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Burnout in the Surgical Culture: Exploring Inciting Factors and Promoting Possible Interventions

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Abstract

Purpose of Review Physician burnout has been directly tied to poor patient outcomes and financial loss, and the surgical field is associated with a relatively higher rate of burnout compared to other specialties. Surgeon burnout is thus a public health issue that needs to be explored and addressed.

Recent Findings Multiple factors in the surgical culture contribute to burnout, including the workplace environment, demands of patient care, and ingrained mindsets and expectations. Broadly, these can be grouped into physical, mental, and emotional insults. Previously, the focus on how to reduce surgeon burnout is by changing one aspect of the problem at an individual level. Recently, proposals to create a multipronged approach have predominated, highlighting that a culture shift is needed for lasting change.

Summary The term burnout is ubiquitous, but its causes vary amongst persons. Future research needs to focus on creating individualized multifaceted plans.

Keywords Surgery · Surgical culture · Burnout · Engagement · Emotional exhaustion · Mindfulness

Introduction

When the patient's outcome heavily depends upon the knowledge and technical skill of an individual, one feels the weight of the expectation and also the pride when things turn out well. In the past, having this unique set of life-saving skills led to the surgeon being perceived as god-like and always available to save the day. The time demands to acquire such vast skills required complete devotion with no option other than a life residing in the hospital. This bore the creation of the "monastic surgeon" as described by Doherty, and self-selected privileged mostly male individuals that were unmarried or had a stay-at-home partner with no other obligations other than work [1••]. These junior trainees were led by more senior ones who were in turn led by even more senior ones and so on. Dogma was created.

Fast forward to 30 years later, surgical culture has evolved but not substantially changed from the male-dominated and hierarchical structure of the past. Dogmatic "surgeonisms" are still passed down like commandments. Medical care frequently revolves around the patient at the expense of the provider. Interns are often told to "eat when you can, sleep when you can." Residents learned to "trust but verify," assuming all responsibilities since error is unacceptable. There is a badge of honor associated with constantly being fatigued and labeled as "a black cloud," having to manage numerous patient disasters all at once [2]. However, in the same 30 years, along with varying social equality movements, there is an influx of diverse trainees. Now, about 50% of residents are female who commonly have other personal and societal obligations aside from work, and about 47% of male surgeons are in dual-income households that warrant more involvement in home-life [1••]. In 2003, external circumstances forced trainees to limit their work week to 80 h, and the 2014 Flexibility in Duty Hour Requirements for Surgical Trainees (FIRST) Trial showed non-inferiority when these hours were used with flexibility [3]. These guardrails however only apply to residents. Once one graduates into a

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faculty position with less than 80 work hours per week, one is subjected to other demands that may not be conducive for long-term health. There are no national policies or surgical society guidelines regarding parental leave or the capping of duty hours for non-trainees [1••]. The increased awareness in the field of mental health also led to individuals to yearn for life outside the hospital, but there is no internally driven change to support this overall [1••]. This misalignment of duty and outside obligations may lead to feelings of dissatisfaction and burnout.

Definition of Burnout

Burnout was first described in 1974 by psychologist Dr. Herbert Freudenberger in the Journal of Social Issues [4]. Due to work demands, a combination of emotional exhaustion, cynicism, dissatisfaction with one's ability, and reduced effectiveness creates this syndrome [4, 5•, 6, 7]. Multiple validated assessments of burnout, such as the Maslach Burnout Inventory, have been used to study its prevalence in society. This specific inventory was published in 1981 by Maslach et al. using professionals in the human services profession centered on solving the "client's" problem. The survey consisted of 47 statements about feelings or attitudes and asked respondents to rate how intense and frequent they occur using a Likert scale. Through this, subdimensions of burnout were divided into emotional exhaustion, depersonalization, and reduced personal accomplishment [5•].

The interest in burnout in surgery has exploded over the past decade. A PubMed article search performed by the authors in November 2022 showed that in 1995 only 3 articles about the topic were published, followed by 19 in 2005, 55 in 2015, 134 in 2018, and 365 in 2021. In 2019, various surveys showed a prevalence of burnout of about 40–50% in United States physicians, compared to only 28% in the general population, with 50–60% of surgical residents feeling weekly symptoms [7, 8]. A 2011–2014 survey showed surgical fields tend toward a higher percentage of burnout and lower percentage of satisfaction with work-life balance compared to non-surgical ones [1••]. A more recent systematic review with meta-analysis by Rodrigues et al. continued to show that the prevalence of burnout is highest among surgical and time-sensitive subspecialties and that this syndrome is a range instead of a binary all-or-none [4].

