

Implementation of Well-Being for Cardiothoracic Surgeons



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KEYWORDS

• Well-being • Wellness • Thoracic surgery • Cardiothoracic surgery • Residency • Faculty • Burnout

KEY POINTS

- Burnout has three dimensions: (1) mental and/or physical exhaustion; (2) depersonalization, disconnection, negativism, or cynicism related to one's job; (3) reduced professional efficacy.
- Six core principles of well-being: (1) progress toward a goal; (2) actions commensurate with experience, interest, mission; (3) interconnectivity with others; (4) social relatedness; (5) safety; and (6) autonomy.
- Prioritize actions that fulfill the core principles of well-being and avoid/expeditiously complete actions that do not contribute to well-being.
- Like the skills of surgery, skills of mindfulness, resilience, and connection with others must be practiced.
- Well-being among individuals cannot be achieved without support of workplace leaders and durable institutional infrastructure.

WELL-BEING

Well-being is a growing priority in cardiothoracic surgery and across medicine. The Accreditation Council for Graduate Medical Education has prioritized “well-being” in the training environment and established requirements and responsibilities for training institutions to integrate into the learning environment. Cardiothoracic-specific well-being guidelines for programs have been identified,¹ and a checklist for integration of well-being into Thoracic Surgery Training Programs is available² to program directors and trainees. The Thoracic Surgery Directors Association and the Thoracic Surgery Resident's Association have collaborated to develop Web-based educational content³ on well-being. The Association for Academic

Thoracic Surgeons (AATS) has a well-being workforce that produces sessions in the AATS Annual Meeting, webinars, collaborative meetings, and research in well-being among cardiothoracic surgeons. Furthermore, the Society of Thoracic Surgeons (STS) has addressed well-being within its workforce on early practice.^{1,4} Despite a concerted effort by multiple organizations, our field has yet to develop comprehensive best practices that integrate well-being into thoracic surgery practice. Cardiothoracic surgeons are critically important to medical institutions, both in the service they provide and profit margins.⁵ With the expected shortage of cardiothoracic surgeons,⁶ we cannot afford to lose any of our highly skilled colleagues to burnout.

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Well-being on a cardiothoracic surgery team is difficult to define, evaluate, and manage. Brady and colleagues defined physician well-being as quality of life with positive physical, mental, social, and integrated experience in connection with activities and environments that allow physicians to develop their full potential across personal and work-life domains.⁷ Although many physicians may seek time away from work to achieve well-being, thoracic surgeons may derive well-being from the workplace, in the operating room, and with patients, trainees, and colleagues. In addition, cardiothoracic surgeons, who are sufficiently driven and resilient to handle the rigors of cardiothoracic training and practice, may not benefit from general well-being training.^{1,8} Cardiothoracic surgeons may find greater benefit from specialty-specific training in burnout prevention, resilience with care of high-risk patients, institutionally supported strategies to optimize efficiency or personnel to assist with administrative work that cardiothoracic surgeons may not enjoy. Well-being as a physical, mental, social, and integrated experience is a dynamic definition that changes from person to person, and well-being for an individual may change with environments or over time. Intersectional factors of gender, race, and ethnicity can further impact well-being and the ability to manage burnout symptoms. Despite the individual nature of well-being, evidence demonstrates that group, institutional, and environmental factors directly impact well-being.⁹ Thus, it is the responsibility of all (individuals, sections, divisions, departments, and institutions) to invest in durable infrastructure to preserve well-being.

BURNOUT

The World Health Organization classifies burnout as an occupational phenomenon resulting from chronic workplace stress.¹⁰ Burnout has three dimensions: (1) a state of energy depletion, mental and/or physical exhaustion; (2) depersonalization, increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and (3) reduced professional efficacy. Burnout includes illness and injury that result from chronic stress¹¹ (Fig. 1). In the medical setting, burnout is associated with increased medical errors, lack of professionalism, adverse patient outcomes, low patient satisfaction, and increased medical malpractice suits.^{1,12–16} Burnout is also related to compassion fatigue,¹⁷ a detachment from the caring about others' suffering. Instead of gaining happiness and value from patient interactions, physicians may feel burdened, irritable, intolerant, or cynical when caring for patients. Burnout is

associated with threefold¹⁸ increase in intention to quit working. Early career physicians were especially prone to burnout.

