

## Original quantitative research

# Canadian respiratory therapists who considered leaving their clinical position experienced elevated moral distress and adverse psychological and functional outcomes during the COVID-19 pandemic

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### Abstract

**Introduction:** Respiratory therapists (RTs) faced morally distressing situations throughout the COVID-19 pandemic, including working with limited resources and facilitating video calls for families of dying patients. Moral distress (i.e. psychological distress when restricted from undertaking a known ethically appropriate course of action) is associated with a host of adverse psychological and functional outcomes (e.g. depression, anxiety, symptoms of posttraumatic stress disorder [PTSD] and functional impairment) and consideration of position departure. The purpose of this study was to understand the impact of moral distress and its associated psychological and functional outcomes on consideration to leave a clinical position among Canadian RTs during the COVID-19 pandemic.

**Methods:** Canadian RTs (N = 213) completed an online survey between February and June 2021. Basic demographic information (e.g. age, sex, gender) and psychometrically validated measures of moral distress, depression, anxiety, stress, PTSD, dissociation, functional impairment, resilience and adverse childhood experiences were collected.

**Results:** One in four RTs reported considering leaving their position because of moral distress. RTs considering leaving reported elevated levels of moral distress and adverse psychological and functional outcomes compared to RTs not considering leaving. Over half (54.5%) of those considering leaving scored above the cut-off for potential diagnosis of PTSD. Previous consideration to leave a position and having left a position in the past due to moral distress each significantly increased the odds of currently considering leaving, along with system-related moral distress and symptoms of PTSD, but the contribution of these latter factors was small.

**Conclusion:** Canadian RTs considering leaving their position due to moral distress reported elevated levels of distress and adverse psychological and functional outcomes, yet these individual-level factors appear unlikely to be the primary factors underlying RTs' consideration to leave, because their effects were small. Further research is required to identify broader, organizational factors that may contribute to consideration of position departure among Canadian RTs.

### Highlights

- Roughly 25% of the RTs in our study were considering leaving their position in the spring of 2021 due to moral distress.
- Compared to RTs not considering leaving their position, those considering leaving reported elevated moral distress, functional impairment and adverse psychological outcomes.
- Previous consideration of leaving one's position due to moral distress, having left a position in the past for this reason, system-level moral distress and PTSD symptoms significantly increased the odds of considering leaving; however, the contribution of system-level moral distress and PTSD symptoms were each small.
- Broader, organizational issues may play an additional role in consideration of position departure among Canadian RTs, and is an area for future research.

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**Keywords:** *respiratory therapists, COVID-19, turnover, mental health, PTSD, health care, moral distress*

## Introduction

Respiratory therapists (RTs) are health care professionals (HCPs) with expertise in cardiopulmonary (heart and lung) health.<sup>1</sup> As HCPs who work in a variety of settings (e.g. home care, community clinics, outpatient clinics, emergency departments, operating rooms and intensive care units) and care for patients of all ages,<sup>1</sup> RTs have played a vital role on the frontlines of the COVID-19 pandemic.<sup>2,3</sup> Indeed, RTs have been at the bedside of COVID-19 patients, contributing to respiratory rehabilitation and physiotherapy (e.g. proning patients – placing those in respiratory distress on their stomachs), caring for patients' physical and emotional needs and guiding patients through recovery when discharge from hospital appeared possible.<sup>2</sup>

Like other HCPs, RTs had to work with scarce resources, especially during the earlier stages of the pandemic, while also being confronted with morally distressing events such as facilitating video calls between dying patients and their families.<sup>2,4,5</sup> Moral distress is defined as the psychological distress that may occur when a HCP is constrained from acting in line with knowledge of the ethically appropriate course of action for a given situation.<sup>6,7</sup> Moral distress is associated with a range of adverse outcomes (e.g. burnout, depression, anxiety, PTSD symptoms, functional impairment) and considering leaving one's position or profession.<sup>4,5,8,9</sup> Despite emerging knowledge on the psychological and functional impact the pandemic has had on RTs,<sup>3,10,11</sup> and growing concern over attrition rates among HCPs globally,<sup>12-15</sup> little is known about the impact of moral distress and its associated outcomes on Canadian RTs' consideration to leave a position during the pandemic. Accordingly, the purpose of this study was to explore the impact of specific types of moral distress and associated psychological and functional outcomes on RTs' consideration to leave a clinical position due to moral distress during the COVID-19 pandemic.

### *Moral distress and turnover during the COVID-19 pandemic*

Moral distress may have various root causes, including patient (e.g. performing

futile treatments at a family's request), unit or team (e.g. poor communication, bullying) and system sources (e.g. poor staffing, lack of adequate resources).<sup>6</sup> Whereas at the individual level moral distress is associated with depression, anxiety, emotional constriction or detachment, guilt, grief and hopelessness, at the organizational level, moral distress is related to staff shortages, poor organizational culture and HCPs leaving their position or profession<sup>16-18</sup> (see Burston and Tuckett<sup>17</sup> for a full review of outcomes associated with moral distress). Furthermore, the effects of moral distress may increase over time as ongoing instances of moral distress and unresolved past moral distress (i.e. moral residue) may compound to impact individuals and organizations in an increasingly negative way.<sup>7</sup>

HCPs may be at an elevated risk for moral distress and its associated outcomes during extremely stressful times, such as a global pandemic. They may face a multitude of situations in which they are prevented from acting in line with their values.<sup>4,5,8,9,19,20</sup> Indeed, at the outset of the pandemic, Norman et al.<sup>5</sup> found that COVID-19-related moral distress among frontline HCPs in New York City stemmed from concerns for family, personal infection and work and was, in turn, related to PTSD symptoms, burnout, functional impairment and interpersonal difficulties in the workplace.

In an investigation of moral distress among over 7000 Australian HCPs between August and October 2020, Smallwood et al.<sup>4</sup> found that the scarcity of resources, new PPE policies that limited their ability to care for patients, the exclusion of patients' family members and the fear of letting co-workers down should one become infected constituted morally distressing events for HCPs. Petrişor et al.<sup>8</sup> found that greater self-reported moral distress was associated with greater reports of depression and anxiety symptoms among ICU nurses. Furthermore, system-level sources of moral distress (e.g. feeling unable to provide adequate care due to staff and resource shortages) were more greatly reported by ICU nurses who reported considering leaving their position when compared to their colleagues not considering leaving.<sup>8</sup> In a related study among a sample of 129 registered nurses conducted in July and August 2020, moral distress related to patient care quality and safety,

as well as to issues in the work environment, predicted intention to leave.<sup>21</sup>

Falatah<sup>22</sup> noted that predictors of pre-pandemic turnover among nurses included sociodemographic variables (e.g. age, sex, marital status, nationality), yet during the pandemic, predictors of turnover further included caring for COVID-19 patients, working in COVID-19 divisions, fear of contracting the disease, stress and anxiety. Other predictors of consideration to leave a health care position may include childhood adversity and dissociation, as childhood adversity has been associated with mental and physical challenges in adulthood<sup>23,24</sup> and those reporting moral distress may also report emotional dissonance or detachment.<sup>17</sup> Furthermore, resilience (i.e. the ability to bounce back in the face of stress) may be protective against moral distress among HCPs,<sup>25,26</sup> yet at least one study has found that resilience is insufficient to buffer against moral distress among HCPs.<sup>27</sup>

