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*DOI:*  
[10.1080/20008066.2024.2306102](https://doi.org/10.1080/20008066.2024.2306102)

*Publication date:*  
2024

*Licence:*  
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*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication in Discovery Research Portal](#)

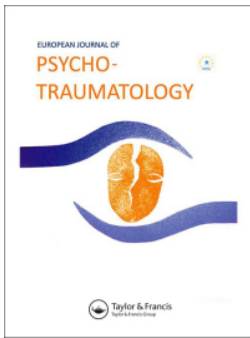
*Citation for published version (APA):*  
Nazarov, A., Forchuk, C. A., Houle, S. A., Hansen, K. T., Plouffe, R., Liu, J. J. W., Dempster, K., Le, T., Kocha, I., Hosseiny, F., Heesters, A. M., & Don Richardson, J. (2024). Exposure to moral stressors and associated outcomes in healthcare workers: Prevalence, correlates, and impact on job attrition. *European Journal of Psychotraumatology*, 15(1), Article 2306102. <https://doi.org/10.1080/20008066.2024.2306102>

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## Exposure to moral stressors and associated outcomes in healthcare workers: prevalence, correlates, and impact on job attrition

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**To cite this article:** Anthony Nazarov, Callista A. Forchuk, Stephanie A. Houle, Kevin T. Hansen, Rachel A. Plouffe, Jenny J. W. Liu, Kylie S. Dempster, Tri Le, Ilyana Kocha, Fardous Hosseiny, Ann Heesters & J. Don Richardson (2024) Exposure to moral stressors and associated outcomes in healthcare workers: prevalence, correlates, and impact on job attrition, *European Journal of Psychotraumatology*, 15:1, 2306102, DOI: [10.1080/20008066.2024.2306102](https://doi.org/10.1080/20008066.2024.2306102)

**To link to this article:** <https://doi.org/10.1080/20008066.2024.2306102>



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## Exposure to moral stressors and associated outcomes in healthcare workers: prevalence, correlates, and impact on job attrition

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### ABSTRACT

**Introduction:** Healthcare workers (HCWs) often experience morally challenging situations in their workplaces that may contribute to job turnover and compromised well-being. This study aimed to characterize the nature and frequency of moral stressors experienced by HCWs during the COVID-19 pandemic, examine their influence on psychosocial-spiritual factors, and capture the impact of such factors and related moral stressors on HCWs' self-reported job attrition intentions.

**Methods:** A sample of 1204 Canadian HCWs were included in the analysis through a web-based survey platform whereby work-related factors (e.g. years spent working as HCW, providing care to COVID-19 patients), moral distress (captured by MMD-HP), moral injury (captured by MIOS), mental health symptomatology, and job turnover due to moral distress were assessed.

**Results:** Moral stressors with the highest reported frequency and distress ratings included patient care requirements that exceeded the capacity HCWs felt safe/comfortable managing, reported lack of resource availability, and belief that administration was not addressing issues that compromised patient care. Participants who considered leaving their jobs (44%;  $N = 517$ ) demonstrated greater moral distress and injury scores. Logistic regression highlighted burnout ( $AOR = 1.59$ ;  $p < .001$ ), moral distress ( $AOR = 1.83$ ;  $p < .001$ ), and moral injury due to trust violation ( $AOR = 1.30$ ;  $p = .022$ ) as significant predictors of the intention to leave one's job.

**Conclusion:** While it is impossible to fully eliminate moral stressors from healthcare, especially during exceptional and critical scenarios like a global pandemic, it is crucial to recognize the detrimental impacts on HCWs. This underscores the urgent need for additional research to identify protective factors that can mitigate the impact of these stressors.

### Exposición a estresores morales y resultados asociados en trabajadores de la salud: prevalencia, correlaciones e impacto en el abandono laboral

**Introducción:** Los trabajadores de la salud (TS) a menudo experimentan situaciones moralmente desafiantes en sus lugares de trabajo que pueden contribuir a la rotación laboral y comprometer su bienestar. Este estudio tuvo como objetivo caracterizar la naturaleza y frecuencia de los estresores morales experimentados por los TS durante la pandemia por COVID-19, examinar su influencia en los factores psicosociales-espirituales y capturar el impacto de dichos factores y los estresores morales relacionados a las intenciones de abandono laboral de los TS.

**Métodos:** Se incluyó en el análisis una muestra de 1.204 TS canadienses a través de una encuesta en plataforma web en la que se analizaron factores relacionados con el trabajo (p. ej., años trabajados como TS, brindando atención a pacientes con COVID-19), angustia moral (evaluado con MMD-HP), daño moral (evaluado con MIOS), sintomatología de salud mental y rotación laboral debido a angustia moral.

**Resultados:** Los estresores morales con mayor frecuencia reportados y tasas de angustia incluyeron requerimientos de atención al paciente que excedieron la capacidad en la que los TS se sentían seguros/cómodos de manejarlos, falta de disponibilidad de recursos y la creencia de que la administración no estaba abordando los problemas que comprometían la

### ARTICLE HISTORY

Received 7 September 2023  
Revised 30 November 2023  
Accepted 14 December 2023

### KEYWORDS

Moral stressors; healthcare workers; job attrition; moral distress; moral injury


### PALABRAS CLAVE

Estresores morales; trabajadores de la salud; desgaste laboral; angustia moral; daño moral

### HIGHLIGHTS

- This study explored the nature of moral stressors encountered by health care workers, along with impacts on moral injury and intentions to leave their jobs.
- Morally distressing encounters were common, with the most prevalent and distressing experiences being organizational or team-based in nature.
- Findings revealed that severity of moral injury, particularly related to trust violation or betrayal, was a key factor influencing healthcare workers' intentions to leave their jobs.

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 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/20008066.2024.2306102>.

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atención al paciente. Los participantes que consideraron dejar sus trabajos (44%;  $N=517$ ) demostraron mayores puntuaciones de angustia y daño moral. La regresión logística destacó el burnout ( $AOR=1,59$ ;  $p<0,001$ ), la angustia moral ( $AOR=1,83$ ;  $p<0,001$ ) y el daño moral debido a la violación de la confianza ( $AOR=1,30$ ;  $p=0,022$ ) como predictores significativos asociados a la intención de dejar el trabajo.