The COVID-19 pandemic demonstrated how stress from inside and outside the workplace can impact burnout. Before the COVID-19 pandemic, the prevalence of burnout among surgeons was 34% and 51% among residents.^{19,20} Forty-three percent of surgical residents experienced weekly burnout symptoms with higher burnout symptoms associated with attrition and suicidal thoughts.²¹ The pandemic led to increased burnout, depression, and dissatisfaction with quality of life among health care workers.^{9,12} During the height of the pandemic, women and minorities were reported to have stress and burnout symptoms higher than the general population.²² Women were found to have a greater rate of unemployment, increased domestic work, and more childcare responsibilities than men, leading to increased mental health problems.^{22,23} Households containing a minority member were more likely to report a decline in total income during the pandemic, adding an additional level of stress to household well-being.²² A survey conducted by the wellness committee of the AATS in 2021 after the second wave of the COVID-19 pandemic found that among 871 cardiothoracic surgeons and trainees interviewed, many experienced moderate signs of burnout. These included a sense of dread and emotional exhaustion.²⁴ In addition, most respondents indicated that they had no resources to help them manage their burnout symptoms.²⁴

The purpose of this work is to develop evidence-based guidelines promoting well-being in thoracic surgery, at individual and institutional levels. With these guidelines, our goal is to guide implementation of sustainable well-being practices.

We focus on six core principles of well-being as they relate to work-life integration.

1. Making progress toward a goal
2. Actions that are commensurate with experience, interest, and mission
3. Interconnectivity with others
4. Social relatedness to the work that we do
5. Safety
6. Autonomy

Each of these principles foster motivation and the ability to derive meaning from an integrated work-life of a cardiothoracic surgeon. Actions that align with these principles are likely to increase well-being, gratefulness, motivation, and energy to propel productivity. Actions that do not align with principles may be necessary but should be minimized, deprioritized, and completed

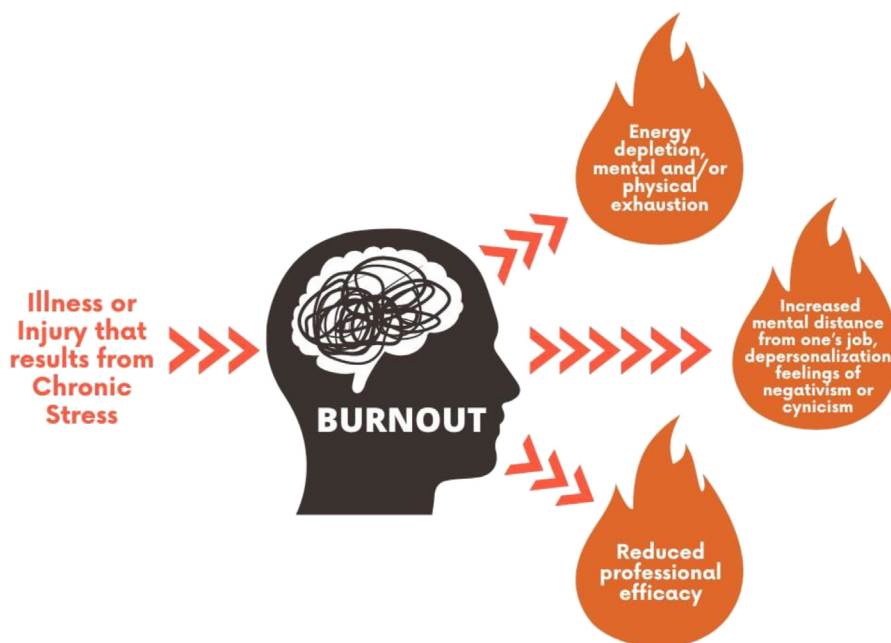


Fig. 1. Dimensions of burnout. (Adapted from Pai P et al. Health Serv. 2022;2:844305.)

expeditiously. Fig. 2 shows a summary of the six principles and strategies to achieve them.

MAKING PROGRESS TOWARD A GOAL

A strong sense of personal accomplishment improves well-being and is protective against burnout.²⁵ Trainees have measurable annual milestones of progressing to graduation. Measurable goals for faculty and practicing surgeons are more difficult to define. Accomplishment can be in the form of mastery of operative abilities, acquiring a new technique, achieving benchmarks of volume or quality, academic contribution such as publication or presentation, inclusion among a group like STS and AATS membership, or a leadership position. The COVID-19 pandemic limited case volumes, drastically changed patient care opportunities, canceled society meetings, and stalled leadership and promotion, thus diminishing opportunities for accomplishment and motivation among cardiothoracic surgeons and trainees. A decrease in operative experience among surveyed plastic surgery trainees resulted in a reported negative effect on education in greater than 50%, and a negative effect on well-being in more than 80%.²⁶ This drop in case volume is not unique to plastic surgery and was demonstrable across all case types in general surgery resident case logs.²⁷ Concerns expressed by trainees about inability to meet case logs due to redeployment and decrease in case volumes also increased burnout symptoms throughout surgical trainees in

multiple specialties.²⁸ It is unknown how these gaps in training will impact cardiothoracic surgeons in the future. However, it is likely that cardiothoracic surgeons will feel added uncertainty if not anxiety about their preparation for practice in the future. Case volume also impacts practicing surgeons. With a decrease in volume or hiatus in care, even routine cases become challenging. This may be a result of surgeon practice but also a result of changes in qualified personnel within the team, team dynamics, equipment, or available supplies. Supply and staffing shortages can lead to increased difficulty both in the operating room and in the peri-operative care of patients.