### *Study objective and hypothesis*

The majority of the literature on HCPs' experiences with moral distress before and during the COVID-19 pandemic has focussed on nurses.<sup>8,21,28-30</sup> RTs are also direct care providers who commonly face moral challenges and traumatic exposures, including performing and witnessing perceived futile care or being responsible for the removal of mechanical ventilation, resulting in patient death.<sup>31,32</sup> Given the toll pandemic service has exerted on HCPs and growing concern over attrition rates in health care,<sup>12-15</sup> there is an urgent need to understand RTs' consideration to leave due to moral distress and its associated outcomes. Accordingly, the aim of this study was to characterize the impact of specific types of moral distress and associated outcomes on RTs' consideration to leave a clinical position due to moral distress during the COVID-19 pandemic. We hypothesized that RTs considering leaving their position because of moral distress would report higher levels of moral distress, adverse psychological and functional outcomes and greater exposure to adverse childhood events, but lower levels of resilience when compared to RTs not considering leaving their position due to moral distress. We further hypothesized that moral distress, adverse psychological and functional outcomes, along with childhood adversity, would be significantly associated with increased odds of

considering leaving a position due to moral distress, whereas resilience would be significantly associated with decreased odds of considering leaving a position due to moral distress.

## Methods

### Ethics approval

This study is a part of a broader investigation of Canadian HCPs' experiences during the COVID-19 pandemic that was approved by the Hamilton Integrated Research Ethics Board (#12667).

### Procedure

Canadian RTs were recruited to participate in an online survey through social media, emails from the Canadian Society of Respiratory Therapists (representing over 4000 RTs) and select hospitals across Canada. Participants had to have contributed to patient care in Canada during the pandemic to participate. RTs accessed the survey on Research Electronic Data Capture (REDCap)<sup>33,34</sup> software between February and June 2021.

### Measures

#### Demographics

The survey included a demographic form indexing basic demographic (e.g. age, sex, gender, current province/territory of residence) and occupational information (e.g. total years practising, occupational setting).

#### Measure of Moral Distress—Healthcare Professional

The Measure of Moral Distress—Healthcare Professional (MMD-HP) was used to evaluate moral distress.<sup>6</sup> The MMD-HP is a 27-item, self-report measure that accounts for both subjective frequency of and distress associated with events. Participants rated their degree of agreement with 27 statements on two 5-point scales assessing (1) the frequency of exposure to an event and (2) the level of distress associated with the event, where 0 represented "Never/None" and 4 represented "Very frequently/Very distressing." Total scores were calculated by summing the product of the frequency and distress ratings for each item. Greater scores indicated heightened exposure to the event and elevated levels of moral distress (Cronbach  $\alpha$  = 0.96).

Epstein and colleagues' four-factor structure<sup>6</sup> including two levels of team-related

sources of moral distress was collapsed into three categories (i.e. patient, team and system) for the sake of parsimony, as per the design of Petrișor et al.<sup>8</sup> Accordingly, the following subscales were considered in our analyses: patient-related stressors (e.g. "Continuing to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it"); team-related stressors (e.g. "[Working] with team members who do not treat vulnerable or stigmatized members with dignity and respect"); and system-related stressors (e.g. "[Being] unable to provide optimal care due to pressures from administrators to reduce costs").<sup>6,8</sup> Participants were asked about consideration to leave a clinical position due to moral distress both in the past and the present. The response options for the question "Have you ever left or considered leaving a clinical position due to moral distress?" were: i) "No, I have never considered leaving or left a position," ii) "Yes, I considered leaving but did not leave" and iii) "Yes, I left a position," as per the MMD-HP.<sup>6</sup> The response options for the question "Are you considering leaving your position now due to moral distress?" were i) "Yes" and ii) "No," as per the MMD-HP.<sup>6</sup>

#### Depression Anxiety Stress Scale 21

The Depression Anxiety Stress Scale 21 (DASS-21)<sup>35</sup> was used to assess symptoms of depression, anxiety and stress. Participants rated 21 items on a scale ranging from 0 ("Did not apply to me at all") to 3 ("Applied to me very much or most of the time") with reference to the past week. The DASS-21 yields mutually exclusive scores for depression, anxiety and stress<sup>35</sup> (Cronbach  $\alpha$  = 0.93).

#### Posttraumatic Stress Checklist 5

The Posttraumatic Stress Checklist 5 (PCL-5)<sup>36</sup> was used to measure the presence and severity of symptoms of posttraumatic stress disorder (PTSD). Participants used a 5-point scale ranging from 0 ("Not at all") to 4 ("Extremely") to rate their degree of past-month agreement with 20 statements assessing symptoms consistent with PTSD as indexed in the DSM-5<sup>37</sup> (Cronbach  $\alpha$  = 0.94).

#### Multiscale Dissociation Inventory

The Multiscale Dissociation Inventory (MDI)<sup>38</sup> was used to measure features of dissociation. Specifically, only the disengagement and emotional constriction

subscales of the MDI were used for our study, given the theorized relation of these subscales to RTs' consideration of leaving their position.<sup>17</sup> The MDI is a 30-item, self-report measure yielding six scales of dissociative symptomatology, including disengagement, depersonalization, derealization, emotional constriction, memory disturbance and identity dissociation. Participants rated their degree of past-month agreement with 30 items on a 5-point scale ranging from 1 ("Never") to 5 ("Very often") (Cronbach  $\alpha$  = 0.95).

#### World Health Organization Disability Assessment Schedule 2.0

The 12-item version of the World Health Organization Disability Assessment Schedule 2.0 (WHODAS)<sup>39</sup> served as a measure of functional impairment. The WHODAS captures health-related disability across six domains of functioning, including cognition, mobility, self-care, getting along, life activities and participation. Participants rated degree of impairment experienced over the past month for 12 statements using a scale ranging from 0 ("None") to 4 ("Extreme or cannot do"). Simple scoring of the WHODAS was used for this study<sup>39</sup> (Cronbach  $\alpha$  = 0.88).

#### Brief Resilience Scale

The Brief Resilience Scale (BRS) was used to assess resilience (i.e. one's ability to "bounce back" in the face of stressful events).<sup>40</sup> Participants rated their degree of agreement with six items related to resilience on a 5-point scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"), such that higher scores indicated a higher degree of resilience (Cronbach  $\alpha$  = 0.90).

#### Adverse Childhood Experiences Scale

The Adverse Childhood Experiences Scale (ACES) was used to assess exposure to childhood adversity.<sup>41</sup> The ACES is a 10-item, self-report scale assessing exposure to common adverse life events, including physical, sexual or emotional abuse; neglect; domestic violence; parental separation or divorce; substance abuse in the household; or a mentally ill or incarcerated family member. Participants indicated whether they had experienced the events in childhood (Yes = 1, No = 0); higher scores represent greater exposure to childhood adversity<sup>41</sup> (Cronbach  $\alpha$  = 0.75).

