

# Moral Distress and Other Wellness Measures in Canadian Critical Care Physicians

Peter M. Dodek<sup>1,2</sup>, Elaine O. Cheung<sup>3</sup>, Karen E. A. Burns<sup>4,5</sup>, Claudio M. Martin<sup>6</sup>, Patrick M. Archambault<sup>7</sup>, Francois Lauzier<sup>8</sup>, Aimee J. Sarti<sup>9</sup>, Sangeeta Mehta<sup>10</sup>, Alison E. Fox-Robichaud<sup>11</sup>, Andrew J. E. Seely<sup>12,13</sup>, Christopher Parshuram<sup>14,15</sup>, Daniel Garros<sup>16</sup>, Davinia E. Withington<sup>17</sup>, Deborah J. Cook<sup>11,18,19</sup>, Dominique Piquette<sup>20</sup>, Franco A. Carnevale<sup>21</sup>, J. Gordon Boyd<sup>22</sup>, James Downar<sup>23</sup>, D. James Kutsogiannis<sup>24</sup>, Michael Chassé<sup>25,26</sup>, Patricia Fontela<sup>27</sup>, Robert A. Fowler<sup>20</sup>, Sean Bagshaw<sup>24</sup>, Sonny Dhanani<sup>28</sup>, Srinivas Murthy<sup>29</sup>, Paige Gehrke<sup>30</sup>, and Tomoko Fujii<sup>31</sup>; on behalf of the Canadian Critical Care Trials Group

<sup>1</sup>Center for Health Evaluation and Outcome Sciences, <sup>2</sup>Division of Critical Care Medicine, and <sup>29</sup>Department of Pediatrics, Faculty of Medicine, University of British Columbia, Vancouver, British Columbia, Canada; <sup>3</sup>Department of Medical Social Sciences, Feinberg School of Medicine, Northwestern University, Chicago, Illinois; <sup>4</sup>Department of Medicine, <sup>5</sup>Li Ka Shing Knowledge Institute, <sup>10</sup>Sinai Health System, <sup>14</sup>Department of Pediatrics, <sup>15</sup>Department of Critical Care Medicine, and <sup>20</sup>Interdepartmental Division of Critical Care Medicine, University of Toronto, Toronto, Ontario, Canada; <sup>6</sup>Division of Critical Care Medicine, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada; <sup>7</sup>Department of Family Medicine and Emergency Medicine, and <sup>8</sup>Department of Anesthesiology and Critical Care, Laval University, Quebec City, Quebec, Canada; <sup>9</sup>Department of Critical Care, General Campus, The Ottawa Hospital, Ottawa, Ontario, Canada; <sup>11</sup>Department of Medicine, <sup>18</sup>Department of Medicine, and <sup>19</sup>Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Ontario, Canada; <sup>12</sup>Division of Thoracic Surgery, <sup>13</sup>Department of Critical Care, <sup>23</sup>Division of Palliative Care, and <sup>28</sup>Department of Pediatrics, Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada; <sup>16</sup>Department of Pediatrics and <sup>24</sup>Department of Critical Care Medicine, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada; <sup>17</sup>Department of Anesthesia, <sup>27</sup>Department of Pediatrics, Faculty of Medicine, and <sup>21</sup>Ingram School of Nursing, McGill University, Montreal, Quebec, Canada; <sup>22</sup>Department of Medicine, Queen's University, Kingston, Ontario, Canada; <sup>25</sup>Faculty of Medicine and <sup>26</sup>School of Public Health, University of Montreal, Montreal, Quebec, Canada; <sup>30</sup>Niagara Health, St. Catharines, Ontario, Canada; and <sup>31</sup>School of Medicine, Jikei University, Tokyo, Japan

## Abstract

**Rationale:** Understanding the magnitude of moral distress and its associations may point to solutions.

**Objectives:** To understand the magnitude of moral distress and other measures of wellness in Canadian critical care physicians, to determine any associations among these measures, and to identify potentially modifiable factors.

**Methods:** This was an online survey of Canadian critical care physicians whose e-mail addresses were registered with either the Canadian Critical Care Society or the Canadian Critical Care Trials Group. We used validated measures of moral distress, burnout, compassion fatigue, compassion satisfaction, and resilience. We also measured selected individual, practice, and workload characteristics.

