https://doi.org/10.1245/s10434-026-20363-3 Annals of Surgical Oncology (2026) 33:11463–11471

ORIGINAL ARTICLE GLOBAL HEALTH SERVICES RESEARCH

Prevalence and Risk Factors of Moral Distress Among Surgeons Specialized in Oncology Care

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Received: 11 March 2026 / Accepted: 16 July 2026 / Published online: 12 September 2026
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Abstract

Background Moral distress, the negative emotions associated with the inability to do the right thing due to imposed constraints, is prevalent among health care workers but underexplored among surgeons.

Methods This was a cross-sectional study in October 2024 using the Measure of Moral Distress for Healthcare Professionals (MMD-HP) survey distributed to the Division of Surgery at a comprehensive cancer center. Descriptive statistics as well as Mann-Whitney *U*, Kruskal-Wallis, and Fisher's exact tests were used to compare group differences.

Results The overall response rate was 19.3 % (45/233). Among the respondents, 48.9 % were female ($n=22$), 24.4 % were racial and ethnic minorities % ($n=11$), and 28.9 % were trainees ($n=13$). The top surgical specialties included surgical oncology ($n=22$, 48.9 %), breast surgical oncology ($n=7$, 15.6 %), and gynecologic oncology ($n=8$, 17.8 %). Of the respondents, 28.9 % ($n=13$) practiced in an acute/intensive care setting, and 26.7 % ($n=12$) received previous palliative care training. All the respondents reported moral distress (median, MMD-HP score, 61; interquartile range [IQR], 33–86). Because of moral distress, 24 % ($n=11$) considered leaving or had left a clinical position, and 8.9 % (4) considered leaving their current position. Those who intended to leave had significantly higher scores than those who did not ($p<0.05$). The MMD-HP scores did not differ significantly by demographics, trainee versus faculty role, surgical subspecialty, or palliative care experience. The top sources of moral distress centered around patient- and team-level interactions.

Conclusion In this cohort of surgeons specialized in oncology care, moral distress was highly prevalent and driven by patient-, team-, and system-level factors. These findings may help inform the development of interventions aimed at mitigating moral distress for current and future generations of surgeons.

Keywords Moral distress · Moral injury · Surgical oncologists · MMD-HP score · Burnout · Surgical trainees

This article was presented at the 2025 Association for Surgical Education Annual Meeting in Seattle, Washington.

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In recent years, research on physician burnout has highlighted its far-reaching negative impact on physicians, patients, and the health care system as a whole.[1] However, moral distress and moral injury, potential facilitators of burnout, have received less recognition.[2–4] Moral distress occurs when individuals are forced to act against their personal morals and beliefs due to internal or external constraints present in the environment. In the context of health care, moral distress can manifest as anger, guilt, frustration, anxiety, and even physiologic changes because of compromises to one's moral integrity.[5–7] Repeated insults of moral distress may ultimately lead to moral injury and contribute to symptoms of emotional distress, burnout, depression, and post-traumatic stress disorder (PTSD).[8–11]

Our current understanding of moral distress in health care stems largely from studies on nurses, in which increased levels of moral distress have been linked to higher burnout, greater intention to leave the job, reduced job satisfaction and autonomy, and a reduced ethical workplace climate.[9,10,12,13] The role of moral distress and moral injury in the context of surgeons, particularly those involved in cancer care, remains an underexplored topic. Compared with other clinicians in specialties, surgeons are in a unique position due to the high level of trust present in the surgeon–patient relationship and the high degree of accountability that comes with performing surgery. When these factors are combined with the overall proximity to life-limiting illnesses, treatment failure, and frequent end-of-life discussions that occur within oncologic surgical specialties, surgeons specialized in cancer care may be at particularly higher risk for moral injury than other physicians.

This study aimed to characterize the landscape of moral distress among surgeons specialized in oncology care at a large comprehensive cancer center. Specifically, our objectives were to determine the prevalence of moral distress among trainees and faculty and to identify factors associated with higher levels of moral distress.