**Conclusión:** Si bien, es imposible eliminar por completo los estresores morales de la atención sanitaria, especialmente durante escenarios críticos y excepcionales como una pandemia global, es crucial reconocer los impactos perjudiciales para los TS. Esto subraya la necesidad urgente de realizar investigaciones adicionales para identificar factores protectores que puedan mitigar el impacto de estos factores estresantes.

## 1. Introduction

Healthcare workers (HCWs) face a multitude of morally challenging situations in the workplace due to the nature of their profession. These challenges may include encountering life-and-death decisions, balancing patient autonomy against the duty to provide appropriate care, and adapting to organizational pressures related to resource limitations, financial constraints, efficiency demands, and productivity targets (Corley et al., 2005; Riedel et al., 2022). Moral distress is a term most commonly used to describe HCWs' inability to adhere to their own personal values due to internal or external constraints (Jameton, 1993). Exposure to distressing situations of this nature has been shown to induce enduring functional impairments and psychological consequences, including increased levels of depression, anxiety, and post-traumatic stress disorder (PTSD) (Amsalem et al., 2021; Colville et al., 2019; Mantri et al., 2020; Plouffe et al., 2021). Data collected during the recent COVID-19 pandemic has shown that moral distress is linked to burnout (Plouffe et al., 2021), and in light of reported global HCW shortages (Poon et al., 2022), its impact on patient care, job satisfaction, productivity, and attrition, should not be understated (De Hert, 2020). Despite the urgent need to address the healthcare crisis, including significant demoralization and prevalence of moral stressors experienced by HCWs (Mewborn et al., 2023), the extent to which exposure to moral stressors relates to psychosocial impairments among HCWs and how these factors independently relate to negative professional outcomes such as job turnover are not well-understood.

To compound the issue of healthcare system strain, public health emergencies, such as mass casualty events, endemics, and pandemics, pose unique challenges to HCWs, often summarized as the three 'Rs': rationing, restrictions, and responsibilities (Wynia, 2007). In the case of the COVID-19 pandemic, these challenges were reflected in limitations placed on the use of resources (e.g. insufficient personal protective equipment [PPE]; Burki, 2020), the repeated delays or cancellations of diagnostic and surgical procedures (COVIDSurg Collaborative, 2020; The Lancet

Rheumatology, 2021), and changes to assigned occupational duties and responsibilities (e.g. caring for highly contagious patients in unfamiliar care environments; Woo & Freeze, 2022). A survey of HCWs conducted by Statistics Canada (2022) found that over 95% of respondents reported that their jobs had been impacted by the pandemic, with the majority (86.5%) reporting greater work-related stress. Other pandemic-related experiences reported by HCWs included dramatically increased workloads (e.g. increased screening and infection control requirements; 74.6%) and being required to work outside one's usual scope of practice (55.5%; Statistics Canada, 2022). Despite the potential moral and ethical implications of constraints imposed by such stressors (Jameton, 1984), research on the consequences of moral distress experienced by HCWs during the pandemic has been limited, with inconsistencies observed in both findings (e.g. moral stress exposure higher vs. lower in ICU nurses, Donkers et al., 2021; Lake et al., 2022, respectively) as well as constructs measured (e.g. moral stress exposure vs. moral injury outcomes; Lake et al., 2022 and Wang et al., 2022, respectively). Operationalizations of moral distress as measured by different scales further obscure the nature and significance of moral stressors and their effects in the context of the COVID-19 pandemic (e.g. Measure of Moral Distress for Healthcare Professionals [MMD-HP] vs. Moral Distress Thermometer, Donkers et al., 2021; Miljeteig et al., 2021, respectively). As such, there is little clarity about which types of moral stressors have been most prevalent and potentially traumatogenic among HCWs during the pandemic. Further, quantitative studies exploring the link between moral distress among HCWs and vocational outcomes (e.g. the intention to leave one's employment) have been limited to bivariate explorations (Colville et al., 2019; Hally et al., 2021; Sheppard et al., 2022; Shoorideh et al., 2015; Silverman et al., 2022). Whether moral distress is an independent predictor of intentions to leave one's position when considering the potential impact of occupation-specific factors, related constructs (e.g. moral injury), and factors such as burnout and psychiatric symptoms, also remains largely unexplored.

Adequately capturing the psychological sequelae of exposure to moral stressors is contingent upon developing and applying appropriate theoretical frameworks and operationalizations of moral injury and moral distress (Varcoe et al., 2012). Although there is a recent explosion of interest in, and research on, moral injury and moral distress, these two related (and often interchangeably used) constructs have historically lacked conceptual clarity (Riedel et al., 2022). Both moral injury and moral distress fundamentally refer to the psychological, social, and spiritual consequences experienced in the aftermath of an action/inaction or witnessing an event that is perceived to violate deeply held values and moral commitments. While both moral distress and injury are characterized by heightened feelings of guilt, shame, anger, and withdrawal (Jameton, 1993; Litz et al., 2009; Varcoe et al., 2012; Wilkinson, 1987), moral injury has been considered a more severe and incapacitating outcome on a spectrum of psychosocial-spiritual impairments, which, unlike moral distress, involves disturbances to the sufferer's core moral beliefs and identity (Litz & Kerig, 2019). Importantly, studies assessing moral distress in the healthcare context often assume implications related to the consequences noted above, whilst most moral distress scales capture only a single, generalized stress reaction to potential moral stressors and, therefore, should only be understood to capture exposure rather than expression. Importantly, this limitation precludes the formation of accurate inferences around the relative effects of exposure and the nature of expressed outcomes (i.e. injury presentation) on tertiary outcomes (e.g. job turnover). Recent efforts to enhance the conceptual clarity of what is meant by moral injury (Litz & Kerig, 2019) and the availability of psychometrically valid measurements of moral injury outcomes (Litz et al., 2022) provide an opportunity to gain more accurate insights into this phenomenon and in turn, create opportunities for interventions to mitigate the downstream effects of exposure to moral stressors in the healthcare context (Kolbe & de Melo-Martin, 2023).