Downstream consequences of burnout affect the individual, the institution, and society. Burnout expectedly leads to higher levels of relationship impairment, substance abuse, depression, and suicide [7]. Unfortunately, the estimated rate of suicidal thoughts is quoted to be 6.3% in practicing surgeons compared to 2–3% in the general population [6]. Institutions suffer an estimated $500,000 to $1 million loss per individual when accounting for lost productivity and recruitment costs, amounting to millions or even billions lost yearly [9]. Attrition, in part due to burnout, will eventually lead to a deficit of surgeons to care for the general population. An estimated shortage of nearly 30,000 surgeons in the US by 2030 is predicted based on increasing aging population coupled with increasing surgeon retirement [10•]. A 2018 survey showed that 26% of practicing surgeons considered leaving surgery in the next 2 years due to high stress and work-life time imbalance with 13% of those less than 60 years of age. What makes this more alarming is that in 1998, only 11% considered leaving [10•]. This suggests that surgeon burnout is a public health issue that must be addressed.

Factors that Contribute to Burnout

The COVID-19 pandemic exposed the importance of healthcare providers and placed a spotlight on maintaining the provider's health. Physician well-being is therefore a responsibility of the individual, the institution, and society combined to safeguard this workforce [11]. The factors that contribute to burnout can be categorized into physical, mental, and emotional demands to allow for deeper analysis of the causative elements and potential solutions.

Physical Demands

The large proportion of time and the potentially taxing movements of surgery can lead to physical exhaustion that can contribute to burnout. One must spend long hours in training to gain the knowledge and technical skill to master surgery. Financial reimbursement is frequently tied to productivity and efficiency, pressuring an individual to act like a machine and pour in countless hours to do more and be faster year after year [1••]. Even with the fast pace of development of new technologies and techniques, there is little to no "work time" allotted to acquire new skills. Documentation required by the electronic health records have also been a source of dissatisfaction from physicians since this leads to completing charts at home to prevent cutting down on actual patient care time [1••]. Administrative tasks often take up time and effort that does not require the physician's expertise [12••]. These time demands lead to reducing a surgeon's "free time" for other things such as spending time with family, performing activities of daily living, and even simply resting. Proposed solutions to these problems include protected time for continuing medical education, providing more resources to handle clerical tasks, employing advanced practice providers (APPs) even on nights and weekends, and tailoring documentation to specialty specific templates [12••, 13].

Aside from the long duration, the operations themselves are physically taxing to the human body and can cause work-related musculoskeletal disorders (WMSDs) that can lead to

exhaustion and burnout. These symptoms range from mild and transient to debilitating and persisting at rest for years [14]. The repetitive, forceful movements in awkward positions or prolonged static body positioning, can lead to pain and discomfort, escalating to degenerative spine diseases, rotator cuff issues, and carpal tunnel syndrome, to name a few. Ergonomists describe the surgical work environment as equal to and at times harsher than industrial workers [15]. An estimated 35–60% world-wide prevalence of WMSDs in all physicians who perform procedures, including surgeons, with 12% requiring decreased workload or early retirement [14]. Even with the advent of robot-assisted surgery, which has shown to be more ergonomic than open and laparoscopic surgery, surgeons still suffer from torso and hand WMSDs [14]. This is if robot-assisted surgery is even feasible based on the patient's condition and available resources. A survey of 260 members of the American College of Surgeons (ACS) showed that 40% had at least 1 work-related injury but only 19% reported it to the institution [14]. This underreporting highlights the surgical mentality of suffering silently to avoid being perceived as weak. Additionally, there is a systemic bias against more petite surgeons. Bellini et al. summarized multiple studies showing the difficulty of using certain instruments when the surgeon's glove size is less than 6.5, the optimal diameter of instruments differing based on hand size, and the required increased muscle use and shoulder discomfort of female surgeons who are presumably smaller [16]. Education in ergonomics and industry re-design of instruments are crucial actions to mitigate this issue. Although widely applicable, only 1.5% of procedural training programs provide formal ergonomics education [17]. A sample program from Northwestern University showed that a grand rounds by a physiatrist and a short 15-min coaching session resulted in 82% improvement in symptom severity or frequency in 33 general surgery residents [17]. It is imperative to educate surgeons that actions such as positioning the table and monitors at proper height, adjusting posture, and taking frequent intraoperative breaks to stretch does not significantly increase operative times but may have an impact on their longevity. In parallel, industry research aimed to improve surgeon comfort should occur. Ideas include wireless instruments and monitors that become mobile, lighter but protective lead aprons, and adjustable handle widths. After all, one glove size does not fit all.

