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COVID-19 patient care predicts nurses’ parental burnout and child abuse: Mediating effects of compassion fatigue

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ABSTRACT

Background: Nurses who are also parents may be at risk not only for professional compassion fatigue, but also parental burnout – a reliable and valid predictor of child abuse and neglect. In support, recent research reveals that parents’ COVID-19 related stressors predicted elevated potential for child abuse (Katz and Fallon, 2021).

Objective: We explored the harmful effects of the COVID-19 pandemic on nurses’ parental burnout, child abuse, and child neglect, as mediated by compassion fatigue (i.e., a combination of job burnout and secondary traumatic stress).

Participants and setting: Participants were 244 nurses (M age = 32.4; 87% female) who were parents of young children (age 12 or under) recruited via chain referral sampling.

Methods: Participants completed an anonymous survey assessing the extent to which they care for COVID-19 patients, are exposed to patients suffering and dying from COVID-19, and have lost family income due to COVID-19. We also measured their compassion fatigue, compassion satisfaction, substance abuse, spouse conflict, parental burnout, child abuse, and child neglect.

Results: As hypothesized, direct care of COVID-19 patients, exposure to patient death and suffering due to COVID-19, and family income loss due to COVID-19 predicted greater compassion fatigue, which in turn, predicted greater parental burnout, child abuse, child neglect, spouse conflict, and substance abuse, (IEs ≥ 0.06, all ps < 0.05). Also, as compassion satisfaction increased, parental burnout, child abuse, child neglect, spouse conflict, and substance abuse decreased, rs ≥ −0.203, ps < 0.01.

Conclusions: Theoretical implications and practical implications for medical practice and child abuse prevention are discussed.

When my spouse, also a Brigham nurse, was deployed to the special pathogens unit, we worked opposite shifts so one of us could be home to manage remote learning for our eight-grade twins.

~Michelle Covell, Brigham & Women’s Hospital

We would go home to shower not just because we didn’t want to risk exposing loved ones, but to attempt to wash off trauma, wash away the guilt of wondering if we could do more.

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1. Introduction

These words of nurses who worked on the frontlines of the COVID-19 pandemic illustrate a clear psychological toll likely experienced by many nurses, but especially by those with young children (Walsh, 2021). COVID-19 has triggered cascading dilemmas: Variable and complex clinical presentations, exacerbated intensive care utilization, rapid patient decline, and a high mortality rate (3–5%) have stressed acute and community care settings (Baud et al., 2020; Murthy et al., 2020). Simultaneously, COVID-19 has destabilized social, emotional, and familial support structures, contributing to elevated rates of domestic violence and child abuse (Katz and Fallon, 2021). Thus, it is more important than ever to explore nurses’ experiences of compassion fatigue (i.e., job burnout and secondary traumatic stress; Figley, 1995). The consequences of nurses’ compassion fatigue amidst the COVID-19 pandemic are likely far-reaching, extending not only to the well-being of overwhelmed nurses, but also likely to their children. Indeed, many nurses are also parents who have recently faced the extreme challenges of caring for and educating their children, as many daycare and schools have closed. Such nurses may be at risk for not only professional compassion fatigue, but also parental burnout (Mikolajczak et al., 2018). In the present research, we explore the harmful downstream consequences of the COVID-19 pandemic on nurses’ family lives – particularly their likelihood to abuse and neglect their children – as mediated by compassion fatigue.

1.1. Effects of COVID-19 pandemic on compassion fatigue among nurses

The COVID-19 pandemic has, at the time of this writing, contributed to over 4 million deaths worldwide (World Health Organization (WHO), 2021). Nurses who directly care for COVID-19 patients are likely at particular risk for experiencing stressors and vicariously experienced trauma that lead to compassion fatigue (Alharbi et al., 2020). Compassion fatigue is theorized to be comprised of (a) job burnout (i.e., cynicism regarding one’s ability to accomplish anything meaningful) and (b) secondary traumatic stress (i.e., vicariously experienced traumatic stress via exposure to others’ trauma; Stamm, 2010). Symptoms associated with secondary traumatic stress include emotional numbness, distancing oneself from clients (i.e., depersonalization), and reduced memory on the job (Bride, 2007). Job burnout occurs when a demanding job with an overwhelming workload diminishes one’s psychological resources, leading to exhaustion and job inefficiency (Schaufeli et al., 2009). Job burnout is also associated with a decline in workers’ mental health, stemming from beliefs that their work is meaningless (Schaufeli et al., 2009). Such beliefs are perhaps particularly prevalent among nurses working with COVID-19 patients admitted to critical care units, given the high death rate.

Indeed, scholars have called for increased attention to the risk of compassion fatigue stemming from COVID-19 patient care (Li et al., 2020). Given the aggressively contagious nature of COVID-19, coupled with its relatively high death rate, nurses have recently engaged in unprecedented challenges as they worked on the frontlines treating patients (Rosa et al., 2020). Many nurses have likely been at risk for heightened levels of compassion fatigue, which research has shown is exacerbated by work hours, work stress, experience with traumatized patients, work overload, low organizational support, and terminal case overload (for a review, see Hee and Kyung, 2012) – all factors that the COVID-19 pandemic has exacerbated. Nurses working longer hours have been worried about contracting the virus, have greater workloads, have greater exposure to patient mortality, and have been coping with deteriorating working conditions (Corrigan, 2020). Nurses working in acute hospital and critical care settings, particularly those who are exposed to prolonged patient suffering, have likely been particularly vulnerable to experiencing compassion fatigue and its associated negative consequences (Alharbi et al., 2019; Beck, 2011; Dominguez-Gomez and Rutledge, 2009; Hegney et al., 2014; Hooper et al., 2010; Yoder, 2010), which include poor mental health, absenteeism, and intentions to leave the profession (Adams et al., 2006; Andrews and Kyung, 2012) – all factors that the COVID-19 pandemic has exacerbated. 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The COVID-19 pandemic has famously strained the health care systems because it is highly contagious, has no cure, there has been limited and delayed testing, there was an initial shortage of medical resources and equipment, and a great deal of uncertainty regarding its trajectory and long-term effects (Centers for Disease Control & Prevention, 2021). Nurses who care for COVID-19 patients have had to make serious decisions and provide appropriate care amidst a great deal of uncertainty about this novel virus, while simultaneously witnessing high levels of patient death and suffering – all factors that are likely to exacerbate compassion fatigue. Such stressful working conditions, combined with worry about contracting COVID-19 and spreading it to friends and family might also trigger social isolation, drinking and drug use, over-eating, and other forms of self-harm (Alharbi et al., 2020; Wallace et al., 2020).