Methods

Study Design

This was a cross-sectional, quantitative study of surgeons specialized in oncology care at a large comprehensive cancer center (The University of Texas MD Anderson Cancer Center, Houston, TX, USA). The Measure of Moral Distress for Healthcare Professionals (MMD-HP) survey was distributed electronically to all clinically active faculty and trainees within the Division of Surgery in October 2024. The Division of Surgery consists of 10 departments including Breast Surgical Oncology, Colon and Rectal Surgery, Gynecologic Oncology and Reproductive Medicine, Head and Neck Surgery, Neurosurgery, Orthopedic Oncology, Plastic Surgery, Surgical Oncology, Thoracic and Cardiovascular Surgery, and Urology. In addition to the original recruitment e-mail, two additional reminder e-mails were sent 1 week apart. All survey data were collected using the Qualtrics platform (Qualtrics XM, Provo, Utah). In addition to the questions included in the survey instrument as detailed later, demographic data (age, gender, race, ethnicity), clinical background (faculty rank, years in service, trainee postgraduate year, practice setting), and prior experience with palliative care training were collected (Table S1). This study was approved by The University of Texas MD Anderson Cancer Center Institutional Review Board (protocol 2024-1036).

MMD-HP Survey

The MMD-HP is a validated survey instrument aimed at quantifying moral distress specifically among health care workers (Table S1). [3]The survey consists of 27 statements that assess the frequency of occurrence of each scenario and the level of distress caused by each scenario. Each statement is graded on a 4-point Likert scale including a frequency score ranging from 0 (never) to 4 (very frequently) and a distress score ranging from 0 (none) to 4 (very distressing). The two scores are multiplied to obtain a composite score for each statement (range, 0–16), which are then summed for the final MMD-HP score (range, 0–432). The scores are interpreted in the context of each study population because there are currently no set benchmarks for a "high" versus "low" MMD-HP score in the literature.

The MMD-HP instrument has been tested extensively in adult, pediatric, critical care, acute care, outpatient, and long-term care clinical settings and across a broad range of health care professionals (physicians, trainees, nurses).[3] The current MMD-HP has previously undergone two revisions to increase its applicability to non-intensive care unit (ICU) settings and different health care professions, and to categorize potential root causes of moral distress at both team and system levels.[14–16] Root causes are categorized as system, patient, or team level. System-level causes include external pressures related to administrative requirements or system resources. Patient-level causes include factors related to patient and family requests. Finally, team-level causes are divided into those compromising team integrity and those leading to breakdown in team interactions with patients and families. The organization of each survey statement by root cause is presented in Table S2.

Statistical Analysis

Participant characteristics were summarized using frequencies and percentages for categorical variables. Medians and quartiles were used to report MMD-HP scores. Continuous variables were compared using Mann-Whitney *U* and Kruskal-Wallis tests, and categorical variables were compared using Fisher's exact test. Multivariable regression analysis was not performed due to the small sample size. All analyses were performed using SPSS version 29.0 (SPSS Inc., Chicago IL, USA).

Results

Respondent Demographics

The survey was completed by 45 individuals, with a response rate of 19.3 % (45/233). The respondents were predominantly in the age ranges of 31 to 40 years ($n=20$, 44.4 %) and 41–50 years ($n=13$, 28.9 %) and equally distributed by gender (Table 1). The majority of the respondents (62.2 %, $n=28$) were non-Hispanic white. Of the 45 respondents, 13 (28.9 %) were trainees and 32 (71.1 %) were faculty.

The surgical specialties were surgical oncology (48.9 %, $n=22$), gynecologic oncology (17.8 %, $n=8$), other (head and neck surgery, orthopedic surgery, and plastic and reconstructive surgery) (15.6 %, $n=7$), and breast surgical oncology (15.6 %, $n=7$). Up to 28.9 % ($n=13$) of the respondents practiced in intensive care unit (ICU) or acute care surgery settings, and 26.7 % ($n=12$) of the respondents reported receiving prior palliative care training.

MMD-HP Scores by Respondent Characteristics

All the respondents reported some level of moral distress. The median MMD-HP score was 61.0 (interquartile range [IQR], 33.0–86.0). The moral distress scores did not differ significantly by age group, gender, or race and ethnicity. Although those with professor rank and longer time in service reported higher MMD-HP scores than those with lower rank and shorter time in service, this difference was not statistically significant ($p=0.309$ and 0.339, respectively; Table 1). The MMD-HP scores also were comparable between surgical subspecialties, whether respondents practiced in intensive care or acute care settings, and whether respondents received prior palliative care training (Table 1).

Intention to Leave Position Due to Moral Distress

Whereas 17.8 % ($n=8$) of the respondents considered leaving a previous clinical position due to moral distress, 6.7 % (3) did leave a previous position due to moral distress (Fig. 1). Of the 45 respondents, 4 (8.9 %) were considering leaving their current clinical position due to moral distress. The respondents who expressed prior or current intention to leave had significantly higher MMD-HP scores ($p=0.029$) than those who did not ($p<0.001$) (Table 1).

