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COVID-19 Life Events Moderate the Relation Between Harsh and Neglectful Parenting and
Child Behavior Problems

REGHAN H. LIEBERMAN
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Reviewed and approved* by the following:

Dr. Erika Lunkenheimer
Professor of Psychology
Thesis Supervisor

Dr. Sarah Myruski
Assistant Research Professor
Honors Adviser

* Electronic approvals are on file.

ABSTRACT

The COVID-19 pandemic disrupted many facets of people's lives. We examined relations between harsh and neglectful parenting and child behavior problems with COVID-19 life events as a moderator. In our study, mothers with children ages 2 through 6 years self-reported their harsh and neglectful parenting behaviors, child behavior problems, and COVID-19 life events in numerous domains. We hypothesized that a positive relation between harsh and neglectful parenting and child behavior problems would be exacerbated by a greater number of COVID-19 life events. A linear regression model in R revealed a significant interaction between harsh and neglectful parenting and potentially stressful COVID-19 life events in association with child behavior problems. A positive relationship between harsh and neglectful parenting and child behavior problems was found at all COVID-19 levels (low, average, high). Additionally, parents who experienced greater numbers of COVID-19 life events and utilized more harsh and neglectful parenting practices reported significantly more child behavior problems compared to parents who experienced less COVID-19 life events.

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Chapter 1

Introduction

The Coronavirus pandemic disrupted various facets of life. Specifically for this study we looked at parenting and lifestyle changes associated with the pandemic. Due to the pandemic, parents had to deal with the addition of their children being home more frequently because of school and daycare closures (Woodman et al., 2015; Nuñez, Stuart-Cassel & Temkin, 2020). This in turn potentially increased lifestyle changes and stress associated with this new way of life (Patrick et al., 2020). It is essential to understand the impact that the unprecedented life disruptions had on parents and how those changes may be linked to the relationship between harsh parenting styles and child behavior problems. Therefore, by better understanding this relationship, we can help predict harsh parenting and resulting child outcomes.

This topic is especially vital to understand because the first years of a child's life is very important regarding development. For instance, during the first years of life, children begin developing self-autonomy, emotion regulation skills, ability to control behavior, impulse control, and compliance. (Kopp, 1982). Negative impacts can be detrimental to young children due to the increase in neurobiological sensitivity.

Child Behavior Problems

Child behavior problems are characterized as either externalizing or internalizing (Achenbach, 1978). Externalizing behavior problems are outward behaviors such as aggression or violence, hyperactivity, tantrums, and emotion dysregulation (Kauten & Barry, 2020). Contrarily, internalizing behavior problems pertain to a child's emotions and psychological state,

such as exhibiting withdrawal, anxiety, and depression symptoms (Liu et al., 2011). Furthermore, Liu and colleagues (2011) explain that types of behaviors can be harmful. For example, internalizing behavior problems can potentially affect peer relationships, which can pose challenges when developing friendships. Additionally, research has determined that there is a link between the development of childhood and adulthood psychiatric disorders, specifically for anxiety, depression, and suicide (Liu et al., 2011).

Externalizing behavior problems and early childhood aggressive behavior has been linked to continued delinquent behavior through adulthood (van Beijsterveldt et al., 2003). More specifically, this type of behavior is a risk factor for adult crime, juvenile delinquency, and violence (Betz, 1995; Farrington, 1989; Moffitt, 1993). Moffitt and Caspi (2001) further this idea by explaining that early and high levels of aggressive and externalizing behavior potentially have continued issues with aggression and delinquent behavior throughout their entire lives. Additionally, rebelliousness is an underlying component of externalizing behavior, which is also a predictor for future violence (Krueger & South, 2009). This finding demonstrates the long-term implications that child externalizing behavior problems has on children as they continue to grow and mature.

Externalizing behaviors can also impact child relationships, such that negative mother-child relationships often result in a decline in familial support and an increase in externalizing behaviors (Akcinar & Baydar, 2016). This negative relationship also has a spillover effect into other relationships. Additionally, children who exhibit externalizing behaviors encounter difficulties making friends and will often look towards antisocial individuals to befriend (Sturaro et al., 2011). The authors also determined that physical and verbal aggression is linked to peer

rejection and the inability to develop strong connections, which can increase externalizing behaviors.

On the other hand, children who exhibit internalizing problems are often socially withdrawn, anxious, and inhibited or shy (Pine et al., 1998). These symptoms are focused on the child's internal state rather than the outside environment and can lead to the development of depression and anxiety later in life (American Psychological Association, 1994). Overall, internalizing behaviors place children at risk for educational difficulties, and higher risk of suicide and psychiatric disorders (Pine et al., 1998).

More specifically, academic difficulties are associated with emotional distress (Larson & Ham, 1993), such that a child becomes frustrated easier and prompts internalizing behaviors and the unwillingness to persevere in the school setting (Flook et al., 2005; Nolen-Hoeksema et al., 1992; Rudolph et al., 2000). Moreover, feelings of helplessness and the inability to succeed hinders the desire to improve and focus on learning, thus that reading difficulties have strong impacts on depression symptoms (Maughan et al., 2003). These findings demonstrate the negative effects that internalizing behavior has on academic success.

Additionally internalizing behaviors are associated with negative health outcomes. For example, research has determined the connection between mental and physical health, such that there are notable differences in immune system functioning for children who have depression (Bartlett et al., 1995; Caserta et al., 2011). This finding indicates that depression potentially weakens the immune system which increases vulnerability to illnesses. Also, children diagnosed with chronic illnesses tended to self-report internalizing behaviors (Woods et al., 2013), while increasing their risk for physical symptoms (Aarons et al., 2008; Biebl et al., 2001; Nelson et al., 2013), such as, respiratory diseases, weight issues, and other infectious illnesses. This further

demonstrates the influence internalizing behaviors has on overall health and wellbeing.

Determining variables that predict child behavior outcomes is vital to prevent future negative outcomes, specifically during unprecedented times and during the important developmental stages of children's lives.

