



To feel or not to feel: a scoping review and mixed-methods meta-synthesis of moral distress among surgeons

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Background: There is increasing concern about the prevalence and impact of moral distress among healthcare workers. While this body of literature is growing, research specifically examining sources of moral distress among surgeons remains sparse. The unique attributes of the surgeon-patient relationship and the context of surgery may expose surgeons to sources of distress that are distinct from other healthcare providers. To date, a summative assessment of moral distress among surgeons does not exist.

Methods: We conducted a scoping review of studies focused on moral distress among surgeons. Using guidelines established by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), relevant articles were identified in EBSCOhost PsycINFO, Elsevier EMBASE, Ovid MEDLINE, and Wiley Cochrane Central Register of Controlled Trials Library from January 1, 2009 to September 29, 2022. Detailed data abstraction was performed on a predetermined instrument and compared across studies. A mixed-methods meta-synthesis was employed for data analysis, and both deductive and inductive methodology was used in our thematic analysis.

Results: A total of 1,003 abstracts were screened, and 26 articles (19 quantitative and 7 qualitative) were included for full-text review. Of these, 10 focused only on surgeons. Our analysis revealed numerous definitions of moral distress and 25 instruments used to understand the sources of distress. Moral distress among surgeons is complex and influenced by factors at multiple levels. The most frequent sources originate at the individual and interpersonal levels. However, the environmental, community and policy levels also noted sources of distress.

Conclusions: The reviewed articles identified several common themes and sources of moral distress among surgeons. We also found that research investigating sources of moral distress among surgeons is relatively sparse and confounded by various definitions of moral distress, multiple measurement tools, and frequently conflated terms of moral distress, moral injury, and burnout. This summative assessment presents a model of moral distress delineating these distinct terms, which may be applied to other professions at risk for moral distress.

Keywords: Moral; distress; injury; surgeon; ethics

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Introduction

The British Medical Association (BMA) recently defined moral distress as “the psychological unease generated where professionals identify an ethically correct action to take but are constrained in their ability to take that action... (and) by witnessing the moral transgression by others” (1). Sustained or severe moral distress may transgress into psychological harm and impaired function, sequelae along a continuum known as moral injury (1). Surgeons may be particularly vulnerable to moral distress given their unique relationship with patients, which requires healing through harm, embracing a high degree of accountability for their actions, and forming a profoundly intimate and physical connection with patients. Ultimately, the emotional consequences of moral distress may affect surgeon well-being and adversely impact the ability of surgeons to care for their patients.

Research investigating moral distress in healthcare workers is increasingly common. However, assessment of moral distress among surgeons is limited. The majority of studies that include a surgeon cohort tend to generalize their findings to all healthcare providers, and even fewer focus on surgeons and the field of surgery specifically (2-9). The invasive nature of a surgeon’s craft and the responsibility surgeons have over patients place this group at unique risk for moral distress. The few studies assessing surgeons reveal variability in the prevalence of moral distress. Maftai *et al.* recently reported moral distress was

present among 48% of neurosurgeons in their study (10). However, other studies show variability in the prevalence of distress among surgeons and it is unclear how burdensome the distress is in this cohort compared to other healthcare professionals (7,8). To date, there is no summative assessment of the predisposing attributes and external factors that lead to moral distress and its sequelae among surgeons despite increasing attention to this phenomenon in both the scientific literature and the media.

In this context, we sought to review the existing literature regarding the known and suspected factors contributing to moral distress among surgeons. Our objective was to synthesize current literature and provide a thematic summary of these factors based on the social ecological model (SEM), which facilitates the conceptualization of health broadly. Here, a summative understanding of the complex interplay of factors at the SEM levels (e.g., individual, interpersonal, environmental, community, and policy) help facilitate a detailed investigation into this critical problem and may potentially facilitate targeted interventions that protect surgeons from psychological harm and promote better patient outcomes. We present the following article in accordance with the PRISMA-ScR reporting checklist (available at <https://apm.amegroups.com/article/view/10.21037/apm-22-916/rc>).

Methods

Review design, data sources, and search strategy

We engaged a research librarian to initiate a search of the published literature within EBSCOhost PsycINFO, Elsevier EMBASE, Ovid MEDLINE, and Wiley Cochrane Central Register of Controlled Trials Library from January 1, 2009 to February 21, 2022 with guidelines established by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (11). We selected 2009 given the sharp increase in the discussion surrounding moral distress that began around this time (12). Search terms included data-specific combinations of index terms and text words: surgeon, surgery, moral, distress, stress, damage, injury, and harm. Appendix 1 provides reproducible searches for all databases.

Inclusion and exclusion criteria

We developed inclusion criteria for relevant articles using the PRISMA schema (13). All surgeon subspecialties were included (e.g., breast, cardiothoracic, colorectal, general,

Highlight box

Key findings

- Despite the absence of a uniformly applied definition of moral distress, the emerging body of literature identifies various sources of moral distress among surgeons.

What is known and what is new?

- Surgeons may be particularly vulnerable to moral distress given their unique relationship with patients. Ultimately, the emotional consequences of moral distress may affect surgeon well-being and adversely impact the ability of surgeons to care for their patients.
- Research investigating moral distress in healthcare workers is increasingly common. However, assessment of moral distress among surgeons is limited.

What is the implication, and what should change now?

- A better understanding of the complex interplay of factors may help facilitate a detailed investigation into this critical problem and may potentially facilitate targeted interventions that protect surgeons from psychological harm and promote better patient outcomes.

neurologic, orthopedic, otolaryngology/head and neck, pediatric, plastic, surgical oncology, transplant, trauma, urologic, and vascular). Only peer-reviewed studies based on primary data examining moral distress and/or moral injury among surgeons were included. We excluded reviews or guidelines, book chapters, and opinion pieces or letters. We excluded studies from the grey literature (e.g., abstract or conference proceedings) due to concerns regarding quality of data and the inability to verify peer review. Finally, we excluded studies without surgeon representation and non-English studies. While moral distress was the focus of this review, moral injury was included as an inclusion term given the many definitions of what constitutes moral distress and the frequent conflation of the two terms.

