. Consistent with prior research, however, it was anticipated that families would report experiencing financial strain during the pandemic and this is another major source of stress among families. Indeed, lower-income individuals tend to live in urban settings, in more crowded conditions both by neighborhood and household composition, and are more likely to be employed in public-facing occupations (e.g., services and transportation), which may be a barrier to physical distancing (Webb Hooper, Nápoles, & Pérez-Stable, 2020). Furthermore, the economic crisis in 2008 also affected the labor market and individual's health and wellness (Mucci, Giorgi, Roncaioli, Perez, & Arcangeli, 2016), thereby highlighting the toll that health and economic crises may have on general perceptions of stress and mental health. Qualitative findings provide further insight into participants' experiences about how their life has been affected by COVID-19 and the stay-at-home restrictions, specifically with regard to their financial, physical, and mental health as well as their children's well-being and ability to assist with their children's academics.

An accumulation of stressors due to COVID-19 is a key risk factor implicated in higher parent-perceived stress whereas anxiety and depression are associated with both higher parent-perceived stress and child abuse potential. These results suggest that the greater number of stressors experienced from COVID-19 may act as a salient determinant of general parental stress, but negative perceptions of stress could be particularly higher among parents who also report feelings of anxiety and depression. That cumulative stressors from COVID-19 did not significantly relate to increased risk of child abuse potential in this sample is favorable. Although cumulative stress, in general, is strongly associated with child maltreatment, our findings indicate that stressors specific to COVID-19 may not intensify maltreatment risk, though future research is needed to test the long-term implications of the COVID-19 pandemic on myriad child and

family outcomes. Further research would also benefit from the use of standardized measures to better assess the impacts of COVID-19 on risk of child maltreatment and to replicate these results. Given that some parents expressed positive benefits as a result of the stay-at-home restrictions, such that recommendations to isolate at home also corresponded with more time spent with their children, it is possible that these positive changes had an impact on parenting. In contrast, certain sociodemographic and mental health risk factors were linked to risk of abuse potential. Specifically, families receiving financial assistance and parents with higher symptoms of anxiety and/or depression were at increased risk. These findings corroborate extant research demonstrating robust relationships between low income, mood disorders, and maltreatment risk (Drake & Jonson-Reid, 2014; Liu & Merritt, 2018; Lorant et al., 2003).

In spite of the positive associations among COVID-19 and mental health risk factors, parental perceived stress, and child abuse potential, protective factors also mitigated these adverse outcomes. Specifically, parents' present perceived control over the COVID-19 situation decreased their perceptions of stress and risk of child abuse potential. A large body of research examining perceived control shows that parents with higher perceived control over life events are more likely to be able to use available resources to manage stressors (Duchovic, Gerkensmeyer, & Wu, 2009). Despite limited existing research of perceived control during the COVID-19 pandemic, research shows that with regard to health-related outcomes, in general, levels of perceived control predict changes in health over time (Infurna, Gerstorf, & Zarit, 2011). Moreover, in the parenting context, parents with lower present control have higher levels of parenting stress (Harrison & Sofronoff, 2002).

Because families are likely to experience a lack of support from external sources, such as from schools or childcare settings during the COVID-19 pandemic, it is important that the support they receive within the home impacts their perceived stress and parenting. Indeed, findings from the current study suggest that the level of emotional and social support a parent receives is significantly associated with lower perceptions of stress and risk of child abuse potential. These findings are promising because, in light of the difficulties associated with the global pandemic, families who may be coming together to provide support may also be alleviating stress and its consequences. Given that the majority of participants were mothers, support for mothers, in particular, should be considered as research indicates they take on more of the household and familial duties regardless of socioeconomic status (Bianchi, Sayer, Milkie, & Robinson, 2012).

While perceptions of control over the COVID-19 situation and parental support were protective for parents in this sample, other cognitive strategies, such as their level of acceptance after having experienced a negative event was not. Prior research shows that interventions that promote acceptance, such as mindfulness, may mitigate general stress (e.g., Baer, Carmody, & Hunsinger, 2012). However, given that the majority of parents reported anxious and/or depressive symptomology and that individuals with clinical-level concerns are more likely to have lower levels of acceptance (Roemer et al., 2009), it is possible that it may be difficult to manage the uncertainty and unintended consequences associated with COVID-19. Longitudinal research and randomized controlled trials are needed to determine the directionality and causality of these associations.