Setting challenging, specific, and achievable goals is one of the best-established tools to increase performance, motivation, and productivity in a workplace. The achievement of these goals leads to increased perception of success and greater self-esteem.²⁹ Failing to achieve high and specific goals leads to increased absenteeism, negative responses to experiences, and increased burnout.^{29,30} Goal revision is one way to combat failure, as is setting smaller goals that are attainable while building to achieve a larger goal.²⁹ Successful individuals share the common behavior of believing in their ability to achieve goals, adapting to changing environments, and revising goals accordingly.³¹ Setting and achieving attainable goals with the ability to revise these goals over time leads to increased satisfaction with work, decreased burnout, and improved well-being.³²



Fig. 2. Principles of well-being for cardiothoracic surgeons.

Goal setting applies to individuals but also clinical/research teams, practices, departments, and institutions. Goal setting is fundamental to successful management of health care institutions. Ogbevi reviewed goal setting in organizational management and found that goal setting can effectively motivate attainment if using the Specific, Measurable, Achievable, Relevant/Realistic and Timely/Time-bound framework.³³ Goals may reflect patient volume, quality of care delivered, or academic/administrative expectations. Goals should be problem-based and change-oriented. Goals must be refreshed and adapted to the current context. For example, a shortage of personnel may begin as a goal to recruit qualified team members but change to a goal of training personnel with potential. Acknowledging success and congratulating oneself are also a practice of wellness.³⁴ Positive reinforcement and self-talk have been shown to impact physiology of pain and weight loss as well as performance among students and athletes.^{35–38} Leveraging reflections of previous accomplishments, people can positively influence goal setting, believing in oneself, and perhaps even performance. Neglecting accomplishments and negative self-talk can prevent people from setting goals and discourage effort. Whether at the individual or institutional level,

strategic and frequent goal setting and acknowledgment of achievement can improve well-being of cardiothoracic surgeons.

WORK THAT IS COMMENSURATE WITH EXPERIENCE, INTEREST, AND MISSION

Another principle of well-being is devoting effort to work that aligns with experience, interest, and personal mission. Cardiothoracic surgeons have received in-depth and specific training for cardiothoracic diseases. Duties or work outside the scope of training can result in stress and frustration. During the COVID-19 pandemic, many cardiothoracic surgeons and trainees were assigned to responsibilities outside of their usual practice.²⁸ Staffing shortages amid COVID-19 also resulted in cardiothoracic surgeons assuming clerical, nursing, or support responsibilities. Even work within the scope of practice, such as peer-to-peer meetings with insurance providers and medical documentation, is frequently cited as a source of burnout. Administrative and clerical tasks adversely affect physicians' ability to deliver high-quality care.³⁹ Information technology-related stress independently predicts burnouts among physicians.^{40,41} However, physician-driven solutions such as scribes and user-friendly

electronic medical record interfaces can improve physician well-being. These measures have also been shown to increase productivity and favorable interactions with patients, further enhancing well-being for physicians.⁴² Structural workflow and personnel changes that relieve physicians from tedious, frustrating, or nonclinical tasks require buy-in from leadership. Institutions and leaders can advance wellness by valuing cardiothoracic surgeons and prioritizing their desire to care for patients and operate.

Those in leadership positions should recognize that requiring individuals to do unfamiliar or undesirable work is especially harmful to well-being. Work that does not contribute to an individual's well-being or advancement, but benefits the organization has been termed, "office housework."⁴³ For example, serving on hospital committees, educating nurses and allied professionals, and developing quality initiatives may benefit the group, but they require time and work of the cardiothoracic surgeon that is often not compensated. Furthermore, if these responsibilities are not of interest to the individual being tasked with the job, the cardiothoracic surgeon's well-being will suffer. The individual cardiothoracic surgeon must advocate for himself/herself to decline or limit responsibilities that will detract from well-being. If it is not possible to decline unwanted responsibilities, then the individual should limit time effort invested in the unfavored tasks. Timely completion of unwanted tasks will help well-being by limiting the duration of worry or frustration. Those in leadership position should identify "office housework," match it with individuals who may be find value in some responsibilities and equitably distribute it among partners. Those tasked with "office housework" should be compensated for their time and work. Investment in efficient infrastructure and personnel to help cardiothoracic surgeons will be less than the cost of burnout among cardiothoracic surgeons.