Study selection and data extraction

Article selection occurred in three phases. First, 1,003 titles and abstracts were screened using the inclusion and exclusion criteria. Consensus discussions regularly took place to resolve disagreements. We excluded 802 total abstracts, yielding 201 eligible abstracts. In the second phase, we excluded an additional 159 articles that did not include primary data (n=59), did not explicitly include surgeons (n=51), or otherwise did not fulfill inclusion criteria (n=49).

In the third phase (in-depth review), we excluded an additional 23 articles and then performed a hand-search of the references from the 19 remaining articles, which yielded a total of 22 articles for full review. Finally, we included the search terms “ethics” and “ethical” to our searches based on expert review and performed an updated search (September 29, 2022), which yielded an additional four articles for full review (*Figure 1*).

We used a modified data abstraction tool, which has been previously used for systematic review and meta-synthesis studies (14-17). Detailed data, including sample population, methods, results, and conclusions were extracted from each article and independently assessed by at least two reviewers (CF, IVW) for methodologic quality. Consensus discussions were utilized to resolve disagreements and final adjudication was made by the lead author.

Assessment of methodologic quality and risk of bias

We assessed methodologic quality according to predefined criteria for reliability, validity, and quality (18). To evaluate quantitative studies, we assessed selection and minimization

of attrition bias, minimization of confounding and measurement bias, appropriateness of statistical tests, and whether the results supported the conclusions. To evaluate qualitative studies, we used explicit sampling strategy and description of data analysis, statement of final themes with definitions, validation of findings, and strategies to achieve consensus among coders (14,16,17). No study deviated from these established methodologic quality metrics.

Data analysis

A mixed-methods meta-synthesis was employed for this study due to: (I) the heterogeneity of methodology and outcome measures of the included studies; and (II) the ability to synthesize and provide overviews of both quantitative and qualitative studies based on themes, interventions, and results (19,20). We incorporated both deductive and inductive components in our thematic analysis. Thematic analysis was used to organize and synthesize data into coherent themes using a five-step approach: (I) in-depth reading of each article by at minimum two independent reviewers (familiarization with the data); (II) independent coding of each article; (III) search for themes related to moral distress among surgeons; (IV) group discussion to review, compare, and contrast themes for further refinement; and (V) develop a final set of themes based on consensus regarding definitions and predetermined strategies for adjudication of any discrepancies. These codes were deductively sorted into the SEM's five domains. Themes were coded to best fit when they could be categorized under multiple domains. The SEM is a conceptual framework introduced in the 1970s to facilitate the understanding of human development. The model has previously been used to better understand patient health-related behaviors and the process of forming individual surgeon identity (21-23). The SEM posits that personal development and subsequent behavior is a function of individual, interpersonal, environmental, community and policy factors. The SEM enables us to examine how particular factors, and the interplay between factors, influence the formation of moral distress in individual surgeons while identifying shared factors that all surgeons experience. All authors reviewed the categorization of the themes and agreed on the final results of the data analysis (14,17).