**Results:** Of the 499 physicians surveyed, 239 (48%) responded and there were 225 usable surveys. Respondents reported moderate scores of moral distress ( $107 \pm 59$ ; mean  $\pm$  standard deviation, maximum 432), one-third of respondents had considered leaving or had previously left a position because of moral distress, about one-third met criteria for burnout syndrome, and a similar proportion reported medium–high scores of compassion fatigue. In contrast,

about one-half of respondents reported a high score of compassion satisfaction, and overall, respondents reported a moderate score of resilience. Each of the “negative” wellness measures (moral distress, burnout, and compassion fatigue) were associated directly with each of the other “negative” wellness measures, and inversely with each of the “positive” wellness measures (compassion satisfaction and resilience), but moral distress was not associated with resilience. Moral distress was lower in respondents who were married or partnered compared with those who were not, and the prevalence of burnout was lower in respondents who had been in practice for longer. There were no differences in any of the wellness measures between adult and pediatric critical care physicians.

**Conclusions:** Canadian critical care physicians report moderate scores of moral distress, burnout, and compassionate fatigue, and moderate–high scores of compassion satisfaction and resilience. We found no modifiable factors associated with any wellness measures. Further quantitative and qualitative studies are needed to identify interventions to reduce moral distress, burnout, and compassion fatigue.

**Keywords:** moral injury; emotional distress; burnout syndrome; intensive care; physicians

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When healthcare providers feel powerless to practice according to their moral or ethical standards, they may experience high degrees of frustration, anxiety, anger, and guilt (1). This phenomenon, known as moral distress, has received increasing attention in health systems around the world, including those in Canada, the United States, and the United Kingdom (2–5). Critical care professionals are particularly susceptible to moral distress because they may experience conflict with colleagues and family members of their patients in the process of making important clinical and ethical decisions (6). The personal consequences of moral distress range from diminished workplace satisfaction to absenteeism, burnout (2, 7, 8), propensity to leave the job or the profession altogether (1, 3, 4), medication and other errors (9), and a failure to report adverse events (10). Furthermore, moral distress and its consequences may reduce the ability of physicians to provide compassionate care. Half of the critical care nurses and more than a quarter of critical care physicians who participated in surveys have considered leaving their jobs because of moral distress related to patient care at their hospital (11–13). Moral distress in critical care professionals was one of the key topics at a recent national summit convened by the major critical care societies in the United States (14).

Like others (3), we have previously found that moral distress was greater in critical care nurses and other nonphysician professionals than in critical care physicians; the most common causes were controversies related to decision-making in end-of-life care and resource allocation (11). Resilience strategies (both personal and organizational) have been proposed as a means of mitigating responses to moral conflicts (15). Although this is a common problem, it is important to note that not all professionals develop moral distress.

Most reports of moral distress, including those from Canada (2, 11, 16), focus mainly on nurses. Therefore, confidence in estimates and inferences about causes and consequences of moral distress in physicians, and associations with other measures of wellness in this professional group are limited. Differences in roles and responsibilities among professionals may be associated with differences in moral distress. For example, although physicians do not bear the burden of bedside work and informal communication with family members of patients that nurses and other professionals do, physicians have decisional responsibilities about the patient's care and may be the designated 'formal' communicator to these family members. The purpose of this study was to understand the magnitude of moral distress and other measures of wellness including burnout, compassion fatigue, compassion satisfaction, and resilience in Canadian critical care physicians; to determine any associations among these measures; and to identify potentially modifiable factors.

## Methods

### Design and Target Population

We conducted an online survey that was designed on the basis of best practices (17) and reported on the basis of the Checklist for Reporting Results of Internet E-Surveys CHERRIES (18) (see Table E1 in the online supplement). The need for formal review and approval was waived by the University of British Columbia/Providence Health Care Research Ethics Board because this was considered to be a quality improvement/evaluation project. The target population was all 499 Canadian adult and pediatric critical care physicians whose e-mail addresses were available from the Canadian Critical Care Society (CCCS) or the Canadian Critical Care

Trials Group (CCCTG). Because of the different context of trainees, we excluded residents and fellows from this survey.

### Questionnaire Development

On the basis of one face-to-face meeting for item generation and e-mail correspondence among the survey planning group, we decided to measure moral distress, burnout, compassion fatigue and compassion satisfaction, and resilience. We included the following validated instruments: Measure of Moral Distress for Health Professionals (3), the Maslach Burnout Inventory (two-item version) (19), the Professional Quality of Life: Compassion Fatigue and Compassion Satisfaction, version 5 (20), and the Connor-Davidson Resilience Scale (21). At the end of each component instrument, there was a space for free-text comments. We also collected individual characteristics (years in practice, sex, marital status, children, primary language), practice characteristics (teaching vs. nonteaching hospital, intensive care unit [ICU] only or mixed clinical work, adult or pediatric practice), and workload characteristics (wk/yr of ICU clinical work and other clinical work, frequency of returning to hospital at nights, frequency staying overnight in the hospital). Individual, practice, and workload items were developed, pretested, and iteratively revised for coherence and clarity on the basis of feedback from the survey planning group.