Sources of Moral Distress

The top sources of moral distress centered around patient- and team-level interactions (Table 2). At the patient level, delivery of aggressive or futile care to patients with a poor prognosis and witnessing other providers give "false hope" to patients or family members served as a major source of moral distress. At the team level, poor team communication and lack of provider continuity had a negative impact on patient care and further contributed to levels of moral distress. Additional correlational analyses between specific moral distress statements are included in the Supplementary Materials.

Moral Distress Among Trainees Versus Faculty

The MMD-HP scores did not differ significantly between trainees and faculty (58 vs 65; $p=0.670$; Fig. 2). When stratified by root causes of moral distress (system-level, patient-level, team-level [team integrity], team-level [team interactions]), the sources of moral distress did not differ significantly between trainees and faculty (Table 3). However, within the trainee cohort, moral distress was predominantly derived from patient-level and team-level (team interactions) sources compared with system-level and team-level (team integrity) sources ($p=0.015$; Fig. 3). In contrast, within the faculty cohort, system-level factors served as a significant contributor to moral distress, in addition to patient-level and team-level (team interactions) factors.

Discussion

In this cross-sectional study of surgeons specialized in oncologic care at a large comprehensive cancer center, moral distress was highly prevalent, with root causes attributed to patient-, team-, and system-level factors. These findings shed light on the current landscape of moral distress among surgical trainees and faculty and may inform the development of interventions intended to mitigate moral distress among surgical oncologists.

The concept of moral distress can be defined as the "experience of knowing the right thing to do while being in a situation in which it is nearly impossible to do so."[17] In the context of health care, any decision made by a physician

Table 1 Baseline respondent demographics[a]

Characteristics	Total ($n=45$) n (%)	MMD-HP score[b] Median (IQR)	p Value
Age group (years)			0.095
31–40	20 (44.4)	58.5 (39.5–70.0)	
41–50	13 (28.9)	55.0 (33.0–81.0)	
51–60	7 (15.6)	97.0 (84.0–189.0)	
> 60	4 (8.9)	41.5 (14.5–69.5)	
Prefer not to respond	1 (2.2)	130.0	
Gender			0.149
Women	22 (48.9)	56.5 (26.0–76.0)	
Man	22 (48.9)	75.0 (42.0–118.0)	
Prefer not to respond	1 (2.2)	108.0	
Race and ethnicity			0.783
Non-Hispnic white	28 (62.2)	60.5 (31.0–79.5)	
Non-Hispanic	4 (8.9)	51.5 (18.0–88.5)	
Asian	3 (6.7)	47.0 (25.0–209.0)	
Hispanic	3 (6.7)	79.0 (28.0–81.0)	
Other	1 (2.2)	105.0	
Unknown	6 (13.3)	79.0 (50.0–124.5)	
Role			0.670
Trainee	13 (28.9)	59.0 (50.0–72.0)	
Faculty	32 (71.1)	65.0 (28.5–95.0)	
Surgical specialty			0.081
Breast surgical oncology	7 (15.6)	28.0 (17.0–64.0)	
Surgical oncology[c]	22 (48.9)	59.5 (50.0–81.0)	
Gynecologic oncology	8 (17.8)	67.0 (24.0–95.5)	
Other[d]	7 (15.6)	93.0 (72.0–130.0)	
Prefer not to respond[e]	1 (2.2)	50.0	
Practice involves ICU or acute care surgery			0.512
Yes	13 (28.9)	68.0	
No	31 (68.9)	64.0	
Prefer not to respond	1 (2.2)	50.0	
Faculty rank			0.309
Assistant professor	9 (28.1)	76.0 (64.0–108.0)	
Associate professor	11 (34.4)	42.0 (26.0–81.0)	
Professor	12 (37.5)	81.0 (34.5–101.0)	
Years in service			0.339
0–5	7 (21.9)	76.0 (64.0–108.0)	
6–15	14 (43.8)	44.5 (28.0–81.0)	
> 15	11 (34.4)	84.0 (22.0–105.0)	
Have you ever left or considered leaving a clinical position due to moral distress?			**0.029**
No, I have never considered leaving or left a position.	34 (75.6)	57.0 (29.0–78.0)	
Yes, I considered leaving but did not leave.	8 (17.8)	111.5 (87.0–156.5)	
Yes, I left a position.	3 (6.7)	58.0 (28.0–251.0)	
Currently considering leaving job due to moral distress?			**<0.001**
No	41 (91.1)	59.0 (29.0–81.0)	
Yes	4 (8.9)	182.0 (136.5–230.0)	
Previous palliative care training			0.341
No	33 (73.3)	64.0 (42.0–97.0)	
Yes	12 (26.7)	59.5 (27.0–73.5)	