Results

Review of the literature revealed variation in the definition

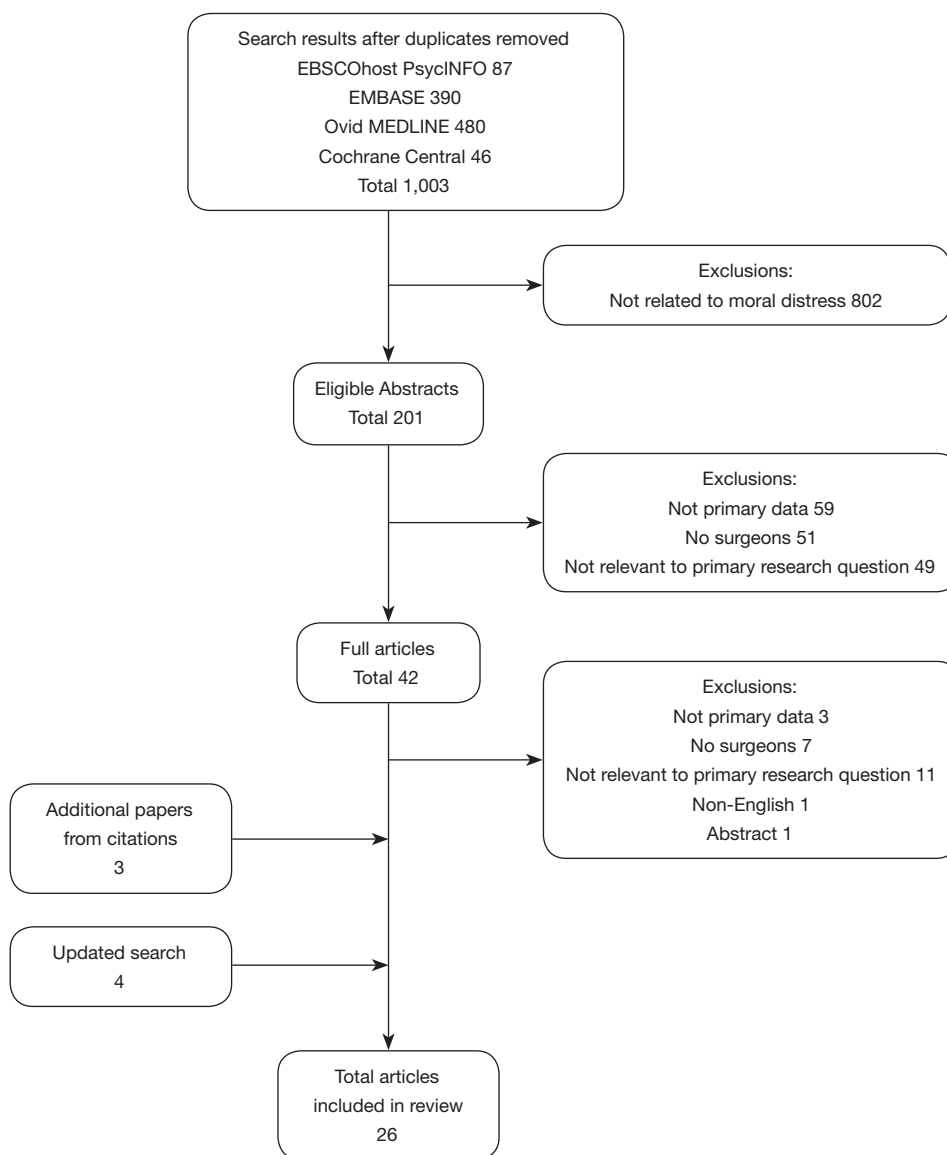


Figure 1 PRISMA diagram. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

of moral distress. Most studies refer to Jameton's traditional definition of moral distress, where distress results from an individual's inability to pursue what is ethically right due to institutional or hierarchical constraints (7,8,24-31). One study adopted a definition of moral distress in-line with the BMA definition, indirectly defining moral distress to include Jameton's original definition while also capturing the distress caused by witnessing perceived moral wrongs (32). Another study expanded on Jameton's original definition, noting that distress may occur following a moral decision as individuals struggle with the sequelae of

forgoing choices justified by alternative ethical principles, implying distress caused by ethical "opportunity costs" (33). Several studies discussing moral distress did not include any explicit definition of moral distress (2-6,9,34,35).

Moral distress was found to be a complex process, influenced by factors that exist at multiple levels of the healthcare system. Factors affecting moral distress were identified through literature review and categorized into the five SEM domains to capture this complexity: individual, interpersonal, environmental, community, and policy. By organizing the drivers of moral distress into these domains,

we highlight the breadth of sources from which these factors originate and draw attention to existing knowledge gaps (Table 1).

Individual

In 19 articles, individual factors were considered in relation to their association with moral distress among surgeons (2-6,8,10,25,27-37). In some instances, this was in connection to demographic characteristics such as gender (2,8,30,31), years in practice (2,29,31-33,36), and the impact of being in a leadership or supervisory position (30). While greater experience level was generally associated with decreased moral distress, working in a leadership or supervisory role predisposed individuals to distress, placing the traditional correlation of seniority and acquiring increasing responsibility in direct conflict with each other as it relates to moral distress. In other instances, moral distress was a result of more personal factors such as the religious views of the provider (32), personal beliefs on organ donation (6), and acting or witnessing actions that betrayed their morals (10,29). Other studies focused on aspects that were connected to mental health, including the emotional weight of watching patients die alone (32), coping mechanisms in place for managing moral distress (10), baseline moral injury (28), and the need to have time to reflect and process events and experiences that are distressing (29). Other individual factors included the perception of a knowledge deficit about disease processes or how to conduct an operation (3,5,27,34) and concerns of spreading infection to self/other patients/family (e.g., COVID-19) (2,27,32). Of the studies identifying individual factors associated with moral distress, only two considered a cohort exclusively of surgeons.

Interpersonal

Interpersonal factors were also explored in relation to the moral distress among surgeons (3,5-9,25-27,31-39). In some instances, these interpersonal factors arose in connection to the care provided, such as having unclear or inconsistent goals of care (7,25,34,37), discordance among and between teams or families (3,5,8,26,38), disruptions to the doctor-patient relationship (32), providing life prolonging intervention for terminally ill patients (3,6-9,25,33,34,37,39) and pressure from others to drive care (7,8,25,26,33,34,37). In studies assessing surgeons, interpersonal factors' impact on moral distress appear to differ based on surgeon roles.

For example, Redman *et al.* demonstrated that fellows had higher moral distress scores among items such as “following family’s wishes to continue life support even though I believe it’s not in the best interest of the child” and “initiate extensive life-saving actions when I think they only prolong death” when compared to attending surgeons (7). In other instances, the focus was on the surgical team, such as the impacts of being overshadowed by colleagues (27), level of support from co-workers (31) and working alongside inadequately trained colleagues (7,33,36). While still others focused on the impacts of leadership, such as feeling like they were being abandoned by superiors (27), the impact of following ethically discordant directions (3,7,25,32-34), and repercussions for voicing safety concerns (32). Poor communication, both among team members (3,7,33) and between the medical team and family (25,32,34), was also repeatedly identified to be an instigating factor for moral distress.

Environment

Practice environment was found to influence moral distress among surgeons (2-4,6-8,24,25,27,30,32-36,38,39). While some studies focused on the type of setting (e.g., intensive care units, Veterans Affairs hospitals, private practice) (2,8,33) others focused on the influence of subspecialty (33), and differences based on patient population (e.g., pediatric *vs.* adult) (36,38). Austin *et al.*'s assessment of moral distress reveals high rates among surgery and medical subspecialty groups compared to primary care among physician and nursing cohorts, highlighting the increased burden practitioners in procedure-based and specialized fields may face. They also report higher rates of moral distress among surgeons whose patient census contained more patients in a critical care setting compared to surgeons who did not. In other instances, studies focused on the impact of limited medical resources (6,32,36,39), including, but not limited to personal protective equipment especially during the COVID-19 pandemic (27). Other studies focused on the impacts of logistical and administration issues, including the difficulty surrounding redeployment (27,30,32,33), the impacts of a demanding patient workload (3,25,27,36), the lack of provider continuity (33,36) and perceived persistence of stressful situations (27). Difficulties inherent to certain practice settings were a clear source of distress. For example, the intensive care unit (ICU) setting is more prone to exposing providers to patients whose care requires navigating established sources of moral distress, including