Parenting

Parenting practices are essential in promoting child development. Adaptive parenting, including proactive teaching, positive affect and reinforcement, child centeredness (Pettit, Bates, & Dodge, 1997), has been consistently associated with the development of prosocial skills regarding relationships and the enhancement of behavioral and social-cognitive outcomes. This style of parenting is associated with more positive child outcomes (Mize & Pettit, 1997). Additionally, Pettit and colleagues (2006) found that supportive parenting could offset risk connected to various types of family adversity for children that have not yet entered kindergarten. Specifically, low socioeconomic status (SES), single parent households, and greater parental stress were connected to maladjustment in children, including higher externalizing behavior problems, less optimal social skills with peers, and worse later academic performance. However, supportive parenting acted as a buffer in the relation between aspects of family adversity and child adjustment, such that high levels of supportive parenting mitigated the effects of family adversity on later child behavior problems. These findings suggest that supportive parenting may be an important tool in softening the effects of adversity, including financial strain and parent stress, on child development.

On the other hand, harsh and neglectful parenting, such as verbal and physical aggression directed toward children, have been associated with increased risk for negative child outcomes, including higher levels of emotional dysregulation, hyperactivity, and inattentive behaviors,

conduct and behavior issues, and lower self-control in children (Erath, El-Sheikh, & Cummings, 2009; Cecil et al., 2012; Speyer et al., 2022). This can be especially harmful for young children during the early development stages (Kopp, 1982). Furthermore, harsh parenting is associated with externalizing behavior (Gershoff, 2002). The exposure to aggressive behavior can result in children copying that behavior, due to social learning theory (Bandura, 1977). Therefore, aggressive behavior is associated with negative peer relationships (Kim & Cicchetti, 2010), delinquency and increased risk of violent behavior (Widom, 2014). Harsh parenting can also impact the child psychologically. For instance, studies have determined a link between child maltreatment and psychiatric disorders, such as anxiety, depression, PTSD, and substance abuse (Widom, 2014). This demonstrates that exposure to harsh parenting can impact various facets of a child's life, especially during early childhood (Kopp, 1982).

Harsh parenting has also been linked to parental stress levels, such that harsh parenting is more likely to occur when parents are experiencing higher levels of stress (Brown et al., 2020). Furthermore, parenting stress is associated with a higher risk of child maltreatment (Anthony et al., 2005; Black, Heyman & Slep, 2001; Haskett et al., 2003; Pereira et al., 2012; Rodriguez 2010; Taylor et al., 2009), increased conflict between parent-child relationships (Anthony et al., 2005; Abidin 1995), and harsh parenting styles (Pinderhuges et al., 2000; Webster-Stratton, 1990). However, spanking is connected to aggressive and deviant behaviors among children, due to the lack of understanding of the rules that resulted in physical punishment (Coley et al., 2014). Therefore, increased levels of potentially stressful pandemic life events can be associated with increased harsh parenting techniques and increased levels of child behavior problems.

COVID-19

The uncertainty of the COVID-19 pandemic, along with the financial and social changes that often coincided with the pandemic, may have influenced levels of potential stress, anxiety, and depression (Brown et al., 2020). Indeed, a study conducted by Brown and colleagues (2020) revealed that Covid-19 stress was linked to higher anxiety and depression, which resulted in greater perceived stress. Moreover, greater anxiety and depression symptoms were associated with a higher chance of child abuse, indicating an indirect connection between Covid-19 stress and child abuse through anxiety and depression symptoms. Together, these findings indicate that major life stressors, such as the COVID-19 pandemic, may impact the quality of parenting through other mechanisms, such as psychopathology symptoms.

Coronavirus (Covid-19) has impacted many aspects of life and ways of parenting. According to Adams et al., (2021) most parents reported difficulty parenting in the same manner as they did prior to the Covid-19 pandemic, such that it had become more challenging. Furthermore, the transition to online schooling, changes to children's schedule and routines, and uncertainty pertaining to the pandemic were potential stressors for parents. For instance, three-in-four parents experienced an increase in parenting stress, due to their reaction to the pandemic (Adams et al. 2021). Therefore, a risk for potential parental stress can negatively impact children.

We proposed that higher levels of potentially stressful Covid-19 life events are associated with higher levels of child behavior problems, while lower levels of Covid-19 life events are associated with less child behavior problems. There is a link between parents experiencing potentially stressful life events and children exhibiting behavior problems. For instance, quarantine increased children's emotional and behavioral problems specifically for parents who experienced individual stress (Spinelli et al., 2020). Additionally, the unprecedented situation

and potential for distress, increased the risk for unsupportive parenting practices, which in turn impacts psychological symptoms and child behavior (Spinelli et al., 2020).

Furthermore, home confinement and quarantine were an adjustment that resulted in a potential for increased distress and uncertainty, due to social isolation and lack of support (Lee et al., 2021). Many schools transitioned to a remote learning setting, which meant parents were more involved in their children's learning (Woodman et al., 2015; Nuñez, Stuart-Cassel & Temkin, 2020). This in turn resulted in additional burden being placed on parents, due to the increased need for child supervision (Lee et al., 2021). It is also noted that the additional responsibilities have been associated with more parenting stress (Patrick et al., 2020). Parental stress is a risk factor for child behavior problems (Baker et al., 2003; Briggs-Gowan, Carter, Skuban, & Horwitz, 2001; Donenberg & Baker, 1993; Mash & Johnston, 2001). Therefore, this can impact the parent-child relationship, thus that there is an association between stress and child internalizing and externalizing behavior problems (Woodman et al., 2015). Additionally, distress was a predictor of both internalizing and externalizing child behavior problems, due to social disruptions (Sun et al., 2022).

We also proposed that more Covid-19 life events experienced, and potential stress is associated with higher levels of harsh parenting, while less Covid-19 life events experienced is related to lower levels of harsh parenting. Specifically, greater Covid-19 stressors are associated with a greater risk of child abuse (Adams et al., 2021), which demonstrates a possible relationship between parental stress and maltreatment potential. Harsh parenting and aggression include using physical punishment more frequently such as, slapping, yelling, or other forms of verbal violence to control the child (Chang et al., 2003). Additionally, financial insecurity and the uncertainty surrounding Covid-19 is linked to an increase in parental aggression (Verma &

Prakash, 2020). This type of behavior was more prevalent during the lockdown compared to pre-pandemic levels (Sari et al., 2022), which is associated with sudden adverse life events and experiences endured during the height of the Coronavirus. For instance, the drastic shift in parenting roles created a change in support systems, which adds additional distress and risk for harsh parenting and abuse to occur (Guterman et al., 2009; Li et al., 2011), while also reducing parent-child closeness (Chung et al., 2022). This shows that undergoing potentially stressful life events specifically related to Covid-19 impacts parenting styles, thus increasing the likelihood of child behavior problems.