Table 1 (continued)

Bold indicates items where p value < 0.05

MMD-HP, Measure of Moral Distress for Healthcare Professionals; IQR, interquartile range

[a]Mann-Whitney U test used to compare continuous outcomes between two groups, Kruskal-Wallis test used to compare continuous outcomes > 2 groups, Fisher's exact test used to compare categorical outcomes

[b]MMD-HP scores range from 0 to 432

[c]Surgical Oncology includes CGSO, Surgical Endocrinology, and Colon and Rectal Surgery

[d]Other specialty includes Head and Neck Surgery, Orthopedic Oncology, and Plastic and Reconstructive Surgery

[e]Prefer not to respond responses are excluded from statistical analysis

that goes against a patient's best interest may cause moral distress. Our findings highlight the prevalent nature of this experience, as all surgeons in this study expressed some level of moral distress regardless of their role and stage in training or career.

The top sources of moral distress were rooted in providing aggressive but futile care to patients with a poor prognosis, witnessing providers give "false hope" to patients and family members, and witnessing lower-quality patient care due to lapses in team communication or discontinuity in care. These scenarios highlight the ethical dissonance experienced by surgeons and the aftermath of moral distress that results, particularly in situations in which surgeons themselves often cannot "fix" the issue at hand due to either a patient's inherent disease process or external environmental constraints.

Prior studies of surgeons have highlighted the association between futile or nonbeneficial surgery and higher levels of moral distress.[7,18–20] Among a cohort of neurosurgeons, almost half reported significant moral distress, with the highest level of distress attributed to pressure from patients'

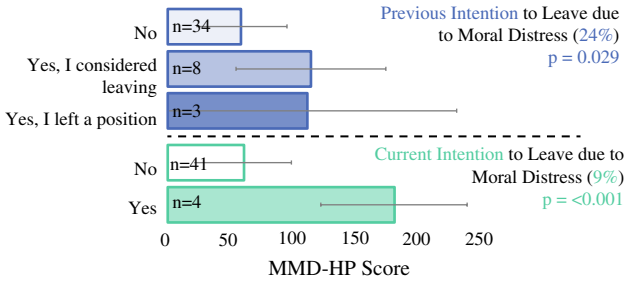


Fig. 1 Previous and current intention to leave position due to moral distress

Table 2 Top sources of moral distress for trainees and faculty

Measure of Moral Distress for Healthcare Professionals (MMD-HP) statements	Median score (IQR)[a]
Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient. (patient level)	4.0 (2.0–8.0)
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. (patient level)	4.0 (2.0–6.0)
Witness low quality of patient care due to poor team communication. (team-level interactions)	4.0 (2.0–6.0)
Watch patient care suffer because of a lack of provider continuity. (team-level interactions)	4.0 (1.0–6.0)
Witness health care providers giving "false hope" to a patient or family. (patient-level)	4.0 (1.0–6.0)

[a]Each statement is graded on a 4-point Likert scale and consists of a frequency score ranging from: 0 (never) to 4 (very frequently) and a distress score ranging from 0 (none) to 4 (very distressing). The two scores are multiplied for a composite score for each statement (range, 0–16)

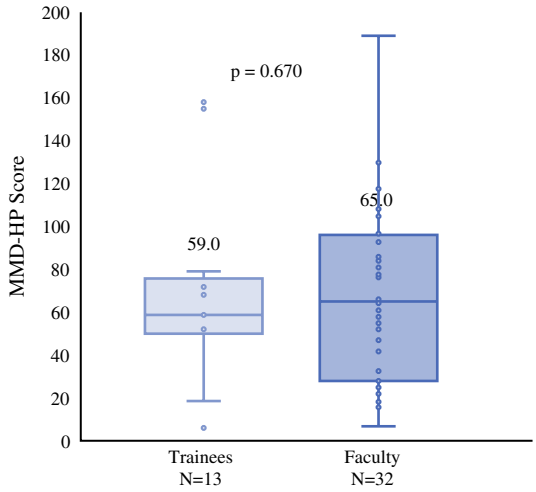


Fig. 2 Measure of Moral Distress for Healthcare Professionals (MMD-HP) score by role. *Mann-Whitney *U* test

