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Moral Injury in Health-Care Workers During COVID-19 Pandemic

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The COVID-19 pandemic forces frontline health-care workers to make difficult medical decisions that may result in moral injury. Understanding the extent to which physicians, nurses, and other health-care workers experience moral injury while working in a pandemic is of critical importance to establish preventative measures and trauma-informed treatment. A national sample of health-care workers ($n = 109$) participated in the study. The results of a multiple regression analysis indicated secondary traumatic stress was significantly associated with moral injury. Contrary to existing literature, the role of burnout and compassion fatigue in this study was nonsignificant. Mental health professionals may reduce treatment barriers by offering flexible sessions, nontraditional hours, and short-term interventions through tele-mental health platforms to support health-care workers experiencing trauma symptoms.

Keywords: moral injury, COVID-19, secondary trauma, compassion fatigue, burnout

The realities associated with providing acute care and making difficult medical decisions necessitates consideration for health care workers during the COVID-19 pandemic. Physicians, nurses, and other medical professionals employed in essential health care fields face challenges on a daily basis that may result in emotional burden, personal culpability for patient death, and moral injury (Borges et al., 2020; Greenberg et al., 2020). *Moral injury* is the psychological distress that results from actions, or the lack thereof, that violates someone's moral or ethical code (Greenberg et al., 2020; Litz et al., 2009). Experiences of moral injury are characterized by feelings of shame, guilt, and disgust and negative thoughts about themselves, others, or the world (Greenberg et al., 2020). The compounding effects of making challenging medical decisions, working under extreme pressure, and balancing their own physical and mental health with the needs of their patients, family, and friends are believed to contribute to moral injury in health care professionals during the COVID-19 pandemic (Greenberg et al., 2020; Williamson et al., 2020). Though the extant body of literature has established the need for empirical evidence on moral injury in frontline health care workers during COVID-19 (Borges et al., 2020; Williamson et al., 2020), a paucity of research exists on this topic.

Burnout is frequently used to describe health care worker distress (Shanafelt & Noseworthy, 2017; West et al., 2018) and is characterized by feelings of exhaustion, cynicism, anxiety, irrita-

bility, fatigue, withdrawal, and reduced professional efficacy (Maslach et al., 2001; Schaufeli & Enzmann, 1998). Though the relationship between burnout, compassion fatigue, vicarious trauma, and moral injury have been hypothesized in health care workers (Murray, 2019), extant research examining how these constructs intersect with moral injury in health care workers amid the global pandemic is limited. Existing research on these constructs has identified workload, compassion fatigue, and stress as primary factors to burnout (Cavanagh et al., 2020; Sibeoni et al., 2019; Sorenson et al., 2016).

A call to prioritize research that examines the psychological effects of the pandemic on frontline health and social care staff was clearly established (Holmes et al., 2020; World Health Organization, 2020). Specifically, the effects of moral injury in frontline health care workers were identified as an important area of concern (Borges et al., 2020; Greenberg et al., 2020; Williamson et al., 2020). Understanding the extent to which moral injury in frontline health care workers contributes to wellness constructs (e.g., compassion fatigue, burnout, and secondary traumatic stress) is of critical importance to effectively develop data-driven mental health strategies that mitigate the effects of moral injury and promote posttraumatic growth. The ethical dilemmas faced by health care workers as a result of dwindling medical supplies and the need to make life or death decisions amid the COVID-19 pandemic further illuminates the need for researchers to examine the effects of moral injury on medical staff. To address the existing paucity of knowledge, the following research question was identified: To what extent does moral injury affect health care workers during COVID-19?

Method

Participants

Participants included a convenience sample of 109 medical professionals recruited online through personal contacts and pro-

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essional listservs. Participants included 83 (76%) women and 26 (24%) men among the following racial/ethnic identities: African American/Black ($n = 3$, 2.8%), Asian/Asian American ($n = 19$, 17.4%), Caucasian/White ($n = 82$, 75.2%), Hispanic/Latinx ($n = 4$, 3.7%), and Native Hawaiian/Pacific Islander ($n = 1$, .9%). Surveys were collected from May to July 2020 using Qualtrics, an online survey software program. Participants ranged in age between 23 to 78 years ($M = 37.50$ years, $SD = 12.39$). Participants' years of experience in health care ranged from 0 to 50 years ($M = 12.30$ years, $SD = 11.30$). Medical professional occupations included 40 physicians, 62 nurses (licensed practical nurse or registered nurse), and seven other professionals (e.g., speech pathologist, pharmacist, psychologist).