### Questionnaire Translation, Pretesting, and Administration

Questionnaire items were initially developed in English, and then two French-speaking authors (P.M.A. and F.L.) adapted the questionnaire into French using existing translations of the validated instruments (22–24) or translated as needed. The translation was done first by one translator

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Correspondence and requests for reprints should be addressed to Peter M. Dodek, M.D., M.H.Sc., Center for Health Evaluation and Outcome Sciences and Division of Critical Care Medicine, University of British Columbia, 4549 Langara Avenue, Vancouver, BC, V6R1C9 Canada. E-mail: peter.dodek@ubc.ca.

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(F.L.) and then reviewed by the second translator (P.M.A.). Any disagreements about the final translation were resolved by discussion.

After piloting and pretesting the questionnaire for clarity and feasibility among members of the survey planning group, we administered it on an online platform (Qualtrics, LLC). The target population of respondents was invited by e-mail to complete this survey, followed by four reminders over a 1-month period (May–June 2018).

### Analyses

We used descriptive summary statistics to characterize demographics, moral distress, past and current propensity to leave a position because of moral distress (considered leaving or actually left), burnout (emotional exhaustion, depersonalization), compassion fatigue, compassion satisfaction, and resilience. Burnout was operationalized as experiencing symptoms of emotional exhaustion or depersonalization at least once per week, following published recommendations (19). Compassion fatigue was defined as the physical and mental exhaustion, emotional withdrawal, and indifference that may be experienced by those who care for sick persons. Compassion satisfaction, a distinct construct, was defined as the pleasure of caring for sick persons. Low, medium, and high levels of compassion fatigue and compassion satisfaction were operationalized according to the recommendations of Stamm (20). Resilience was defined as the process of adapting to and bouncing back from, sources of stress. Pearson correlations were done to explore the associations among the wellness outcomes (moral distress, emotional exhaustion, depersonalization, compassion fatigue [continuous score], compassion satisfaction [continuous score]), and resilience. To control for potential type 1 errors from multiple tests, a new threshold of significance was calculated using the Bonferroni correction. The adjusted level of significance for these correlations was  $P = 0.003$  (0.05/15).

We developed three sets of multivariable linear regression models to examine the association between each of the wellness outcomes (dependent variables) and the distinct domains of individual, practice, and workload characteristics (explanatory variables), respectively. We separated the analysis into these three models to minimize the risk of overfitting and unstable estimates, considering the sample size. All categorical

explanatory variables were effect coded ( $-0.5$  vs.  $0.5$ ) and all continuous explanatory variables were standardized using the  $z$ -score formula to have a mean of 0 and a standard deviation (SD) of 1 for the analyses. Standardizing rescales the unit of analysis into  $z$ -scores, allowing for ease of comparison when scores are measured across different scales. To control for potential type 1 errors from multiple tests, we calculated a new Bonferroni-corrected threshold of significance for each model. The adjusted  $P$  value was  $P = 0.01$  (0.05/5) for the models examining individual characteristics,  $P = 0.02$  (0.05/3) for the models examining practice characteristics, and  $P = 0.01$  (0.05/4) for the models examining workload characteristics.

We developed multivariable logistic regression models to examine whether the propensity to leave a position because of moral distress in the past or currently was associated with moral distress scores and with individual, practice, and workload characteristics (explanatory variables). Explanatory variables from these characteristics were chosen on the basis of a consensus of the research team that they were likely to be associated with this outcome. A Bonferroni-corrected threshold of significance was calculated with an adjusted  $P = 0.005$  (0.05/9).

### Results

Of the 499 physicians surveyed, 239 (48%) responded. A total of 11 respondents opted out of the survey and 3 provided insufficient data in their responses to be included, resulting in 225 usable surveys (Table 1). Most respondents were male (70%), partnered (74% married and 10% in a common-law relationship), and were English-speaking (89%). Half of the respondents had children younger than 12 years of age in their household. Respondents had been in practice for a mean of 15 years (SD, 9.39), and most worked in adult ICU settings (83%), in teaching hospitals (86%), and in mixed practices (ICU with other practice) (57%). Respondents reported working a median of 15 weeks of ICU clinical work per year (interquartile range [IQR], 12.0–18.0) and 16 weeks of other (non-ICU) clinical work per year (IQR, 6.0–30.0). They reported returning to the hospital for clinical work a median of 22 nights in the past year (IQR, 8.0–40.0) and reported staying overnight in the hospital for a median of 7.0 nights in the past year (IQR, 2.0–20.0).