The current study sought to determine the impact that potentially stressful COVID-19 life events have on the relationship between harsh parenting and child behavior problems. With the longevity of the pandemic and other life stressors, it is essential to understand how harsh parenting and COVID-19 life events may interact to predict child behavior problems. This study attempted to address gaps in the literature pertaining to the impact of COVID-19 on parenting styles and child behavior.

Chapter 2

Methods

Participants

Participants were 277 caregivers (93% biological parent) and their children between the ages of 2 and 6 years old. Caregivers were recruited remotely for this cross-sectional study through Amazon Mechanical Turk (MTurk) in both Summer 2020 (n=227) and Winter 2020 (n=153). Individuals complete paid human intelligence tasks (HITs) online published by social

scientists, market researchers, and product developers. Specific groups of participants can be chosen to view HIT advertisements, which makes MTurk useful tool as collecting data from parents remotely (Schleider & Weisz, 2015). Participants whose MTurk accounts indicated they (eligibility criterion 1) identified as female, (2) were a parent, (3) resided in the United States, (4) had successfully completed at least 50 HITs, and (5) had a minimum 95% HIT approval rating could view the study advertisement.

The mean child age was 3.89 years old ($SD=1.09$, range= 3.92); mean caregivers age was 35.37 years old ($SD=7.76$, range= 51.00). The sample of children were almost evenly split with males comprising 51.0% and females 49.0%. Additionally, the majority of children identified as White/Caucasian (79.4%), and not Hispanic or Latino/Latina/Latinx (88.8%). Most caregivers were biological mothers (92.3%), 1.8% were partners of the child's biological parent, 1.5% were adoptive parents or extended family members, 1.2% were stepparents, and less than 1.0% were foster parents or other. Most caregivers were White/Caucasian (83.2%), not Hispanic or Latino/Latina/Latinx (90.0%), and 72.0% of caregivers completed at least 2 years of college or more. The average yearly family income was between \$50,000 to \$59,000 ($SD= 2.90$). For this current study, we analyzed data for children between the ages of 2 and 5 years old.

Procedure

The current study was approved by the institutional review board at the Pennsylvania State University and consent was obtained from each participant before their participation began. Interested caregivers completed two additional eligibility questions in Qualtrics. Caregivers who (6) reported fluent in English and (7) had a child between the ages of 2 and 6 years old were

brought to a consent form. Those who gave implied consent to the study began the questionnaire, which included questions about the caregiver, the child, and parenting. which took about 40-45 minutes to complete. Next, caregivers clicked on a link that downloaded Millisecond's Inquisit 6 Player software. Caregivers used the software to complete cognitive tasks for about 10-15 minutes. Once completed, caregivers entered a payment code for \$6.00 into MTurk for their participation.

Parents as Resilient Thinkers (PART) was a remote and cross-sectional study that focused on mothers with children ages 2- to 6- years- old and investigated the impact of parent regulatory processes throughout the pandemic, family regulation and dysregulation, and maternal stress response due to COVID-19. Mothers completed a demographic questionnaire which assessed parent and child age, parent and child race/ethnicity, yearly gross income, and parent education level. Participants completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) questionnaire online. Additionally, participants completed the Conflict Tactics Scale- Parent Child (CTS-PC; Straus, Hamby, & Warren, 2003) questionnaire online. Lastly, participants self-reported the Epidemic – Pandemic Impacts Inventory (EPII; Grasso et al., 2020) questionnaire online.

Measures

Child Behavior Problems

The Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) is a self-report questionnaire that assesses emotional, social, and behavioral problems in children aged 2 to 6 years old, including internalizing (combining scores of emotional reactivity, anxiety/depression,

somatic symptoms, and withdrawn behavior problems) and externalizing behavior problems (combining scores of attention problems and aggressive behavior subcategories). Answers are based on a three-point likert scale which includes “absent = 0”, “occurs sometimes = 1”, and “occurs often = 2”. Total score of behavior problems were calculated as the sum of the combined score of internalizing and externalizing scales. Higher scores on the CBCL questionnaire reveal higher internalizing and externalizing behavior problems. Reliability for CBCL questionnaire was excellent ($\alpha=.98$; Kline, 1999).

Harsh and Neglectful Parenting

The Child Tactics Scale -Parent Child (CTS-PC; Straus, Hamby, & Warren, 2003) is comprised of 21 items relating to various aspects of harsh parenting, including psychological aggression (e.g., yelling at child and threatening), physical assault (e.g., spanking and hitting), and neglect (e.g., failing to meet child needs and lack of supervision). Caregivers reported the frequency of harsh and neglectful parenting within the last year. Harsh and neglectful parenting score was calculated by summing scores from the Psychological Aggression, Physical Assault, and Neglect subscales of the CTS-PC. Reliability for CTS-PC was good ($\alpha=.85$; Kline, 1999).

Negative COVID-19 Impact

The Epidemic-Pandemic Impacts Inventory (EPII; Grasso et al., 2020) is a relatively novel questionnaire designed to measure the impacts of the COVID-19 pandemic on various facets of life. The EPII questionnaire has 92 items that relate to negative impacts in various life domains that were experienced during the pandemic, including work (e.g., laid off and transition to working from home) and home life (e.g., change in childcare and increase in conflicts with partner), social life (e.g., separated from family/friends and vacation cancellation), economic (e.g., inability to afford food and difficulties paying bills), isolation (e.g., quarantined and limited

contact with loved ones), physical (e.g., increased health problems and missing normal healthcare visits), and emotional health (e.g., increased anxiety/stress and change in sleep patterns). Participants reported whether they were impacted (“Yes”) or not (“No”) by each question from each above subscale or reported if the question did not apply to them (N/A). The total negative COVID-19 impact was calculated by the total number of questions that participants indicated that they experienced for each subscale. The higher the score, the greater negative impact or life events experienced by the participants due to the pandemic.