Yet another consequence of the COVID-19 pandemic is the devastating impact on the economy. As of April 2020, nearly 20 million United States adults lost their jobs (United States Bureau of Labor Statistics, 2020). Thus, not only have nurses likely experienced uniquely stressful job circumstances, but they have also simultaneously been at risk for experiencing family income loss as their partners become unemployed. Although no research to date has identified income loss as a predictor of compassion fatigue, we expect that it will emerge as a unique predictor of nurses’ compassion fatigue because existing research links income loss with depression and...
anxiety (e.g., Prause et al., 2009; for reviews, Lynch et al., 2000; Muntaner et al., 2004; Subramanian and Kawachi, 2004; Wagstaff and Van Doorslaer, 2000; Wilkinson and Pickett, 2006).

Although scholars have theorized that the challenges posed by the COVID-19 pandemic are particularly likely to elevate compassion fatigue among critical care nurses (Alharbi et al., 2020), no research to date has directly tested this empirical question. Wu et al. (2020), however, measured burnout (a component of compassion fatigue) among oncology physicians and nurses who either worked directly with COVID-19 patients or worked in their regular hospital ward. Counterintuitively, they found that the health care professionals who worked directly with COVID-19 patients had lower levels of burnout relative to the comparison group. It is possible, however, that this counterintuitive effect might have been driven by their unique comparison group sample – oncology physicians and nurses. Indeed, oncology nurses are at particularly heightened risk for compassion fatigue (Perry et al., 2011), and a break from dealing with oncology to support COVID-19 patients might have, in turn, alleviated their job burnout. However, most research and theory suggests that the experiences of nurses working on the frontline with COVID-19 patients are particularly likely to trigger compassion fatigue (e.g., Alharbi et al., 2020). Specifically, we expect that the frequency of nurses’ direct care of COVID-19 patients, their exposure to patient death and suffering due to COVID-19, and their family income loss due to the COVID-19 pandemic will predict elevated compassion fatigue.

1.2. Effects of compassion fatigue

To date, most compassion fatigue related research focuses on the distress experienced by the professional (for a review, see Hee and Kyung, 2012), rather than on the broader, collateral impact of compassion fatigue (i.e., on, family). Yet, now, during the COVID-19 pandemic, it is arguably more important than ever to empirically explore the broader impact of nurses’ compassion fatigue, including, for instance, on their ability to care for their children.

1.2.1. Compassion fatigue as a predictor of nurses’ family relationships

Emerging evidence suggests that the COVID-19 pandemic has increased risk of child abuse, neglect, and domestic violence (e.g., Campbell, 2020; Roje Dapić et al., 2020; Katz and Fallon, 2021). Nurses who are parents have had little to no respite from the constant demanding and draining responsibilities of childcare and educating their children, as daycares and schools have closed across the U.S. Nurses who live with their spouses may also be experiencing stressors from spousal conflict, or perhaps an abusive relationship. Indeed, as communities have gone on lockdown, domestic violence, child abuse, and child neglect rates have increased (Campbell, 2020). In addition, the economic stress associated with job loss amidst the COVID-19 pandemic has emerged as a predictor of child maltreatment (Lawson et al., 2020). Moreover, stress from directly caring for COVID-19 patients has the potential to further exacerbate parental burnout, spousal conflict, child abuse, and child neglect, as we review next.

1.2.2. Spouse conflict

Meta-analytic research reveals a link between job satisfaction and family support (Ford et al., 2007). Job stressors predict diminished marital satisfaction, an effect significantly mediated by job exhaustion and poor psychosomatic health (e.g., Mauno and Kinnunen, 1999; see also Barling, 1990). Thus, we expect that the nurses’ stressors stemming from the COVID-19 pandemic (i.e., frequent care of COVID-19 patients, exposure to patient death and suffering) will similarly predict marital conflict. In turn, we expect that this relationship will be mediated by compassion fatigue.

1.2.3. Parental burnout, child abuse and neglect

Although no prior published research has explored a relation between compassion fatigue and parental burnout, child abuse, and neglect, existing research and theory suggests that they are likely to be related (Griffith, 2020). Parental burnout is comprised of parental exhaustion, emotional distancing from children, and diminished parental self-efficacy and is particularly likely to manifest when the demands of parenting outweigh resources afforded to the parent (Mikolajczak et al., 2018). As parental resources have been taxed (diminished family income due to job loss, closed schools/daycares) and parental demands have been exacerbated (parents have juggled roles within their job and their roles of caretakers and teachers of their children), parental burnout is expected to be particularly high. Emerging evidence suggests that parental burnout among Italian parents on lockdown had been particularly high among parents of children with mental or physical diseases (Fontanesi et al., 2020). Such parents are also at greater risk of harsh and hostile (authoritarian) styles of parenting (Fontanesi et al., 2020).

Moreover, constant job exposure and stress (factors that trigger compassion fatigue) predict increased parental burnout (Lindström et al., 2011; Norberg, 2007; Norberg, 2010; Norberg et al., 2014). In addition, parental psychopathology has long been established as a predictor of overly harsh parental discipline, excessive punishment, and verbal hostility, which in turn, harms child emotional and behavioral development (Crum and Moreland, 2017). Recent research conducted on parents during the COVID-19 pandemic revealed that caregiver burden predicted elevated child-parent conflict – effects mediated by parental anxiety, depression, and perceived child stress (Russell et al., 2020). Similarly, recent research reveals that parents’ COVID-19 related stressors predicted elevated potential for child abuse (Brown et al., 2020) and child injuries stemming from child maltreatment have increased during the COVID-19 pandemic (Kovler et al., 2020; Sharma et al., 2021). Thus, we expect that factors associated with the COVID-19 pandemic (i.e., care of COVID-19 patients, exposure to patient death and suffering, family income loss) will predict elevated parental burnout, child abuse, and neglect – relationships that will be mediated by compassion fatigue.
1.2.4. Compassion satisfaction

In contrast to compassion fatigue, compassion satisfaction reflects the satisfaction derived from the work of helping others (Stamm, 2002). Compassion satisfaction predicts numerous positive outcomes among professionals, including feelings of efficacy, competence, joy, and hope, which lead to fulfillment in work (Simon et al., 2006; Stamm, 2002). Such positive feelings further motivate healthcare professionals to continue their duties despite excessive trauma, demonstrating resiliency in the face of compassion fatigue (Perry, 2008). Thus, we expect that nurses’ compassion satisfaction will predict positive family outcomes (i.e., less substance abuse, spouse conflict, parental burnout, child abuse, and child neglect).