Table 1 Summary of findings from literature

Source	Participants	Study design	Findings	SEM themes				
				Individual	Interpersonal	Environment	Community	Policy
Abbasi <i>et al.</i>	399 physicians practicing in hospitals affiliated with a medical university	Cross-sectional survey	The frequency of moral distress was 1.24±0.63, the intensity of moral distress was 2.14±0.8, and the composite score of moral distress was 2.94±2.38 using the Moral Distress Scale-Revised. Moral distress was associated with age, experience, specialty, and participation in medical ethics training	×	×	×		
Aljehani <i>et al.</i>	234 surgical residents	Cross-sectional survey	Approximately half (50.4%) of respondents reported being deployed to cover staff shortages in ICUs and EDs during the COVID-19 pandemic. Anxiety was significantly associated with male gender (P=0.055), level of training (P=0.002), deployment to cover ICUs (P=0.05), testing positive for COVID-19 (P=0.054), and having an infected family member (P=0.004)	×		×		
Arslan <i>et al.</i>	190 members of the International Pediatric Transplant Association	Cross sectional	Among the 190 professionals working in pediatric transplantation, 38% respondents experienced ethical issues. Surgeons, relative to physicians, were more likely to encounter ethical issues. European clinicians were more likely to experience ethical issues compared to North American clinicians. Ethical issues most commonly were associated with psychosocial evaluation and donor follow up care		×	×	×	
Austin <i>et al.</i>	329 health care providers from a single institution	Cross-sectional survey	Significant correlations between secondary traumatic stress, burnout, and moral distress (as measured by the Moral Distress Survey-Revised) were found. High moral distress was associated with intentions to leave. Highest levels of moral distress were due to being compelled to provide care that seems ineffective and working with a critical care patient load >50%	×	×	×		
Bender <i>et al.</i>	205 nurses and 124 providers at two academic hospitals	Cross-sectional survey	Nurses reported greater moral distress when using comfort care order sets compared to providers (40.5% vs. 19.4%, P=0.002). The majority of respondents felt that comfort care was generally started too late in a patient's course				×	
Bleicher <i>et al.</i>	21 nurses, 25 physicians and residents from a single, academic SICU	Cross-sectional survey (n=46) followed by semi-structured interviews (n=17)	Both nurses and physicians report high levels of moral distress (MMD-HP 132±63.5 and 121.7±64.7 respectively). The most frequent root cause of moral distress was delivery of aggressive care perceived to be futile	×	×	×	×	×
Bruce <i>et al.</i>	29 ICU team members at a single institution	Semi-structured interviews focused on key sources of moral distress in the context of team-based models	All respondents reported experiencing moral distress. A key source of distress across all healthcare disciplines was intrateam discordance. Two situations when intrateam discordance created to moral distress: (I) situations involving initiation or maintenance of non-beneficial life-sustaining treatments and (II) situations involving lack of full disclosure about interventions		×			
Chiu <i>et al.</i>	45 pediatric surgery trainees	Cross-sectional survey	59% of respondents felt they had received adequate training in bioethics to handle ethical issues pertaining to the care of critically ill children. Moral conflicts were resolved through direct discussions with medical staff, family, or friends	×	×	×		
Fagerdahl <i>et al.</i>	12 operating room team members	Semi-structured interviews focused on experiences during the COVID-19 pandemic	Participants described working hard but felt their efforts were not enough according to their moral ideals	×	×	×		×
Fainstad <i>et al.</i>	101 female residents, 18 of which were from surgical subspecialties	Randomized clinical trial. Intervention arm offered 6-month coaching program to reduce burnout, moral injury and impostor syndrome	Among the intervention group, emotional exhaustion decreased, impostor syndrome was less frequent, and self-compassion was greater. There was no difference in depersonalization, professional accomplishment or moral injury scores					
Hines <i>et al.</i>	96 healthcare workers	Longitudinal Study	Moral injury remained stable over the time period during the COVID-19 pandemic. Distress was not affected by any baseline occupational or resiliency factors. Poor sleep at baseline was predictive of more distress	×				
Khattab <i>et al.</i>	781 spine surgeons	Cross-sectional survey	Those most affected by COVID-19 included older surgeons, orthopedic spine surgeons, and those who work in the private sector. Lower psychological stress was associated with the availability of N95 masks and disposable eye protectors or face shields	×		×		
Knifed <i>et al.</i>	28 surgery, otolaryngology, and obstetrics and gynecology residents at a single institution	Semi-structured interviews focused on ethical concerns and distress as a result of being a trainee	Residents encountered ethical dilemmas leading to moral angst during their training and expressed the need to feel safe to discuss these events openly	×	×			
Lievrouw <i>et al.</i>	17 doctors and 18 nurses working in three different oncology hospital settings	Semi-structured interviews to gain insight into the meaning-making strategies of professionals and their way of dealing with moral distress	Moral distress lingered if accompanied by emotional distress. Doctors reported a mainly rational coping style while nurses tended to focus on feelings and experiences. Coping with moral distress was influenced by personal or work-related experiences and perceived team culture	×				
Mackel <i>et al.</i>	173 neurosurgeons	Cross-sectional	47.7% reported significant moral distress in the past year with the most common cause originating from managing critical patients lacking a clear treatment plan and the most intense cause being from families pressuring surgeons to perform futile surgery. Moral distress led to 10% of surgeons leaving a position and 26.6% contemplating doing so	×	×			
Maftai <i>et al.</i>	114 physicians	Cross-sectional survey	Nearly 50% of respondents reported high levels of potentially morally injurious events. No significant differences were noted in exposures between COVID-19 and non-COVID-19 units, specialization, experience level, age, or gender	×				
Miljeteig <i>et al.</i>	1,606 nurses and physicians	Cross-sectional survey	67% of respondents experienced priority-setting dilemmas in the previous two weeks. Those directly involved in COVID-19 care, were redeployed or worked in psychiatry/addiction medicine experienced it more often. Moral distress levels were generally low (2.9 on a 0–10 scale) but higher among those redeployed, managers, and working in psychiatry/addiction medicine	×		×		
Miranda <i>et al.</i>	62 neurosurgery residents from the American Association of Neurological Surgeons/Congress of Neurological Surgeons Joint Section on Neurotrauma and Critical Care email listserv	Cross-sectional survey	Most respondents reported no explicit teaching on: explaining the risks and benefits of intubation and ventilation (69%), formulating prognoses in neurocritical care (60%), or leading family meetings (69%). Most (87%) reported moral distress, agreeing that they “participated in operations and worried whether surgery aligned with patient goals”	×	×	×	×	×