Measures

Moral Injury Events Scale

The Moral Injury Events Scale (MIES; Nash et al., 2013) consists of two subscales: (a) perceived transgressions of self or others and (b) perceived betrayals by others. Participants rate six items on a 6-point Likert-type scale (1 = *strongly agree*, 2 = *agree*, 3 = *somewhat agree*, 4 = *somewhat disagree*, 5 = *disagree*, 6 = *strongly disagree*) and are summed. Lower scores are indicative of higher levels of moral injury. Exploratory factor analysis indicated a two-factor solution, and an internal consistency estimate for the combined subscales was reported at $\alpha = .90$ (Nash et al., 2013). The internal consistency estimate for the scores in the present study was $\alpha = .86$ (95% confidence interval [CI] [.80, .90]).

Professional Quality of Life Scale

The Professional Quality of Life Scale (PROQOL; Stam, 2010) is a 30-item self-report measure with three scales: Compassion Satisfaction (10 items; e.g., I like my work as a helper), Burnout (10 items; e.g., I feel trapped by my job as a helper), and Secondary Traumatic Stress (10 items; e.g., I am preoccupied with more than one person I help). Participants rate items on a 5-point Likert-type scale from 1 (*never*) to 5 (*very often*). Higher scores (from summations of each of the three scales) were indicative of increased endorsements of each of the domains. The PROQOL is a three-factor measure with shared variance between each scale ranging from 2% to 5% (Stam, 2010). Stam (2010) reported internal consistency estimates for scores on the PROQOL as follows: Compassion Satisfaction, $\alpha = .88$; Burnout, $\alpha = .75$; and Secondary Traumatic Stress, $\alpha = .81$. The internal consistency

estimates for the scores in the present study were $\alpha = .91$ (95% CI [.88, .93]) for Compassion Satisfaction, $\alpha = .72$ (95% CI [.64, .78]) for Burnout, and $\alpha = .89$ (95% CI [.85, .92]) for Secondary Traumatic Stress.

Procedure

Participants read and signed an informed consent document and responded to the MIES and PROQOL, along with a demographic questionnaire. An a priori power analysis indicated a sample size of 77 to find statistical significance with an alpha level of .05 and moderate effect size ($R^2 = .13$) using multiple regression. The sample size of 109 was above the target sample to detect statistical significance with a small effect size ($R^2 = .09$) as indicated by a sensitivity power analysis (Balkin & Sheperis, 2011).

Results

Descriptive statistics and correlation coefficients for the MIES and PROQOL scores of the present sample are in Table 1. Descriptive analyses were conducted between nurses ($n = 62$) and physicians ($n = 40$) across moral injury, compassion satisfaction, secondary traumatic stress, and burnout. Owing to the heterogeneity of variances, Welch's t was reported for each test. A significant difference was noted between physicians and nurses for compassion satisfaction, Welch's $t = 2.86$, $p = .005$, $d = .556$ (95% CI [.15, .96]), indicating a moderate effect. Physicians scored higher compared to nurses, but an unstable effect was noted as evidenced by the 95% CI. Replication of this finding with a similar sample could range from a small to large effect size. A significant difference between physicians and nurses was also indicated for burnout, Welch's $t = 2.87$, $p = .005$, $d = .62$ (95% CI [0.19, 1.05]), indicating a moderate effect, with nurses scoring higher. An unstable effect was noted as evidenced by the 95% CI. Replication of this finding with a similar sample could range from a small to large effect size. Finally, a significant difference between physicians and nurses was noted for moral injury, Welch's $t = 4.36$, $p < .001$, $d = .85$ (95% CI [.43, 1.26]), indicating a large effect. Physicians scored higher than nurses in moral injury but there was an unstable effect as noted by the 95% CI. Replication of this finding with a similar sample could range from a small-to-large effect size. No significant difference was noted between physicians and nurses across secondary traumatic stress, Welch's $t = .84$, $p = .406$, $d = .16$ (95% CI [.24, .56]), indicating a small effect, with physicians scoring slightly higher. Replication of this finding with a similar sample could range from a small-to-moderate effect size. Frequency of physician and nurse specializations are presented in Table 2.