The objectives of the present study, therefore, are to (a) describe the nature and impacts of moral stressors encountered in a large sample of HCWs during the COVID-19 pandemic, and (b) examine the relative influences of moral stressor exposure and outcomes on HCWs' intentions to leave their jobs.

## 2. Methods

### 2.1. Participants and procedures

Data were drawn from the baseline timepoint of a larger longitudinal study exploring the psychological impact of the COVID-19 pandemic on Canadian HCWs (see Liu et al., 2021, for detailed methodology

and study protocol). Participants were eligible for inclusion if they were 18 years of age or older and employed as HCWs in Canada at some point during the COVID-19 pandemic. Baseline data were collected using an online survey between June 26, 2020, and December 31, 2020. This study was approved by the Institutional Research Ethics Boards of Western University (WREM #115894) and Lawson Health Research Institute (ReDA #9968).

### 2.2. Measures

#### 2.2.1. Work context and demographics

Participants were asked what percentage of their workload involved the direct provision of care to patients, the number of years they spent working as HCWs, and whether they had been involved in providing care to suspected or confirmed COVID-19 patients. Participants also completed questions about their occupational roles and responsibilities (e.g. occupation type, workplace setting) and demographic characteristics (e.g. gender, age, province of residence).

#### 2.2.2. Exposure to moral stressors and stressor-specific moral distress

Exposure to moral stressors was evaluated using the MMD-HP (Epstein et al., 2019), which is a version of the Moral Distress Scale-Revised (MDS-R; Hamric et al., 2012) that was modified to better capture team- and system-level sources of moral distress, and to be appropriate for diverse healthcare disciplines. Participants were presented with 27 potentially morally challenging situations specific to the HCW context and were prompted to list any additional situations they may have found morally challenging but that were not covered by the existing items. Participants rated each original and 'other' situation according to its frequency (0 = *never* to 4 = *very frequently*) and perceived level of distress (0 = *none* to 4 = *very distressing*). According to MMD-HP original formulation (Epstein et al., 2019), participants are required to provide both frequency and distress ratings for all items, even if they have not experienced the situation personally. For the present study, however, participants only provided distress ratings for items with frequency ratings of 1 or higher. This change was made to appropriately capture only the level of distress of specific stressors that respondents had personally encountered. Composite scores of moral distress exposure were then calculated by multiplying participants' frequency scores by their distress scores and then summing the products on the original 27 items, with possible scores ranging from 0–432 (Epstein et al., 2019). To reflect the nuanced relation between moral stressor exposure and expression, we also calculated separate scores for exposure frequency and level of distress by summing the respective ratings across the



original 27 items. For all three summary scores (i.e. total distress, frequency, and level of distress), higher scores represented more severe ratings. Prior to calculating MMD-HP scores, open-ended ('other') responses were reviewed by study investigators and items that were deemed to reflect original item content had their associated frequency and distress ratings recoded into the original items (see below). Where participants had already input ratings for the original MMD-HP item, the highest ratings were retained.

### 2.2.3. Moral injury

Moral injury was measured using the 14-item Moral Injury Outcome Scale (MIOS; Litz et al., 2022). Participants were instructed to reflect upon the event that currently causes them the most moral distress. They were then asked to rate their agreement from 0 (*strongly disagree*) to 4 (*strongly agree*) for statements reflecting moral feelings and beliefs about themselves, the world, and others (reflecting over the past month). Sum scores were calculated for the full scale and two subscales, reflecting shame-related outcomes (7 items; e.g. People would hate me if they really knew me) and trust violation-related outcomes (7 items; e.g. I have lost faith in humanity). Past research supports the validity and reliability of the MIOS total scale and subscales ( $\alpha$  from .72 to .90; Litz et al., 2022), with good internal consistency in the current sample (from .78 to .87).

### 2.2.4. Mental health symptoms

Symptoms of PTSD were assessed using the 20-item PTSD checklist for the DSM-5 (PCL-5; Weathers et al., 2013), in which participants indicated the extent to which they experienced PTSD symptoms in the past month from 0 (*not at all*) to 4 (*extremely*). Depressive symptoms were assessed using the 9-item Patient Health Questionnaire (PHQ-9; Spitzer et al., 1999), in which participants indicated how frequently they experienced depressive symptoms in the past two weeks from 0 (*not at all*) to 3 (*nearly every day*). General anxiety symptoms were assessed using the 7-item General Anxiety Disorder scale (GAD-7; Spitzer et al., 2006), where participants indicated how frequently they had experienced anxiety symptoms over the past two weeks from 0 (*not at all*) to 3 (*nearly every day*). Sum scores were calculated for each scale, with higher scores indicative of greater symptom severity. Burnout was assessed using the 9-item Expanded Well-Being Index (WBI; Dyrbye et al., 2016), whereby participants rated burnout on seven dichotomous (*yes/no*) items, indicated whether they found their work meaningful (single item, 1 = *very strongly disagree* to 7 = *very strongly agree*), and whether they had enough time for personal/family life (one item, 1 = *strongly disagree* to 5 = *strongly agree*). Total WBI scores were calculated according to scoring guidelines,

ranging from  $-2$  to 9, with higher scores indicating higher burnout (Dyrbye et al., 2016). Research has supported the validity and reliability of the scales, with good internal consistency in the current sample for PCL-5 (e.g.  $\alpha = .94$ ; Blevins et al., 2015; current sample  $\alpha = .96$ ), PHQ-9 (e.g.  $\alpha = .90$ ; Kroenke et al., 2001; current sample  $\alpha = .90$ ), GAD-7 (e.g.  $\alpha = .89$ ; Löwe et al., 2008; current sample  $\alpha = .93$ ), and WBI (Dyrbye et al., 2016; current sample  $\alpha = .67$ ).

### 2.2.5. Intention to leave job due to moral distress

Whether participants wished to leave their jobs in response to exposure to moral stressors was assessed using an item embedded in the MMD-HP: 'Are you considering leaving your position now due to moral distress?' (*yes/no*).