Chapter 3

Results

Preliminary Analyses

The CBCL scores ranged between 0.00 and 94.00 ($M= 23.03$, $SD= 20.28$). CBCL skew and kurtosis were 1.54 and 2.01 respectively and fall within the cutoffs to be acceptable and assume normality (Bryne 2010; Hair et al., 2010). The CTS-PS scores ranged between 0.00 to 159.93 ($M= 37.55$, $SD= 45.32$). Preliminary analyses revealed a high kurtosis value for the maladaptive parenting sum score variable (kurtosis=5.46). To address this issue, extreme high values (outliers) were replaced by outlier values of lower weight via the winsorization method to minimize the influence of outliers (Ghosh, D., & Vogt, A., 2012). After winsorization, the kurtosis value was acceptable (kurtosis=1.33). The EPII scores ranged between 0.00 and 44.00 ($M= 15.57$, $SD= 10.25$). Skew and kurtosis values for EPII were 0.82 and -0.14 respectively and fall within with cutoffs to be acceptable and assume normality (Bryne 2010; Hair et al., 2010). Caregiver age ranged from 17.00 to 68.00 years old ($M= 35.37$, $SD=7.76$) and child age ranged

from 2.00 to 5.92 years old ($M= 3.89$, $SD=1.09$). 51.0% of children were male and 49.0% of children were female. Family income ranged from less than \$4,999 per year to \$90,000+ per year. The average yearly family income was \$50,000 to \$59,999. See Table 1 and Table 2 for the full breakdown of variable descriptives and correlations.

Main Analyses

To address whether the relationship between harsh and neglectful parenting and child behavior problems varied by the amount of COVID-19 life events, we used a linear regression analysis. The linear regression in R revealed a significant interaction between maladaptive parenting and COVID-19 stress in association with child behavior problems ($N=165$, $b=.01$, $t=3.03$, $p<.000$, $R^2=.611$). To find out the nature of this interaction, we calculated, analyzed, and plotted simple slopes. These analyses revealed that harsh and neglectful parenting with low, average, and high COVID-19 life events levels were differentially related to child behavior problems. The interaction was significant at high, low, and average levels of COVID-19 life events, such that the relationship between maladaptive parenting and child behavior problems was significantly stronger for caregivers who also reported more COVID-19 life events. There were no main effects for any study variable on child behavior problems when controlling for all other study variables. See Table 3 for all regression output statistics.

Chapter 4

Discussion

The purpose of this study was to investigate the impact that COVID-19 life events as a moderator has on the relationship between harsh parenting and child behavior problems. The study hypothesis was supported. There is a significant positive interaction between harsh and neglectful parenting and child behavior problems at all levels of COVID-19 life events. The relationship between harsh and neglectful parenting and child behavior problems has a stronger association when COVID-19 life events are higher, compared to average and low levels.

Previous literature has found that harsh and neglectful parenting is associated with child behavior problems (Gershoff, 2002). For instance, research has determined that harsh parenting is linked to both internalizing (e.g., anxiety and depression symptoms) and externalizing (e.g., aggression and hyperactivity) behaviors in children. This study builds upon previous findings and research to investigate potentially stressful COVID-19 life events as a moderating variable in the relationship between harsh and neglectful parenting and total child behavior problems. Additionally, previous research has found that COVID-19 life events are associated to higher levels of anxiety and depression symptoms, which in turn are linked to greater risk of child abuse (Brown et al., 2020).

These findings are important to understand the moderating role of COVID-19 life events, which can guide intervention programs to target and tailor interventions for parents with varying levels of potential COVID-19 stress. Specifically, COVID-19 life events as a moderator strengthened the relationship between the predictor and outcome variables. This result is comparable to the Brown et al. (2020), study which found that greater exposure to COVID-19

life events is related to greater parental stressors, anxiety, depression, which are associated with a greater chance of child abuse.

The Parenting Stress Model (Abidin, 1992) may explain the moderating effect that COVID-19 life events have on harsh and neglectful parenting and child behavior problems. The Parental Stress Model states that stress is influenced by environmental factor which impacts the role of parenting. Furthermore, exposure to stressful life events can increase parental perceived stress (Deater-Deckard, 1998). The COVID-19 pandemic disrupted and impacted many aspects of life, such as financial and employment changes, increases in parental responsibilities due to children being home from school, limited social interactions, and general feelings of uncertainty. Furthermore, according to Adams et. al (2021) 3 in 4 parents experienced an increase in stress during the pandemic due to life changes and uncertainty. These changes have the potential to be linked to parental stress, which is associated with more harsh and neglectful parenting practices (Chung et al., 2022).

These results also indicate that COVID-19 life events are a potential risk that strengthens the relationship between harsh and neglectful parenting and resulting child behavior problems, which can be especially harmful for children of young ages, due to many cognitive and behavioral developmental changes occurring (Kopp, 1982). All levels of COVID-19 life events levels exacerbated the relationship between the variables. However, more specifically, the relationship was the strongest when parents experienced more COVID-19 life events and used more harsh and neglectful parenting practices. It was expected that COVID-19 would exacerbate the relation due to additional stress, the increase of parental responsibilities, and uncertainty surrounding the pandemic. This demonstrates that environmental events and stressors, such as

COVID-19, has the potential to increase harsh parenting. Furthermore, parental stress is a risk factor for harsh and neglectful parenting (Webster-Stratton, 1990).

These findings have important implications to create or utilize programs and policies to protect children. Child welfare programs are essential to address issues related to instances of abuse. Therefore, it is vital to understand risk factors and variables that increase the potential for harsh and neglectful parenting can be identified. Additionally, a deeper understanding can guide intervention programs that are targeted towards helping at-risk families during stressful and unprecedented times in the future. Finding ways to teach caregivers how to cope and find resources during stressful times is a strategy to potentially combat the increased risk of harsh and neglectful parenting. For example, Narrative Exposure Therapy is an intervention program that helps individuals cope with trauma after both natural and man-made disasters (Bichesu et al., 2007). More specifically, individuals who received Narrative Exposure Therapy had a reduction in trauma, stress, and depression symptoms. Supportive parenting is considered a buffering effect and protective factor against adversity and behavior problems (Pettit et al., 1997). Indeed, creating opportunities for children live in a safe environment will improve their outcomes for the long-term.