#### Data preparation

Three-hundred and four (N = 304) survey responses were received between February

and June 2021. After removing incomplete entries, 213 RTs were included in the final dataset for this manuscript. Missing data were addressed with multiple imputation<sup>42</sup> using Statistical Product and Service Solutions (SPSS), version 27.0.<sup>43</sup> Only items that contributed to a scale's total score were imputed; demographic data and yes/no responses (e.g. to a question such as "Are you considering leaving a clinical position due to moral distress?") were not imputed.

### Data analysis

Descriptive statistics were examined to characterize the sample, and then the data for those considering and those not considering leaving their clinical position due to moral distress were compared via a series of chi-square or Fisher exact tests. A series of independent sample *t* tests (with Holm-Bonferroni corrections and Cohen *d* for effect size) were conducted to compare psychological and functional measures between those considering and not considering leaving. To assess the relation between moral distress and theoretically relevant variables (i.e. depression, anxiety, stress, PTSD, dissociation, resilience, functional impairment) bivariate correlations were run with the MMD-HP total score. Finally, a binary logistic regression model was constructed to identify the associations between moral distress, theoretically relevant variables and consideration to leave a position due to moral distress.

## Results

### Sample

Two-hundred and thirteen (*N* = 213) participants were included in the analysis; 25.8% (*n* = 55) of the sample reported that they were currently considering leaving their position due to moral distress. Of the total sample, 42.3% (*n* = 90) reported that they had considered leaving their position due to moral distress in the past but did not actually leave, while an additional 13.1% (*n* = 28) reported considering and ultimately leaving a position in the past due to moral distress. Demographic and occupational information for the total sample, stratified by current consideration to leave a position due to moral distress, is presented in Table 1.

**TABLE 1**  
Demographic information stratified by RTs currently considering/not considering leaving a position due to moral distress, survey on moral distress during the COVID-19 pandemic, February to June 2021

Variable	Considering leaving due to moral distress ( <i>n</i> = 55)		Not considering leaving due to moral distress ( <i>n</i> = 158)	
	Frequency	Percentage	Frequency	Percentage
<b>Sex and gender<sup>a</sup></b>				
Female	48	87.3	134	84.8
Male	7	12.7	23	14.6
<b>Age (y)</b>				
20–29	12	21.8	39	24.7
30–39	18	32.7	54	34.2
40–49	15	27.3	36	22.8
50–59	10	18.2	25	15.8
60–79	0	0.0	< 5	—
<b>Population group<sup>b</sup></b>				
Caribbean	0	0.0	< 5	—
East Asian	< 5	—	8	5.1
First Nations, Inuit, Métis	< 5	—	< 5	—
Latin American	0	0.0	< 5	—
Middle Eastern	< 5	—	< 5	—
South Asian	< 5	—	< 5	—
Southeast Asian	0	0.0	< 5	—
European	49	89.1	136	86.1
Other (e.g. "Canadian," "Caucasian")	< 5	—	7	4.4
<b>Marital status</b>				
Legally married, common law, or domestic partnership	39	70.9	107	67.7
Single, never married	12	21.8	38	24.1
Separated, divorced or widowed	< 5	—	12	7.6
Missing	0	0.0	< 5	—
<b>Province/territory</b>				
British Columbia	12	21.8	24	15.2
Alberta	7	12.7	35	22.2
Saskatchewan	< 5	—	8	5.1
Manitoba	< 5	—	7	4.4
Ontario	20	36.4	56	35.4
Quebec	< 5	—	< 5	—
New Brunswick	< 5	—	0	0.0
Prince Edward Island	0	0.0	< 5	—
Nova Scotia	5	9.1	19	12.0
Newfoundland and Labrador	< 5	—	< 5	—
Northwest Territories	0	0.0	< 5	—
Nunavut	0	0.0	< 5	—

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**TABLE 1 (continued)**  
Demographic information stratified by RTs' current consideration of leaving a position, survey on moral distress during the COVID-19 pandemic, February to June 2021

Variable	Considering leaving due to moral distress (n = 55)		Not considering leaving due to moral distress (n = 158)	
	Frequency	Percentage	Frequency	Percentage
<b>Occupational role<sup>b</sup></b>				
Staff therapist	44	80.0	131	83.4
Senior therapist or leadership	8	14.5	15	9.6
Management	< 5	—	6	3.8
Educator	12	21.8	22	14.0
Consultant or research	0	0.0	< 5	—
Sales	0	0.0	< 5	—
Student	< 5	—	< 5	—
Policy or government	0	0.0	< 5	—
Other	< 5	—	< 5	—
<b>Total years practising</b>				
Student	< 5	—	< 5	—
0–5	11	20.0	43	27.2
6–10	10	18.2	28	17.7
11–15	8	14.5	28	17.7
16–20	10	18.2	19	12.0
21–25	5	9.1	19	12.0
26–30	7	12.7	6	3.8
Over 30	< 5	—	11	7.0
Missing	0	0.0	< 5	—
<b>COVID-19 unit</b>				
Yes	41	74.5	110	69.6
No	14	25.5	48	30.4
<b>Occupational setting<sup>b</sup></b>				
Hospital	53	96.4	134	85.4
Community	7	10.9	26	16.6
Student rotations	0	0.0	< 5	—
Other	< 5	—	7	4.5
<b>Patient populations<sup>b</sup></b>				
Adult care	55	100.0	151	96.2
Pediatric	29	52.7	82	52.2
Neonatal	26	47.3	79	50.3
<b>Employment status<sup>b</sup></b>				
Full-time	38	69.1	116	74.8
Part-time	14	25.5	34	21.9
Casual	5	9.1	13	8.4
Self-employed	< 5	—	< 5	—
Unemployed	< 5	—	< 5	—

**Abbreviations:** RT, respiratory therapist; y, years.

**Note:** Cells with frequency counts of fewer than 5 participants are masked to protect anonymity.

<sup>a</sup> All participants reported a cisgendered identity. Sex and gender have been collapsed to remove redundancy.

<sup>b</sup> Participants were permitted to select multiple options.

### Comparison of RTs considering and not considering leaving due to moral distress

Consideration to leave was not associated with any demographic variables ( $p$  values  $> 0.05$ ). There was a significant association between past and current consideration of leaving a position due to moral distress [ $\chi^2(2) = 50.6$ ,  $p < 0.001$ ; Cramer  $V = 0.49$ ,  $p < 0.001$ ].

All psychological and functional measures (MMD-HP, DASS-21, PCL-5, MDI, WHODAS, BRS) significantly differed between those considering and those not considering leaving due to moral distress. Those not considering leaving scored significantly higher on the BRS but significantly lower on the remaining measures in comparison to those considering leaving their position (Table 2). There were no differences in ACES scores between those considering ( $M = 2.13$ ,  $SD = 2.02$ ) and not considering leaving ( $M = 1.78$ ,  $SD = 2.14$ ); however, power was insufficient to assay differences in ACES scores between the two groups ( $\beta = 0.18$ ). Notably, 54.5% of the 55 participants who indicated that they were currently considering leaving their position due to moral distress and 13.3% of the 158 participants who did not report currently considering leaving their position due to moral distress scored above the PCL-5 cut-off.