## 2.3. Data analytic strategy

### 2.3.1. Pre-analysis

Analyses were restricted to participants with complete MMD-HP data because the MMD-HP follows a formative measurement model, which renders missing data imputation techniques less reliable (Coltman et al., 2008). Mode imputation was used to estimate missing data for other self-report scores (i.e. moral injury, depression, PTSD, anxiety, and burnout) for participants who completed at least 80% of the corresponding scale. Listwise deletion was used for regression models, and pairwise deletion was used for *t*-tests and correlations, such that participants with more than 20% missing data on a scale were retained in the analytic frame but excluded from certain analyses. Chi-square tests were used to assess potential differences in age, gender, education, marital status, geographic region, residential area, degree of patient care, and intention to leave their job between individuals with complete and incomplete MMD-HP data, and between individuals with more than 20% and 20% or less missing data on the MIOS.

### 2.3.2. Qualitative analysis of MMD-HP responses

Any additional (i.e. 'other') moral stressors provided by participants were analyzed by a team of three researchers (IK, TL, CF) with NVivo 12 Pro using a process outlined by Braun and Clarke (2006). The steps involve (a) familiarizing with the data, (b) generating and applying initial codes to responses, (c) searching for themes by sorting codes into categories, (d) reviewing themes for cohesiveness and representativeness with the data, (e) defining and naming themes, and (f) reporting findings (Braun & Clarke, 2006). This process was modified whereby the original 27 MMD-HP items were included as *a priori* codes, such that responses that replicated any original items could be flagged and, if all coders agreed, have their frequency and distress ratings incorporated into

their respective original items for quantitative analyses. Responses deemed distinct from the original 27 MMD-HP items were analyzed in accordance with the aforementioned 6-step process (Braun & Clarke, 2006).

### 2.3.3. Quantitative analysis

Descriptive statistics were calculated for continuous variables, and bivariate correlations were calculated for all predictors used in regression modelling. To understand HCWs' experiences with moral stressors, their MMD-HP frequency and distress ratings were visualized and sorted according to each item's derived importance, where an item's importance score was generated by multiplying each response option (e.g. 4 = *very distressing*) by the number of respondents who selected that option, and then summing those products. The most important items thus were those encountered most frequently or felt with the most distress according to the greatest number of participants.

Independent samples *t*-tests assessed group differences in the degree of moral stress exposure as well as moral injury between participants who were considering leaving their jobs and those who reported they were not considering leaving. A conservative *p*-value of < .01 was adopted for *t*-test significance testing to account for familywise error.

Three-step hierarchical logistic regression models were run to predict the intention to leave one's job due to moral distress. Predictors were entered as follows: Step 1. occupational variables (years of experience, COVID-19 contact, and percentage of patient involvement); Step 2. MMD-HP score and MIOS score; and Step 3. mental health outcomes (PHQ-9, PCL-5, GAD-7, WBI scores). To prevent multicollinearity among predictor variables, predictors which exhibited a correlation of .80 or higher were entered in separate models for Step 2. Similarly, MMD-HP and MIOS subscale totals were individually entered in Step 2 if their correlations were less than .80; otherwise, full-scale totals were used. Where relevant, variables were standardized prior to entry in the logistic regression models to account for different score ranges. All quantitative analyses and visualizations were performed using R Version 4.1.3.

## 3. Results

The analytic frame consisted of 1,204 HCWs. The most common age range for participants was between 41 and 60 years ( $n = 499$ ; 48.1%), women ( $n = 921$ ; 88.9%), and from Ontario or Quebec ( $n = 418$ ; 56.9%). Participant occupations varied, with the most common occupation being a nurse ( $n = 493$ ; 45.7%). Most participants worked directly with patients ( $n = 1,046$ ; 88.0%), with patient work comprising 75–100% of their role ( $n = 869$ ; 72.4%). Over

half of the participants ( $n = 698$ ; 58.1%) were directly engaged in clinical activities (e.g. diagnosing, treating) with COVID-19 patients. Additional participant characteristics are provided in Table 1.

### 3.1. Pre-analysis

Apart from age ( $\chi^2 = 9.00$ ,  $p = .03$ ) and job function ( $\chi^2 = 6.95$ ,  $p = .01$ ), participants with complete and incomplete MMD-HP data were similar with respect to demographic characteristics, occupational factors, and the proportion who intended to leave their jobs. Compared to those who did not complete the MMD-HP, those who completed the MMD-HP had a smaller proportion of participants aged 41–60 years, a larger proportion of participants aged 26–40 years, and a larger proportion of participants working directly with patients compared to those with other primary responsibilities. Participants with more than 20% missing MIOS data were similar on all demographic and occupational variables compared to those with 20% or less missing MIOS data; however, there was a larger proportion of participants who wanted to leave their jobs among those with 20% or less missing MIOS data ( $\chi^2 = 6.60$ ,  $p = .01$ ). Distributions for continuous variables were normal, based on accepted standards (Kline, 2016).

### 3.2. Experiences with morally distressing situations

Frequency and distress ratings on MMD-HP 'other' fields were reassigned to original items for 73 and 74 participants, respectively (see Supplementary Figure S1 and S2 for original [i.e. pre-processed] distribution of responses). The frequency and distress ratings in response to potential moral stressors on the MMD-HP are shown in Figures 1 and 2, respectively. Most participants reported experiencing at least one of the situations 'very frequently' (65%) and found at least one of the situations to be 'very distressing' (78%). Overall, participants reported some degree of exposure to each of the situations presented (i.e. there were no situations that either never occurred or never caused participants any stress). Of the sample, 21% also described experiencing an 'other' situation not captured by the original MMD-HP, which fell into one of four broad themes: inadequate resources or resource allocation, unsupportive work environment, patient-related issues, and personal issues (i.e. highlighting personal distress/burden associated with their workplace). The number of participants who described experiencing situations within each of the themes and related subthemes is shown in Table 2.