There are several limitations to this study that should be discussed. The first one limitation is that the study was conducted remotely, and all the questionnaire responses were self-reported. This type of data collection can lead to social desirability bias and inaccurate responses. This type of data collection can lead to common method variance, which impacts the study's reliability and validity (Jordan & Trout, 2020). This occurs due to the same rater completing the survey and answering in a similar manner, due in part to personal beliefs or perceptions. Additionally, this can lead to the study variables appearing more interrelated or

weaker than actuality. One way that common method variance can be minimized is by using different sources to test the independent and dependent variable, instead of obtaining from one source. Another limitation is that all the caregivers were female, which does not take the male experience into account. Furthermore, most participants were White/Caucasian. Including male participants and more individuals with diverse backgrounds would impact generalizability. With a broader sample, the results would have the potential to be applied to more people and situations. Lastly, there are various developmental changes and processes that unfold across that time period that may not have been able to be observed given the wide age range.

Future research should include a more diverse participant sample with male caregivers and minority groups to better understand experiences from various demographics, while also including in-person tasks. The implication of findings with a more diverse population would inform programs to target specific at-risk groups. COVID-19 introduced potentially stressful environmental factors that were beyond family and parent control (Ye et al., 2020). Studying environmental stressors, beyond the pandemic would be beneficial to further understand the role that stress plays in the relationship between harsh and neglectful parenting and child behavior problems.

Table 1.

Descriptive statistics for parent and child demographic information, behavior problems, COVID-19 life events, and maladaptive parenting.

vars	<i>n</i>	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
ID	339	197.92	110.09	205.00	199.19	140.85	2.00	380.00	378.00	-0.09	-1.23	5.98
CBCL Behavior Problems	315	23.03	20.28	17.00	19.64	13.34	0.00	94.00	94.00	1.54	2.01	1.14
Maladaptive Parenting SSW	333	37.55	45.32	18.00	28.51	23.72	0.00	159.93	159.93	1.51	1.33	2.48
EPII Covid Life Events	159	15.57	10.25	13.00	14.57	8.90	0.00	44.00	44.00	0.82	-0.14	0.81
Child Gender	339	1.49	0.50	1.00	1.49	0.00	1.00	2.00	1.00	0.04	-2.00	0.03
Child Age (Yrs)	339	3.89	1.09	3.92	3.89	1.24	2.00	5.92	3.92	-0.02	-1.10	0.06
Family Income	339	9.19	2.90	9.00	9.38	2.97	1.00	13.00	12.00	-0.43	-0.56	0.16
Mom Race	337	1.39	1.11	1.00	1.08	0.00	1.00	6.00	5.00	3.08	8.44	0.06

Table 1.

Descriptive statistics for parent and child demographic information, behavior problems, COVID-19 life events, and maladaptive parenting.

vars	<i>n</i>	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
Mom Ethnicity	331	0.08	0.27	0.00	0.00	0.00	0.00	1.00	1.00	3.12	7.75	0.01
Child Race	338	1.60	1.45	1.00	1.18	0.00	1.00	6.00	5.00	2.36	4.03	0.08
Child Ethnicity	336	0.10	0.31	0.00	0.01	0.00	0.00	1.00	1.00	2.58	4.67	0.02
Mom Education	339	6.14	1.50	7.00	6.27	1.48	0.00	8.00	8.00	-1.29	2.53	0.08
Mom Age (Yrs)	338	35.37	7.76	35.00	34.61	7.41	17.00	68.00	51.00	1.09	1.91	0.42

Table 2.*Means, standard deviations, and correlations with confidence intervals.*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. ID	197.92	110.09						
2. CBCL Behavior Problems	23.03	20.28	.07 [-.04, .18]					
3. Maladaptive Parenting SSW	37.55	45.32	.07 [-.04, .18]	.67** [.61, .73]				
4. EPII COVID Life Events	15.57	10.25	.14 [-.01, .29]	.62** [.51, .71]	.63** [.52, .72]			
5. Child Gender	1.49	0.50	.11* [.01, .22]	.01 [-.10, .12]	.00 [-.10, .11]	-.02 [-.17, .14]		
6. Child Age	3.89	1.09	-.02 [-.13, .08]	-.10 [-.21, .01]	-.06 [-.17, .04]	.09 [-.06, .25]	.02 [-.08, .13]	
7. Family Income	9.19	2.90	-.11 [-.21, .00]	-.12* [-.23, -.01]	-.01 [-.12, .10]	-.02 [-.17, .14]	.08 [-.03, .18]	.03 [-.08, .13]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

Table 3.

Regression results using Maladaptive Parenting and COVID-19 Life Events to predict CBCL Behavior Problems.

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>P</i> - Value (<i>Pr</i> (< <i>t</i>))	Standard Error	<i>T</i>
(Intercept)	20.28**	[6.32, 34.25]	0.00**	7.06	2.87
Harsh and Neglectful Parenting	0.08	[-0.06, 0.22]	0.27	0.07	1.10
Covid-19 Life Events	0.24	[-0.11, 0.60]	0.18	0.18	1.35
Child Gender	-1.31	[-5.83, 3.21]	0.57	2.29	-0.57
Child Age	0.08	[-1.96, 2.13]	0.94	1.03	0.08
Family Income	-0.75	[-1.56, 0.06]	0.07	0.41	-1.83
Harsh and Neglectful Parenting: COVID-19 Life Events	0.01**	[0.00, 0.01]	0.00**	0.00	3.03

$R^2 = .647^{**}$
95%CI [.54,.70]

Note. A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. sr^2 represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Figure 1.

Histogram of Maladaptive Parenting Sum Score raw scores.