Table 1

Descriptive Statistics and Correlation Coefficients for the Moral Injury Events Scale and Professional Quality of Life Scale Scores

Scale	Physician ($n = 40$)		Nurse ($n = 62$)		Total ($n = 109$) ^a		1	2	3	4
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
1. Compassion satisfaction	37.85	11.07	30.02	16.56	39.11	6.34	—	.76**	.45**	.30*
2. Burnout	22.42	6.20	26.18	5.91	24.79	6.25	—	—	.73**	.41**
3. Secondary traumatic stress	19.55	7.27	21.21	12.78	24.33	7.37	—	—	—	.49**
4. Moral injury	28.93	7.95	20.23	12.19	27.27	6.48	—	—	—	—

^a seven participants were other health professionals.

* $p < .01$. ** $p < .001$.

Table 2
Frequencies for Occupation

Occupation	Frequency	Percent
Certified Medical Assistant	1	.9
Licensed Professional Nurse (LPN)	6	5.5
Nurse Manager	1	.9
Nurse Practitioner (NP)	3	2.8
Pharmacist	1	.9
Physician	29	26.6
Physician Fellow	2	1.8
Psychologist	1	.9
Medical Student	1	.9
Registered Nurse (RN)	47	43.1
Resident Physician	10	9.2
Respiratory Therapist	1	.9
Retired	1	.9
State Tested Nursing Assistant (STNA)	3	2.8
Speech Language Pathologist	1	.9
Child Psychologist	1	.9
Total	109	100.000

A multiple regression analysis was conducted to investigate the relationship between the predictor variables, PROQOL scales, and moral injury, the criterion variable. Model assumptions for normality, linearity, and homoscedasticity were noted among the PROQOL scales and the MIES. A statistically significant relationship was evidenced in the model, $F(3, 105) = 11.73, p < .001, R^2 = .25$ (95% CI [.10, .38]) indicating a moderate effect size, but also an unstable effect as noted by the 95% CI. Replication of this finding with a similar sample could range from a small-to-large effect size. Secondary traumatic stress was significantly associated to moral injury as seen in Table 3 and was the most meaningful, uniquely accounting for 8.4% of the variance in the model with a negative relationship ($r = -.49$) to moral injury. Increased endorsement of secondary traumatic stress was associated with a stronger likelihood of endorsing moral injury (Table 3).

The strong correlation between burnout and secondary traumatic stress, along with the moderate relationship between burnout and moral injury (Table 1), extremely low beta weight for burnout, and the elevated variance inflation factor (Table 3) was indicative of some multicollinearity between burnout and secondary traumatic stress (Pituch & Stevens, 2016). Given the higher correlation between secondary traumatic stress and moral injury, a limited contribution of burnout was identified within the model, so burnout was removed. The model was relatively unchanged with the removal of burnout yielding a statistically significant effect, $F(2, 106) = 17.73, p < .001, R^2 = .25$ (95% CI [.11, .39]), indicating

a moderate effect size, but also an unstable effect as noted by the 95% confidence interval. Replication of this finding with a similar sample could range from a small-to-large effect size. With the removal of burnout, the contribution of secondary traumatic stress remained significant, but the unique contribution increased substantially, accounting for 16% of the variance in the model. Thus, the removal of burnout had no effect of the overall variance accounted for in the model, and the model was significant with and without burnout as a predictor. Furthermore, removal of the redundancy contributed by burnout increased the unique contribution of secondary traumatic stress.

Discussion

The purpose of this study was to examine the extent to which moral injury affected health care workers during COVID-19. Our results indicated a strong association exists between secondary traumatic stress and moral injury in frontline health care workers. Specifically, health care workers in our study reported high levels of secondary traumatic stress, which predicted moral injury. Based on our findings, experiences of traumatic stress in frontline health care workers may be explained by preoccupation with the well-being of others, hypervigilance, enmeshment with patients, difficulty sleeping, feeling on edge, and avoidance of activities that remind health care workers of frightening experiences of their patients.

The results of the present study diverge from existing research that identified workload, compassion fatigue, and stress as primary factors to burnout (Cavanagh et al., 2020; Sibeoni et al., 2019; Sorenson et al., 2016). Instead, the roles of burnout and compassion fatigue in this study were quite limited, with secondary traumatic stress representing the only significant predictor of moral injury. The strong correlation between secondary traumatic stress and burnout was consistent with findings from a systematic review of literature across 41 studies that indicated a substantial overlap existed between measures of burnout and secondary traumatic stress (Cieslak et al., 2014). Medical professional exposed to trauma may report similar levels of secondary traumatic stress and burnout (Cieslak et al., 2014), which may have also occurred in our study.