Table 1 (continued)

Table 1 (continued)

Source	Participants	Study design	Findings	SEM themes				
				Individual	Interpersonal	Environment	Community	Policy
Peetz et al., 2022	11 trauma surgeons from Level 1 or 2 trauma centers in Tennessee	Semi-structured interviews focused on ethical dilemmas and ethical constraints focused on organ preservation among lethally injured patients	All participants felt a primacy of obligation to the patient. Most (n=9) felt the moral obligation to consider organ preservation was secondary/balancing whereas a few (n=2) felt it was irrelevant/immoral. All participants expressed some resource limitation and all conveyed clear moral agency when the goal was to save a patient's life but this was less clear when resuscitating for organ preservation	x	x	x	x	x
Peetz et al., 2021	31 trauma surgeons	Cross-sectional	Many respondents encounter resuscitations where the goal is to preserve the potential for organ transplantation. Notable range in complexity of interventions used in order to preserve organs (from intubation to thoracotomy). Respecting the dying process and future organ quality were most frequent concerns when deciding whether to stop resuscitation		x	x	x	
Pololi et al.	1,708 residents in general surgery, internal medicine, and pediatrics at 14 academic health systems	Cross-sectional survey	Vitality, capturing the joy and meaningfulness of work, and measured using the C-Change Resident Survey, varied widely with scores ranging from 17–71%. 50% of variance was attributed to factors such as work-life integration, relationships/inclusion/trust, institutional/program support, respect, values alignment, and ethical/moral distress	x	x	x		
Redman et al.	16 pediatric otolaryngology faculty and fellows at a single tertiary institution	Cross-sectional survey	Overall Moral Distress Survey-Revised score was 40 [14–94], which is lower than prior reports of pediatric surgeons and pediatric intensivists, and similar to pediatric oncologists. Fellows had significantly higher levels of moral distress than faculty (69 vs. 26, P<0.05)		x	x		x
Rushton et al.	595 healthcare workers from a research network	Cross-sectional survey	Overall prevalence of moral injury was 32.4% with nurses reporting the highest occurrence. Moral injury was associated with ethical concerns, religious affiliation, and years of experience. Moral resilience was a moderator of moral injury	x	x	x		x
Spilg et al.	962 healthcare workers	Cross-sectional survey	Respondents working with patients with COVID-19 showed significantly more severe moral distress, anxiety, and depression symptoms ($F \geq 5.5$, $P \leq 0.02$), and a higher proportion screened positive for mental disorders (Chi-squared >9.1, $P=0.002$) compared to healthcare workers who were not. Moral resilience moderated the relationship between exposure to morally distressing events and moral distress compared ($P<0.001$)	x	x			
Zimmerman et al., 2020	2,161 members of the American College of Surgeons	Cross-sectional survey	High moral distress was associated with the decision to offer surgery that was influenced by the belief that pursuing surgery gives the patient or family time to cope (OR =1.44, 95% CI: 1.02–2.03)	x	x	x	x	x
Zimmerman et al., 2021	Trauma clinicians from three academic institutions	Interventional study consisting of focus groups (n=48) and pre/post intervention surveys (n=122)	Moral distress was higher among nurses than physicians and overall, did not change after the communication intervention. There was less distress regarding "witnessing providers giving false hope" by physicians after the intervention		x			

SEM, social ecological model; ICU, intensive care unit; ED, emergency department; COVID-19, coronavirus disease 2019; SICU, surgical intensive care unit; MMD-HP, Measures of Moral Distress for Healthcare Professionals; OR, odds ratio; CI, confidence interval.

the need to provide non-beneficial interventions (7,8,25,33), manage patients with unclear prognostication (34) and manage comfort care (24).

Community

Community level factors have also been found to influence moral distress among surgeons (6,8,25,34,38,39). For this analysis, “community” was used as an umbrella term to capture the values and identities among surgeons as a population and American society as a whole. At the surgeon level, encountering false hope in the clinical setting and wrestling with the surgeon mentality of being a “fixer” was cited as contributing to distress (25,34). Surgeons also encountered moral distress when confronting controversial values in American culture, such as providing life-extending interventions to facilitate family’s emotional closure (6,8) and extending life to facilitate organ donation (6,39). Organ transplantation generated unique drivers of distress at the community level, with several studies describing distress arising from allocation (maximizing utility *vs.* equity, duty to the donor *vs.* the population) and providing a dignified death to a donor (38,39).

Policy

Several papers acknowledged the impact of medicolegal concerns on moral distress among surgeons (6-8,25,27,32,34). Policy level considerations included discussion on excessive documentation resulting in impaired ability to care for patients (25), financial considerations (e.g., hospital billing, conflicts of interest, insurance coverage) (6,34), limited family access to loved ones during the pandemic (32), frequently changing COVID-19 guidelines (27), the legal ramifications regarding organ donation (6) and not offering surgery (7,8) or pursuing care for fear of legal repercussions. For example, Redmann *et al.* document that surgical fellows are particularly susceptible to distress when put in positions where they have to “follow the family’s wishes for the child’s care when I do not agree with them, but do so because of fears of a lawsuit” (7).

