



Burnout in Trauma Surgeons During the COVID-19 Pandemic: a Long-standing Problem Worsens

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Accepted: 7 November 2022 / Published online: 27 December 2022
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Abstract

Purpose of Review Physician burnout is well-described in the literature. We analyze the effects of the COVID-19 pandemic on burnout in trauma and acute care surgeons (TACS).

Recent Findings Along with other healthcare workers and trainees, TACS faced unprecedented clinical, personal, and professional challenges in treating a novel pathogen and were uniquely affected due to their skillset as surgeons, intensivists, and leaders. The pandemic and its consequences have increased burnout and are suspected to have worsened PTSD and moral injury among TACS. The healthcare system is just beginning to grapple with these problems.

Summary COVID-19 significantly added to the pre-existing burden of burnout among TACS. We offer prevention and mitigation strategies. Furthermore, to build upon the work done by individuals and organizations, we urge that national institutions address burnout from a regulatory standpoint.

Keywords COVID-19 · Burnout · Trauma surgery · Surgeon wellness · Physician burnout · Mental health

Introduction

COVID-19 is the worst US pandemic in over a century. Burnout has become increasingly prevalent in trauma and acute care surgery, and we are just beginning to understand how the COVID-19 pandemic has contributed to this. In this article, we discuss burnout and the impact COVID-19 has had on healthcare workers, surgical trainees, and trauma and acute care surgeons (TACS). We also share known strategies to combat burnout and promote well-being and issue a call to action.

The Burnout Phenomenon: a Brief History

Burnout has been identified by the World Health Organization (WHO) as a workplace phenomenon resulting from unmanaged chronic stress. It is not a medical disease — it is an occupational hazard. The 11th revision of the International Classification of Diseases (ICD-11) describes burnout as the following:

Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions:

*feelings of energy depletion or exhaustion;
increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and
reduced professional efficacy.*

Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life. [1]

The term has been used for hundreds of years to describe a sense of fatigue or weariness, and in the 1970s, it was used as a label for the consequences of chronic drug use [2]. American psychologist Herbert Freudenberger, who

This article is part of the Topical collection on *Wellness for the Trauma Surgeon*.

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worked at New York City's St Mark's Free clinic with people experiencing homelessness and addiction, transposed the term to caregivers in his seminal 1974 article titled "Staff Burn-Out." [3] In it, he described a syndrome of "many different symptomatic ways which vary in symptom and degree from person to person" where affected individuals appear exhausted, fatigued, and depressed with behaviors. At the time, Freudenberg limited his definition of burnout as a professional phenomenon, but later writings, such as his 1986 book *Women's Burnout*, acknowledged that burnout could transcend the workplace into people's personal lives. [4]

Today we understand that burnout happens in work, parenting, caregiving, romantic relationships [5], school [6], and other areas of life. Burnout has been associated with a broad spectrum of physical, psychological, and occupational effects. In a 2017 systematic review, Salvagioni et al. [7] found that burnout was a significant predictor of coronary artery disease, cardiovascular disorders requiring hospitalization, prolonged fatigue, gastrointestinal issues, headaches, hypercholesterolemia, type 2 diabetes, musculoskeletal pain, respiratory problems, severe injuries, and even death at age less than 45 years. In the same study, psychological consequences of burnout were reported to be depressive symptoms, insomnia, psychotropic and antidepressant medication use, psychiatric hospitalization, and poor psychological health, whereas, at the workplace, professional dissatisfaction, absenteeism and presenteeism, new pension payments due to disability, and other problems were identified. It is important to note that not every person affected by burnout displays the same constellation of symptoms.

Burnout Among Trauma and Acute Care Surgeons

Burnout among physicians has become a hot topic in the last decade. In an extensive systematic review in *JAMA*, Rotenstein et al. reported no explicit agreement on what burnout constituted. With estimated prevalence rates ranging from 0 to 80.5% among physicians and variable definitions and assessment methods, no reliable associations exist between burnout and age, sex, location, time, specialty, and depressive symptoms. [8] The authors argued for urgency in developing a consensus definition and standardized measuring tools for burnout to improve our understanding of its effects on physicians.