2. Study overview and hypotheses

In the present research, nurses who were also parents of children age 12 or under completed a survey during May of 2020, assessing the extent to which they directly care for COVID-19 patients, are exposed to patients suffering and dying from COVID-19, and have lost family income due to COVID-19. Employing a cross-sectional methodology, we also measured their compassion fatigue, compassion satisfaction, substance abuse, spouse conflict, parental burnout, child abuse, and child neglect. We hypothesized that care of COVID-19 patients, exposure to patient death and suffering due to COVID-19, and family income loss due to COVID-19 would predict greater self-reported compassion fatigue, substance abuse, spouse conflict, parental burnout, child abuse, and child neglect. We also expected that as compassion fatigue increased and as compassion satisfaction decreased, substance abuse, spouse conflict, parental burnout, child abuse, and child neglect would increase. Finally, we expected that compassion fatigue would mediate our hypothesized effects of COVID-19 patient care, exposure to patient death and suffering due to COVID-19, and family income loss due to COVID-19 on all criterion variables (i.e., substance abuse, spouse conflict, parental burnout, child abuse, and child neglect).

3. Method

3.1. Participants

After eliminating participants who did not meet study requirements (i.e., those who were not registered nurses), 244 participants remained in the data set for analyses. Of these participants, the mean age was 32.4 (SD = 5.3), most were women (87.2%), most were Caucasian (83.1%), 6.6% were Hispanic, 6.2% were African American, 2.1% were African Caribbean, 1.7% were Asian, and 0.4% indicated “other” for their ethnicity. Our sample was younger than the average age of U.S. registered nurses (Smiley et al., 2021), which we expected because we intentionally limited our sample to registered nurses who were also parents of young children. Our sample otherwise very closely matched the U.S. national proportion of registered nurses who are White (80.8%) and women (90.9%; “Enhancing Diversity in the Workforce,” 2019). Most participants (65.7%) had a Bachelor’s degree, 27.7% had an Associate’s degree, 6.2% had a Master’s degree, and 0.4% had a doctoral degree. Most participants (78.8%) worked in an acute hospital setting and 21.2% worked in an outpatient setting. The average number of years working in nursing was 6.91 (SD = 6.00). Most participants had only 1 child (83.2%), 9.4% had 2 children, 4.1% had 3 children, and 0.8% had 4 children. That such a higher proportion of our sample had only one child (relative to the national population), might stem from the fact that we intentionally limited our sample to parents of young children, skewing the data set to younger parents, many of whom have yet to have more than one child. Six participants (2.5%) had no children and were excluded from all analyses related to parental burnout, and child abuse and neglect.

3.2. Measures

We measured the extent to which participants lost family income with the single item, “My family has lost income due to the COVID-19 pandemic.” Response options ranged from 1 (strongly agree) to 7 (strongly disagree) and the item was reverse scored so that higher values indicated greater self-reported loss of family income. Using the same response options, we measured spouse conflict with the item, “I am currently experiencing conflict with my spouse/partner.” This item was also reverse scored so that higher values indicated greater self-reported spouse conflict. With the same response options, we measured the degree to which participants cared for COVID-19 patients with the item, “I frequently directly care for COVID-19 patients.” We also reverse scored this item (i.e., higher values indicate more frequent care of COVID-19 patients).

3.2.1. Exposure to patient death and suffering scale

We measured the extent to which the COVID-19 pandemic has increased participants’ exposure to patient death and suffering by developing a 4-item, reliable scale (Cronbach’s alpha = 0.732). The items included: (a) “I am regularly exposed to patient suffering,” (b) “I am regularly exposed to patient death,” (c) “My exposure to patient suffering has increased since the COVID-19 pandemic,” and (d) “My exposure to patient death has increased since the COVID-19 pandemic.” Response options ranged from 1 (strongly agree) to 7 (strongly disagree) and this scale was reverse scored so that higher values indicated greater exposure to patient death and suffering.

1 Replicating analyses controlling for working in an acute hospital setting versus outpatient setting did not change reported results.
3.2.2. Substance abuse scale

We measured the extent to which participants were smoking and drinking more now than before the COVID-19 pandemic with two items: “I drink more now than I did before the COVID-19 pandemic” and “I smoke more now than I did before the COVID-19 pandemic.” Response options ranged from 1 (strongly agree) to 7 (strongly disagree) and this scale was reverse scored so that higher values indicated greater substance abuse. We used these two items to form a substance abuse scale, which had acceptable estimates of reliability for a 2-item scale (Cronbach’s alpha = 0.55; inter-item correlation = 0.384; see Nunnally, 1978; Briggs & Cheek, 1986).

3.2.3. Compassion fatigue

Participants took a reliable, revised and shortened compassion fatigue measure, the Compassion Fatigue Short Scale (CFShort Scale), a 13-item measure comprised of 5-items that assess the secondary traumatic stress component of compassion fatigue and 8-items that assess the job burnout component of compassion fatigue. Although both the secondary traumatic stress and job burnout components emerge as reliable subscales, the overall scale, collapsed across both dimensions, emerges as highly reliable in previous research (Adams et al., 2006; Denne et al., 2019; Hupe and Stevenson, 2019), and also in the present research (Cronbach’s alpha = 0.873). Representative example items include “I have felt a sense of hopelessness associated with working with patients,” “I have frequently felt weak, tired or rundown as a result of my work as a nurse,” and “I have experienced intrusive thoughts after working with especially difficult patients.” All items included response options ranging from 1 (never) to 5 (always).