### Moral distress and associated variables

Bivariate correlations were run to assess the relationship between moral distress and its theoretically associated outcomes, mentioned earlier. MMD-HP total scores were significantly positively correlated with all DASS-21 subscale scores, PCL-5, and disengagement and emotional constriction subscales of the MDI and WHODAS scores, but significantly negatively correlated with BRS scores. MMD-HP total scores were not significantly correlated with ACES (Table 3).

### Consideration of leaving due to moral distress

#### Simple binary logistic regressions

Simple binary logistic regressions were conducted to predict consideration of leaving independently from the variables of interest and to determine variables to include in the final predictive model (Table 4). Sex/gender, working on a COVID-19 unit and total years practising did not significantly impact consideration to leave.

**TABLE 2**  
Comparing outcome variables between respiratory therapists currently considering and not considering leaving their current position due to moral distress, survey on moral distress during the COVID-19 pandemic, February to June 2021

	Not considering leaving due to moral distress (n = 158)		Considering leaving due to moral distress (n = 55)		<i>t</i>	<i>df</i>	<i>p</i> value	<i>d</i>
	M	SD	M	SD				
MMD-HP patient	37.46	20.48	54.24	24.76	−4.52	81.19	< 0.001	−0.775
MMD-HP team/unit	46.38	34.03	81.82	43.97	−5.44	77.71	< 0.001	−0.962
MMD-HP system	32.60	22.21	57.91	26.08	−6.95	211.00	< 0.001	−1.088
DASS-21—depression	10.61	7.91	16.18	10.82	−3.51	75.06	< 0.001	−0.637
DASS-21—anxiety	7.87	6.31	11.75	8.94	−2.97	73.59	0.004	−0.547
DASS-21—stress	14.57	7.61	20.80	9.61	−4.35	79.13	< 0.001	−0.760
PCL-5	18.22	13.26	33.98	17.97	−5.97	75.48	< 0.001	−1.079
MDI disengagement	10.96	3.92	12.91	4.31	−3.09	211.00	0.004	−0.484
MDI emotional constriction	8.37	3.60	10.44	4.90	−2.86	75.23	0.005	−0.519
WHODAS	7.73	6.28	13.18	6.98	−5.38	211.00	< 0.001	−0.840
BRS	3.45	0.80	3.19	0.72	2.09	0.02	0.030	0.327
ACES	1.78	2.14	2.13	2.02	−1.04	211.00	0.300	−0.163

**Abbreviations:** ACES, Adverse Childhood Events Scale; BRS, Brief Resilience Scale; *d*, Cohen *d*; DASS-21, Depression Anxiety Stress Scale 21; *df*, degrees of freedom; M, mean; MDI, Multiscale Dissociation Inventory; MMD-HP, Measure of Moral Distress—Healthcare Professional; PCL-5, Posttraumatic Stress Checklist for DSM-5; SD, standard deviation; WHODAS, World Health Organization Disability Assessment Schedule 2.0.

Past consideration of leaving a position due to moral distress significantly increased the odds of current consideration to leave for this reason, such that those who had considered leaving their position in the past were almost 30 times as likely to be currently considering leaving when compared to those who had not considered leaving in the past (odds ratio [OR] = 29.33, 95% CI: 8.64–99.55). Those who had left a position in the past due to moral

distress were 12 times more likely to be currently considering leaving their position compared to those who had never considered leaving (OR = 12.27, 95% CI: 2.99–50.36).

All three sources of moral distress and the psychological and functional variables significantly independently increased the odds of consideration to leave due to moral distress (Table 4). Higher scores on

the BRS significantly decreased the odds of considering leaving a position due to moral distress (OR = 0.66, 95% CI: 0.45–0.98). ACES did not significantly increase the odds of consideration to leave (OR = 1.08, 95% CI: 0.94–1.24).

#### Multiple binary logistic regression

A multiple binary logistic regression model was created to assess factors associated with increased odds of consideration to

**TABLE 3**  
Bivariate correlations of respiratory therapists' moral distress and theoretically associated outcomes, survey on moral distress during the COVID-19 pandemic, February to June 2021

	1	2	3	4	5	6	7	8	9	10
1 MMD-HP total	—									
2 DASS-21—depression	0.380**	—								
3 DASS-21—anxiety	0.477**	0.653**	—							
4 DASS-21—stress	0.422**	0.740**	0.653**	—						
5 PCL-5	0.551**	0.673**	0.650**	0.663**	—					
6 MDI disengagement	0.341**	0.609**	0.547**	0.578**	0.645**	—				
7 MDI emotional constriction	0.308**	0.599**	0.502**	0.451**	0.548**	0.572**	—			
8 WHODAS	0.340**	0.599**	0.515**	0.540**	0.609**	0.537**	0.521**	—		
9 BRS	−0.240**	−0.432**	−0.475**	−0.383**	−0.520**	−0.434**	−0.343**	−0.429**	—	
10 ACES	0.101	0.168*	0.082	0.129	0.166*	0.179**	0.149*	0.285**	−0.120	—

**Abbreviations:** ACES, Adverse Childhood Events Scale; BRS, Brief Resilience Scale; DASS-21, Depression Anxiety Stress Scale 21; MDI, Multiscale Dissociation Inventory; MMD-HP, Measure of Moral Distress—Healthcare Professional; PCL-5, Posttraumatic Stress Checklist for DSM-5; WHODAS, World Health Organization Disability Assessment Schedule 2.0.

\* Significant at *p* < 0.05

\*\* Significant at *p* < 0.01

**TABLE 4**  
Simple binary logistic regressions of respiratory therapists' current consideration to leave due to moral distress, survey on moral distress during the COVID-19 pandemic, February to June 2021

	<i>B</i>	SE	Wald	<i>p</i> value	OR	95% CI
Sex/gender	0.16	0.46	0.12	0.725	1.18	0.48–2.92
COVID-19 unit	0.25	0.36	0.48	0.489	1.28	0.64–2.56
Total years practising	0.10	0.08	1.41	0.234	1.10	0.94–1.29
Past consideration to leave (no; ref)			30.47	< 0.001		
Past consideration to leave (yes; 1)	3.38	0.62	29.37	< 0.001	29.33	8.64–99.55
Past consideration to leave (yes and left; 2)	2.51	0.72	12.10	< 0.001	12.27	2.99–50.36
MMD-HP patient	0.03	0.01	19.96	< 0.001	1.04	1.02–1.05
MMD-HP team/unit	0.02	0.00	26.05	< 0.001	1.02	1.01–1.03
MMD-HP system	0.04	0.01	31.97	< 0.001	1.04	1.03–1.06
PCL-5	0.06	0.01	31.49	< 0.001	1.07	1.04–1.09
MDI disengagement	0.11	0.04	8.78	0.003	1.12	1.04–1.21
MDI emotional constriction	0.12	0.04	9.81	0.002	1.13	1.05–1.21
DASS-21—depression	0.07	0.02	13.90	< 0.001	1.07	1.03–1.11
DASS-21—anxiety	0.07	0.02	10.68	0.001	1.07	1.03–1.12
DASS-21—stress	0.09	0.02	18.96	< 0.001	1.09	1.05–1.14
WHODAS	0.12	0.03	21.90	< 0.001	1.12	1.07–1.18
BRS	−0.41	0.20	4.23	0.040	0.66	0.45–0.98
ACES	0.08	0.07	1.07	0.300	1.08	0.94–1.24

**Abbreviations:** ACES, Adverse Childhood Events Scale; *B*, unstandardized beta; BRS, Brief Resilience Scale; CI, confidence interval; DASS-21, Depression Anxiety Stress Scale 21; MDI, Multiscale Dissociation Inventory; MMD-HP, Measure of Moral Distress—Healthcare Professional; OR, odds ratio; PCL-5, Posttraumatic Stress Checklist for DSM-5; ref, reference group; SE, standard error; WHODAS, World Health Organization Disability Assessment Schedule 2.0.