**Table 1.** Participant sociodemographic characteristics.

Variable	<i>n</i>	%
Age (years)		
≤25	40	3.9
26–40	431	41.5
41–60	499	48.1
>60	63	6.1
Prefer not to answer	5	0.5
Missing	166	13.8
Gender		
Woman	921	88.9
Man	95	9.2
Other	6	0.6
Prefer not to answer	14	1.4
Missing	168	14.0
Region		
Central Canada	418	56.9
Prairie Provinces	189	25.8
West Coast	82	11.2
Atlantic Region	40	5.5
Northern Territories	5	0.7
Missing	470	39.0
Marital status		
Married/Common Law	624	65.0
Single	201	20.9
Separated/Divorced/Widowed	110	11.5
Prefer not to answer	25	2.6
Missing	244	20.3
Education		
Completed College/University	913	87.9
Less than College/University	126	12.1
Missing	165	13.7
Occupation (top 5 only)		
Nurse	493	45.7
Personal Support Worker	110	10.2
Physician	59	5.5
Paramedic	53	4.9
Other	364	33.7
Missing	125	10.4
Primary job function		
Direct client/patient care	1046	88.0
Administration	92	7.7
Outreach	13	1.1
Research	12	1.0
Other	25	2.1
Missing	16	1.3
Setting		
Hospital/community health	824	68.6
Private practice	99	8.2
Other	279	23.2
Missing	2	0.2
Number of years working as a healthcare worker		
≤5 years	260	21.7
6–10 years	252	21.1
≥11 years	687	57.3
Missing	5	0.4
Work location		
On-site (physical)	998	83.2
Home	35	2.9
Both	167	13.9
Missing	4	0.3
Percentage of workload patient care		
I do not provide care to clients/patients	66	5.5
1–24%	64	5.3
25–50%	69	5.8
51–74%	132	11.0
75–100%	869	72.4
Missing	4	0.3
Provided COVID-19 patient care		
Yes	698	58.1
No	503	41.9
Missing	3	0.2

Note. Occupational counts include those in training. 'Nurse' includes clinical nurse specialist, nurse anesthetist, nurse practitioner, nurse midwife, and nurse not otherwise specified. 'Physician' includes physicians and surgeons. 'Other' includes a collapse of 31 job options such as social worker, health administrator, physical therapist, respiratory therapist, and community health worker.

### 3.3. Distress and intention to leave job

Means and standard deviations for continuous variables and bivariate correlations for all predictor variables are reported in Table 3. Of the 1,184 individuals (98%) who answered the attrition question, 517 participants (44%) indicated they were considering leaving their jobs due to situations presented in the MMD-HP. Compared to participants who did not consider leaving their job, those who did consider leaving had significantly higher scores for MMD-HP total,  $t(1032.1) = 12.99$ ,  $p < .001$ , frequency of exposure,  $t(1182) = 13.05$ ,  $p < .001$ , and level of distress associated with stressors encountered,  $t(1159) = 10.42$ ,  $p < .001$ . The same pattern was observed for total moral injury scores,  $t(701) = 7.33$ ,  $p < .001$ , and for subscale scores of moral injury-related shame,  $t(662.8) = 5.31$ ,  $p < .001$ , and trust-violation,  $t(701) = 7.64$ ,  $p < .001$ .

Due to most participants having 75% or more of their work comprising patient care (see Table 1), this variable was collapsed into a binary variable (i.e. less than 75% patient care, 75% or more patient care) for the regression analyses. MIOS subscales were individually entered due to intercorrelations less than .80 and the MMD-HP total score was entered due to a high intercorrelation ( $r = .88$ ). Unstandardized regression estimates (Step 1) and partially standardized regression coefficients (i.e. predictors only; Steps 2 and 3) are presented in Table 4. None of the occupational variables were significantly related to the intention to leave one's job. In Step 2, MMD-HP total and MIOS trust-violation subscale scores were associated with considering leaving the job due to moral distress, whereas the MIOS shame subscale score was not. In Step 3, MMD-HP total and MIOS trust-violation subscale scores remained significant predictors ( $p < .001$ ;  $p = .022$ , respectively) after considering symptom severity of PTSD, depression, anxiety, and burnout. Among the mental health variables, burnout was the only independent predictor of intention to leave one's job ( $p < .001$ ). Controlling for the other variables, each standard deviation increase in the predictor increased the odds of considering leaving one's job by 83%, 30%, and 59% for moral distress, moral injury due to trust violation, and burnout, respectively. The final model accounted for 24% of the variance in the intention to leave one's job.