Protective factors

Several studies explicitly identified traits associated with decreased moral distress among surgeons. Some of these traits were intrinsic to the individual, these included traits such as seniority (7,36), having a religion/belief system (32),

being male (31), being older (31), getting enough sleep (31), and having no existing mental disorder (31). Other sources of reducing moral distress were extrinsic and encompassed both sources acting on the individual or the individual being involved in a difficult situation. These extrinsic sources included having ethics training (29,36), early access to palliative care (25), having more frequent discussion about goals of care (25), as well as experiencing team collaboration (27,29) and colleague support (28,31).

Discussion

This is the first scoping review to examine moral distress among surgeons and the underlying factors contributing to moral distress among this cohort. This analysis identified 26 manuscripts since 2009 that assessed moral distress among healthcare workers, with only ten studies focused primarily on surgeons. The definition of moral distress has evolved since first described by Andrew Jameton in 1984 as the “experience of knowing the right thing to do while being in a situation in which it is nearly impossible to do it” (40). While moral distress has been documented widely in nursing literature, it has only recently been described among physicians, pharmacists, and social workers. Consequently, there is variability in how distress is defined among the studies we assessed. The terms “moral distress” and “moral injury” are increasingly common terms in healthcare literature, which may be attributed to a trend in academic interest or more worrisome, as Jameton recently asserted, it “may also reflect an increase in the frequency, intensity, or extent of distress among health professionals” (41). To facilitate future research with clear objectives on this topic, we favor the definitions described by the BMA, which sufficiently capture the triggers leading to moral distress and its sequelae while being broad enough to capture consternating sources beyond an individual’s sole action.

Critical to the definition of moral distress is an individual’s identification of an “ethically correct action”. The literature reveals many factors that lead to distress; however, this work also includes factors that do not necessarily stem from ethical discordance and do not fit this explicit definition of “moral distress”. While we included factors such as “spread of infection to others”, “communication issues among teams”, and “watching patients die alone”, these may not be issues of ethical discordance but rather complex stressors in a demanding job that contribute to burnout (1). We propose a model to

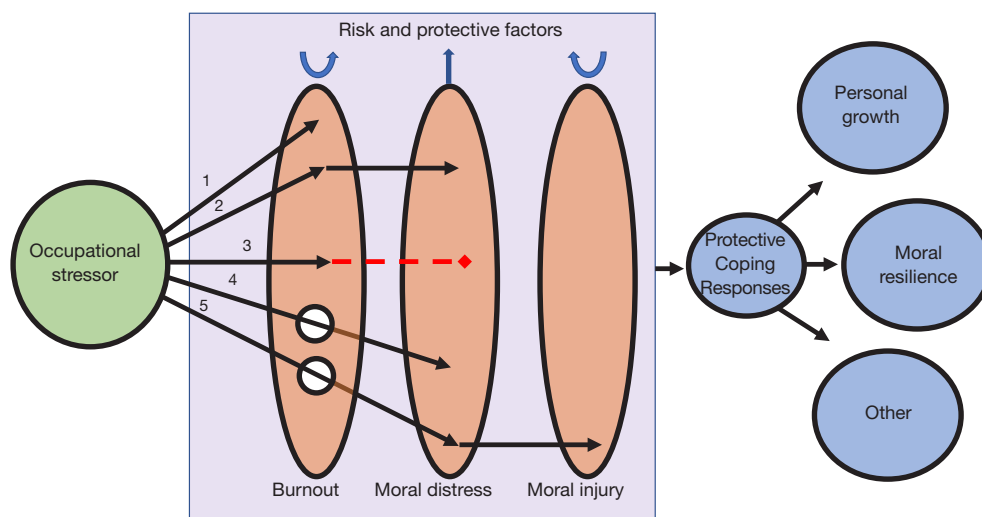


Figure 2 Stress, distress, coping pathway. 1, stressor generates burnout. 2, stressor with emotional competent generates burnout and moral distress. 3, stressor with emotional component hindered from generating moral distress; individual incapable of processing emotional complexity given burnout. 4, stressor with emotional component bypasses burnout, generates moral distress. 5, stressor with emotional component bypasses burnout, generates moral distress converting to moral injury. Risk and protective factors alter the impact of a stressor. These factors are a function of many influences, including prior experiences of burnout, moral distress and moral injury. “Coping” has different manifestations, including but not limited to acceptance, ambivalence, personal growth, frustration, etc. Moral distress: “Refers to the psychological unease generated where professionals identify an ethically correct action to take but are constrained in their ability to take that action. Even without an understanding of the morally correct action, moral distress can arise from the sense of a moral transgression. More simply, it is the feeling of unease stemming from situations where institutionally required behaviour does not align with moral principles. This can be as a result of a lack of power or agency, or structural limitations, such as insufficient staff, resources, training or time. The individual suffering from moral distress need not be the one who has acted or failed to act; moral distress can be caused by witnessing moral transgressions by others” (1). Moral injury: “Can arise where sustained moral distress leads to impaired function or longer-term psychological harm. Moral injury can produce profound guilt and shame, and in some cases also a sense of betrayal, anger and profound ‘moral disorientation’. It has also been linked to severe mental health issue” (1). This includes mental health effects (stress, depression) and changes to an individual’s moral compass. Burnout: “Feelings of exhaustion, professional cynicism or reduced professional ability resulting from chronic workplace stress” (1). Moral resilience: “The capacity of an individual to sustain or restore their integrity in response to moral adversity” (32).