3.2.4. Compassion satisfaction

Participants completed the 10 items designed to measure compassion satisfaction from the Professional Quality of Life Scale, version 5 (ProQOL-5; Stamm, 2002). Previous research has established the reliability (Cronbach’s alpha = 0.88; Stamm, 2002) and predictive validity of this scale (e.g., Hemsworth et al., 2018), and this scale emerged as reliable in the present data set (Cronbach’s alpha = 0.891). Example items include “I get satisfaction from being able to help people,” “I like my work as a nurse,” and “I believe I can make a difference through my work.” Response options ranged from 1 (never) to 5 (always).

3.2.5. Parental burnout

Participants completed the 22-item Parental Burnout Inventory (PBI; Roskam et al., 2017), comprised of three subscales: (a) emotional exhaustion, (b) emotional distancing, and (c) loss of parental accomplishment and efficacy. Prior research has established high overall scale reliability (Roskam et al., 2017), as was confirmed in our research (Cronbach’s alpha = 0.959). Representative example items from this scale include “I feel like I can’t cope as a parent,” “I feel completely run down by my role as a parent,” and “I don’t enjoy being with my child(ren).” All items included response options ranging from 1 (never) to 7 (everyday).

3.2.6. Child abuse and neglect

We assessed child abuse and neglect using items selected from various existing questionnaires, including the Dating Violence Questionnaire (DVQ Douglas and Straus, 2006), the Harsh Parenting and Ignoring scales of the Evaluation of Parental Educational Practices (EPEP; Meunier and Roskam, 2007), the Child Abuse Potential Inventory (CAPI; Milner, 1986), and the Parent-Child Conflict Tactics Scale (CTSPC; Straus et al., 1998). Select items from these measures formed two scales within the present research: a 17-item child neglect scale and a 15-item child abuse scale. These two scales were previously used and established as reliable and as predicted by parental burnout by Mikolajczak et al. (2018). Indeed, these two scales emerged as highly reliable in the present research (Cronbach’s alphas = 0.969 and 0.967, respectively). Representative example items from the child neglect scale include “Sometimes my child does something dangerous (e.g., not looking before crossing the street, spending time with people who are a bad influence, getting a lift with someone who drink-drives, etc.) and I don’t care,” “Sometimes I don’t pay attention to my child being well dressed (suitably dressed for the weather, wearing clothes of the right size, neat and tidy, etc.),” “Sometimes I don’t care about the quality of my child’s meals.” Representative example items from the child abuse scale include “Sometimes I hurt my child with a belt, a hairbrush, a stick or some other object,” “When I am angry, I sometimes throw things at my child,” and “Sometimes I shake my child.” All items included response options ranging from 1 (never) to 7 (everyday).

3.2.7. Social desirability

We included the short, 12-item version of the Marlowe-Crowne social desirability scale (Reynolds, 1982) as a covariate because some items (i.e., medical errors, child abuse) are sensitive in nature and likely to be influenced by concerns regarding social desirability. Response options are dichotomous (true/false) and example items include “I have never been irked when people expressed ideas very different from my own” and “There have been times when I was quite jealous of the good fortune of others.” After deleting two items (“On a few occasions, I have given up doing something because I thought too little of my ability” and “I don’t find it particularly difficult to get along with loud mouthed, obnoxious people”), the internal reliability approached acceptable levels (Cronbach’s alpha = 0.567). For the remaining 10 items, we reverse scored all necessary items so that a score of “1” reflects a “desirability” response and a score of “0” reflects a “no desirability” response and subsequently summing all items on the scale to give each participant a unique score, wherein higher values reflect greater social desirability scores.

3.2.8. Demographic variables

We assessed basic demographic information, including participant age, gender, race, and number of children. We also assessed education level, work setting (acute hospital setting versus outpatient setting), and years of nursing practice.
Table 1
Correlation matrix illustrating the relations between demographic variables (gender, age, years in nursing) and primary variables.

|                      | Direct care of COVID-19 patients | Exposure to patient death and suffering | Compassion fatigue | Compassion satisfaction | Substance abuse | Spousal conflict | Parental burnout | Child neglect | Child abuse | Loss of family income |
|----------------------|----------------------------------|----------------------------------------|--------------------|-------------------------|-----------------|------------------|------------------|--------------|-------------|-----------------------|
| Gender               | -0.066                           | -0.048                                 | -0.101             | -0.061                  | -0.059          | -0.008           | -0.043           | -0.024       | 0.040       | 0.012                 |
| Age                  | -0.190**                         | -0.103                                 | 0.010              | 0.286**                 | -0.036          | -0.186**         | -0.149*          | -0.043       | -0.073      | 0.028                 |
| Number of years in nursing | -0.285**                         | -0.107                                 | -0.039             | 0.221**                 | -0.016          | -0.167*          | -0.167*          | -0.159*      | -0.151*     | 0.119                 |

Note. For gender, male was coded “1” and female was coded “2.”

+  p < .10.
  *  p < .05.
  ** p < .01.
Table 2
Correlation matrix illustrating the relations between variables.

|                          | Direct care of COVID-19 Patients | Exposure to patient death and suffering | Compassion Fatigue | Compassion Satisfaction | Substance abuse | Spousal Conflict | Parental burnout | Child neglect | Child abuse | Loss of Family Income |
|--------------------------|---------------------------------|----------------------------------------|--------------------|-------------------------|-----------------|-----------------|------------------|---------------|-------------|-----------------------|
| Direct care of COVID-19 Patients | 1                               | 1                                      |                    |                         |                 |                 |                  |               |             |                       |
| Exposure to patient death and suffering | 0.588 ** | 1                                      |                    |                         |                 |                 |                  |               |             |                       |
| Compassion Fatigue         | 0.255 **                           | 0.281 **                               | 1                  |                         |                 |                 |                  |               |             |                       |
| Compassion Satisfaction    | −0.043                            | 0.062                                  | 0.091              | 1                       |                 |                 |                  |               |             |                       |
| Substance abuse            | 0.331 **                           | 0.306 **                               | 0.298 **           | −0.219 **               | 1               |                 |                  |               |             |                       |
| Spousal Conflict           | 0.309 **                           | 0.306 **                               | 0.340 **           | −0.272 **               | 0.425 **        | 1               |                  |               |             |                       |
| Parental burnout           | 0.215 **                           | 0.182 **                               | 0.542 **           | −0.214 **               | 0.289 **        | 0.316 **        | 1                |               |             |                       |
| Child neglect              | 0.195 **                           | 0.018                                  | 0.493 **           | −0.203 **               | 0.262 **        | 0.256 **        | 0.678 **         | 1             |             |                       |
| Child abuse                | 0.143 **                           | −0.053                                 | 0.468 **           | −0.245 **               | 0.288 **        | 0.273 **        | 0.634 **         | 0.894 **      | 1           |                       |
| Loss of Family Income      | 0.312 **                           | 0.415 **                               | 0.366 **           | −0.053                  | 0.385 **        | 0.295 **        | 0.190 **         | 0.08          | 0.166       | 1                     |