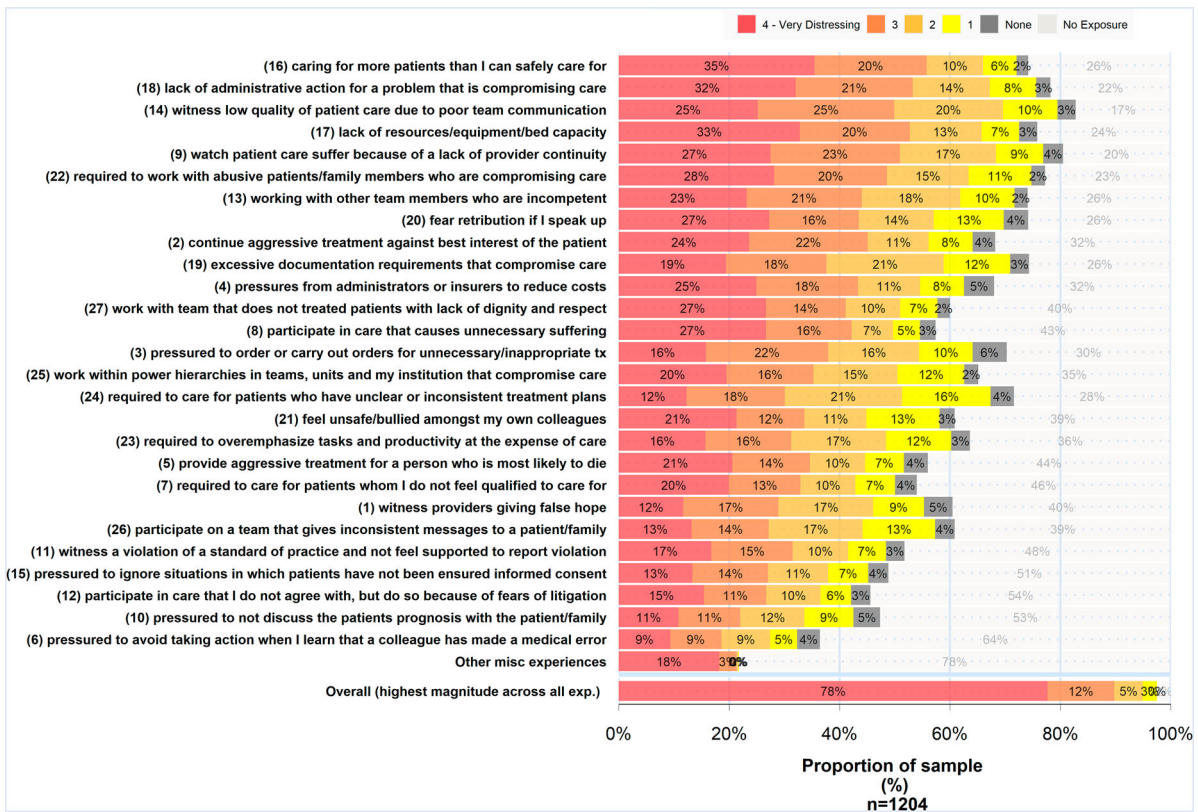
## 4. Discussion

This study characterizes the nature and prevalence of potential moral stressors and their effects as experienced by HCWs during the COVID-19 pandemic. Our results showed that HCWs reported increased prospects of leaving their jobs due to the experience





**Figure 1.** Reported frequencies of exposure to moral stressors in the workplace, ordered by sample proportions. Higher ordering weight is applied to stressors with higher endorsement of frequency. Numbers in parentheses reflect the corresponding MMD-HP scale item number. ‘Other misc experiences’ refer to the morally distressing experiences that participants described in their open-ended responses.



**Figure 2.** Reported level of distress associated with moral stressors in the workplace, ordered by sample proportions. Note. Higher ordering weight is applied to stressors with higher endorsement of distress severity. Numbers in parentheses reflect the corresponding MMD-HP scale item number. ‘Other misc experiences’ refer to the morally distressing experiences that participants described in their open-ended responses.

**Table 2.** Themes from the additional open-ended moral distress situations provided on the MMD-HP.

Themes and Sub-Themes	n	% <sup>a</sup>
<b>Personal Issues</b>	<b>169</b>	<b>32%</b>
Compromised personal safety or well-being in a distinct way that does not compromise patient care	60	35.5%
Witness pain or suffering that I feel helpless to resolve	47	27.8%
Feeling pressured to participate in work that feels wrong or having opposing opinions with those I work with	26	15.4%
Feel conflicted about what decision to make due to unclear directives or due to competing pressures	22	13.0%
Experience a lack of support from family or community members	14	8.3%
<b>Unsupportive Work Environment</b>	<b>156</b>	<b>30%</b>
Feeling unsupported in workplace by management and leadership	89	57.1%
Feeling unsupported by colleagues or staff non-compliant	26	16.7%
Work environment unfamiliar or not suited to training	21	13.5%
Working excessive hours and or not allowed breaks	12	7.7%
Not being compensated properly	8	5.1%
<b>Patient Related Issues</b>	<b>130</b>	<b>25%</b>
Families and or visitors unable to be with patient	29	22.3%
Patient unable to access care or resources	25	19.2%
Unprofessional or inappropriate staff behaviour in a patient setting	22	16.9%
Patient or family not supportive of treatment plans or protocols	21	16.2%
Practices or services that are suboptimal for patients	12	9.2%
Decisions that contrast with patient preferences	12	9.2%
Inadequate discharge plan for patients	9	6.9%
<b>Inadequate Resources or Resource Allocation</b>	<b>66</b>	<b>13%</b>
Inadequate resources or treatment that doesn't explicitly hinder patient care	61	92.4%
Excessive documentation not specific to patient care	5	7.6%

<sup>a</sup>Percentages reflect the total number of responses ( $n = 521$ ) for themes, or, for subthemes, the respective percentages of that theme. (Ex., *Personal Issues* makes up 32% of all reported themes, and *Compromised personal safety ...* makes up 35.5% of the *Personal Issues* theme).

and impacts of moral stressors, an outcome that is consistent with the findings of others using the same measure in ICUs (Petrisor et al., 2021; Silverman et al., 2022), neonatal ICUs (Hally et al., 2021), and with nurses more generally (Sheppard et al., 2022). Using categorisations provided by Epstein et al. (2019) to classify moral stressors, four out of the five most frequently endorsed situations were classified as originating at the organizational level, which is consistent with findings from smaller-scale studies of HCWs during the COVID-19 pandemic (Latimer et al., 2022; Petrisor et al., 2021). Stressors that fell into both the high-frequency and high-distress categories included those involving patient care requirements that exceeded the capacity that HCWs felt comfortable managing, a perceived lack of resource availability, and a belief that healthcare administrators were not adequately addressing issues that had the potential to compromise the quality of patient care. The latter theme, which was also identified in participants' free-form responses, may broadly capture moral stressors experienced by HCWs which, due to their relative rarity when the measure was created (i.e. prior to the onset of COVID-19), were not included as potential MMD-HP items.