### Moral Distress

Respondents reported a mean moral distress score of 107 (SD, 59), out of a maximum score of 432 (Table 2). Moral distress correlated significantly with higher scores of emotional exhaustion ( $r = 0.39$ ;  $P < 0.001$ ), depersonalization ( $r = 0.34$ ;  $P < 0.001$ ), and compassion fatigue ( $r = 0.44$ ;  $P < 0.001$ ), and with lower scores of compassion satisfaction ( $r = -0.20$ ;  $P < 0.001$ ) (Table 3 and Figure 1). Respondents who had considered leaving or had left a position reported significantly higher scores of moral distress ( $146 \pm 63$ ; mean  $\pm$  SD) than those who had not ( $83 \pm 41$ ;  $P < 0.001$ ). Similarly, respondents who were currently considering leaving a position because of moral distress reported significantly higher scores of moral distress ( $149 \pm 76$ ) than those who were not ( $100 \pm 53$ ;  $P = 0.002$ ). Multivariable regression analyses revealed that respondents who were partnered had significantly lower scores of moral distress ( $103 \pm 58$ ) than those who were not partnered ( $140 \pm 62$ ;  $B$  (coefficient) =  $-0.2$ ;  $P = 0.006$ ). None of the other individual, practice, or workload characteristics were significantly associated with moral distress (Tables E2–E4). The composite item scores on the Measure of Moral Distress for Health Professionals were ranked to examine the highest-ranking contributors to moral distress in this sample (Table 4). Items about providing overly aggressive and potentially nonbeneficial treatment, and about lack of resources, and lack of administrative action and support ranked in the top five scores.

### Burnout

A total of 65 respondents (29%) reported symptoms that met a criterion for burnout (Table 2). When examining the subscales separately, respondents reported a mean emotional exhaustion score of 3.5 (SD, 1.7) out of a maximum score of 7, and a mean depersonalization score of 3.0 (SD, 1.7) out of a maximum score of 7. Both emotional exhaustion and depersonalization correlated significantly with higher scores of moral distress ( $r = 0.39$  and  $0.34$ ;  $P < 0.001$ ) and compassion fatigue ( $r = 0.42$  and  $0.41$ ;  $P < 0.001$ ), and with lower scores of compassion satisfaction ( $r = -0.41$  and  $-0.39$ ;  $P < 0.001$ ) and resilience ( $r = -0.36$  and  $-0.38$ ;  $P < 0.001$ ) (Table 3). Multivariable regression analyses revealed that a higher number of years in practice was weakly associated with lower scores of both emotional exhaustion ( $B = -0.3$ ;  $P = 0.003$ ) and

**Table 1.** Respondent characteristics ( $N = 225$ )

	<i>N</i> (%), Mean (SD), or Median (IQR)
Individual characteristics	
Sex	
Male	158 (70.2%)
Female	57 (25.3%)
Other	0 (0.0%)
Prefer not to disclose	5 (2.2%)
Missing	5 (2.2%)
Marital status	
Single	12 (5.3%)
Married	166 (73.8%)
Common-law	22 (9.8%)
Widowed	15 (6.7%)
Divorced/separated	0 (0.0%)
Prefer not to respond	5 (2.2%)
Missing	5 (2.2%)
Children (<12 yr old)	
Yes	113 (50.2%)
No	107 (47.6%)
Missing	5 (2.2%)
Years in practice	15.3 (9.4)
Primary language	
English	201 (89.3%)
French	24 (10.7%)
Workplace environment	
Hospital	
Teaching hospital	193 (85.8%)
Nonteaching hospital	26 (11.6%)
Missing	6 (2.7%)
ICU	
ICU only	51 (22.7%)
ICU with other practice	168 (74.7%)
Missing	6 (2.7%)
Practice	
Adult practice	187 (83.1%)
Pediatric/neonatal practice	32 (14.2%)
Missing	6 (2.7%)
Volume of clinical work	
ICU clinical work, number of wk in the past yr	15.0 (12.0–18.0)
Other (non-ICU) clinical work, number of wk in the past yr	16.0 (6.0–30.0)
Returned to hospital for clinical work, number of nights in past yr	22.0 (8.0–40.0)
Stayed overnight in hospital for clinical work, number of nights in past yr	7.0 (2.0–20.0)

Definition of abbreviations: ICU = intensive care unit; IQR = interquartile range; SD = standard deviation.

depersonalization ( $B = -0.2$ ;  $P = 0.009$ ). None of the other individual, practice, or workload characteristics were significantly associated with emotional exhaustion or depersonalization (Tables E2–E4).