* \( p < .05 \)

** \( p < .01 \)
4. Procedure

Our target participant sample included specific and unique parameters: registered nurses who were also parents of children aged 12-years-old or younger. In addition, we were interested specifically on the effects of the COVID-19 pandemic on registered nurses’ family lives, and therefore required an efficient data collection technique given the uncertainties at the time surrounding the nature and longevity of the pandemic. Moreover, we were particularly interested in surveying nurses while their children would have likely been in school (or in homeschool due to COVID-19) and parents would have been juggling the novel complexities of their schooling. Therefore, we employed snowball sampling (i.e., chain referral sampling) because it is an efficient form of data collection commonly used for recruiting unique populations that are difficult to find (Johnson, 2014). Disadvantages of snowball sampling include the nonrandom nature of sampling (Johnson, 2014). Yet, efficient alternatives to our approach of data collection (e.g., sampling a selection of a few specific hospitals) would similarly reflect a nonrandom form of sampling, but would also be less representative of the national population. Thus, we posted the following announcement to a social media platform (i.e., Facebook):

Are you a nurse and a parent? Or, do you know a nurse who is also a parent (if so, please share this with them!? We are seeking registered nurses who are also parents of children age 12 or under for participation in a short (approx. 15 min) survey! The first 100 participants will receive a $20 amazon.com gift certificate. We are exploring compassion fatigue and parental burnout.

Click here for survey link:

We specifically shared this announcement with 7 eligible acquaintances (registered nurses who were also parents of children age 12 or under) and asked these acquaintances to share this announcement with other known eligible acquaintances (i.e., following the snowball sampling technique). These first 7 eligible acquaintances were located in different areas of the United States (Baton Rouge, Louisiana; Minneapolis, Minnesota; Boston, Massachusetts; Virginia Beach, Virginia; Columbus, Ohio; Tulsa, Oklahoma, Evansville, Indiana) and they invited their known acquaintances, who in turn did the same, further broadening the variety of geographic locations from which the sample was recruited. To facilitate rapid data collection, we also included a financial incentive (i.e., a $20.00 amazon.com gift card) for the first 100 respondents. In turn, data collection began late May of 2020 and moved quickly: Most (98% of respondents) participated within the first 8 days and data collection ended after 11 days.

Participation took place electronically using the survey platform Qualtrics. After providing informed consent, participants first provided basic demographic information, followed by items assessing (a) loss of family income due to COVID-19, (b) spouse conflict, (c) exposure to patient death and suffering, (d) direct care of COVID-19 patients, (e) substance abuse, (f) compassion fatigue, (g) compassion satisfaction, (h) parental burnout, (i) child neglect, (j) child abuse, and (k) the social desirability scale. Finally, participants were thanked for their participation and, if they were among the first 100 respondents, compensated for their participation. At the end of the study, participants were directed to an entirely separate survey that was unconnected to the present study to provide their email address to receive the amazon.com gift card, thereby preserving the anonymity of participants’ responses. This study was IRB-approved by the researchers’ institution.

5. Results

We first present the results of preliminary data analysis, reflecting descriptive statistics (i.e., effects of participant age, gender, and years of nursing experience). Next, we present an inter-item correlation matrix testing relations among all primary variables of interest. In particular, we highlight the correlations reflecting tests of our primary hypotheses – main effects of our primary predictor variables (direct care of COVID-19 patients; exposure to patient death and suffering, loss of family income due to COVID-19, compassion fatigue, and compassion satisfaction) on all criterion variables (substance abuse, spousal conflict, parental burnout, child neglect, and child abuse). Subsequently, we present multiple regression analyses designed to test the unique and relative impact of each predictor variable on all criterion variables. Finally, we present a series of mediation models assessing compassion fatigue as a mediator of all effects of direct care of COVID-19 patients, exposure to patient death and suffering, and income loss due to COVID-19 on all criterion variables (i.e., substance abuse, spousal conflict, parental burnout, child neglect, and child abuse).

5.1. Preliminary descriptive analyses

As revealed in Table 1, there are no effects of gender. There are, however, several effects of participant age and number of years in nursing. Specifically, as age and years of nursing increase, the likelihood of direct care of COVID-19 patients decreases, as does spousal conflict and parental burnout. In addition, as participant age increases, child abuse and neglect decrease. Such effects might stem from the fact that child age is naturally confounded with participant age and years of nursing experience. To the extent that older children are generally easier to care for, diminished parental burnout, child abuse, and child neglect would be expected. There were no other significant effects of age or years in nursing.

5.2. Effects of primary predictor variables

As hypothesized, as direct care of COVID-19 patients increased, so did compassion fatigue, exposure to patient death and suffering, substance abuse, spousal conflict, parental burnout, child neglect, child abuse, and family income loss due to COVID-19 (see Table 2). There was no relationship between direct care of COVID-19 patients and compassion satisfaction.

Consistent with hypotheses, as exposure to patient death and suffering due to COVID-19 increased, compassion fatigue also
increased, as did substance abuse, spouse conflict, parental burnout, and loss of family income due to COVID-19. Exposure to patient death and suffering did not, however, predict compassion satisfaction, child neglect, or child abuse. Also, as hypothesized, as compassion fatigue increased, so too did substance abuse, spousal conflict, spousal conflict, parental burnout, child neglect, child abuse, and loss of income (see Table 2). Compassion fatigue did not, however, correlate with compassion satisfaction. As compassion satisfaction increased, substance abuse significantly decreased, as did spousal conflict, parental burnout, child neglect, and child abuse (see Table 2). Compassion satisfaction did not, however, significantly correlate with loss of income due to COVID-19. Finally, as expected, as loss of family income due to COVID-19 increased, so too did substance abuse, spouse conflict, parental burnout. However, loss of income did not significantly predict child neglect, or child abuse.