Cardiothoracic surgeons can foster their own well-being by recognizing purpose and gratitude in what they do. Cardiothoracic surgeons are dedicated to working stressful, long hours, sometimes at the sacrifice of their own well-being. However, all work is not equal. Some work is valuable, fulfilling, and easy, whereas other work is trivial, tedious, and burdensome. To approach work from a wellness standpoint, individuals should define personal missions and goals. Cardiothoracic surgeons must purposely appreciate work that aligns with personal missions, fulfills goals, and/or provides enjoyment. Acknowledging gratitude, specifically the privilege of being a cardiothoracic surgeon, fosters humility and goodwill

that benefits the cardiothoracic surgeon, the patient, and others in the care environment.⁴⁴ The medical paradigm is to identify and focus on pathology and neglect well-being. A positively guided paradigm may improve well-being of patients and cardiothoracic surgeons. Interventions of gratitude training among health care workers improved job satisfaction, teamwork, dedication to the job, and decreased absences from work.⁴⁵⁻⁴⁷ Gratitude does not imply that cardiothoracic surgeons should be content or normalizing distress. Gratitude can coexist with ambition to change oneself or work environments that are suboptimal. However, a practice of gratitude can give perspective of "building what is strong" instead of focusing on "when things go wrong."⁴⁸ All work cannot be interesting or directly related to a meaningful purpose. Work that is necessary but tedious should be done immediately, so that procrastination does not add to the burden. As mentioned previously, because cardiothoracic surgeons are valuable to institutions, leaders in health care should invest in the well-being of cardiothoracic surgeons and minimize work that cardiothoracic surgeons identify as tedious.

INTERCONNECTIVITY WITH TEAM MEMBERS AND PATIENTS

Productive work environments depend on healthy relationships of team members within the workplace. Workplace cooperation can deepen problem-solving, efficiency of work, and lasting engagement of team members. Having a continuity of effort among team members adds commitment and meaning to the work.⁴⁹ People reporting high levels of social support in the workplace have fewer claims of disability and absenteeism.⁵⁰ Individuals experiencing isolation and lack of community are at high risk of burnout.^{49,51,52} Care must be taken to limit duties that isolate individuals from their colleagues or remove them from their usual environment.

Disagreement among team members has only been exacerbated by the barriers to communication imposed by the pandemic. Most of the health care workers experience conflict in the workplace as frequently as weekly.⁵³ A negative association between group conflict and employee performance has been demonstrated throughout workplace environments.⁵⁴ Differences in personal and political beliefs can also contribute to increased team conflict. It has been shown that differences in political beliefs among physicians lead to different types of care provided.⁵⁵ Although not directly studied among health care teams,

political differences and disagreements among team members can put stress on the work that a team achieves and the relationships between team members in achieving shared goals. Fostering team building and creating a collaborative team dynamic can lead to better team performance and increased perceived well-being by team members. Well-being within the collaborative environment of cardiothoracic surgery should therefore incorporate principles of healthy team communication and collaboration. Team leaders should seek strategies to mitigate team conflict and optimize well-being.

Connections with patients are some of the most rewarding relationships among cardiothoracic surgeons. Interpersonal communication has certainly been influenced by the pandemic by placing barriers to communication, including masking, virtual meetings, and canceling of meetings. Fifty-five percent of our communication is conveyed by facial expression.⁵⁶ Facial coverings, though intended to decrease the risk of COVID transmission, inevitably limit the breadth and depth of communication. Face coverings limit the conveyance of emotions, with all their subtleties. Although the incorporation of telemedicine into the care of patients during the pandemic is a tool that improves on what would otherwise be nonexistent care, it has its own limitations. Practically, telemedicine does not allow the clinician to shake hands, convey comfort through touch, or perform a physical examination. Technical issues are a consistent challenge for patients and providers alike. Cardiothoracic surgeons should prioritize development of relationships with patients as these personal connections directly influence well-being.

SOCIAL RELATEDNESS TO THE WORK THAT WE DO

Building a community contributes to well-being among cardiothoracic surgeons. Participation in regional and national meetings allows for collaboration, sharing ideas, and innovation. Connection to multiple surgeons also fosters collegial and mentorship relationships. Mentorship has been shown to enhance performance, improve learning, and encourage collaboration, furthering well-being of the mentee.⁵⁷ Mentors can help mentees build and sustain a successful career,⁵⁷ by sharing advice based on an experience of their own success and failures. Mentors themselves derive benefits of reflection, self-awareness, empathy, and interpersonal connection to colleagues.⁵⁸ Healthy mentorship relationships protect against burnout and improve emotional intelligence by providing

perspective and support.^{52,59} Unfortunately, mentorship has been shown to be lacking among training programs nationwide, especially for women and minorities underrepresented in medicine.⁴ To promote well-being, cardiothoracic surgeons should prioritize building a community of mentors, mentees, and peers.