### Compassion Fatigue

Respondents reported a mean compassion fatigue score of 20.3 (SD, 6.3) out of a maximum score of 50 (Table 2). Using the prespecified criteria, 152 respondents (68%) reported low scores, 63 (28%) reported medium scores, and 3 (1%) reported high

scores of compassion fatigue. Compassion fatigue (continuous score) was significantly associated with higher scores of moral distress ( $r = 0.44$ ;  $P < 0.001$ ), emotional exhaustion ( $r = 0.42$ ;  $P < 0.001$ ), and depersonalization ( $r = 0.41$ ;  $P < 0.001$ ), and with lower scores of compassion satisfaction ( $r = -0.30$ ;  $P < 0.001$ ) and resilience ( $r = -0.46$ ;  $P < 0.001$ ) (Table 3). None of the individual, practice, or workload characteristics were significantly associated with compassion fatigue (Tables E2–E4).

### Compassion Satisfaction

Respondents reported a mean compassion satisfaction score of 40.7 (SD, 7.3) out of a maximum score of 50 (Table 2). Using the prespecified criteria, 5 respondents (2%) reported low, 99 (44%) reported medium, and 115 (51%) reported high compassion satisfaction. Compassion satisfaction (continuous score) correlated with lower scores of moral distress ( $r = -0.20$ ;  $P < 0.001$ ), emotional exhaustion ( $r = -0.41$ ;  $P < 0.001$ ), depersonalization ( $r = -0.39$ ;  $P < 0.001$ ), and compassion fatigue ( $r = -0.30$ ;  $P < 0.001$ ), and with higher scores of resilience ( $r = 0.56$ ;  $P < 0.001$ ) (Table 3). None of the individual, practice, or workload characteristics were significantly associated with compassion satisfaction (Tables E2–E4).

### Resilience

Respondents reported a mean resilience score of 29.8 (SD, 5.7) out of a maximum score of 40 (Table 2). Resilience correlated significantly with lower scores of emotional exhaustion ( $r = -0.36$ ;  $P < 0.001$ ), depersonalization ( $r = -0.38$ ;  $P < 0.001$ ), and compassion fatigue ( $r = -0.46$ ;  $P < 0.001$ ), and with higher scores of compassion satisfaction ( $r = 0.56$ ;  $P < 0.001$ ) (Table 3). None of the individual, practice, or workload characteristics were significantly associated with resilience (Tables E2–E4).

### Past Propensity to Leave a Position Because of Moral Distress

A total of 85 respondents (38%) reported that they had considered leaving or had left a position because of moral distress (Table 2). Multivariable logistic regression analyses revealed that the current moral distress score was associated with consideration of leaving or having left a position in the past ( $B = 1.62$ ;  $P < 0.001$ ; odds ratio [OR], 5.06; 95% confidence interval [95% CI], 2.75–9.29). None of the other individual or practice characteristics were significantly associated with past propensity to leave a position because of moral distress (Table E5).

### Current Propensity to Leave a Position Because of Moral Distress

A total of 31 respondents (14%) reported that they were currently considering leaving a position because of moral distress (Table 2). Multivariable logistic regression analyses revealed that the moral distress score was associated with currently considering leaving a position because of moral distress ( $B = 0.61$ ;  $P = 0.004$ ; OR, 1.84; 95% CI, 1.22–2.78). None

**Table 2.** Summative data for wellness measures

	M (SD) or N (%)	Range
MMD-HP		
Moral distress, possible range: 0–432	107 (59)	5–333
Considered leaving position in the past because of moral distress	85 (37.9%)	—
Currently considering leaving position because of moral distress	31 (13.8%)	—
MBI, 2-item		
Emotional exhaustion, possible range: 1–7	3.5 (1.7)	1–7
Depersonalization, possible range: 1–7	3.0 (1.7)	1–7
Burned out*	65 (28.9%)	—
CD-RISC		
Resilience, possible range: 0–40	29.8 (5.7)	14–40
ProQOL		
Compassion fatigue, possible range: 10–50 <sup>†</sup>	20.3 (6.3)	10–50
Low compassion fatigue, ≤22	152 (67.6%)	—
Medium compassion fatigue, 23–41	63 (28.0%)	—
High compassion fatigue, ≥42	3 (1.3%)	—
Compassion satisfaction, possible range: (10–50) <sup>†</sup>	40.7 (7.3)	17–50
Low compassion satisfaction, ≤22	5 (2.2%)	—
Medium compassion satisfaction, 23–41	99 (44.0%)	—
High compassion satisfaction, ≥42	115 (51.1%)	—

*Definition of abbreviations:* CD-RISC = Connor Davidson Resilience Scale; M = mean estimate for each continuous variable; MBI = Maslach Burnout Inventory; MMD-HP = Measure of Moral Distress for Healthcare Professionals; ProQOL = Professional Quality of Life Compassion Satisfaction and Compassion Fatigue Scale; SD = standard deviation.