**Note:** Years practising was an ordinal variable treated as continuous for the model.

**TABLE 5**  
Multiple binary logistic regression of respiratory therapists' consideration to leave due to moral distress, survey on moral distress during the COVID-19 pandemic, February to June 2021

	<i>B</i>	SE	Wald	<i>p</i> value	OR	95% CI
Past consideration to leave (no, ref)			17.22	< 0.001		
Past consideration to leave (yes, 1)	2.77	0.67	16.95	< 0.001	15.88	4.26–59.24
Past consideration to leave (yes and left, 2)	1.99	0.81	6.00	0.014	7.34	1.49–36.19
MMD-HP patient	0.01	0.01	1.15	0.285	1.01	0.99–1.03
MMD-HP team/unit	−0.01	0.01	0.49	0.484	0.99	0.98–1.01
MMD-HP system	0.04	0.01	8.09	0.004	1.04	1.01–1.06
PCL-5	0.05	0.02	4.42	0.036	1.05	1.00–1.10
MDI disengagement	−0.08	0.08	0.97	0.324	0.93	0.80–1.08
MDI emotional constriction	0.03	0.07	0.21	0.644	1.03	0.90–1.18
DASS-21—depression	−0.04	0.04	1.02	0.312	0.96	0.89–1.04
DASS-21—anxiety	−0.09	0.04	4.07	0.044	0.91	0.84–0.99
DASS-21—stress	0.06	0.04	1.84	0.175	1.06	0.98–1.15
WHODAS	0.07	0.04	3.05	0.081	1.07	0.99–1.16
BRS	−0.03	0.35	0.01	0.931	0.97	0.49–1.93

**Abbreviations:** *B*, unstandardized beta; BRS, Brief Resilience Scale; CI, confidence interval; DASS-21, Depression Anxiety Stress Scale 21; MDI, Multiscale Dissociation Inventory; MMD-HP, Measure of Moral Distress—Healthcare Professional; OR, odds ratio; PCL-5, Posttraumatic Stress Checklist for DSM-5; ref, reference group; SE, standard error; WHODAS, World Health Organization Disability Assessment Schedule 2.0.

leave due to moral distress. Because the simple binary logistic regressions found no relationships, sex/gender, working on a COVID-19 unit, total years practising and ACES were excluded from this model.

The model significantly predicted consideration to leave [ $\chi^2(13) = 96.7, p < 0.001$ ] with 92.4% sensitivity and 65.5% specificity, yielding a classification of 85.4%. Past consideration to leave, MMD-HP system-related sources, PCL-5 and DASS-21 anxiety scores significantly predicted current consideration to leave (Table 5). Specifically, the odds of considering leaving one's position were 15.88 (95% CI: 4.26–59.24) times greater for those who had considered leaving a position in the past due to moral distress compared to those who had never considered leaving a position in the past for this reason. The odds of considering leaving one's position were 7.34 (1.49–36.19) times greater for those who had left a position in the past due to moral distress compared to those who had never considered or left a position in the past due to moral distress. The odds of considering leaving one's position were 1.04 (1.01–1.06) times greater for every one unit increase in system-related sources of moral distress. The odds of considering leaving one's position were 1.05 (1.00–1.10) times greater for every one unit increase in PCL-5 scores. The odds of considering leaving one's position were 0.914 (0.84–0.99) times less for every one unit increase in DASS-21 anxiety scores.

## Discussion

The purpose of this study was to characterize the impact of moral distress and its associated psychological and functional outcomes on Canadian RTs' consideration to leave a clinical position due to moral distress during the COVID-19 pandemic. One in four RTs in our study reported considering leaving their clinical position for this reason, 12 to 16 months after the beginning of the pandemic in Canada. Despite the focus on considering leaving due to moral distress, the reports on leaving among other HCPs during the pandemic are consistent with our findings. For example, of nearly 700 frontline nurses in the Philippines assessed in early 2021, 25.8% indicated their desire to leave their position,<sup>44</sup> while 26.6% of ICU nurses in Romania reported considering resigning between October 2020 and February 2021.<sup>8</sup> Interestingly, Fronda and Labrauge<sup>44</sup> reported that whereas approximately one

in four nurses in the Philippines reported considering leaving their position in early 2021, one in five also reported considering leaving their profession entirely.

Research on turnover among Canadian HCPs during the COVID-19 pandemic is scarce, yet consistent with the present picture of Canadian RTs. Of 1705 Canadian nurses residing in Quebec surveyed between July and November 2020, 29.5% reported a high degree of intention to leave their work setting and 22.3% reported intending to leave their profession entirely.<sup>45</sup> In a second study conducted between May and June 2021, 425 critical care nurses from across Canada reported elevated symptoms of PTSD, depression, anxiety, stress and burnout, with 22% reporting intending to quit their current position.<sup>46</sup> Ongoing surveillance of turnover intention is required to assess the extent to which the Canadian health care system will continue to be impacted beyond the pandemic period.

We found that RTs considering leaving their positions due to moral distress did report heightened moral distress along all three levels of distress assayed (i.e. patient, team/unit, system) and elevated symptoms of PTSD, depression, anxiety, stress, dissociation (i.e. emotional constriction, emotional disengagement) and functional impairment when compared to their counterparts not considering leaving because of moral distress. Critically, more than half of the RTs considering leaving scored above the cut-off on the PCL-5, indicative of potential PTSD. By comparison, only 13.3% of the RTs who were not considering leaving their position scored above the PCL-5 cut-off. Moreover, RTs considering leaving their position due to moral distress reported lower levels of resilience compared to those RTs not considering leaving. Notably, although resilience scores were statistically different between RTs considering and not considering leaving their clinical positions, the true difference in mean scores on the resilience measure was only 0.26, representing a potentially minute clinical difference. Our findings demonstrate that RTs considering leaving are in need of adequate mental health supports, given elevated distress and adverse outcomes.

Although RTs who were considering leaving their position due to moral distress reported significantly greater adverse

psychological and functional outcomes than their counterparts who were not considering leaving, such variables actually contributed very little to the final predictive model of consideration to leave. Rather, past consideration to leave was the only statistically significant predictor to substantially increase the odds of current consideration to leave. RTs who had considered leaving or had actually left a position in the past had 16- and 7-times greater odds, respectively, of currently considering leaving a position due to moral distress, when accounting for other predictors. Of importance, however, wide confidence intervals for the odds ratios for past consideration to leave suggest instability of model fit and demonstrate that further information is required to understand this effect. System-related moral distress and PTSD symptoms significantly increased the odds of consideration to leave a position, but their contributions to the overall model were small.