Two articles pre-dating the pandemic specifically examined the consequences of burnout among trauma surgeons and offered solutions. Brown et al. surveyed over 1300 members of the American Association for the Surgery of Trauma (AAST) and found that 61% reported burnout. [9] Risk factors for burnout were being mid-career, working more hours, spending fewer awake hours at home, and feeling that there

is a better job. Elkbuli et al. surveyed 444 members of the Eastern Association for the Surgery of Trauma (EAST), who reported that working in a community non-academic setting (vs. academic setting), increasing the number of work hours per week, and being a woman increased the risk of burnout, with being a woman as the strongest predictive factor [10]. To rectify these issues, both groups of researchers called for improving working conditions by modifying schedules, limiting hours, and ensuring vacation time, and Elkbuli and colleagues also advocated for addressing the systemic issues that women face in the workplace.

The Impact of COVID-19: Healthcare Workers

Fear of the unknown, rapid international spread across the globe, lack of preparation for a pandemic, and novelty of the COVID-19 disease created unprecedented challenges for American healthcare [11]. The international medical community had experienced recent epidemics such as Middle East Respiratory Syndrome, Severe Acute Respiratory Syndrome, Ebola, and avian flu, but the American public and healthcare system were not significantly affected by these diseases. The last viral epidemic experienced in the USA was the 1918 influenza pandemic, which meant that there was virtually no living memory of what a pandemic would be like. Overnight, HCW were plunged into a situation which demanded managing critically ill patients affected by a novel virus with an unpredictable disease course affecting multiple organ systems. Lengthy hospitalizations and limited treatment options took an even more significant toll on healthcare systems and the providers therein. There can be no doubt that the clinical unknowns of the COVID-19 pandemic overwhelmingly contributed to existing high-stress levels among American HCW.

In response to these challenges, healthcare systems resorted to previously unheard-of measures. HCW on the front lines worked more hours, extended their shift lengths, cared for more patients, and endured shortages of personal protective equipment. To boost the number of providers, physicians were deployed outside their traditional scope of practice, medical students were allowed to graduate early to increase the number of intern physicians within hospital systems, advanced practice providers were increasingly utilized, and retired physicians re-entered the workforce. [12] Resources were re-distributed towards emergencies and COVID-19-related care and away from non-urgent conditions and preventive healthcare. While clearly necessary to save lives, these drastic measures were not without negative consequences for HCW.

As a result of changes in the way healthcare was delivered during the pandemic, many physicians lost income and career development opportunities. As elective surgeries were

postponed, physicians reported decreased RVUs and income [13]. This shift in the focus of care to urgent or COVID-related diagnoses drastically altered hospital revenue streams, and budgets to support physician-scientist endeavors were reduced or suspended [14]. Academic conferences were canceled, postponed, or moved to a virtual format, resulting in the loss of networking and development opportunities [15]. While studies examining the impact of these setbacks on physician satisfaction are currently lacking, it is impossible to imagine that they did not have a damaging effect on physician long-term job satisfaction.

The clinical and professional difficulties faced by physicians on the job adversely affected their mental health. While the general US population faced stressors related to the COVID-19 pandemic, studies have demonstrated that HCW faced unique psychological challenges. One cross-sectional study of the US population found that stress among HCWs during the pandemic was associated with fear of exposure, transmission, work overload, identification as an ethnic minority, and fewer years of practice in the profession [16•]. Lack of adequate personal protective equipment (PPE) and shortage of resources were associated with high levels of emotional burnout and distress. [17, 18] Among HCW who were practicing during the pandemic, there was 50% prevalence of post-traumatic stress disorder (PTSD) [19]. Certain populations of HCW seemed to suffer more than others — for example, higher depression scores were reported among female physicians [17]. HCW already experienced an elevated burden of anxiety, depression, and suicidal ideation [20, 21] but COVID-19 made it worse. In a recently published follow-up to their previous work, Shanafelt and colleagues surveyed physicians in late 2021 and found that 62.8% had at least one manifestation of burnout, far more than they had ever seen, [22••] and that the reported increase of emotional exhaustion was the largest ever documented in the literature [23].