\*Burnout was operationalized as experiencing symptoms of emotional exhaustion or depersonalization at least once per week (19).

<sup>†</sup>The cutoffs for classifying low, medium, and high compassion satisfaction and compassion fatigue were operationalized following the recommendations of Stamm (20).

of the other individual or practice characteristics were significantly associated with participants’ current propensity to leave a position because of moral distress (Table E5).

**Discussion**

In this cross-sectional survey, we found that Canadian critical care physicians report moderate scores of moral distress and that one-third of respondents had considered

leaving or had previously left a position because of moral distress. In addition, about one-third of respondents meet the criteria for burnout syndrome, and a similar proportion report medium–high levels of compassion fatigue. On the other hand, about one-half of respondents report a high score of compassion satisfaction and, overall, respondents report a moderate score of resilience.

Each of the “negative” wellness measures (moral distress, burnout, and compassion fatigue) were associated directly with each of

the other “negative” wellness measures, and inversely with each of the “positive” wellness measures (compassion satisfaction and resilience). The only exception was the lack of association between moral distress and resilience. Correlations among moral distress, burnout, and compassion fatigue suggest that these constructs may have some common elements. The only significant associations with individual, practice, or workload characteristics were lower moral distress in respondents who were married or partnered compared with those who were not, and lower prevalence of burnout in respondents who had been in practice for more years. There were no differences in any of the wellness measures between adult and pediatric critical care physicians.

Moral distress is a personal perception of conflict between the conscience of the affected individual and decisions or actions that are occurring in their environment; this conflict can threaten the individual’s moral integrity. Repeated occurrences of moral distress can leave persistent distress even after the problematic conflict is resolved, called moral residue (25). Our finding of a direct relationship between the propensity to leave a position in the past and the current moral distress score may be an indicator of moral residue. Consequences of moral distress in the workplace include incivility and ethical desensitization (26, 27), unsafe and unethical care (28), and difficulty in arriving at consensus-based decisions with patients and their families (1, 7). Thus, there may be a vicious cycle between moral distress and unethical care.

Our findings regarding the magnitude of moral distress, the association between moral distress and propensity to leave a position, and the strongest contributors to moral distress (overly aggressive treatment near the end of life, and compromises in-patient care due to

**Table 3.** Correlation coefficients between pairs of wellness measures

	Moral Distress	Emotional Exhaustion	Depersonalization	Compassion Fatigue	Compassion Satisfaction	Resilience
Moral distress	—	—	—	—	—	—
Emotional exhaustion	0.39*	—	—	—	—	—
Depersonalization	0.34*	0.69*	—	—	—	—
Compassion fatigue	0.44*	0.42*	0.41*	—	—	—
Compassion satisfaction	−0.20*	−0.41*	−0.39*	−0.30*	—	—
Resilience	−0.14	−0.36*	−0.38*	−0.46*	0.56*	—

\*P < 0.001.