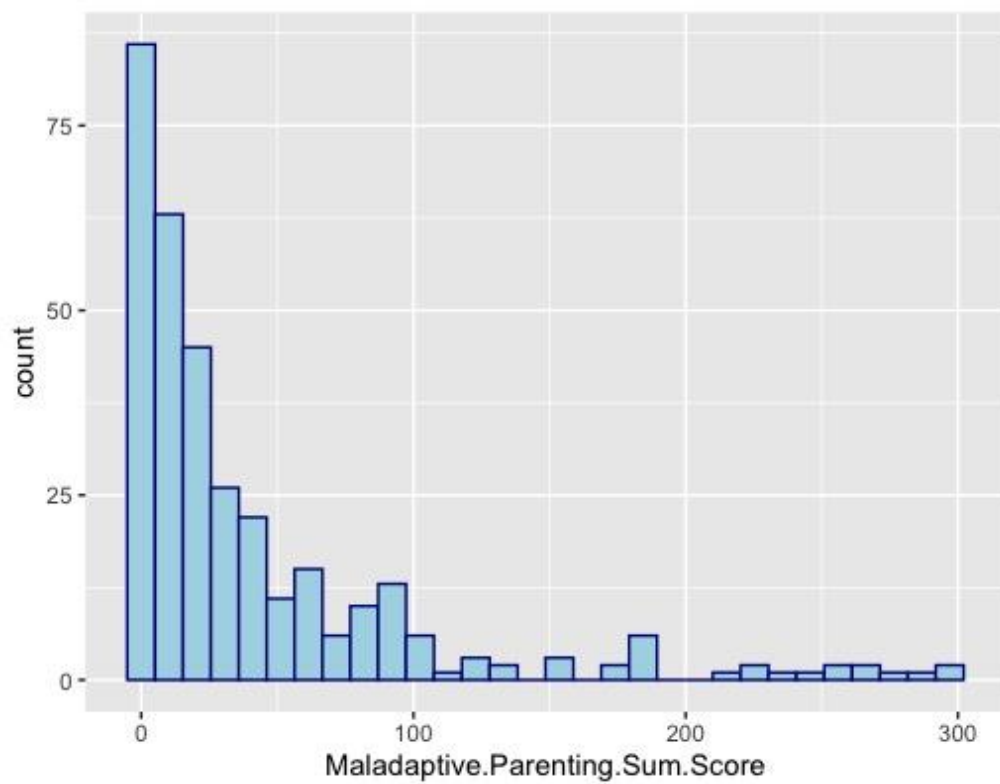


Figure 2.

Histogram of COVID-19 Life Events raw scores.

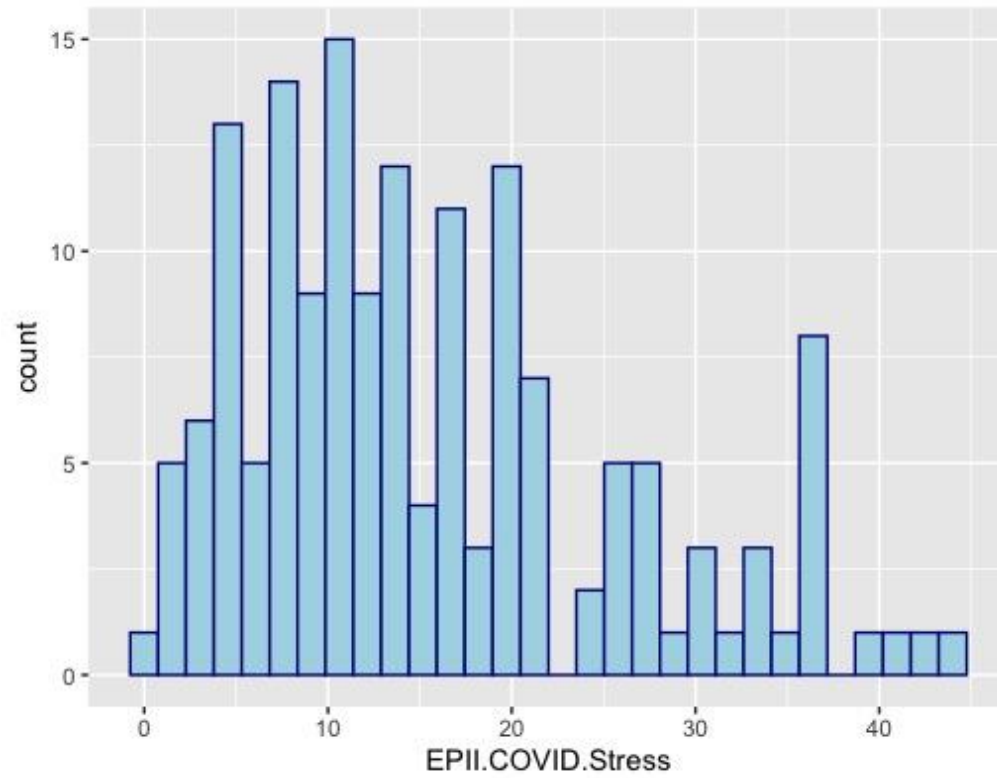


Figure 3.

Histogram of Child Behavior Problems raw scores.

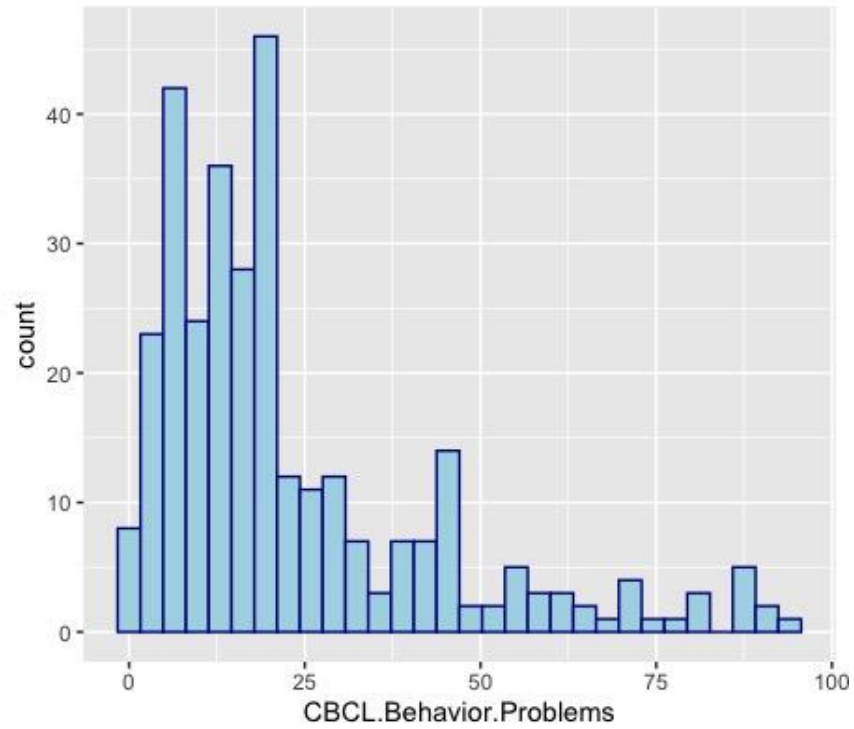


Figure 4.