**Table 3.** Descriptive Statistics and Bivariate Relations.

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. MMD-HP frequency	39.50 (23.60)	—											
2. MMD-HP distress	47.18 (26.79)	.88***	—										
3. MMD-HP total	116.43 (87.46)	.95***	.93***	—									
4. MIOS shame	8.25 (5.64)	.25***	.23***	.25***	—								
5. MIOS trust-violation	11.32 (5.36)	.37***	.31***	.38***	.56***	—							
6. MIOS total	19.59 (9.73)	.35***	.30***	.36***	.89***	.88***	—						
7. PHQ-9	10.72 (6.56)	.35***	.27***	.36***	.47***	.47***	.53***	—					
8. GAD-7	9.15 (6.00)	.32***	.25***	.33***	.44***	.47***	.52***	.73***	—				
9. PCL-5	31.64 (19.32)	.46***	.39***	.47***	.42***	.50***	.57***	.61***	.54***	—			
10. WBI	3.69 (2.26)	.42***	.34***	.41***	.40***	.45***	.48***	.61***	.57***	.54***	—		
11. Years of experience	—	-.02	-.02	-.03	-.07*	-.07*	-.08*	-.05	-.10***	-.05*	-.09**	—	
12. Patient care	—	.17***	.16***	.17***	.07*	.05	.06*	.06*	.02	.04	.05	-.07**	—
13. COVID care	—	.24***	.23***	.23***	.14***	.11**	.14***	.08*	.11**	.12***	.18***	.08**	-.27***

Note. Means and standard deviations are excluded for *Years of Experience*, *Patient Care*, and *COVID Care* as the former two are ordinal variables and the latter is a binary, nominal variable (proportions presented in Table 1). Pearson correlation coefficients are reported for continuous associations, Kendall's tau is reported for ordinal by ordinal associations, and a rank biserial coefficient is reported for the ordinal by binary association. Years of experience = Years of experience as HCW; Patient care = Percent of workload patient care; COVID care = Provided COVID-19 patient care; MMD-HP = Measure of Moral Distress for Health Care Professionals; MIOS = Moral Injury Outcome Scale; PHQ-9 = Patient Health Questionnaire; GAD-7 = Generalized Anxiety Disorder Assessment; WBI = Expanded Well-Being Index.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 4.** Hierarchical logistic regression predicting intention to leave job due to moral stressor exposure ( $n = 689$ ).

Variable	Step 1		Step 2		Step 3	
	$\beta$ (SE)	AOR (95% CI)	$\beta$ (SE)	AOR (95% CI)	$\beta$ (SE)	AOR (95% CI)
<i>Experience</i>						
≤ 5 years	-0.12 (0.20)	0.89 (0.60–1.31)	-0.29 (0.22)	0.75 (0.49–1.14)	-0.35 (0.22)	0.70 (0.45–1.08)
6–10 years	0.21 (0.19)	1.23 (0.84–1.80)	0.08 (0.21)	1.08 (0.72–1.63)	0.05 (0.22)	1.05 (0.69–1.61)
≥ 11 years (ref)	–	–	–	–	–	–
<i>Patient care</i>						
< 75%	-0.18 (0.18)	0.84 (0.59–1.18)	0.05 (0.20)	1.06 (0.72–1.55)	0.04 (0.20)	1.04 (0.70–1.54)
≥ 75% (ref)	–	–	–	–	–	–
<i>COVID care</i>						
Yes	0.26 (0.16)	1.30 (0.94–1.78)	-0.08 (0.18)	0.93 (0.65–1.32)	-0.12 (0.18)	0.88 (0.61–1.27)
No (ref)	–	–	–	–	–	–
<i>MIOS shame</i>						
			0.11 (0.10)	1.12 (0.91–1.36)	0.01 (0.11)	1.01 (0.82–1.25)
<i>MIOS trust-violation</i>						
			0.36 (0.11)**	1.44 (1.17–1.78)**	0.26 (0.11)*	1.30 (1.04–1.62)*
<i>MMD-HP total</i>						
			0.70 (0.10)**	2.01 (1.65–2.47)**	0.61 (0.11)**	1.83 (1.48–2.28)**
<i>PCL-5</i>						
					-0.04 (0.14)	0.96 (0.72–1.27)
<i>PHQ-9</i>						
					0.06 (0.16)	1.06 (0.77–1.47)
<i>GAD-7</i>						
					0.02 (0.15)	1.02 (0.76–1.36)
<i>WBI</i>						
					0.46 (0.12)**	1.59 (1.26–2.01)**
	Nagelkerke $R^2 = .01$		Nagelkerke $R^2 = .20$		Nagelkerke $R^2 = .24$	

Note. Regression coefficients ( $\beta$ ) are unstandardized (Step 1) or partially standardized (i.e. X variable standardized; Steps 2 and 3). SE = Standard Error; AOR = Adjusted odds ratio; Experience = Years of experience as HCW; Patient care = Percent of workload patient care; COVID care = Provided COVID-19 patient care; MMD-HP = Measure of Moral Distress for Health Care Professionals; MIOS = Moral Injury Outcome Scale; PCL-5 = Posttraumatic Stress Disorder Checklist; PHQ-9 = Patient Health Questionnaire; GAD-7 = Generalized Anxiety Disorder Assessment; WBI = Expanded Well-Being Index.  
\*  $p < .05$ . \*\*  $p < .001$ .

Based on the nature of the questions asked and the scale's implied formative structure (Coltman et al., 2008), the MMD-HP most appropriately is considered a measure of the degree of reported exposure to moral stressors, rather than an indicator of the severity of psychological outcomes (Houle et al., 2023). For instance, in its typical application, the MMD-HP treats moral stressor exposures as operationally equivalent to the experience of moral distress (i.e. psychological disturbance) in that frequency and level of distress prompted by the stressor are treated as having equal weight relative to the situation's impact on the individual. As such, events with high frequencies and low intensities could be scored and considered to be just as distressing as those of low frequency, but which prompt a high level of distress. As noted recently by Kolbe and de Melo-Martin (2023), this practice confounds the true nature of moral stressors and their outcomes and obscures appropriate targets for effective upstream (i.e. organizational) and downstream (i.e. psychological care) interventions. In contrast, the MIOS captures a broader range of behavioural and psychosocial-spiritual disturbances (e.g. guilt, shame, loss of faith in humanity) appropriately conceptualized as *responses to moral stressor exposure* and operationalized collectively as the *outcome of moral injury*. In addition, all items are anchored to the 'worst/most currently morally distressing event' and captured within a past-month period, which is consistent with common models of psychiatric taxonomy (DSM-5; American Psychiatric Association, 2013). Results from this study, therefore, provide useful information by separating out the nature, frequency and level of distress prompted by particular moral stressors experienced during the COVID-19 pandemic as well as the morally injurious

outcomes, information which is currently absent from existing research in this domain (Dean et al., 2020; Kolbe & de Melo-Martin, 2023).