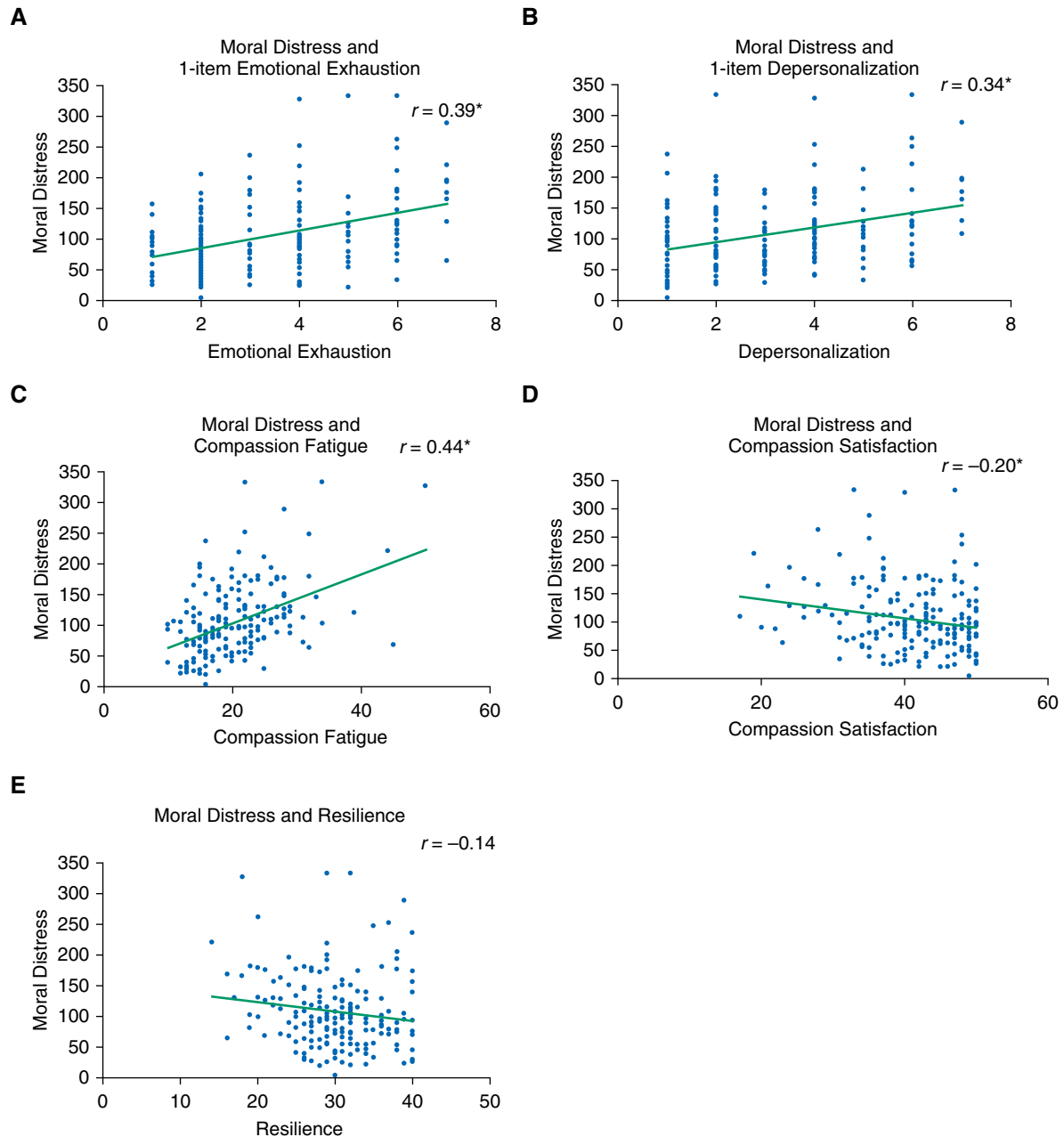
**Table 4.** Ranked scores by item on the MMD-HP

MMD-HP Item	M	SD	Rank
Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient	8.2	4.3	1
Experience compromised patient care due to lack of resources/equipment/bed capacity	6.6	4.9	2
Continue 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	6.5	4.5	3
Experience a lack of administrative action or support for a problem that is compromising patient care	5.9	4.7	4
Witness healthcare providers giving "false hope" to a patient or family	5.7	3.8	5
Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care	4.8	4.2	6
Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments	4.8	4.1	7
Participate in care that causes unnecessary suffering or does not adequately relieve pain or symptoms	4.7	3.9	8
Witness low quality of patient care due to poor team communication	4.6	3.7	9
Watch patient care suffer because of a lack of provider continuity	4.5	3.6	10
Be required to work with abusive patients/family members who are compromising the quality of care	4.3	3.9	11
Be required to care for more patients than I can safely care for	4.0	4.3	12
Be required to work with other healthcare team members who are not as competent as patient care requires	4.0	3.7	13
Participate in care that I do not agree with, but do so because of fears of litigation	3.9	4.3	14
Participate on a team that gives inconsistent messages to a patient/family	3.6	3.6	15
Have excessive documentation requirements that compromise patient care	3.5	4.2	16
Be unable to provide optimal care due to pressures from administrators or insurers to reduce costs	3.0	4.1	17
Feel pressured to ignore situations in which patients have not been given adequate information to ensure informed consent	2.9	3.4	18
Fear retribution if I speak up	2.7	3.9	19
Work with team members who do not treat vulnerable or stigmatized patients with dignity and respect	2.7	3.6	20
Witness a violation of a standard of practice or a code of ethics and not feel sufficiently supported to report the violation	2.7	3.8	21
Feel unsafe/bullied among my own colleagues	2.4	4.1	22
Follow a physician's or family member's request not to discuss the patient's prognosis with the patient/family	2.3	2.5	23
Feel required to overemphasize tasks and productivity or quality measures at the expense of patient care	2.3	3.4	24
Work within power hierarchies in teams, units, and my institution that compromise patient care	2.3	3.7	25
Be required to care for patients whom I do not feel qualified to care for	1.8	2.5	26
Be pressured to avoid taking action when I learn that a physician, nurse, or other team colleague has made a medical error and does not report it	1.7	2.5	27