Well-being among cardiothoracic surgeons can also be enhanced through service. Within each institution, surgeons can participate in hospital committees and leadership. This type of service develops knowledge, understanding, and empathy of others in the workplace. This perspective gives a sense of community and value to the effort that one expends in the workplace. Serving as part of hospital leadership also gives cardiothoracic surgeons an opportunity to advocate for well-being policies and well-being among surgeons and other team members. Among residents, participation in well-being committees that focused on engagement, mindfulness events, and advocacy led to greater perceived well-being.⁶⁰ Among anesthesia residents, it was shown that mere participation in well-being meetings and interventions significantly decreased burnout and improved well-being.⁶¹ Although participation in hospital committees incurs additional responsibilities, for many, there is well-being value in that this work has the potential to positively influence many colleagues.

Social relatedness to the work of cardiothoracic surgeons includes service to patient communities. Many cardiothoracic surgeons participate in patient advocacy organizations and nonprofit organizations related to the diseases that they treat (the American Heart Association, the American Lung Association, and the American Cancer Society). Cardiothoracic surgeons also find meaning in providing global medical care.⁶² Fifty-six non-government organizations provide cardiothoracic services to low-income and middle-income countries.⁶³ Cardiothoracic surgeons can also provide advocacy for patients and health care professionals by interacting with government agencies regarding health policies and reimbursement.^{64,65} Cultivating a social relatedness to work can add value to the work, inspire energy, and improve well-being.

SAFETY

Safety of both the patients and the cardiothoracic work environment impact and are impacted by surgeon well-being. A correlation has been shown between physician burnout and poorer patient safety.¹⁶ This is particularly true in surgeons, in whom burnout confers a 2.5-fold increase of

medical error.¹⁶ In turn, patient outcomes are intimately related to a surgeon's reputation, value to their institution, and perhaps even self-worth. Favorable patient outcomes can give meaning to the hard work and stress of caring for a surgical patient. A high volume of successful surgeries is a measure of a surgeon's competence and value. Adverse outcomes negatively impact well-being. Sadness, guilt, and shame from a complication can distract surgeons from their professional and home responsibilities.⁶⁶ A complication of a patient may result in investigations, peer review, and litigation. These processes can be isolating and punitive, further impacting well-being. A dangerous spiral between burnout and poor patient outcomes can ensue. Cardiothoracic surgeons, especially those in leadership positions, are responsible for creating a culture that discourages singling out colleagues and trainees when mistakes are made. They are also responsible for providing suitable supervision for trainees and junior partners, particularly coming out of the COVID era.⁶⁷ A culture of well-being must include keeping not only patients safe but also colleagues.

Safety of the surgical environment also impacts surgeon well-being. A review by Dairywala and colleagues found that 66% to 94% of surgeons have work-related musculoskeletal pain and 60% have had neck pain within the past 12 months.⁶⁸ Thoracic subspecialties that integrate laparoscopic and thoracoscopic techniques have increased the risk of neck, hand, wrist, and arm injuries because of the repetitive and extreme actions needed for handling of instruments and visualizing with video screens. Cardiac surgeons are at significantly higher risk of injuries compared with thoracic surgeons. Cardiac surgeons spend extended periods of time in the same position with the neck flexed to visualize the surgical field. The use of loupes and headlamp increases the load on the cervical spine during surgery.⁶⁹ Cardiothoracic surgeons who routinely use fluoroscopy are at an increased risk of injury from bearing additional weight with leaded protection. Unfortunately, surgeons are unlikely to seek care for musculoskeletal pain. Of the 35% of surgeons who did seek help for musculoskeletal pain, 54.5% obtained help from a colleague, 13.6% from their general practitioner, 4.5% from a physiotherapist, 22.7% self-medicated, and 4.5% informed the occupational health.⁷⁰ In a survey of 602 cardiothoracic surgeons, Mathey-Andrews found that 64% reported work-related musculoskeletal injuries with 30% requiring time off from work and 20% requiring surgery or the use of narcotics which can impact overall well-being and the ability to function at one's highest potential.⁶⁹

Surgeon well-being can be improved with an intention to optimize physical health in the operating room. Like athletes, surgeons should adhere to stretching, strength training, and cardiovascular fitness. On entering the operating room, surgeons should prioritize positioning of equipment to the benefit of everyone in the room. For example, the operating table height should be at the optimal level of the tallest surgeon with the other surgical team members adapting to the table with standing stools. Lights, video screens, and monitors should be positioned to optimize visualization and minimize musculoskeletal strain. Camera and energy source cords and tubing should be safely secured to prevent tripping of team members. Surgeons take leadership by prioritizing safety measures throughout the case. However, surgeons cannot be solely responsible for safety. Institutions should invest in technology that optimizes ergonomic movement. Although robotic surgery may be a large financial investment, it also facilitates personalized ergonomic movement, which may decrease surgeon injury. Furthermore, institutions should invest in education, prevention, and treatment of work-related injuries. Unfortunately, 90% of cardiothoracic surgeons surveyed believed their institution was not supportive in managing work-related injuries.⁶⁹