Our findings complement research conducted by Wu and colleagues (2020), which indicated physicians and nurses who worked on the frontlines in Wuhan province during COVID-19 reported lower levels of burnout compared to health care workers who remained in their normal medical locations. The limited effects of burnout and compassion fatigue in our study may also be explained by differences in hours worked, individual resources

Table 3
Regression of Professional Quality of Life Scale Scales on Moral Injury Events Scale

Predictor	B	SE	β	<i>t</i>	<i>p</i>	sr ²	Variance inflation factor
1. Compassion satisfaction	.07	.14	.07	.53	.595	.002	2.49
2. Burnout	-.04	.18	-.04	-.23	.817	<.001	4.20
3. Secondary traumatic stress	-.38	.11	-.43	-3.43	<.001	.08	2.23
Regression of Professional Quality of Life Scale scales with burnout removed on Moral Injury Events Scale							
2. Compassion satisfaction	.10	.10	.09	.99	.327	.006	1.25
3. Secondary traumatic stress	-.40	.08	-.45	-4.81	<.001	.16	1.25

(e.g., resilience, spirituality, etc.), years in the field, and amount of direct contact with COVID-19 patients. Our results further support the body of research on posttraumatic growth, which posits that individuals may experience positive changes and a greater appreciation for life following traumatic events (Tedeschi & Calhoun, 1996, 2004).

Implications From the Study

Empirical findings from the study indicate a significant association exists between secondary traumatic stress and moral injury in health care workers providing services during the COVID-19 pandemic. Burnout appears to be a function of secondary traumatic stress when examining moral injury among health care professionals. The findings from the present study have important implications for administrative staff, supervisors, and mental health professionals.

Recommendations for Administrative Staff and Supervisors

Administrative staff are called to establish structural systems of support to prepare frontline health care workers during the COVID-19 pandemic. Health care workers may be more adept to mitigate the effects of a secondary traumatic stress when they are prepared to navigate and anticipate the psychological and emotional consequences of challenging medical decisions. Administrative staff are encouraged to help medical supervisors and attending physicians prepare health care workers for the moral dilemmas that arise during a pandemic by facilitating open, direct, and frank conversations about what they will face (Greenberg et al., 2020). Indeed, health care workers who are prepared for the roles, challenges, and consequences of their jobs are less likely to report symptoms of traumatic stress associated with their work (Iversen et al., 2008).

The importance of creating a workplace environment characterized by supportive staff and team leaders during the COVID-19 pandemic cannot be understated. Team leaders are encouraged to de-stigmatize professional help seeking behaviors and recommend the use of psychological counseling services to their colleagues before symptoms become clinically significant. Incorporating Schwartz Rounds (Flanagan et al., 2019) may also be an effective strategy that allows interprofessional health care staff across various backgrounds to discuss the emotional and social challenges of caring for patients in a compassionate and structured forum (Chadwick et al., 2016; Greenberg et al., 2020). Interprofessional health care workers and staff who participated in these multidisciplinary forums consistently report greater insight into the experiences of other individuals caring for patients (Chadwick et al., 2016; Flanagan et al., 2019). Incorporating structured opportunities for health care workers and staff to discuss their emotional challenges, barriers to care, and psychological experiences may be a helpful strategy to reduce the effects of secondary traumatic stress and moral injury during the COVID-19 pandemic.

Recommendations for Mental Health Professionals

Mental health professionals who provide services to health care workers must differentiate between burnout and moral injury as

each term has unique treatment implications. Whereas burnout may be grounded in a deficit perspective (e.g., the person is lacking in resources or resilience), moral injury may communicate a holistic, strength-based worldview that acknowledges the challenge of recognizing patient needs yet being unable to treat them due to barriers out of one's control (Dean et al., 2019). According to Williamson and colleagues (2020), frontline workers may be at greater risk for moral injury when loss of life occurs in vulnerable populations (e.g., children and older adults), when health care workers feel unsupported, if staff feel unprepared for the emotional and psychological consequences of medical decisions, if stress occurs concurrently with exposure to other traumatic stressors (e.g., death of a loved one), or when social support is lacking following the potentially morally injurious event. Clinicians supporting frontline health care workers during the COVID-19 pandemic are therefore called to conceptualize treatment modalities through a trauma-focused, compassion-oriented lens that considers the association between secondary traumatic stress on moral injury.