We posit that although RTs considering leaving their position due to moral distress were actually characterized by greater moral distress, adverse psychological symptoms and functional impairment than their counterparts not considering leaving, these individual-level factors may not be sufficient for understanding the factors driving RTs' consideration to leave. Rather, it is possible that broader, more external factors, such as workplace or organizational issues, may play a more central role in RTs' consideration of leaving a position. Indeed, perceived organizational support, ethical work climate, job commitment and job satisfaction are associated with decreased turnover intention among nurses,<sup>47</sup> and a recently published systematic review revealed the importance of adverse working conditions and organizational support, in addition to psychological stress responses, in turnover intention among HCPs during the COVID-19 pandemic.<sup>48</sup>

The role of broader, organizational factors in influencing consideration to leave may be further reflected in our findings that past consideration of leaving along with having left a position in the past both predicted RTs' current consideration. A continuity of organizational or system issues could contribute to the continuity in consideration to leave both in the past and present. While we cannot rule out that individual-level factors may contribute to consideration to leave, additional research



is needed to better understand RTs' and other HCPs' consideration to leave through study of not only individual-level factors, such as psychological symptoms, functioning and resiliency, but also through careful consideration of broader, organizational factors.

Morally distressing experiences in health care will persist during and beyond the pandemic period, increasing risk of moral distress and, by association, adverse psychological and functional outcomes and turnover intention. Data collection for this study took place from February to June 2021, during the second wave of the pandemic in Ontario, Canada. Epstein and colleagues<sup>6</sup> theorized the crescendo effect, by which moral distress increases over time as residual distress in the aftermath of distressing events compounds and gradually rises.

Furthermore, in Litz and Kerig's<sup>49</sup> heuristic continuum of moral stressors and outcomes, moral distress, although impairing, is posited to elicit a less damaging response than moral injury. Moral injury has been defined as a psychological, social, emotional and existential response to events in which one transgresses or witnesses a transgression of deeply held moral values and is associated with PTSD, depression, anxiety and suicidal ideation or attempts.<sup>50-53</sup> Without adequate mental health supports for RTs and other HCPs, the continuity of our health care system is at risk.

Evidence-based interventions to mitigate moral distress are lacking.<sup>54</sup> A recent systematic review found only 16 studies on interventions to address moral distress among HCPs.<sup>54</sup> While this systematic review pointed toward educational interventions, consultation services, self-reflection exercises, grand rounds and facilitated discussions to reduce moral distress, all studies were limited by methodological constraints, rendering a lack of consensus on adequate interventions for moral distress at this time.<sup>54</sup> *Moral Stress Amongst Healthcare Workers During COVID-19: A Guide to Moral Injury*, prepared by the Phoenix Australia Centre for Posttraumatic Mental Health and the Atlas Institute for Veterans and Families (<https://www.moralinjuryguide.ca>) may inspire the development of a stepped-care model of supports, ranging from prevention to intervention. These efforts will also be necessary at the team and institutional

levels and may include rotating staff between high- and low-stress roles, promoting a supportive culture and arranging rosters for shift workers, facilitating open discussions about moral and ethical challenges, encouraging self-care and celebrating success may also prove critical in mitigating moral distress.

Health care organizations and leaders are urged to encourage self-screening for signs of mental illness and deteriorating mental health (see, for example, Road to Mental Readiness Continuum),<sup>55</sup> as well as provide organizational support and the encouragement of formal assessments and treatment where needed (see D'Alessandro et al.<sup>56</sup> for a summary of organizational considerations to bolster against COVID-19-related moral injury in health care workers). In the absence of such targeted approaches, turnover may increase among Canadian RTs as a result of continued exposure to morally distressing events in the workplace. As empirical evidence of interventions for moral distress remains poor, adequate retention efforts that acknowledge RTs' experiences with moral distress during the pandemic are urgently needed to ensure our RTs are supported and able to continue providing care beyond the COVID-19 pandemic.

### Strengths and limitations

To our knowledge, this is the first study to investigate consideration to leave a position due to moral distress among Canadian RTs during the COVID-19 pandemic. This study had several strengths, including indexing a range of psychological and functional outcomes and experiences that theoretically may relate to consideration to leave a position.

Findings from this study must be interpreted in the context of several limitations. Our results may not be generalizable to the entire population of Canadian RTs, as our sample comprised mainly female RTs from Ontario. Future work should replicate this design with a representative sample of Canadian RTs. Additionally, the MMD-HP was not altered for use during the pandemic timeframe, but rather the original scale prompt was used, asking participants to rate their general experience with each morally distressing item. Therefore, it is not clear whether reports of moral distress in this study were specific to the pandemic context or representative of RTs' careers more broadly.

Furthermore, reports of "past" consideration to leave a clinical position could have occurred within the COVID-19 pandemic timeframe, as data collection took place approximately a year into the pandemic in Canada. Researchers looking at this question in future may wish to ask participants about their experiences during the pandemic exclusively to better understand the effects of COVID-19-related moral distress on consideration of leaving and psychological outcomes.

Furthermore, past diagnosis of mental illness was not controlled for, thus rendering it unclear at present to what extent past history of mental illness contributed to consideration to leave among RTs during the second year of COVID-19 pandemic. Future researchers should therefore consider the unique impact of pre-pandemic illness to shed light on its potential role as a risk factor for considering leaving one's position.

Finally, as our results suggest (including wide confidence intervals for odds ratios in the final model demonstrating instability in model fit) we must acknowledge that factors beyond moral distress may impact consideration to leave a position, including job satisfaction, organizational support and absenteeism. Future work should consider the impact of moral distress on intent to leave in the broader context of workplace factors.

### Conclusion

One in four RTs sampled in Canada 12 to 16 months after the onset of the pandemic were considering leaving their position due to moral distress. These individuals reported significantly greater psychological and functional impacts than their counterparts who were not considering leaving a position. Although the sample of RTs considering leaving their position due to moral distress may be characterized by diminished mental health and well-being, our findings suggest that individual-level factors are not sufficient to understand consideration to leave among RTs. Adequate mental health supports and further research into factors related to job turnover are critical to ensuring RTs' well-being and the continuity of our health care system.

### Acknowledgements

The authors would like to thank RTs across Canada for their service on the

frontlines of the COVID-19 pandemic. We would particularly like to thank Fatima Foster and Kelley Hassall, two inspirational RTs who contributed greatly to this study. In addition, we would like to thank the Canadian Society of Respiratory Therapists for their willingness and cooperation in recruitment.

## Funding

This study was supported by a contract to MCM and RL from the Veterans Affairs Canada-funded Atlas Institute for Veterans and Families and by a donation to Homewood Research Institute from Homewood Health Inc. MCM is supported as the Homewood Chair in Mental Health and Trauma at McMaster University. RL is supported by the Harris-Woodman Chair in Psyche and Soma at Western University of Canada.