Interaction plot between Harsh and Neglectful Parenting, Child Behavior Problems, and COVID-19 Life Events.

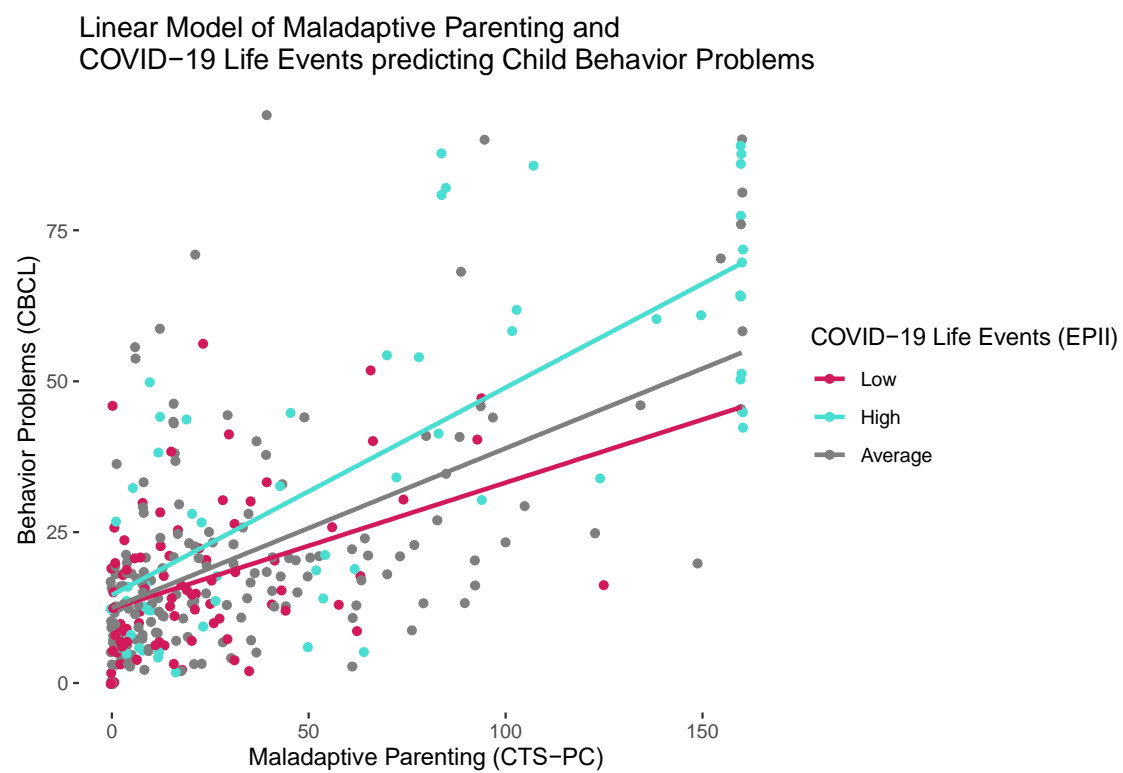
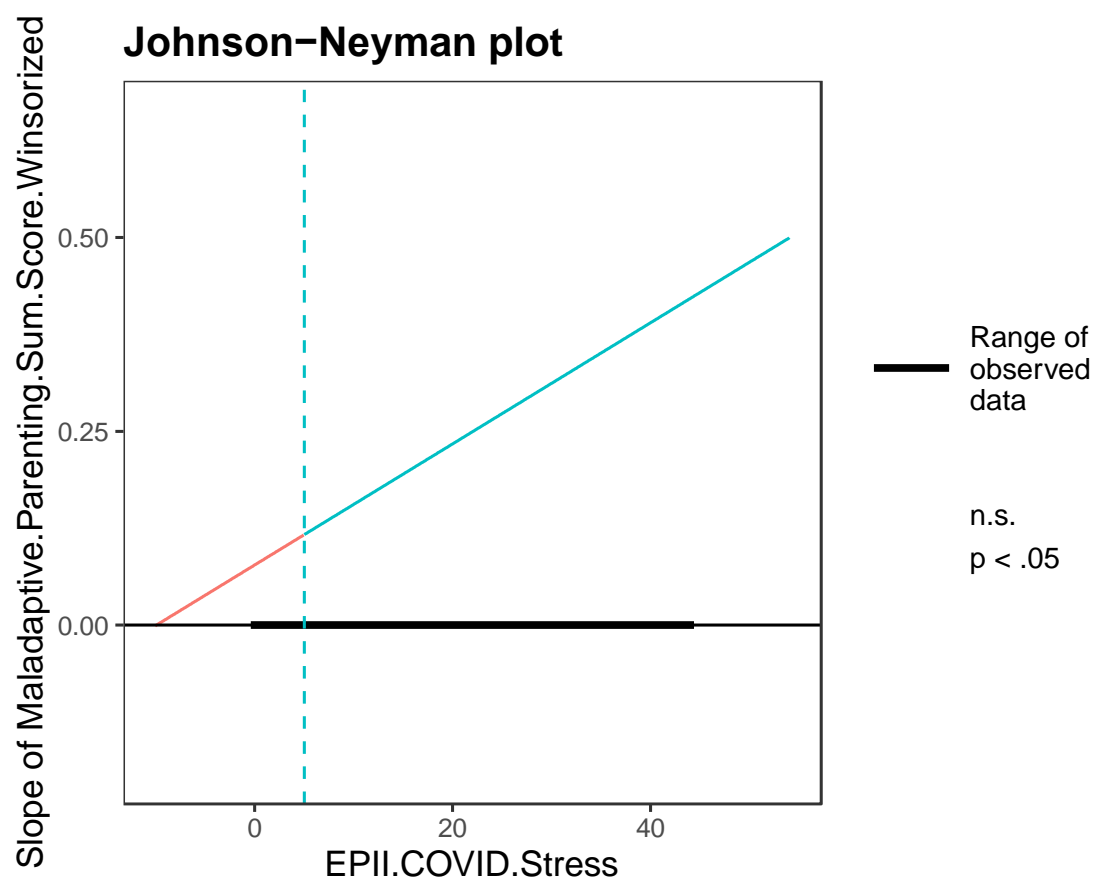


Figure 5.