We replicated all these analyses employing multiple regression to control for participants’ social desirability scores and found no differences in results. Therefore, we presented all analyses without including social desirability as a covariate.

5.3. Multiple regression analyses

Because our primary predictor variables of interest (direct care of COVID-19 patients, exposure to patient death and suffering, and loss of family income) naturally co-vary, we next conducted a series of multiple regression analyses to test the unique and relative impact of each of these predictor variables on all criterion variables (i.e., substance abuse, spousal conflict, parental burnout, child neglect, and child abuse). Specifically, we conducted a series of multiple regression analyses entering our 3 primary predictor variables (direct care of COVID-19 patients, exposure to patient death and suffering, and loss of family income) into the regression analysis simultaneously.

As revealed in Table 3, direct care of COVID-19 patients continues to significantly predict increased substance abuse and spousal conflict, as does loss of income due to COVID-19, but exposure to patient death and suffering no longer significantly predicts substance abuse or spousal conflict when simultaneously included in the multiple regression model. Although a similar pattern trended for parental burnout, all three predictor variables dropped to not significant. For the criterion variable of child neglect, direct care of COVID-19 patients remained statistically significant, income loss due to COVID-19 remained not significant, but exposure to patient death and suffering newly emerged as statistically significant (it was not a significant predictor of child neglect in a simple bivariate correlation). Finally, for the criterion variable of child abuse, direct care of COVID-19 patients remained statistically significant, exposure to patient death and suffering remained statistically significant, but income loss due to COVID-19 newly emerged as statistically significant (it was not a significant predictor of child abuse in a simple bivariate correlation).

5.4. Mediation analyses

Next, we employed a series of nonparametric bootstrapping mediation analyses using Haye’s (2013) PROCESS macros for Statistical Package for the Social Sciences (SPSS) to test compassion fatigue as a potential mediator of our three primary predictor variables (i.e., direct care of COVID-19 patients, exposure to patient death and suffering due to COVID-19, and loss of income due to COVID-19) on various outcomes (i.e., substance abuse, spousal conflict, parental burnout, child neglect, and child abuse). We used Model 4 with 95% bias corrected bootstrap confidence intervals (10,000 samples). We conducted all mediation analyses both with and without controlling for participant age because participant age significantly predicted several of the variables involved in these mediation analyses. Yet we found no differences in the results, and so we present results without including participant age as a covariate. All results are summarized in Table 4.

5.4.1. Direct care of COVID-19 patients

Supporting our hypotheses, the indirect effect of direct care of COVID-19 patients on child abuse through compassion fatigue was statistically significant (see Fig. 1 for model). Specifically, as direct care of COVID-19 patients increased, compassion fatigue significantly increased, $B = 0.1128, SE = 0.0278, t = 4.0634, p = .0001$. In turn, as compassion fatigue increased, so too did child abuse, $B = 1.2979, SE = 0.1730, t = 7.5025, p = .0000$. In addition, compassion fatigue similarly mediated the effects of direct care of COVID-19 patients on (a) substance abuse, (b) spousal conflict, (c) parental burnout, and (d) child neglect.

Table 3

Multiple regression analyses that enter the three predictor variables into the regression equation simultaneously as predictors of all criterion variables

|                          | Substance abuse | Spousal Conflict | Parental burnout | Child neglect | Child abuse |
|--------------------------|-----------------|------------------|------------------|---------------|-------------|
| Direct care of COVID-19 Patients | 0.195**, SE = 0.066 | 0.186*, SE = 0.081 | 0.113*, SE = 0.059 | 0.281**, SE = 0.083 | 0.283**, SE = 0.089 |
| Exposure to patient death and suffering | 0.082, SE = 0.100 | 0.201, SE = 0.123 | 0.046, SE = 0.088 | -0.255*, SE = 0.123 | -0.438**, SE = 0.131 |
| Loss of income due to COVID | 0.293***, SE = 0.264 | 0.202**, SE = 0.070 | 0.093*, SE = 0.050 | 0.065, SE = 070 | 0.159*, SE = 0.075 |
| Model R² | 0.203***, SE = 1.33 | 0.147***, SE = 1.62 | 0.065**, SE = 1.15 | 0.054**, SE = 1.58 | 0.070**, SE = 1.68 |

Note. Unstandardized beta coefficients are reported for each criterion variable. SE = Standard Error.

** $p < .01$.
*** $p < .001$. 
Table 4
Statistics reflecting analyses exploring compassion fatigue as a mediator of effects of predictor variables on criterion variables.