Professional safety, the ability to thrive in one's career without bullying, harassment, isolation, or discrimination, also impacts well-being. Harassment and discrimination in surgery are pervasive.^{71,72} In a review of 25 studies including 29,980 surgical residents, 63% reported experiencing bullying, 43% experienced discrimination, 29% experienced harassment, and 27% experienced sexual harassment.⁷³ In a survey of 790 cardiothoracic surgeons, 81% of women and 46% of men had experienced sexual harassment at work. Sources of harassment include surgeons with supervisory or leadership roles, colleagues, and ancillary staff. Unfortunately, 71% did not report actions citing a fear of retaliation with reporting. Although discrimination is unlawful, and bullying and harassment are specifically prohibited by most hospital policies, these actions affect several cardiothoracic surgeons, to the detriment of well-being. The STS has published a consensus statement for approaching these challenges, including action as an individual, as a member of a professional team, and at the national cardiothoracic community level. Cardiothoracic surgeons experiencing bullying, harassment, or discrimination should know that they are not alone. The feeling of isolation can compound any adverse events in one's career. Individual surgeons can also serve as

advocates or supporters to anyone who is at risk for harassment or discrimination, including women and those of minority races/ethnicities. At the institutional level, mitigation training regarding bias, harassment, and discrimination must be an iterative process with continued support from leadership. At the national professional level, professional societies should support and disseminate research to assess and mitigate bias, harassment, and discrimination. Creating an environment that allows for open discussions about bias, collaboration and learning are the best way to ensure a culture of well-being among cardiothoracic surgeons.

AUTONOMY

Autonomy is an essential component of well-being. Professionals who have a sense of control over decisions affecting their work have decreased burnout and higher job satisfaction.^{74,75} A survey of 582 surgeons found that lack of autonomy or involvement in decisions were associated with burnout and emotional exhaustion.⁷⁶ In turn, burnout has been linked to physical, neurologic changes that reduce a physician's sense of control over themselves, and a reduction in connection with others. Arnsten and colleagues found that uncontrollable stress, but not controllable stress, impairs the prefrontal cortex functions of abstract reasoning, higher order decision-making, and resilience.⁷⁷ Giving physicians control and autonomy over stressful environments preserves high-level thinking needed to thrive in clinical practice.

Autonomy can be divided into autonomy of effort, time, and goals. How a surgeon allocates effort impacts well-being. Physicians are prepared to devote time and effort to the care of patients. However, the lack of control over effort adversely affects well-being. As mentioned previously, physicians are less likely to have burnout if the time spent working is devoted to meaningful, clinically relevant efforts. To optimize cardiothoracic surgeons' well-being, tasks such as medical documentation and addressing billing inquiries should be delegated to others or optimized. The cardiothoracic surgeon should focus on efforts that no other health professionals can do, such as operating and consulting on surgical patients. This contributes to the cardiothoracic surgeons' well-being but also the institutional efficiency.

Cardiothoracic surgeons are also losing autonomy as mandatory tasks increase. Compliance requirements include but are not limited to continuing medical education, maintaining

certifications in professional societies or technical skills, compliance training in safety, Health Insurance Portability and Accountability Act, research practices, or other administrative requirements.³⁹ Physicians do not have a choice; they must devote effort to these tasks. However, protected administrative time is diminishing among most practices. This loss of autonomy in effort not only impacts well-being in the workplace, but to accomplish them, many physicians must work on personal time, weekends or on vacations. Leadership within organizations that use cardiothoracic surgeons should acknowledge these efforts, organize them for efficient completion, and allow for protected time to complete them.

Current clinical practice has resulted in decreased autonomy regarding time and scheduling. Many cardiothoracic surgeons work for multiple hospitals and clinics. Each location adds complexity to call, clinic, and operating room schedules. Cardiothoracic surgeons must invest time to reconcile the demands of each practice setting, transportation and transition between the settings, and schedules of partners. Cardiothoracic surgeons must be given administrative and clinical support to organize realistic schedules. The recent increase of electronic patient portals, Web-based platforms that allow for remote medical documentation, Web-based meetings, and telemedicine have made physicians more accessible to patients and colleagues. However, few organizations have allocated protected time to manage these increased responsibilities. As a result, personal and free time suffers. Cardiothoracic surgeons must have autonomy to prioritize responsibilities and personal time and create a realistic schedule. Institutions, hospital leadership, and medical culture must acknowledge time commitments, including personal time away from work, and support them accordingly. To do this effectively, organizations must engage the physician workforce in routine assessments of time commitments and autonomy and devise interventions that preserve well-being.