## Conflicts of interest

MM is a Director at Cambridge Memorial Hospital, the Research Institute of St. Joseph's Healthcare Hamilton and St. Joseph's Healthcare Hamilton Foundation. KH received a novice researcher grant from Hamilton Research Institute for ultrasound study in respiratory therapists. SR is employed by the Atlas Institute for Veterans and Families. HS and CO are employed by Homewood Health, Inc. AM is the Executive Vice President at Homewood Health, Inc.

## Authors' contributions and statement

AD—conceptualization, data curation, formal analysis, investigation, methodology, project administration, writing—original draft, writing—review and editing. KR, AB—conceptualization, investigation, methodology, project administration, writing—original draft, writing—review and editing. BE—formal analysis, writing—review and editing. YX—data curation, methodology, writing—review and editing. MP, MA, IB, HM, FF, KH, YL—methodology, writing—review and editing. DS—formal analysis, writing—review and editing. FH, SR, CO, HS, AM, AH—conceptualization, writing—review and editing. RM—conceptualization, resources, software, supervision, writing—review and editing. RL—conceptualization, funding acquisition, writing—review and editing. MM—conceptualization, funding acquisition,

resources, software, supervision, writing—review and editing.

The content and views expressed in this article are those of the authors and do not necessarily reflect those of the Government of Canada.

## References

1. Canadian Society of Respiratory Therapists. What is an RT? [Internet]. Ottawa (ON): CSRT; date unknown [cited 2021 Feb]. Available from: <https://www.csrt.com/rt-profession/>
2. Maffoni M, Torlaschi V, Pierobon A, et al. Video calls during the COVID-19 pandemic: a bridge for patients, families, and respiratory therapists. *Fam Sys Health*. 2021;39(4):650-58. <https://doi.org/10.1037/fsh0000661>
3. Sawadkar MM, Nayak VR. Respiratory therapists: the unnoticed warriors during COVID-19 pandemic in India. *Can J Respir Ther*. 2020;56:57. <https://doi.org/10.29390%2Fcjrt-2020-044>
4. Smallwood N, Pascoe A, Karimi L, Willis K. Moral distress and perceived community views are associated with mental health symptoms in frontline health workers during the COVID-19 pandemic. *Int J Environ Res Public Health*. 2021;18(16):8723. <https://doi.org/10.3390/ijerph18168723>
5. Norman SB, Feingold JH, Kaye-Kauderer H, et al. Moral distress in frontline healthcare workers in the initial epicenter of the COVID-19 pandemic in the United States: relationship to PTSD symptoms, burnout, and psychosocial functioning. *Depress Anxiety*. 2021;38(10):1007-17. <https://doi.org/10.1002/da.23205>
6. Epstein EG, Whitehead PB, Prompahakul C, Thacker LR, Hamric AB. Enhancing understanding of moral distress: the Measure of Moral Distress for Health Care Professionals. *AJOB Empir Bioeth*. 2019;10(2):113-24. <https://doi.org/10.1080/23294515.2019.1586008>
7. Epstein EG, Delgado S. Understanding and addressing moral distress. *Online J Issues Nurs*. 2010;15(3). <https://doi.org/10.3912/OJIN.Vol15No03Man01>
8. Petrișor C, Breazu C, Doroftei M, Mărieș I, Popescu C. Association of moral distress with anxiety, depression, and an intention to leave among nurses working in intensive care units during the COVID-19 pandemic. *Healthcare (Basel)*. 2021;9(10):1377. <https://doi.org/10.3390%2Fhealthcare9101377>
9. Whitehead PB, Herbertson RK, Hamric AB, Epstein EG, Fisher JM. Moral distress among healthcare professionals: report of an institution-wide survey. *J Nurs Scholarsh*. 2015;47(2):117-25. <https://doi.org/10.1111/jnu.12115>
10. D'Alessandro-Lowe AM, Ritchie K, Brown A, et al. Characterizing the mental health and functioning of Canadian respiratory therapists during the COVID-19 pandemic. *Eur J Psychotraumatol*. 2023;14(1): 2171751. <https://doi.org/10.1080/20008066.2023.2171751>
11. Miller AG, Roberts KJ, Smith BJ, et al. Prevalence of burnout among respiratory therapists amidst the COVID-19 pandemic. *Respir Care*. 2021;66(11):1639-48. <https://doi.org/10.4187/respcare.09283>
12. Yáñez JA, Afshar Jahanshahi A, Alvarez-Risco A, Li J, Zhang SX. Anxiety, distress, and turnover intention of healthcare workers in Peru by their distance to the epicenter during the COVID-19 crisis. *Am J Trop Med Hyg*. 2020;103(4):1614-20. <https://doi.org/10.4269/ajtmh.20-0800>
13. Yang Y, Wang P, Osman Kelifa M, et al. How workplace violence correlates turnover intention among Chinese health care workers in COVID-19 context: the mediating role of perceived social support and mental health. *J Nurs Manag*. 2022;30(6):1407-14. <https://doi.org/10.1111%2Fjonm.13325>
14. Al-Mansour K. Stress and turnover intention among healthcare workers in Saudi Arabia during the time of COVID-19: can social support play a role? *PLoS ONE*. 2021;16(10):e0258101. <https://doi.org/10.1371/journal.pone.0258101>