Table 3 Root causes of moral distress, comparison by trainees versus faculty[a]

Root cause	Trainees *n* (range)	Faculty *n* (range)	*p* Value
System level	9.0 (5.0–25.0)	19.0 (7.5–30.5)	0.287
Patient level	23.0 (15.0–29.0)	22.0 (10.5–29.0)	0.890
Team level (team integrity)	7.0 (2.0–10.0)	5.0 (2.0–11.5)	0.980
Team level (team interactions)	18.0 (14.0–28.0)	18.5 (8.5–26.0)	0.735

[a]Mann-Whitney *U* test

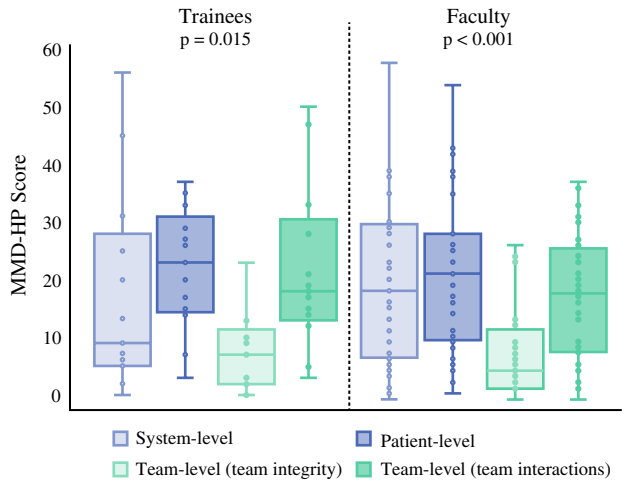


Fig. 3 Root causes of moral distress, by role

families to perform futile surgery.[18] Likewise, among general surgeons, performing nonbeneficial surgery to give patients and families more time to cope was associated with higher levels of moral distress.[19] Unsurprisingly in oncology care, the cognitive, psychological, and social burdens inherent to the delivery of complex cancer care may place surgical oncologists in scenarios in which moral distress may arise more frequently.[11,21,22]

Although prior studies have observed differences in moral distress by gender, age, and years in service,[19,20,23,24] our results did not demonstrate significant variation in moral distress by demographic variables. Although a bimodal distribution of moral distress levels was observed, with higher levels for early-career surgeons (age 31–40 years, assistant professor status, 0–5 years in service) and late-career surgeons (age 51–60 years, professor status, > 15 years in service) than for mid-career surgeons, this difference was not statistically significant. These findings may reflect a phenomenon previously described as "protective equity," the development of a positive reputation or track record for favorable patient outcomes that comes with surgeon experience and years in training.[25] Early-career surgeons may be particularly vulnerable to moral distress when dealing with poor patient outcomes or adverse events due to less experience and lack of adequate coping mechanisms. Furthermore, trainees are perhaps even more vulnerable to moral distress given their role as learners and the presence of power dynamics inherent within the training structure. In contrast, for senior surgeons, repeated insults of moral distress can compound over time and may eventually lead to moral injury, to the degree that it overwhelms the protective effects of adequate protective equity. Additionally, senior surgeons may experience increasing scrutiny due to age-related neurocognitive declines and the subsequent impact on surgeon competency.[26–29]

Notably, levels of moral distress among trainees versus faculty did not differ significantly. This may have been attributable to the fact that all trainees in this study were fellows instead of residents. As such, there may have been a greater degree of shared maturity as well as more effective coping mechanisms among the fellows than among the junior residents. However, root causes of moral distress did vary among provider types. Whereas patient-level and team-level (team interactions) factors were both significant contributors of moral distress for both trainees and faculty, only system-level factors significantly impacted moral distress for faculty. These findings highlight that whereas trainees may be insulated from system-level barriers such as administrative pressures, limited hospital resources, and documentation requirements, the potential increase in system-level responsibilities during the transition to early-career faculty may serve as a significant source of moral distress. Prior studies have shown that moral distress is pervasive through all stages of medical training, although its manifestation differs by level of training.[6,23,24,30,31] In a survey of pediatric otolaryngologists, fellows reported significantly higher levels of moral distress than faculty (mean scores, 69 vs 26; $p < 0.05$).[24] Although our study did not demonstrate differences in moral distress levels between faculty and trainees (median scores, 65 vs 59), the high prevalence of moral distress regardless of training level and role underscores the importance of early intervention to help trainees adopt effective coping mechanisms against moral distress.