Although an evidence based and manualized approach for mitigating the effects of moral injury for health care workers in COVID-19 has yet to be established (Williamson et al., 2020), other trauma-sensitive clinical interventions may be effective to mitigate the deleterious effects of moral injury and secondary traumatic stress in health care professionals during the COVID-19 pandemic. Health care professionals seeking psychological counseling services may benefit from cognitive-behavioral interventions that validate experiences of stress and challenge the presence of underlying cognitive distortions (Patel et al., 2019). For example, physicians who endorse narratives outlining how they "should" have been able to prevent loss of life in an older adult may be encouraged to use more flexible, adaptive, and compassionate thought processes. Mental health clinicians may address these narratives through acceptance and commitment therapy (Borges, 2019; Farnsworth et al., 2017), and adaptive disclosure (Gray et al., 2012). Clinicians working with health care professionals during COVID-19 may also find success in mindfulness and compassion-based meditation (Patel et al., 2019). Compassion-based meditation empowers individuals to let go of harmful emotions (e.g., anger, shame, guilt, and suffering) by cultivating compassion toward the self, others, and the world. Extant research indicates mindfulness-based or compassion-based interventions are effective in improving symptoms of traumatic stress (Gilbert & Procter, 2006; Hilton et al., 2017; Kearney, 2015; Kuyken et al., 2010). Indeed, cognitive-behavioral therapy and mindfulness-based interventions have both been recommended by the Accreditation Council for Graduate Medical Education for residents to help manage the harmful effects of stress and increase productivity in hospitals (Patel et al., 2019).

Medical professionals may have difficulty accessing services, particularly when working long hours that extend beyond the traditional work hours of 9 a.m. to 5 p.m. In light of the COVID-19 pandemic, mental health professionals may address barriers to treatment for health care professionals by using tele-health services for individual and group counseling. Clinicians are called to offer flexible service hours to provide trauma-focused counseling interventions to medical professionals who work second and third shift hospital rotations. The traditional duration of psychological counseling services (e.g., 50 min) will also need to be adjusted to

accommodate the fast-paced hospital environment in which health care professionals work. Clinicians may offer alternative telehealth services that include brief check-ins, breathing exercises, and reinforce coping skills to support health care professionals following potentially morally injurious events.

Limitations and Suggestions for Further Research

Collecting data using electronic surveys from an overextended population remains challenging. Findings may be sample specific and unstable, especially given the nature of the variability in effect size, potentially ranging from small to large effects. Although multicollinearity was not severe and may not have been identified through traditional conventions (e.g., variance inflation factor >5; Pituch & Stevens, 2016), the reexamined model confirmed that the amount of variance accounted for in the model remained unchanged, and the contribution of secondary traumatic stress increased. In addition, the current study used brief measures and longitudinal data was not collected making it difficult to determine causal or temporal findings. Finally, a measure of posttraumatic growth was not included in the study and could have been a helpful contribution. Future studies may monitor the extent to which professional quality of life indicators are intercorrelated and include other variables such as hours worked, years in practice, and type of workplace setting. Additional areas of investigation may include a longitudinal study that examines the effectiveness of Acceptance and Commitment Therapy and adaptive disclosure for moral injury in health care workers during the COVID-19 pandemic.

Conclusion

Professional health care workers in this study identified secondary traumatic stress as a significant predictor to moral injury. Contrary to extant literature on professional quality of life, burnout was not significantly associated with professional quality of life. These findings have significant implications for clinicians who are encouraged to employ a trauma-focused and compassion-oriented lens when supporting health care workers during the COVID-19 pandemic. Medical professionals may need to process their traumatic experiences with challenging COVID-19 cases and resolve distress related to moral injury that arise from making or witnessing difficult treatment decisions. Within a larger administrative system, Schwartz Rounds may represent structured, compassionate environments for interdisciplinary health care workers to obtain greater insight and support. Medical professionals may have barriers in accessing counseling services, particularly when working long hours that extend beyond the traditional work hours of 9 a.m. to 5 p.m. Clinicians may increase treatment accessibility by expanding their tele-mental health delivery services to encompass medical professionals who work second and third shifts. Restructuring services from traditional clinical hours (e.g., 50 min), to brief check-ins may be helpful strategies to reinforce coping skills, validate challenging experiences, and encourage the importance of seeking peer and administrative supervision. The findings from the present study contribute novel findings to the emerging body of research on the effects of COVID-19 on the mental health, moral injury, and professional quality of life in health care workers.

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