Many pregnant surgeons have reported working until the time of delivery (including both authors) due to the lack of standardized national parental leave policies. A 2019 study showed 43% of residents took less than 2 weeks of maternity leave despite the 12-week recommendation of the American Academy of Pediatrics [18]. Although women are traditionally and disproportionately expected to provide care for a child or ailing parent, men anecdotally are also affected but more evidence is needed on the topic [19]. Moreover, there are limited opportunities or policies on part-time positions that might be needed if personal time demands are high, such as a complicated pregnancy or chronic illness. An important finding of recent research, however, supports the notion that aside from creating less restrictive parental leave and part-time position policies, rewarding a surgeon with more flexibility and control of their work schedule may be more beneficial than monetary compensation [7, 20]. Integrating work and life demands rather than creating an exact 50–50 balance at all times is a key concept. The physical demands of surgery may lead to a lack of physical well-being, which in turn can contribute to burnout.

Mental Demands

A patient's successful surgical outcome relies on a multitude of personnel involved in the pre-, intra-, and post-operative phases. However, poor outcomes reflect mostly against the lead surgeon, and the natural reaction is therefore to be highly involved and possibly overly controlling. Even after a patient is discharged, returns to the hospital for any reason usually involve the surgeon of record to ensure the new symptoms are not related to the operation. Often, long-term complications due to surgery tie a patient to a surgeon forever. This leads to potentially unhealthy hypervigilance. The frequent assumption is that a surgeon is always available with no other commitments outside of patient care. Some ways to address this "always on" mentality are to create a culture where a surgeon's time off is respected by utilizing other surgeons to cross-cover patients, create email-free weekends, streamline the use of EMR messages, and employ more APPs and ancillary staff to respond to non-expertise-requiring questions from patients [1••, 12••, 13].

This constant rumination phenomenon is even more apparent in women and underrepresented minorities where impostor syndrome is highly pervasive [21]. In those groups of surgeons, there already exists an increased doubt in personal ability and accomplishment. A 2019 poll found that 37% of women and only 9% of men perceived their level of confidence was a barrier, and 38.5% of women believed gender is a barrier to career advancement [18]. The prevalence of micro- and macroaggressions further place these at-risk groups at a disadvantage in a field that rewards confidence. Resident evaluations further show the disparity between treatment of women and men, with the former being commended on personality and docility and the latter on leadership and ability [19]. Female chief residents were rated to need "much" guidance 6% of the time but only 1% for male chiefs [18]. After graduation, 50% of female junior faculty still experienced sexual discrimination that manifested in less referrals from other physicians, more scrutinized complications, and easier to tarnish reputations [18]. From an even more senior level, female grand rounds speakers are

introduced as "doctor" only 49.2% of the time compared to 72.4% for male speakers [18, 19]. Not surprisingly, the unconscious bias that leads to the undermining of abilities and authority pushes one to be in a constant defensive state. More rumination occurs, eventually leading to negative performance, worse patient outcomes, and physician burnout.

A 2018 survey of US general surgery residents exposed that about 50% experienced at least one form of mistreatment in the form of discrimination or abuse with 19% occurring several times per month [6]. About 32% experienced gender and 17% racial discrimination, with women reporting a higher number than men [6]. Other forms of mistreatment were verbal or physical abuse, sexual harassment, or discrimination due to pregnancy or child-rearing status. These were inflicted by superiors, colleagues, hospital staff, patients, and/or patients' families. The same 2018 survey of residents revealed about 38% had burnout symptoms at least once a week, which may possibly be underreported due to doubts of non-confidentiality and possible repercussions [6]. Further analysis by Huan et al. proposed that burnout is a spectrum with different phenotypes. Using the 2018 survey, they noted only 23% of residents were fully engaged, while the 77% majority were either fatigued, disengaged, overextended, or fully burned out [8].

Tackling these mistreatments and inequities is therefore key to decreased surgeon mental insults. Education and training alone are inadequate. Instead, a change in culture is essential which consists of cultural transparency, individual personnel accountability, empowerment of the discrimination target or bystanders, and an accountable leader [18]. Mentorship, sponsorship, and support groups should be encouraged since the soft skills of mental resilience are often not part of the usual surgical curriculum. Laver et al. noted the success in improving perceived skills and self-esteem of various multi-pronged academic faculty leadership development programs that utilized mentoring and networking as part of the curriculum [22]. The Mayo Clinic's Colleagues Meeting to Promote and Sustain Satisfaction (COMPASS) program created physician support groups of 6 to 7 individuals that met every other week to discuss the highs and lows of being a physician, and this program was noted to decrease burnout and increase engagement [7]. On an international level, professional society campaigns like #East4All and social media campaigns like #ILookLikeASurgeon aims to create armies of allies to defy stereotypes and hopefully spark social change for the betterment of all.