Beyond simply the high prevalence of moral distress among surgical oncologists in our study, it is alarming that up to one fourth of surgeons, including trainees, expressed previous intention to leave or did leave a clinical position due to moral distress. This finding highlights an unmet need to develop resources and interventions to support surgeons through experiences of moral distress, which in turn may mitigate future risk of burnout, second-victim syndrome, and ultimately attrition from the workforce.

Although the prevalence of burnout and second-victim syndrome has been well described in literature, our study is the first to examine moral distress among surgical oncologists. Both burnout, defined as a "psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishments," and second-victim syndrome, the detrimental impact of adverse events on the surgeon can result from the progression of unchecked moral distress and injury.[32,33] Further studies are needed to better examine the relationships between moral distress, burnout, and second-victim syndrome, as well as interventions aimed at mitigating levels of moral distress.

At our institution, we have recently developed a surgeon-specific peer support program, modeled after the program described by El Hechi et al.,[34] to help surgeons build moral resilience and develop healthy coping mechanisms

through one-on-one peer mentorship. The goal of this program is two-fold: (1) to increase awareness and education on the prevalence of moral distress and (2) to establish an avenue for surgeons to openly share personal experiences with moral distress free from blame and stigma. Our group is actively studying the rollout of the Peer Support Program and implementation of the Mentorship Program to understand their impact and allow for refinement of the interventions over time.

Other interventions aimed at combating moral distress include establishment of resilience rapid response teams, frequent small group sessions, moral distress focused rounds, and societal-led peer support networks.[35–39] Furthermore, more broadly, institutional efforts to decrease administrative burden, increase support staff, and optimize efficiency in workflows may help to mitigate moral distress.

Triggers of moral distress are often inherent to the work of surgeons, particularly those specialized in cancer care. However, further progression to moral injury is preventable. This study is the first to characterize the landscape of moral distress among surgical oncologists, an understudied physician population and one at particularly high risk for the development of moral injury, burnout, and second-victim syndrome. Although studies have characterized the role of moral distress among surgeons and oncologists separat ely,[11,18,21,22,40,41] no studies to date have examined the combination of surgeons with a focus in cancer care. Our findings highlight the urgent need to develop resources and interventions to reduce and stop the progression of moral distress. Doing so is the first step to prioritizing the physical and emotional well-being of current and future generations of surgical oncologists.

Our results should be interpreted with an awareness of their limitations. First, our findings are limited by a low response rate with potential for non-response and sampling bias. The small sample size also precluded our ability to conduct multivariable regression analysis.

Second, this survey was conducted at a large comprehensive cancer center with a fellows-predominant trainee population, which may limit its generalizability to other academic institutions with affiliated medical schools and residency training programs. Levels of moral distress may vary significantly among respondents depending on available institution-specific resources, support staff, and infrastructures in place.

Third, given the cross-sectional nature of this study, the results depict only a snapshot in time and may not reflect any temporal fluctuations in moral distress.

Finally, although the MMD-HP survey instrument has been well-validated in prior studies, there are no set benchmarks for low versus high scores of moral distress. As such, our results should be interpreted in the context of our study population and may not be directly comparable with MMD-HP scores in other settings. Nonetheless, our results demonstrated that individuals who had prior and current intention to leave their clinical position had significantly higher levels of moral distress than those who did not, which served as an internal control for survey validity.

Despite these limitations, however, this study serves as the first assessment specific to physicians specialized in oncologic surgery and provides the basis for future, larger-scale investigations, and more importantly, the development of interventions to mitigate moral distress.

Conclusion

In this cohort of surgical oncologists at a large comprehensive cancer center, moral distress was highly prevalent and driven by patient-, team-, and system-level factors. The findings highlight an unmet need to develop and implement interventions aimed at mitigating moral distress among surgeons at institutional and national levels. Importantly, addressing moral distress will be essential not only for supporting future surgeon well-being but also for ensuring delivery of high-quality patient care.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1245/s10434-026-20363-3.

Acknowledgments Jennifer H. Chen was supported by the National Institutes of Health T32 CA 009599 and the MD Anderson Cancer Center support grant P30 CA016672.

Conflict of interest The authors declare that they have no conflict of interest.

Disclosure The authors have no relevant disclosures.

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