capture the differences between burnout, moral distress, and moral injury. Starting with an occupational stressor, an individual may internalize this stressor by experiencing burnout, distress and/or injury (*Figure 2*). If a stressor has a moral component, the individual is at risk of experiencing moral distress and/or moral injury. If no moral component exists, they risk experiencing burnout alone. In some cases, a moral stressor may generate burnout, moral distress, and moral injury; in others, a moral stressor may not generate burnout but could cause moral distress and injury. Critical to experiencing moral distress is grappling with an issue of ethical discordance. A unique circumstance may arise when an individual is so overcome by burnout that

they are unable or unwilling to contemplate the issue of ethical discordance and subsequently do not experience moral distress. Ultimately, existing risk and protective factors influence how an individual internalizes a stressor. These factors result from prior life experiences, including previous exposure to stressors and the introspective reflection individuals may experience in the coping process following burnout, moral distress and moral injury. Coping may manifest in various positive ways, including but not limited to discovering enlightenment and personal growth, avoidance of future stressors, or development of moral resilience. Alternatively, individuals may fail to cope and reflect, putting them at risk of experiencing burnout,

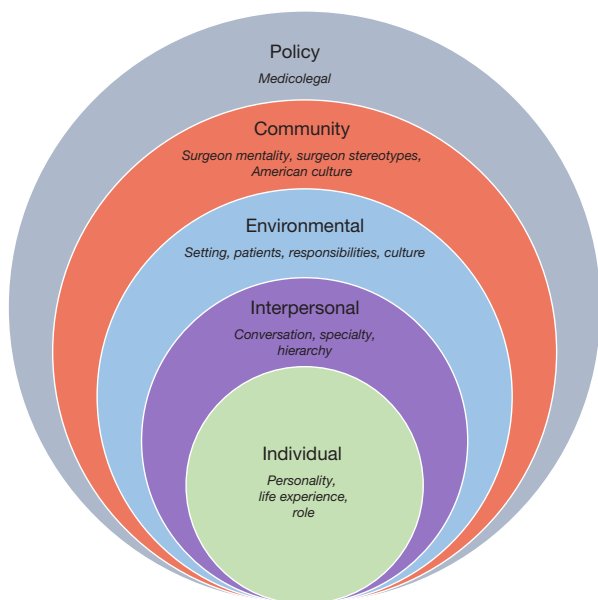


Figure 3 SEM model of surgeon moral distress. SEM, social ecological model.

distress and injury from future stressors, or developing ambivalence toward their experiences. This coping process has previously been described as an intellectual response to a stressor (42). Suppose an individual intrinsically possesses sufficient protective factors or has acquired these through the process of prior coping responses. In that case, they may never experience burnout, distress or injury following exposure to a stressor. Our model emphasizes that future research in moral distress will benefit from explicitly describing how the stressors under investigation have a moral component in order to differentiate these from non-moral sources of occupational stress. In other words, is what is currently being described in the literature psychological distress rather than moral distress (41)?

Despite the absence of a uniformly applied definition of moral distress, the emerging body of literature identifies various sources of moral distress among surgeons. Given the diversity of factors contributing to distress, we categorized the causes according to the SEM. This model captures the drivers of moral distress at the individual, interpersonal, environmental, community, and policy levels (*Figure 3*). Categorization using the SEM facilitates rapid and precise identification of moral distress sources; this “by-level” categorization allows stakeholders with predominant influence at these levels to identify where they can potentially act to moderate moral distress. For

example, medical educators might focus on individual and interpersonal contributors to moral distress by teaching surgical residents resilience strategies to better cope with traumatizing events, mediate team conflict, and guide goals of care discussions.

The surgeon-patient relationship is marked by unique features separating this specialty from the rest of healthcare, including healing through harm, a profoundly intimate physical relationship, and an inherently high degree of accountability to patients. Most of the reviewed literature identifies drivers of moral distress among many providers, including surgeons. While we identified a handful of surgeon-specific studies, the moral distress literature studying this cohort is still sparse. This presents a significant knowledge deficit given the unique nature of the surgeon-patient relationship and the context of surgery. Additional investigation is needed to understand how the unique role of a surgeon generates specialty-specific sources of moral distress. This future research might also consider the different sources of moral distress that present through surgical training into autonomous practice. There is emerging evidence that these sources are different, which is not surprising given the change in surgeon responsibility and surgeon-patient dynamics that occur over time (7). Ultimately, addressing moral distress among surgeons requires addressing the sources that are context-specific, this requires addressing the drivers of distress when they occur at different points in what is a long, laborious training process and demanding career.

Moral distress research should aim to identify what factors most influence distress and transgression to moral injury and ultimately, what remedies are most effective at addressing these powerful drivers. Our analysis revealed several factors that provide some protective utility from moral distress. However, many of these factors are intrinsic traits unamenable to intervention (e.g., age, sex, race/ethnicity), with a few offering the potential for intervention (e.g., team collaboration, ethics training). Early work assessing the impact of interventions on moral distress at the individual level has yet to show a statistically significant impact (9,43). While such individual-level interventions are critical to mitigating moral distress, investigators might consider drawing from “burnout” literature, which has demonstrated that interventions to reduce rates of burnout are most successful when directed by the organization rather than individual-level interventions (44-46).

This scoping review has several limitations. First, there is no universal consensus on the definition of “moral distress”.

While we favor the BMA association of the term, we considered studies that use other definitions of distress. We selected a definition of moral distress that was intentionally broad to be as inclusive as possible during our literature search. To reduce publication and search bias in this scoping review, we searched four large databases with the assistance of a research librarian. We performed a hand search of all the references from the included studies. We also included sources of moral distress that these studies identified but which may not fit a strict definition of moral distress as they lack a true moral stressor. Several studies identified various factors leading to moral distress but failed to assess if these were statistically significant drivers of distress. When confronted with the list of factors these studies presented, we elected to include all factors that were enumerated. For studies that identified statistically significant drivers of distress, we listed only those drivers. Understanding the prevalence of moral distress among surgeons was also clouded by the numerous definitions of moral distress and moral injury and the multiple instruments used to study their presence. Of the studies we assessed, 11 different established survey instruments and 14 self-created instruments were used to assess moral distress/injury (47-58).