This study has several limitations. The sample was relatively small and only families involved with service agencies and educational settings in the Rocky Mountain region of the United States were invited to participate. The sample was also largely comprised of mothers who racially and ethnically identified as non-Latinx White. Although results here may be similar to those found in racially and ethnically diverse families living in different geographic regions, findings cannot be broadly generalized. In fact, minoritized families are more likely to experience greater social inequities than their White counterparts, which may in turn exacerbate risk of poor outcomes during global health crises.

Despite efforts to reduce participant burden by administering a brief survey, a limitation of this study was that the survey included single item indicators to assess mental health risk. In addition, a revised version of the Child Abuse Potential Inventory was used. Although this may serve as a proxy for child maltreatment potential, further research should use both objective and subjective measures with known psychometric properties to reliably and validly assess mental health and maltreatment risk. Also, the survey was only administered in English, limiting the opportunity to capture the experiences of non-English speaking parents. The sample also included parents with a child under the age of 18 years; thus, this study included a large age range of children, which may influence the impact of COVID-19 related stressors as well as the importance that protective factors may have in determining stress and parenting outcomes. Finally, this study was cross-sectional. Therefore, causal inferences cannot be made. Longitudinal research is needed to evaluate the effects of the COVID-19 pandemic and prolonged stay-at-home restrictions among diverse families across the world. In addition, more research is needed to better understand how children's age may influence parent stressors and child abuse potential during the COVID-19 pandemic.

Despite these limitations, these findings elucidate the important associations of COVID-19 related stressors and mental health risk with parental perceived stress and child abuse potential and the role that protective factors may play in mitigating these adverse associations. As such, this study has several implications for prevention and intervention programming to reduce parental stress and child abuse potential during the COVID-19 pandemic. For example, given that higher perceived control was associated with lower perceived stress, mindfulness-informed or cognitive-behavioral strategies that are known to promote flexible responding in situations may improve outcomes for parents (Brown et al., 2018; Pagnini, Bercovitz, & Langer, 2016). Moreover, in addition to the emotional and social support a parent receives within their family, providers and educators serving families could connect families with other community resources to broaden their support networks. Also, providing culturally responsive whole-family programs and services that benefit children and parents as well as their extended family may offer additional support, particularly for Latinx families and families impacted by greater financial strain (Prime et al., 2020).

The COVID-19 pandemic has brought health disparities to the forefront and reveals larger systemic issues immobilizing families in the United States, warranting social justice and further attention to public health prevention services as well as early efforts to support and empower families. Sustained efforts are needed to improve multiple social and cultural factors linked to disparities among marginalized families in the United States, which may in turn impact stress and parenting. For example, Medicaid expansion in all

states would allow parents to access both physical and behavioral healthcare, which could help to reduce health-related stress and increase use of prevention and intervention services, thereby having a protective effect on both parents and their children in the context of global stressors (Allen & Sommers, 2020). In addition, improving family-centered healthcare by reducing barriers to accessing care is needed. This may include supporting transportation costs, implementing telehealth services, or ensuring a culturally safe practice environment. Finally, policy solutions, including expanding community partnerships and streamlining partnerships across service sectors that aim to reduce disparities and promote more equitable outcomes for marginalized children and families are also needed (Campbell, 2020).

In conclusion, this study examined the risk and protective impacts of the COVID-19 pandemic in relation to parental perceived stress and child abuse potential among families in the western United States. Agencies that serve families during the pandemic will benefit knowing about stressors parents experience due to COVID-19 and what factors may increase or reduce stress and risk of child maltreatment. As most research has been conducted outside the context of a global health crisis with significant health, social, and financial implications, the current research provides preliminary insight into factors affecting families during the COVID-19 pandemic.

Declaration of Competing Interest

All authors declare that there are no conflicts of interest.

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