Emotional Demands

The toll of making hard decisions or having less than perfect outcomes create an emotional exhaustion that may lead to burnout. The advancement of the medical field has led to a larger aging population, and the advancement of pre-hospital care has also led to increased salvage of critical patients. The COVID-19 pandemic has exacerbated the complexity of healthcare delivery with intricate disease treatment plans and the disruption of the usual standard of care that can be provided. Operations were postponed or outright canceled. There was difficulty rescheduling since the surgeon and the operating room capacity were at their capacity even after restrictions were lifted. Adding just one more case seemed impossible due to the limitations, boiling down to the basic economic principle that demand exceeded supply. Surgeons were forced into making god-like decisions in the triaging of patients, deciding who can wait and who can wait even longer. The desire of the physician to treat a patient may not align with the good or capability of the overall society. The individual alone cannot combat this "moral distress" [11]. Organizational strategies should be employed, including the creation of a Chief Wellness Officer (CWO) to be the liaison of the staff to administration. These leaders must have aligned values to the cause, have enough preparation to serve as a voice, and have enough clout amongst the institution to be taken seriously [7, 11]. Anyone should be allowed to voice stressors and barriers in a supportive collegial setting, with the institution being transparent with and held accountable for these improvements [1••, 7].

The emotional exhaustion individual healthcare providers experience because of their work in helping those in distress is termed compassion fatigue. Opposite of that is compassion satisfaction, the positive feeling about the ability to help others. Together, they comprise the professional quality of life [2]. Surgeons regularly deal with complications or death, and the historical idea that any emotion is weak, and a sign of incompetence may be ingrained for generations. Surgeons therefore often tend to internalize emotions, especially negative ones of anxiety, fear, and sadness, which can of course develop into depression and burnout. Numerous surveys of surgery trainees regarding coping with traumatic incidences revealed that discussion with a mentor, partner, colleague, or friend was employed by a majority, but only 3% used professional counseling [2, 23]. The debriefing sessions of tough scenarios are deemed helpful but there is no consensus on how it should be held: faculty vs professionally led, immediately vs allow time for decompression, or even individually vs group setting [23]. The most used coping mechanisms are self-distraction, substance use, self-criticism, disengagement, and humor [23]. The need for training regarding healthy coping mechanisms and building self-resilience is apparent. The Mindfulness-based Stress-Resilience (MBSR) Training is a program developed by Jon Kabat-Zinn in the 1980s. Lebares et al. at the University of California in San Francisco created a modified program called Mindful Surgeon and piloted it to surgical interns [24]. Over 8 weeks, the intervention group was led by a MBSR-trained facilitator for 2 h weekly regarding formal and informal mindfulness

practices plus a suggested period of at least 20 min of daily practice. The control group had the same 2 h protected time to do as they pleased and the same suggested 20 min per day mindfulness practice. This low-cost intervention led to greater self-awareness and self-regulation, noted enhanced focus during tasks, and improved resident interactions with others [24]. The informal mindfulness practices were continued by participants one year later.

It would be incomplete if the guilt felt by surgeon parents or those with dependents is not discussed. There is a common mentality that being a great surgeon and a great parent, child, and loved one are mutually exclusive. Sadly, it is not uncommon for female medical students to be dissuaded from exploring a career in surgery if they wish to start a family. Those with outside obligations are often viewed as "less serious" or "more distracted" which further amplifies the guilt and usually forces people into unhealthy working habits to disprove the stereotype [19]. Women apologize for and frequently turn down special accommodations while pregnant, even though it might be warranted. Maternal hypertension was noted to be more common in those taking greater than 6 calls a month or operating more than 8 h a week, with miscarriage, placental abruptions, and intrauterine growth retardation also being common complications in pregnant physicians [19]. Those who take paternity and other forms of family leave face similar challenges of misalignment in work duties and outside obligations. Mentorship, especially when chosen by the mentees, become a crucial way to create allies and garner support. Institutionally, policies have been standardized to alleviate tensions surrounding leave. However, at the end of the day, the culture of surgery needs to become more inclusive and less judgmental for things to change, and the individual themselves need to be less apologetic since "these life cycles in no way diminish our value" [19].