| Direct care of COVID-19 patients | SE      | t       | Cls       | Exposure to patient death and suffering | SE      | t       | Cls       | Loss of income due to COVID | SE      | t       | Cls       |
|----------------------------------|---------|---------|-----------|-----------------------------------------|---------|---------|-----------|--------------------------------|---------|---------|-----------|
| Substance abuse                  | 0.0592  | 5.1602  | 0.0857    | 4.8040                                  | 0.0573  | 6.0675  |           |                                | 0.0615  | 4.6856  |           |
|                                  | 0.3053**|         |           | 0.0935                                  | 3.4750  |         |           |                                | 0.0600  | 0.0239  | [0.0208, 0.1153***] |
|                                  | 0.0536  | 0.0234  | [0.0182, 0.1114] | 0.0350 | [0.0323, 0.1691] | 0.0600  | 0.0239  | [0.0208, 0.1153***] |
| Spouse conflict                  | 0.0756  | -4.4592 | 0.0959    | -5.0546                                 | 0.0715  | -4.3899 |           |                                | 0.0786  | -2.6574 |           |
|                                  | -0.3369**|         |           | -0.3619**                                | -0.2090**|         |           |                                | 0.0786  | -2.6574 |           |
|                                  | -0.2603**|         |           | -0.3619**                                | -0.2090**|         |           |                                | 0.0786  | -2.6574 |           |
|                                  | 0.0291  | [−0.1459, −0.0302] | 0.0447 | [−0.2262, −0.0509] | 0.0151 | 0.0312  | [−0.1746, −0.0518] |
| Parental burnout                 | 0.0517  | 3.0903  | 0.0707    | 2.7934                                  | 0.1390**|         |           |                                | 0.0533  | 2.6073  |           |
|                                  | 0.1599**|         |           | 0.1390**                                | 0.0533  | 2.6073  |           |                                | 0.0533  | 2.6073  |           |
|                                  | 0.0436  | 1.3674  | 0.0696    | 0.5316                                  | 0.0543  | -0.1019 |           |                                | 0.0347  | 0.2180  |           |
|                                  | 0.1002  | 0.0302  | [0.0463, 0.1655] | 0.0477 | [0.0744, 0.2618] | 0.1445 | 0.0347  | [0.0832, 0.2180] |
| Child neglect                    | 0.0615  | 3.2339  | 0.0911    | 0.2880                                  | 0.0638  | 1.2518  |           |                                | 0.0638  | 1.2518  |           |
|                                  | 0.1987**|         |           | 0.0798                                  | 0.1383**|         |           |                                | 0.0705  | 1.8393  |           |
|                                  | 0.0548  | 1.0396  | 0.0812    | -2.3196                                 | 0.0705  | 1.8393  |           |                                | 0.0487  | 0.1236, 0.3140 |
|                                  | 0.1418  | 0.0387  | [0.0737, 0.2278] | 0.0638 | [0.1011, 0.3532] | 0.2096 | 0.0487  | [0.1236, 0.3140] |
| Child abuse                      | 0.0873  | 2.3534  | 0.1015    | -0.9792                                 | 0.1245  | 1.9313  |           |                                | 0.0644  | 1.9313  |           |
|                                  | 0.0120  | 0.1874  | 0.0886    | -3.6683                                 | 0.0753  | -1.1507 |           |                                | 0.0753  | -1.1507 |           |
|                                  | 0.1464  | 0.0406  | [0.0754, 0.2379] | 0.0662 | [0.1081, 0.3698] | 0.2111 | 0.0489  | [0.1255, 0.3166] |

Note. TE = total effect; DE = direct effect; IE = indirect effect; SE = standard error. All indirect effects were significant (i.e., all confidence intervals did not include zero).

* p < .05.
** p < .01.
*** p < .001.
5.4.2. Exposure to patient death and suffering due to COVID-19

Also as expected, the indirect effect of exposure to patient death and suffering on child abuse through compassion fatigue was statistically significant. Specifically, as exposure to patient death and suffering increased, compassion fatigue significantly increased, $B = 0.1540, SE = 0.0400, t = 3.8496, p = .0002$. In turn, as compassion fatigue increased, so did child abuse, $B = 1.4646, SE = 0.1704, t = 8.5961, p = .0000$. In addition, we found that compassion fatigue similarly mediated the effects of exposure to patient death and suffering on (a) substance abuse, (b) spousal conflict, (c) parental burnout, and (d) child neglect.

5.4.3. Loss of family income due to COVID-19

Also consistent with hypotheses, the indirect effect of loss of family income due to COVID-19 on child abuse through compassion fatigue was statistically significant. Specifically, as loss of family income increased, compassion fatigue significantly increased, $B = 0.1513, SE = 0.0242, t = 6.2516, p < .0000$. In turn, as compassion fatigue increased, so did child abuse, $B = 1.3954, SE = 0.1939, t = 7.1973, p = .0000$. In addition, we found that compassion fatigue similarly mediated the effects of family income loss on (a) substance abuse, (b) spousal conflict, (c) parental burnout, and (d) child neglect.

6. Discussion

The present study extends existing research revealing that COVID-19 related parental stress heightens child abuse potential (Brown et al., 2020) by exploring the effects of COVID-19 stressors on child abuse among a sample of parents who face particularly extreme COVID-19 stressors – nurses. As hypothesized, the frequency of nurses’ COVID-19 patient care, their exposure to patient suffering and death due to COVID-19, and their familial income loss due to COVID-19 all emerged as significant predictors of nurses’ compassion fatigue, which in turn, predicted increased parental burnout, child abuse, child neglect, substance abuse, and spousal conflict. Such effects are consistent with evidence among a sample of Italian health care professionals working on the frontlines of the COVID-19 pandemic (Barello et al., 2020), 45% of whom reported symptoms including increased irritability, change in food habits, difficulty falling asleep, and muscle tension. Contextual features of a global pandemic emerging as significant predictors of elevated compassion fatigue is consistent with existing literature on the effects of high-stress emergencies and disasters on the development of compassion fatigue (Kang et al., 2015). In addition, the effects of nurses’ compassion fatigue on substance abuse is consistent with existing research linking nurses’ compassion fatigue to various negative mental health consequences (Schaufeli et al., 2009).

Yet, no research to date has explored the possibility that professional compassion fatigue would have implications for parental burnout, child neglect, child abuse, and spousal conflict. Indeed, our results are consistent with a growing body of research illustrating that the COVID-19 pandemic has increased risk of child abuse, neglect, and domestic violence (e.g., Campbell, 2020; Dapic et al., 2020; Katz and Fallon, 2021). Such effects appear to be driven by COVID-19 driven diminished access to parental support from schools or childcare settings, stressors associated with job and income loss, perceived uncertainty, lack of control, and stay-at-home restrictions – factors associated with elevated child abuse and neglect risk (e.g., Brown et al., 2020). The implications for children are grave, considering that child abuse, child neglect, domestic violence, among other adverse childhood experiences, are associated with myriad negative child outcomes, including changes in brain development, chronic health problems, mental illness, and adult substance abuse (Hughes et al., 2017). Thus, our research suggests that interventions designed to reduce compassion fatigue stand to benefit not just professionals, but also their children.