Autonomy in decision-making control over professional and personal goals integrates all aforementioned components of well-being, namely (1) making progress toward a goal; (2) actions that are commensurate with experience, interest, and mission; (3) interconnectivity with others; (4) social relatedness to the work that we do; and (5) safety. Cardiothoracic surgeons should receive support to choose their own clinical, professional, and personal goals. In exercising autonomy in these well-being goals, they are likely to be productive and resilient.

WELLNESS OUTSIDE THE WORKPLACE

Wellness is clearly multifaceted and complex, and it can be difficult to pinpoint specific areas of intervention to address the various aspects of wellness. An important aspect of surgeon wellness encompasses life outside of work. This includes family life, integrating personal life with professional responsibilities, outsourcing tasks at home, having a strong support system, and participating in regular exercise, hobbies, outdoor activities, and organizations outside the workplace. Having these leads to increased satisfaction within the workplace.^{78,79} By implementing action plans to address well-being in these categories, we can improve the mental health of our specialty and thereby increase efficiency and professional satisfaction.

Parenthood

We can extrapolate from data gathered in general surgery on topics such as parenthood and surgical training. Several national survey projects have shown significant negative health effects on women surgeons, both in and out of training, who become pregnant or would like to become pregnant.⁸⁰ This includes an increased risk of infertility as well as pregnancy complications when compared with women of similar socioeconomic status.⁸⁰ In addition to adverse health effects, negative stigma, inadequate maternity leave, and insufficient childcare options contribute to career dissatisfaction and a lack of wellness for women surgical trainees and women surgeons.^{80,81} A recent review of literature on motherhood in women surgeons found that maternity leave policies as well as breastfeeding and childcare facilities are inadequate and highly variable between programs.⁸² Importantly, many women surgeons in their review agree that greater institutional support would help women surgeons in both their professional and personal well-being.⁸² In several studies examining paternity leave trends in general surgery training programs, the investigators concluded that many male residents would prefer more time off and that a cultural shift to support surgical residents becoming parents as a normal part of adult life is necessary.^{83,84} There is a significant amount of stigma associated with parental leave for both men and women surgeons, and there are a significant amount of data that would support increased wellness with improved parental support. This comes in the form of parental leave, access to affordable childcare, and a cultural shift away from negative stigma associated with having children as a surgeon.

Childcare

Inadequate access or lack of affordable childcare is often cited as a barrier for surgeon success and a barrier to surgeon well-being.^{53–55,57,85,86} Although both genders experience missed work due to lack of childcare, women surgeons are more likely than their male counterparts to miss work.⁵⁷ This is another actionable area to improve surgeon wellness and improve professional efficiency. If hospitals provided accessible and affordable childcare for surgeons, including both trainees and attendings, well-being as well as productivity and efficiency would be improved.^{58,85} By prioritizing surgeon well-being in the personal realm, professional satisfaction and efficiency would be improved. This is a very tangible way that we can improve cardiothoracic surgeon well-being for both trainees and attendings and continue to recruit the best and brightest to the field.

Association of Women Surgeons Recommendations for Program Support

The Association of Women Surgeons (AWS) published a “Comprehensive Initiative for Healthy Surgical Families During Residency and Fellowship Training” that we can apply for specific suggestions.⁸⁵ The first action item is planning for parenthood, where AWS states that trainees should be encouraged to share their plans for parenthood to plan as far in advance as possible. AWS provides suggestions for program directors to support trainees, including working to individualize resident needs and schedules, developing plans, creating a culture of support and inclusivity, improving access to infertility and reproductive treatments, and advocating for mental health needs of trainees.⁸⁵ Women surgeons tend to have higher risk pregnancies with a significantly increased risk of complications and thus need personalized and flexible plans to account for their needs. In addition, programs should be providing trainees with information and resources for fertility preservation to increase awareness and accessibility in this high-risk population. Women surgeons miscarry at a significantly higher rate than the general population and must be afforded the time to grieve and maintain personal well-being outside of work.⁸⁵

Home Responsibilities

A survey distributed to male and female orthopedic surgeons with a focus on how surgeons balance home and life responsibilities found that of 377 respondents, women surgeons with or without

children performed significantly more household tasks than male surgeons.⁸⁷ These tasks included laundry, grocery shopping, and meal preparation. Overall, the study found that women surgeons do significantly more household work than male surgeons.⁸⁷ There are opportunities for interception here to improve wellness, in the form of outsourcing tasks such as cleaning, laundry, or repairs. In the study by Higgins and colleagues, female orthopedic surgeons tended to rely significantly more on cleaning and laundry services, whereas male orthopedic surgeons used significantly more outsourced repair services.⁸⁷ With less time spent on household duties by outsourcing, surgeons could potentially have a more balanced life with improved well-being. We can apply these concepts to cardiothoracic surgery and use these data for evidence to intervene in these areas.