Potential Strategies for Change

This article focuses on the historical cultures of surgery which can be directly at odds with a surgeon's mental, physical, and emotional well-being. It is only when we reflect upon our past that we can make suggestions for future improvement in moving the needle from just reducing burnout into actually increasing engagement. This shift does take significant time and effort influenced by various factors. With that in mind, we present the following solutions at a societal, institutional, and individual level for consideration.

The Society

Considering the surgeon's impact on the community, burnout should be considered a public health issue, and policies should be enacted with the aims to decrease burnout and preserve the surgeon workforce. The National Academy of Medicine reviewed the available research and found that there is not enough robust data regarding causes of or solutions to burnout especially in an interprofessional setting [25•]. There is a lack of tracking the syndrome on a national epidemiologic level. With the recent events, the Coronavirus Aid, Relief, and Economic Security Act and other similar legislation was established and siphoned billions to support the healthcare field with the costs of the pandemic [11]. More, however, needs to be established for this support to reach individuals. It can be used to monitor and hopefully treat more chronic issues like physical disabilities, mental health issues, and burnout. It can also fund longitudinal research that applies quantitative and qualitative methodologies that can hopefully be generalizable [11, 25•].

The Institution

The values touted by the institution and the environment it creates heavily influence the surgeon's feeling of engagement or burnout. Since surgeon burnout in turn impacts patient outcomes, the institution has an obligation to decrease burnout to ultimately improve patient outcomes. Shanafelt et al. has outlined organizational strategies that decreased the Mayo Clinic burnout by 7% despite an 11% increase nationally that include [7]:

- The problem must be defined and measured at regular intervals using validated tools like the Maslach Burnout Inventory.
- The leader should have clear goals in mind and have the scope of influence to steer the group. This individual should prepare for the role by being abreast with latest developments in the topic.
- Targeted small interventions must be implemented with the results analyzed.
- An inviting work community must be created as a safe space for ideas.
- Motivation is cultivated not just with monetary rewards, but also with increased personal autonomy.
- Actions must be aligned to the values and mission of the organization
- Flexibility must be promoted.
- Self-care and resilience must be encouraged.
- Research must be funded aimed at reducing burnout.

These interventions can be cost-neutral, and the reduction of burnout would also likely yield a positive return on investment [7, 26••]. Because there is no one single cause of burnout, one solution does not fit all institutions. Therefore, it is irrational to believe that adopting the ways of one hospital would yield successful results in a completely different environment. Instead, the process for change should be made more generalizable. In the business world, John Kotter and

his book *Leading Change* published an 8-stage process in creating organizational change. A similar simple, generalizable, scientific process can be employed in healthcare:

1. Identify the scope and nature of the problem.
2. Brainstorm with all stakeholders possible short-term interventions.
3. Pilot the ones that align with the organization's mission and vision.
4. Measure outcomes with specific metrics.
5. Transparently share the results.
6. Revise the intervention as needed or add new ones as able.

The only constant requirements are a strong leader and a shared accountability from all persons involved [12••, 26••]. This further highlights the importance of leadership influence on culture through making these efforts a clear priority.

The Individual

Surgeons must not claim a single formula for what defines success. More importantly, the definition of success for one person is very likely different than the definition for another, and the first definition should not be viewed as better or more legitimate than others [1••]. Even for those who agree that work-like "balance" is important, not all may say 50–50 is the correct division. An alteration in word choice is a start; "work-life integration" may be a more accurate goal than "work-life balance." We should all strive to stop judging others against our own created doctrines, and similarly we must stop judging ourselves against those created by others. The chosen professional life should fit the individual's definition [1••]. It is therefore an active choice for surgeons to be true to themselves, make decisions accordingly, and have enough self-compassion when things do not turn out perfectly. As suggested by Drs. Thomas Bodenheimer and Christine Sinsky, healthcare providers cannot achieve the Institute of Healthcare Improvement's triple aim of "better care, better health, and lower cost" while being burnt out, thus leading to the suggested "quadruple aim" to include physician well-being [26••]. Just as advised during an airplane safety demonstration, we must first help ourselves before helping others.

Conclusion

Over the last few decades of surgery, many advancements have been achieved: technology has allowed us to make smaller incisions, recovery is enhanced by protocols of care, critically ill patients once believed to have no chance at recovery are able to walk out of the hospital. It is time to also change the perception of the characteristics of a surgeon. It is time to address the historical culture of surgery. Instead of a god-like, infallible creature that is burnt out on the inside, a humanistic, compassionate, engaged one with longevity is needed.

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