Indeed, the frequency of organizational-level moral stressors (as they are presently observed) may explain why MIOS trust-violation subscale scores significantly predicted attrition intention in this study, while MIOS shame subscale scores did not. According to Litz et al. (2009), feelings of shame and guilt can stem from a dissonance between how an individual believes they should have acted to alter a morally transgressive situation and how they actually acted, which may have led to a particular negative outcome. As many of the scenarios endorsed in this study are reflective of HCWs' perceptions of lacking personal agency to influence outcomes, it follows that HCWs who feel powerless to mitigate potential moral stressors are also those who express a lack of trust in those making decisions that constrict such agency (e.g. healthcare administrators). While the demonstrated effects of system-level causes of moral stress are not novel (Latimer et al., 2022; Silverman et al., 2022), the increased strains imposed by the pandemic, as well as improved methods for measuring moral stress outcomes (Litz et al., 2022), allows for a clearer picture of such variables and their effects. Given the vulnerabilities of the healthcare system, which were exposed by the COVID-19 pandemic, appropriate separation of and communication about moral stress exposure and its effects is likely to provide an impetus for exploring enduring solutions to this problem (Kolbe & de Melo-Martin, 2023). Notably, factors such as adequate organization and distribution of patient caseloads, strong communication between leaders and employees, policies promoting HCW autonomy, and inclusive, collaborative, and flexible work environments



may help reduce these tensions (Lake et al., 2022; Murphy et al., 2022). More focus on HCW engagement in co-designing institutional policies should also be explored, with approaches that can be drawn from the employee experience body of literature (Murphy et al., 2022).

Despite previous research which demonstrated associations between moral stress exposure and mental health outcomes such as PTSD, depression and anxiety (Amsalem et al., 2021; Colville et al., 2019; Mantri et al., 2020; Plouffe et al., 2021), we observed that among the mental health symptom scales included in the models, burnout alone significantly predicted intention to leave one's job as a consequence of exposure to moral stressors. One explanation for this finding may be that where moral stressors precede mental health problems, the moral nature of the events may serve to catalyse various presentations of distress (i.e. no specific presentation stands out independently), serving as a transdiagnostic risk factor (Eastbrook et al., 2023). Given that burnout is considered an occupational problem, and this study focuses on occupational stressors, it may be that in the context of the COVID-19 pandemic, which presented unique challenges and strong demand on HCWs, this aspect of work-related mental health difficulties was most dominant relative to other problems. Still, these findings highlight the extent to which organizational factors beyond years of experience, extent of patient contact, and potential COVID-19 exposure are likely at play in intentions to leave one's job. They, therefore, highlight the need for systemic interventions.

Of note, due to the high correlation between the frequency and level of distress subscales on the MMD-HP ( $r = .88$ ), it was not possible to examine the effects of these features on attrition intentions separately. Still, given advances in our understanding of the utility of the MMD-HP and similar scales (i.e. as measures of degree of exposure rather than outcomes; Houle et al., 2023), findings related to MIOS outcomes are able to provide additional relevant information as to the potential impact of moral stress exposure among HCWs. Importantly, the cross-sectional nature of this analysis limits the breadth of conclusions that can be drawn. As longitudinal data become available, future analytical approaches may be better positioned to examine the moderating mechanisms of risk and protective factors, along with longitudinal trajectories of moral injury and related psychological outcomes experienced by HCWs. Future longitudinal analyses may also explore metrics of *actual* staff attrition and not rely on a proxy measure of the *intention* to leave the job. In addition, while the online survey was available to all HCWs across Canada, it may not be fully representative of the entire Canadian HCW

population, which includes more than 1.6 million employees (Government of Canada, 2022). Moreover, our survey data may not entirely generalize to other countries, as national differences in pandemic responses and healthcare may pose unique conditions for Canadian HCWs. For instance, Canada's pandemic response was among the most stringent worldwide and it was associated with lower death and infection rates compared to peer countries (Razak et al., 2022). Though, relative to other high-income countries, Canada ranks poorly on metrics of healthcare accessibility, equity, and workforce data quality (Bourgeault, 2021; McAlister, 2018). Response bias may also contribute to generalizability limits, as exemplified by a response pattern seen in this survey where younger individuals and those who worked with COVID patients being slightly more likely to complete the MMD-HP scale (other factors were not found to be related with scale completion). Another limitation is related to the design of the MMD-HP scale, in that the wording of the question capturing the intention to leave the job explicitly refers to moral distress as being one of the reasons behind this intention; this may have a bias towards the identified predictor variables related to moral distress. Future research should consider departing from the original design of the scale to fully disaggregate the question regarding intention to leave employment from the reasons behind this intention. Another consideration is that the event that participants may have chosen to evaluate against when completing the MIOS may not be limited to their experiences in the workplace. Whether reported features of distress were prompted by specific events captured on the MMD-HP is, therefore, unknown. Given our observation that trust-violation scores were associated most significantly with job attrition intentions, it would be worthwhile for future research to examine the extent to which these features of distress may serve to exacerbate moral appraisals of workplace stressors and related distress over time, as well as look for any relations to mental health challenges. In addition, while the MIOS is well-validated in military populations, specific validation work among HCWs is forthcoming. Finally, although this study was not designed to capture demographic information that could determine whether some groups are disproportionately burdened by factors that violate/impair HCWs' trust, this is an important gap that requires attention.

#### 4.1. Conclusion











This study used a well-known measure of moral stress exposure in conjunction with a measure of moral injury in a large sample of HCWs in order to assess

the influence of each factor on HCWs' intentions to leave their jobs. Our findings showed that after considering occupational factors (e.g. years of experience, patient contact) and mental health symptoms (i.e. PTSD, depression, anxiety), moral stress exposure, trust-based moral injury symptoms and burnout all impacted HCW attrition intentions. This provides further insight with respect to the nature and influence of moral stressors among HCWs during the COVID-19 pandemic. Leaders of healthcare organizations need to take intentional and effective steps to reduce preventable exposure to moral stressors (Kolbe & de Melo-Martin, 2023) and should pay particular attention to policies and team dynamics that create a risk for moral distress and loss of trust among HCWs (Kreh et al., 2021).

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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