This research not only has theoretical implications for identifying the consequences of a COVID-19-induced spike in compassion fatigue among nurses, but practical implications for identifying those nurses who are most susceptible. Nurses who frequently directly care for COVID-19 patients, who are frequently exposed to patients suffering and dying from COVID-19, and who have lost family income due to COVID-19 are particularly susceptible to developing compassion fatigue. From a public health perspective, targeting such at-risk nurses is key to protecting not only their health and well-being, but also the health of their children. Supporting initiatives that have implications for reducing child maltreatment will not only promote child health, but also protect the U.S. economy. Accounting for victim and community incidental costs, the annual lifetime economic burden of substantiated child abuse in the U.S. is...
$428 billion and investigated incidences of child abuse produce an economic burden of $2 trillion annually (Petersen et al., 2018).

The mental health, familial, societal, and economic consequences of compassion fatigue suggest that interventions to reduce compassion fatigue will have broad-reaching implications and should be prioritized, particularly for nurses on the frontlines of the COVID-19 pandemic. Fortunately, evidence suggests that interventions designed to enhance health care professional’s knowledge regarding compassion fatigue help reduce compassion fatigue, while simultaneously enhancing compassion satisfaction (Klein et al., 2018; see also Potter et al., 2013). Specifically, enhancing health care workers’ self-awareness of compassion fatigue, self-care, and identification of personal stressors reduced their compassion fatigue (Klein et al., 2018). Similar compassion fatigue resiliency interventions have alleviated caregiver clinical stress by enhancing participants’ awareness of compassion fatigue symptoms and encouraging self-care and mindfulness activities (Pfaff et al., 2017). Such interventions reveal promising avenues for nurses on the frontlines of the COVID-19 pandemic, but also illustrate that there is a clear need for future research. Not all nurses, perhaps particularly during the COVID-19 pandemic, will have the time available or resources required to engage in lengthy interventions, mindfulness meditation, and self-care. In support, emerging evidence suggests that many Wuhan nurses during the COVID-19 pandemic were not interested in receiving psychological help (Chen et al., 2020). Nurses might deprioritize their own mental health needs when their basic needs for safety and security are threatened. Such has been the case for many nurses working on the frontlines of the COVID-19 pandemic, who experience shortages of protection supplies (Livingston et al., 2020), little rest without interruption, insufficient care for their families, and insufficient training to treat their patients (e.g., Samuel, 2020). Such basic needs must be prioritized because self-care and mental health interventions will be limited in their effectiveness until basic needs for safety and security are met.

Because self-care-oriented interventions are limited in effectiveness, particularly under especially taxing work environments, and unduly place the burden on over-worked employees, who are unlikely to have the time or energy to engage in self-care activities (especially if they are parents), we suggest that future researchers explore interventions that target the underlying causes of compassion fatigue. That is, we believe an emphasis on prevention of compassion fatigue is likely to yield more positive outcomes than an emphasis on coping with compassion fatigue (via self-care). As such, we recommend that researchers focus on interventions designed to improve the workplace environment (i.e., workplace childcare support, shift schedule, quality leadership and mentoring, professional accommodations), which will likely reduce compassion fatigue. Indeed, evidence suggests that positive workplace environments facilitate higher quality nurse and patient outcomes (Coetzee and Laschinger, 2018).

6.1. Limitations and future directions

This study paves the way for research and interventions designed to not only enhance the mental health and well-being of nurses who have experienced trauma stemming from the COVID-19 pandemic, but also to facilitate public health broadly by enhancing positive healthy family relationships. We suggest that future researchers explore factors that elevate compassion satisfaction, as our research reveals it is associated with positive family outcomes (i.e., diminished spouse conflict, parental burnout, child abuse and neglect). Indeed, in the present study, compassion satisfaction was not significantly predicted by contextual features of the COVID-19 pandemic (i.e., direct care of COVID-19 patients, exposure to patient death and suffering, family income loss), providing additional support for the proposition that compassion satisfaction is a marker of resiliency in the face of traumatic work environments (Perry, 2008). Existing evidence suggests that peer, cohort, and psychological support helps bolster compassion satisfaction (Maben and Bridges, 2020). Thus, we recommend that nurses, particularly nurses at risk of developing compassion fatigue, receive such support. In addition, health care workers with more (versus less) training in public health emergencies were more resilient and less likely to suffer from anxiety during the COVID-19 pandemic (Cai et al., 2020). In addition, the younger, less experienced nurses had significantly lower mental health resilience amidst COVID-19 health care work than older and more experienced nurses. Indeed, in the present study, there were higher levels of compassion satisfaction among older (rather than younger) nurses. These results suggest that high quality training initiatives focused on public health crises are particularly important for younger and less experienced nurses, who are more likely to experience low compassion satisfaction. Such effects also have implications for possible benefits of mentorship interventions designed to provide early career nurses with training, support, and professional guidance from more experienced nurses.

Future research should broaden data collection to include samples of other types of health care workers, including physicians and advance practice professionals. Our snowball sampling technique, although efficient, yields samples with limited representativeness. Moreover, we intentionally limited our sample to nurses who were also parents of children age 12 or younger, and therefore our sample’s average age (32) is younger than the average U.S. nurse (50; National Council of State Boards of Nursing, 2020). In addition, our participant sample was disproportionately female (87%). Although the proportion of women in our study matches the national proportion of female nurses (88%; United States Census Bureau, 2021), future research should explore whether these effects will generalize to a sample with proportionately more men. Future research should therefore include sampling techniques that yield a broader sample of nurses to extend the generalizability of the results.

Finally, although we provided evidence of compassion fatigue as a mediator of our hypothesized effects, we urge caution with respect to inferring causality and directionality given the cross-sectional and correlational nature of this study. The nature of this research question naturally prevents us from including an experimental manipulation (of COVID-19 patient care), and thus, causality cannot be determined. Future researchers should employ additional methodologies (e.g., longitudinal designs) and experimental designs that can be ethically implemented (e.g., an intervention designed to reduce compassion fatigue among COVID-19 health care workers).
7. Conclusion

The interconnected and cascading consequences of the COVID-19 global pandemic are vast and difficult to anticipate. We have shown that COVID-19 has implications for the health and well-being of not only nurses, but also their families and children. That these effects appear so broad reaching, they might merely reflect the tip of the iceberg. Because experts predict that pandemics will increase in frequency (Schmeller et al., 2020), we urge future researchers to continue to unpack the extensive consequences of this unprecedented global pandemic and to do so with urgency.

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