Significant interaction between COVID-19 Life Events and Harsh and Neglectful Parenting.



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ACADEMIC VITA

Reghan H. Lieberman (she/her)

Education

2019 – 2023 *The Pennsylvania State University*, University Park, PA
 Schreyer Honors College Scholar
 Major: Bachelor of Science Candidate - Psychology
 Minor: Child Maltreatment & Advocacy Studies
 Graduation: May 2023
 Honors Thesis: *COVID-19 Life Events Moderate the Relation Between Harsh and Neglectful Parenting & Child Behavior Problems*
 Faculty Advisor: Erika Lunkenheimer, PhD

Awards & Honors

2022 **Schreyer Honors College Grant**
The Pennsylvania State University
 Grant awarded to honors scholars for summer term research.

2022 **College of the Liberal Arts Undergraduate Research Grant**
The Pennsylvania State University
 Grant awarded to undergraduates for summer term research.

2022 **Jewish Leadership Fellowship**
The Pennsylvania State University
 Criteria: completion of 10-week leadership and culture seminar.

2021 – Present **Psi Chi, International Honor Society in Psychology**
 Criteria: a minimum 3.0 GPA in Psychology.

2020 – Present **Phi Eta Sigma Honor Society**
The Pennsylvania State University
 Criteria: a minimum 3.5 GPA in year 1 of college.

2019 – Present **The College of the Liberal Arts Dean's List – Seven Semesters**
The Pennsylvania State University

Criteria: Full-time student with a 3.5 GPA.

Scholarship

Completed Conference Talks and Posters

Lieberman, R. H., Dunning, E. D., Diercks, C. M., & Lunkenheimer, E. S. *COVID-19 Life Events Moderate the Relation Between Harsh and Neglectful Parenting & Child Behavior Problems* [Poster presentation]. Society for Research in Child Development, Biannual Conference 2023.

Dunning, E. D., Brown, K. M., Kelm, M. R., **Lieberman, R. H.**, & Lunkenheimer, E. S. *Maladaptive Parenting in Fathers: Poor Self-Regulation as a Risk Factor for Child Externalizing Behavior Problems* [Poster presentation]. Society for Prevention Research, Annual Conference 2022.

Lieberman, R. H., Reese, A. T., & Gryskevicz, A. Z. (2022, April 21). *Attitudes Towards Hookup Culture* [Poster presentation]. Psi Chi Penn State's Undergraduate Research Conference, University Park, Pennsylvania.

Submitted Conference Talks and Posters

Lieberman, R. H., Dunning, E. D., Diercks, C. M., & Lunkenheimer, E. S. *COVID-19 Life Events Moderate the Relation Between Harsh and Neglectful Parenting & Child Behavior Problems* [Poster presentation]. Psi Chi Penn State's Undergraduate Research Conference, University Park, Pennsylvania.

Research/Internship Appointments

2023 – Present

Centre County Children & Youth Services
Bellefonte, Pennsylvania

- Gain first-hand experience in the field of Child Welfare including the intake, in-home and out-of-home placement units.
- Attend home and school visits with caseworkers to understand the interview process of children and caregivers regarding abuse allegations.
- Shadow caseworkers during child abuse investigations and intake assessments.
- Understand the necessary information to ensure children's safety and implementing a safety plan if needed.
- Learn about community protective services and programs to support families.

2021 – 2023

Undergraduate Research Assistant

Parent-Child Dynamics Lab – *Parents, Regulation, Emotion, Stress & Health (PRESH) Project*

The Pennsylvania State University
University Park, Pennsylvania

- Recruited participants.
- Administered executive functioning (EF) and executive control (EC) tasks with children ages 2 to 3 years old.
- Collected and processed physiological data in the form of ECG signal, hair, and saliva samples.
- Led undergraduate research assistant trainings on child EF and EC tasks and collecting physiological data.
- Observed behavioral coding of parent-child interactions.
- Assessed data quality and piloted new tasks.

Principal Investigator: Erika Lunkenheimer, PhD
Grant: R01-HD097189, NIH

2020 – 2021

Undergraduate Research Assistant

The Stress and Health Lab - *The Social Distancing Well-Being Study*

The Pennsylvania State University
University Park, Pennsylvania

- Communicated with and recruited potential participants interested in The Social Distancing Well-Being Study.
- Assisted with data collection of research surveys.
- Organized data by updating codebook and creating data tables.

Principal Investigator: Jennifer E. Graham-Engeland, PhD

Teaching & Mentoring

2021 – 2022

Hillel

The Pennsylvania State University

Academic and social mentor for first-year undergraduate Jewish students

- Answered students' academic-related questions.
- Planned social events to help students become acclimated to college life.

2021

Worklink

The Pennsylvania State University

Academic mentor for undergraduate students with disabilities

- Assisted with homework and taught social skills.

Clinical Positions

- 2022 – Present** **Friendship Group**, The Pennsylvania State University, University Park, Pennsylvania
- Led elementary school students through various activities teaching social skills.
 - Created lesson plans for each session.

Technical Skills

ECG (Biolab, version 3.1.4, Mindware Technologies, LTD, Gahanna, OH; AcqKnowledge version 4.3, Biopac Systems, Inc., Goleta, CA), lead placement II, physiological data acquisition.

HRV (version 3.0.14, Mindware Technologies Ltd., Gahanna, OH), data cleaning.

SPSS (version 27, International Business Machines Corp., Armonk, NY), data analysis.

R (version 1.4.1717, RStudio Public Benefit Corp., Boston, MA), data analysis.

Datavyu Team (2014, Datavyu: A Video Coding Tool. Databrary Project, New York University), behavioral data coding.