Conclusions

This is the first scoping review to categorize the sources of moral distress among surgeons. Our findings demonstrate notable variation in the definition of moral distress among studies and a general lack of investigation into the sources of moral distress among surgeons. Categorizing the known and suspected factors leading to moral distress among surgeons demonstrates that distress arises at several different “levels”, which are well categorized according to the SEM model. There is a critical need to understand the drivers of distress among surgeons better. This knowledge can potentially reduce moral distress among surgeons as sources are intervened upon and mitigated. It is simply not enough to understand “intrinsic” surgeon factors that predispose this group to distress when there are likely actionable steps that can be taken at an institutional and national level to promote surgeon well-being and improve patient care.

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Appendix 1

Surgeon moral distress search terms

Ovid MEDLINE; Epub Ahead of Print; In-Process, In-Data-Review & Other Non-Indexed Citations; Daily and Versions[®] (495 results on February 21, 2022; 642 results on September 29, 2022)

1. exp surgeons/ or (neurosurgeon*.tw or surgeon*.tw or ((operat* or surg*) adj3 (fellow* or intern or interns or person* or residen* or trainee*)).tw)
2. ((ethic* or moral* or psycholog*) and (damag* or distress* or harm or harmful* or harms or health or injur* or repair* or residue* or resilien* or stress or suffer* or trauma*)).ti or ((ethic* or moral* or psycholog*) adj4 (damag* or distress* or harm or harmful* or harms or health or injur* or repair* or residue* or resilien* or stress or suffer* or trauma*)).ab or pmie*.tw or (post-traumatic stress* or ptsd).ti
3. (exp morals/ and (exp guilt/ or exp self injurious behavior/ or exp stress disorders, post-traumatic/))
4. ((moral* adj (damag* or distress* or harm or harms or health or injur* or repair* or residue* or resilien* or stress or suffer* or trauma*)) and (doctor* or personnel or physician* or provider* or staff or worker*)).ti.
5. (1 and (2 or 3)) or 4
6. limit 5 to yr="2009-current"

Elsevier Embase (788 results on February 21, 2022; 1047 results on September 29, 2022)

1. surgeon/exp OR surgeon*:ti,ab OR ((operat* OR surg*) NEAR/3 (fellow* OR intern OR interns OR residen* OR trainee*)):ti,ab
2. (ethic*:ti OR moral*:ti OR psycholog*:ti) AND (damag*:ti OR distress*:ti OR harm:ti OR harmful*:ti OR harms:ti OR health:ti OR injur*:ti OR repair*:ti OR residue*:ti OR resilien*:ti OR stress:ti OR suffer*:ti OR trauma*:ti) OR ((ethic* OR moral* OR psycholog*) NEAR/4 (damag* OR distress* OR harm OR harmful* OR harms OR health OR injur* OR repair* OR residue* OR resilien* OR stress OR suffer* OR trauma*)):ab OR pmie*:ti,ab OR ('post-traumatic' NEAR/1 stress*):ti OR ptsd:ti
3. morality/exp AND (emotion/exp OR 'mental stress'/exp)
4. ((moral* NEAR/1 (damag* OR distress* OR harm OR harms OR health OR injur* OR repair* OR residue* OR resilien* OR stress OR suffer* OR trauma*)) AND (doctor* OR personnel OR physician* OR provider* OR staff OR worker*)):ti
5. (#1 AND (#2 OR #3)) OR #4 AND [2009-2022]/py

EBSCOhost PsycINFO (117 results on February 18, 2022; 130 results on September 29, 2022)

S1. TI (neurosurgeon* OR surgeon*) OR AB (neurosurgeon* OR surgeon*)

S2. TI ((operating OR operation OR operative OR surger* OR surgic*) N5 (fellow* OR intern OR interns OR person OR personnel OR persons OR residen* OR trainee*)) OR AB ((operating OR operation OR operative OR surger* OR surgic*) N3 (fellow* OR intern OR interns OR person OR personnel OR persons OR residen* OR trainee*))

S3. (TI (moral* OR psychol*) AND TI (damag* OR distress* OR harm OR harmful* OR harms OR health OR injur* OR repair* OR residue* OR resilien* OR stress OR suffer* OR trauma*)) OR TI (posttraumatic OR "post-traumatic")

S4. AB ((moral* OR psychol*) N5 (damag* OR distress* OR harm OR harmful* OR harms OR health OR injur* OR repair* OR residue* OR resilien* OR stress OR suffer* OR trauma*)) OR AB (posttraumatic OR "post-traumatic")

S5. (S1 OR S2) AND (S3 OR S4)

limited to 2009-2022

Wiley Cochrane CENTRAL Register of Controlled Trials (72 results on February 21, 2022; 114 results on September 29, 2022)

1. [mh surgeons] or surgeon*:ti,ab or (surg* near/3 (fellow* or intern or interns or residen* or trainee*)):ti,ab
2. ((moral* or psycholog*) and (damag* or distress* or harm or harmful* or harms or health or injur* or repair* or residue* or resilien* or stress or suffer* or trauma*)):ti or ((moral* or psycholog*) near/4 (damag* or distress* or harm or harmful* or harms or health or injur* or repair* or residue* or resilien* or stress or suffer* or trauma*)):ab or pmie*:ti,ab or (“post-traumatic stress” or ptsd):ti,ab
3. [mh morals] and ([mh guilt] or [mh “self injurious behavior”] or [mh “stress disorders, post-traumatic”])
4. #1 and (#2 or #3)