Another aspect of resilience and personal well-being lies in the relationships we cultivate outside of work. It is important to maintain personal relationships and a support system outside of the professional environment with whom one can share feelings and experiences.³⁴ An important study surveying significant others (SOs) of cardiothoracic surgeons highlights the negative impact that a career in cardiothoracic surgery can have on home and family life.⁸⁸ In the survey, 238 responses were included from SOs of cardiothoracic surgeons. Of these 238 SOs, 66% reported a moderate–severe impact on their family from the stress of their surgeon partner. Furthermore, 63% answered that there was not enough time for family due to their surgeon partner’s work demands. This indicates the significant impact that the culture of our field has on personal and home life. In addition, the constant balance of patient care responsibilities, needs of SOs, and the needs of self lead to a feeling of failure and lack of effectiveness as well as emotional exhaustion.⁸⁸ The investigators suggest that coaching, counseling, and family support can be important to change the balance of work and home life and to improve emotional resilience.⁸⁸ By helping surgeons to balance the needs of work, family and SOs, and self, we can create a more sustainable culture in cardiothoracic surgery.

How to Cultivate Personal Wellness and Resilience

Physical exercise, activities, and hobbies that bring joy outside of work, mindfulness, and meditation practices are preventative and treatment for burnout.³⁴ Just as the practice of mental exercise has positive influence on well-

being, physical exercise has been shown to improve resilience and well-being. Physical exercise should be an integral part of the personal lives of cardiothoracic surgeons.³⁴ In an important expert review, Maddaus describes the concept of a “resilience bank account” that surgeons can tap into in difficult times.⁸⁹ By creating such a repository of skills and coping mechanisms, he argues that surgeons will have an easier time dealing with difficult situations in daily life or larger situations such as malpractice suits or personal devastations. Maddaus’s “resilience bank account” is built by focusing on the following: sleep, exercise, mindfulness meditation, gratitude, self-compassion, and compassion toward others.⁸⁹ He points out that the same devotion to these habits as the devotion we give to mastering our surgical skills will leave us more capable of tolerating stress, and in an improved state of well-being, both personally and professionally. One review of surgeon burnout and prevention outlines the importance of resilience training for surgeons.³⁴

SUMMARY

Principles of well-being among cardiothoracic surgeons include striving toward a goal, work commensurate with goals, interconnectedness with others, social relatedness to work, a culture of safety within a workplace, and autonomy. Life outside the workplace is so much more variable than in the workplace, making well-being principles difficult to circumscribe. However, prioritizing family relationships, family responsibilities, support from communities, activities, exercise, and mindfulness are all known practices of well-being. Well-being is not only an individual responsibility. Clinical and educational organizations, health systems, and professional societies must buy into the culture of wellness. Mission statements and policies must prioritize physician well-being. It is important for all members of a cardiothoracic team to value well-being which will increase productivity, patient safety, and financial health. All members of the team should be accountable for understanding the principles of well-being and adhering to the policies set by the leadership. Cardiothoracic surgery leaders should set an example to trainees and junior partners of incorporating well-being practices into their careers and lives. The implementation of well-being practices should be continually assessed for efficacy. We hope that with these cultural changes, the cardiothoracic workforce will meet the growing demands of patient care and cardiothoracic practice.

CLINICS CARE POINTS

- When screening for burnout, look for evidence of (1) mental and/or physical exhaustion; (2) depersonalization, disconnection, negativism, or cynicism related to one's job; (3) reduced professional efficacy.
- Goal setting at the individual, group, or institutional level can promote well-being when goals are Specific, Measurable, Achievable, Relevant/Realistic, Timely/Time-bound. Work to achieve goals should align with the individual's experience and interest.
- People reporting high levels of social support in the workplace have increased commitment to work and less absenteeism. Individuals experiencing isolation and lack of community are at high risk of burnout. Care must be taken to limit duties that isolate individuals from their colleagues or remove them from supportive social interactions.
- Cardiothoracic surgeons must have a safe environment to practice. A review of optimal ergonomic activities and equipment to support these will reduce pain and injury to surgeons. Professional safety includes an environment that is free of bullying, harassment, isolation, and discrimination. Individuals, leaders, and institutions are responsible for promotion of safe environments for cardiothoracic surgeons.
- Professionals who have a sense of control over decisions affecting their work have decreased burnout and higher job satisfaction. Preserving cardiothoracic surgeons' autonomy of effort, time, and goal will result in greater well-being and productivity.

DISCLOSURE

Authors have nothing to disclose.

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