15. Labrague LJ, de los Santos JAA. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among frontline nurses. *J Nurs Manag.* 2021;29(3):395-403. <https://doi.org/10.1111/jonm.13168>
16. Lamiani G, Borghi L, Argentero P. When healthcare professionals cannot do the right thing: a systematic review of moral distress and its correlates. *J Health Psychol.* 2017;22(1):51-67. <https://doi.org/10.1177/1359105315595120>
17. Burston AS, Tuckett AG. Moral distress in nursing: contributing factors, outcomes and interventions. *Nurs Ethics.* 2013;20(3):312-24. <https://doi.org/10.1177/0969733012462049>
18. Nasrabadi AN, Khoobi M, Cheraghi MA, Joolaei S, Hedayat MA. The lived experiences of clinical nurse managers regarding moral distress. *J Med Ethics His Med.* 2018;11:13.
19. Morley G, Sese D, Rajendram P, Horsburgh CC. Addressing caregiver moral distress during the COVID-19 pandemic. *Cleve Clin J Med.* 2020. <https://doi.org/10.3949/ccjm.87a.ccc047>
20. Xue Y, Lopes J, Ritchie K, et al. Potential circumstances associated with moral injury and moral distress in healthcare workers and public safety personnel during COVID-19: a scoping review. *Front Psychiatry.* 2022;13. <https://doi.org/10.3389/fpsy.2022.863232>
21. Sheppard KN, Runk BG, Maduro RS, et al. Nursing moral distress and intent to leave employment during the COVID-19 pandemic. *J Nurs Care Qual.* 2022;37(1):28-34. <https://doi.org/10.1097/ncq.0000000000000596>
22. Falatah R. The impact of the Coronavirus Disease (COVID-19) pandemic on nurses' turnover intention: an integrative review. *Nurs Rep.* 2021;11(4):787-810. <https://doi.org/10.3390/nursrep11040075>
23. Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health.* 2017;2(8):E356-E366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4)
24. Merrick MT, Ports KA, Ford DC, Afifi TO, Gerschoff ET, Grogan-Kaylor A. Unpacking the impact of adverse childhood experiences on adult mental health. *Child Abuse Negl.* 2017;69:10-19. <https://doi.org/10.1016/j.chiabu.2017.03.016>
25. Rivard AM, Brown CA. Moral distress and resilience in the occupational therapy workplace. *Safety.* 2019;5(1):10. <https://doi.org/10.3390/safety5010010>
26. Hancock J, Witter T, Comber S, et al. Understanding burnout and moral distress to build resilience: a qualitative study of an interprofessional intensive care unit team. *Can J Anesth.* 2020;67(11):1541-48. <https://doi.org/10.1007/s12630-020-01789-z>
27. Wocial LD. Resilience as an incomplete strategy for coping with moral distress in critical care nurses. *Crit Care Nurse.* 2020;40(6):62-66. <https://doi.org/10.4037/ccn2020873>
28. Greinacher A, Helaß M, Nikendei C, et al. The impact of personality on intention to leave the nursing profession: a structural equation model. *J Clin Nurs.* 2022;31(11-12):1570-9. <https://doi.org/10.1111/jocn.16010>
29. Varasteh S, Esmaeili M, Mazaheri M. Factors affecting Iranian nurses' intention to leave or stay in the profession during the COVID-19 pandemic. *Int Nurs Rev.* 2022;69(2):139-49. <https://doi.org/10.1111/inr.12718>
30. Nie S, Sun C, Wang L, Wang X. The professional identity of nursing students and their intention to leave the nursing profession during the coronavirus disease (COVID-19) pandemic. *J Nurs Res.* 2021;29(2):e139. <https://doi.org/10.1097/jnr.0000000000000424>
31. Schwenzer KJ, Wang L. Assessing moral distress in respiratory care practitioners. *Crit Care Med.* 2006;34(12):2967-73. <https://doi.org/10.1097/01.ccm.0000248879.19054.73>
32. Mahan K. Death and dying: tools to help respiratory therapists handle frequent exposure to end of life care. *J Allied Health.* 2019;48(1):72-5.
33. Harris PA, Taylor R, Minor BL, et al. The REDCap consortium: building an international community of software platform partners. *J Biomed Inform.* 2019;95:103208. <https://doi.org/10.1016/j.jbi.2019.103208>
34. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform.* 2009;42(2):377-81. <https://doi.org/10.1016/j.jbi.2008.08.010>
35. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety & Stress Scales. 2nd ed. Sydney (AU): Psychology Foundation of Australia; 1995.
36. Weathers FW, Litz BT, Keane TM, Palmieri PA, Marx BP, Schnurr PP. The PTSD checklist for DSM-5 (PCL-5). Washington (DC): National Center for PTSD; 2013.
37. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington (DC): American Psychiatric Association; 2013.
38. Briere J, Weathers FW, Runtz M. Is dissociation a multidimensional construct? Data from the Multiscale Dissociation Inventory. *J Trauma Stress.* 2005;18(3):221-23. <https://doi.org/10.1002/jts.20024>
39. Üstün TB, Kostanjsek N, Chatterji S, Rehm J, editors. Measuring health and disability: manual for WHO Disability Assessment Schedule (WHODAS 2.0). Geneva (CH): World Health Organization; 2010. 152 p.
40. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. *Int J Behav Med.* 2008;15(3):194-200. <https://doi.org/10.1080/10705500802222972>
41. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) Study. *Am J Prev Med.* 1998;14(4):245-58. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)



42. van Ginkel JR, Linting M, Rippe RCA, van der Voort A. Rebutting existing misconceptions about multiple imputation as a method for handling missing data. *J Pers Assess.* 2020;102(3):297-308. <https://doi.org/10.1080/00223891.2018.1530680>
43. IBM. Statistical Package for the Social Sciences (SPSS) for Windows. Armonk (NY): IBM Corp; 2020.
44. Fronda DC, Labrague LJ. Turnover intention and coronaphobia among frontline nurses during the second surge of COVID-19: the mediating role of social support and coping skills. *J Nurs Manag.* 2022;30(3):612-21. <https://doi.org/10.1111/jonm.13542>
45. Lavoie-Tremblay M, Gélinas C, Aubé T, et al. Influence of caring for COVID-19 patients on nurse's turnover, work satisfaction and quality of care. *J Nurs Manag.* 2022;30(1):33-43. <https://doi.org/10.1111/jonm.13462>
46. Crowe S, Howard AF, Vanderspank B. The mental health impact of the COVID-19 pandemic on Canadian critical care nurses. *Intensive Crit Care Nurs.* 2022;71:103241. <https://doi.org/10.1016/j.iccn.2022.103241>
47. Hashish EAA. Relationship between ethical work climate and nurses' perception of organizational support, commitment, job satisfaction and turnover intent. *Nurs Ethics.* 2017;24(2):151-66. <https://doi.org/10.1177/0969733015594667>
48. Poon Y-SR, Lin YP, Griffiths P, Yong KK, Seah B, Liaw SY. A global overview of healthcare workers' turnover intention amid COVID-19 pandemic: a systematic review with future directions. *Hum Res Health.* 2022;20:70. <https://doi.org/10.1186/s12960-022-00764-7>
49. Litz BT, Kerig PK. Introduction to the special issue on moral injury: conceptual challenges, methodological issues, and clinical applications. *J Trauma Stress.* 2019;32(3):341-9. <https://doi.org/10.1002/jts.22405>
50. Protopopescu A, Boyd JE, O'Connor C, et al. Examining the associations among moral injury, difficulties with emotion regulation, and symptoms of PTSD, depression, anxiety, and stress among Canadian military members and veterans: a preliminary study. *J Mil Veteran Fam Health.* 2021;7(2):72-80. <https://doi.org/10.3138/jmvfh-2020-0036>
51. Williamson V, Stevelink SA, Greenberg N. Occupational moral injury and mental health: systematic review and meta-analysis. *Br J Psychiatry.* 2018;212(6):339-46. <https://doi.org/10.1192/bjp.2018.55>
52. Currier JM, Holland JM, Malott J. Moral injury, meaning making, and mental health in returning veterans. *J Clin Psychol.* 2015;71(3):229-40. <https://doi.org/10.1002/jclp.22134>
53. Bryan CJ, Bryan AO, Roberge E, Leifker FR, Rozek DC. Moral injury, posttraumatic stress disorder, and suicidal behavior among National Guard personnel. *Psychol Trauma.* 2018;10(1):36-45. <https://doi.org/10.1037/tra0000290>
54. Morley G, Field R, Horsburgh CC, Burchill C. Interventions to mitigate moral distress: a systematic review of the literature. *Int J Nurs Stud.* 2021;121:103984. <https://doi.org/10.1016/j.ijnurstu.2021.103984>
55. Frank C, Lee JE, Fikretoglu D, Bailey S. Validation of a general mental health self-efficacy assessment tool. *Mil Psychol.* 2021;33(2):72-9. <https://doi.org/10.1080/08995605.2021.1897449>
56. D'Alessandro AM, Ritchie K, McCabe RE, et al. Healthcare workers and COVID-19-related moral injury: an interpersonally-focused approach informed by PTSD. *Front Psychiatry.* 2022;12:784523. <https://doi.org/10.3389/fpsy.2021.784523>