*Definition of abbreviations:* M = mean; MMD-HP = Measure of Moral Distress for Health Professionals; SD = standard deviation.

lack of resources and administrative support) are similar to findings from smaller samples of critical care physicians from the United States (3, 29). These findings, coupled with the finding that moral distress scores do not correlate with resilience scores, underscoring that moral distress is not primarily due to a lack of resilience in individual providers but rather arises because of problems at the organizational level. The moderate scores of resilience in our respondents support this reasoning. Therefore, efforts to address moral distress should target the root causes in the organization, including clarity regarding expectations about moral obligations (16, 30), rather than just focusing on enhancing the resilience of individual clinicians (15, 31). This approach is consistent with the observations that burnout occurs even in highly resilient physicians (32), and that organization-directed interventions are more effective than physician-directed interventions at reducing burnout (33). However, the effect of burnout on mental health may be modulated by resilience (34). Considering the strongest contributors to moral distress in the current study, examples of interventions could include the adoption of the palliative approach, where applicable, and incorporating the perspectives of ICU staff regarding decisions about resource allocation and administrative support.

The associations that we observed between moral distress and burnout are also consistent with other cohorts (2, 8); moral distress may be a precursor to burnout (14). Interestingly, we did not identify any easily modifiable factors that are related to measures of wellness. The only characteristic that was associated with lower moral distress was having a spouse or partner; one possible explanation is that having a trusted listener at home helps to defuse stress due to moral conflict. Like others, we observed that burnout was less prevalent in physicians who had been in practice longer (35, 36). This finding may be confounded by the attrition of younger physicians who experienced burnout before they quit, but it is also possible that resistance to burnout is a learned attribute over time. Unlike others, we did not find that women critical care physicians had a higher prevalence of burnout than men (37, 38). Differences in the instruments, the populations sampled, and the work cultures may explain the differences among studies.



**Figure 1.** Moral distress scores were directly correlated with (A) emotional exhaustion, (B) depersonalization, and (C) compassion fatigue scores, which were inversely correlated with (D) compassion satisfaction scores and are not significantly associated with (E) resilience scores.  $*P < 0.001$ .

### Strengths and Limitations

This study has several strengths. It is the first national, cross-sectional survey focused on moral distress, burnout, compassion fatigue, and resilience exclusively in critical care physicians. In addition, we surveyed broadly using a previously generated list of adult and pediatric critical care physicians developed by our national society (CCCS) and the CCTG. Moreover, we used previously validated instruments and strategies in questionnaire

development (participation and endorsement from our national society), testing (pilot testing), and administration (reminders) to limit bias (17, 39). Limitations include a response rate that was lower than anticipated (but still nearly 50% of the target population) and a low representation of community physicians, which may indicate some selection bias. Although the response rate may reflect the sensitive nature of this topic, our respondents appear to be representative of the

current workforce of physicians in Canada trained in critical care medicine through the internal medicine base specialty (40) and very similar to the respondents to a recent survey about the work life of Canadian critical care physicians (37). We did not collect detailed information about the type of work done and we cannot make inferences regarding temporal course or relationships, or causal direction because our data are cross-sectional. Furthermore, there is no validated cut-off

value for moral distress in the Measure of Moral Distress for Health Professionals. In addition, other than our parsimonious demographic data, we have little information about organizational, cultural, and relational factors because we were limited to the items included in the preexisting questionnaires. For example, other than examining the effect of years in practice, we did not assess whether a respondent was a senior physician. Finally, our results reflect the perspectives of Canadian critical care physicians who were members of either the CCCS or the CCCTG and may not reflect those of other critical care physicians, physicians in training, nonrespondents, and those in other geographic and practice settings. For example, our findings may not apply to those who work more (41) or less (37) weeks in

the ICU than our respondents, or whose work type is substantially different.

In conclusion, this national survey of Canadian critical care physicians revealed moderate scores of moral distress, burnout, and compassionate fatigue. At the same time, it revealed substantial compassion satisfaction, and resilience. Although we found no modifiable factors associated with any wellness measures, these foundational findings strongly support further inquiry about problems in the workplace that contribute to moral distress, burnout, and compassion fatigue, and factors that help Canadian critical care physicians sustain moderate–high scores of compassion satisfaction and resilience. This kind of inquiry will inform testable interventions. ■

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