The Impact of COVID-19: Surgical Trainees

While COVID-19 affected all HCW, surgical trainees faced a specific set of challenges related to education. It is clearly documented that COVID-19 imposed restrictions on surgical and clinical training [24]. In the UK, 1 in 8 trainees within their final year in 2020 had their training extended due to case log deficits, and annual case logs were reduced by one-third from 2019 to 2020 [25]. A survey-based study investigating the longitudinal effects of the pandemic on surgical trainees found that nearly one-third of all American surgical trainees reported a severe disruption in their learning due to COVID-19. These educational deficits were also detrimental to their emotional wellness and 25% of surgery residents reported a decrease in their overall well-being [26].

In another study across all surgical specialties, the majority of the residents, fellows, and early-career surgeons reported that the pandemic negatively impacted their clinical experiences, with 84% of residents reporting more than a 50% reduction in their operative caseload and inability to meet ACGME requirements [27•]. The long-standing effects of these radically altered educational plans on future surgeons are yet to be seen and are worthy of further study.

The Impact of COVID-19: Trauma and Acute Care Surgeons

Before discussing the effects of COVID-19 on burnout specifically in TACS, it is worth describing what was already known about burnout in TACS prior to the onset of the pandemic. In 2009, Shanafelt et al. surveyed members of the American College of Surgeons and found that 40% of surgeons met criteria for burnout [28••]. Unfortunately, over time the prevalence of burnout only increased — a 2015 follow-up study by Shanafelt and colleagues evaluating the change in prevalence of burnout and satisfaction with work-life balance in physicians showed that five years later, the prevalence of burnout among surgeons increased to 53%, with a decline in satisfaction with work-life balance from 48 to 41% [29]. Evidently, burnout is prevalent and pervasive among surgeons.

Burnout is not the only stress-related syndrome to afflict TACS. Post-traumatic stress disorder (PTSD), characterized as a pathological state of persistently reexperiencing a traumatic event causing distress and functional impairment, is alarmingly common as well. In 2014, Joseph et al. surveyed members of AAST and EAST with a PTSD screening tool and found that 15% of those surveyed met the diagnostic criteria for the condition with more than 7 calls a month and less than 4 h of relaxation a day positively correlating with the presence of PTSD symptoms [30••]. From 2016 to 2017, Jackson et al. screened non-TACS and TACS for both burnout and PTSD and found that the incidence between the groups was not different, but the incidence of one disorder was associated with the other, with overwhelming work responsibilities as the most reported traumatic stressor for both groups of surgeons [31]. The literature is clear that prior to the pandemic, both burnout and PTSD were common in TACS.

Empirical evidence from around the world suggests that during the pandemic, TACS experienced the types of working conditions that are linked with the development of burnout and PTSD. While many surgical subspecialties reduced patient volumes and productivity by canceling elective and non-urgent cases, TACS experienced the opposite, with hospitals expressing concerns over increased trauma caseloads. [32] Similarly, a call for experienced ICU practitioners

required many TACS to expand their critical care practice to include critically ill COVID-19 patients or provide coverage for medical ICU (MICU) patients to offload medicine and pulmonology colleagues. [33–35] It would be impossible and irresponsible to believe that these additional workloads associated with the COVID-19 pandemic came at no cost to trauma surgeons, and we suspect that these resulted in a concomitant increase in burnout and PTSD.

With the onset of the pandemic, TACS faced two specific additional stressors that exacerbated burnout. The first was leadership burnout. Leadership burnout has been described as the emotional and physical exhaustion that high performing managers and senior management feel when they are overworked or lack time for adequate self-care. [36] The day-to-day skills of TACS — expertise in both critical care medicine and surgical procedures, swift decision-making in the face of limited and incomplete information, knowledge of incident command structure, and familiarity with triage and resource allocation — made them natural leaders within hospitals and local healthcare systems that were reconfiguring themselves to care for COVID-19 patients. [37] On the national and international levels, trauma societies quickly pushed out recommendations for hospital preparedness and surgical procedures. For example, in April 2020, the AAST Acute Care Surgery and Critical Care committees published guidelines regarding tube thoracostomy [38] and tracheostomies [39] offering recommendations about timing, indications, and techniques to mitigate risks to surgeons performing these procedures. The European Society of Trauma and Emergency Surgery published guidelines for emergency surgery in critically ill COVID-19-positive or suspected patients, including preoperative planning and case selection, operating room setup, patient transport, surgical staff preparation, and anesthesia and surgical approach considerations. [40] Just as increased clinical responsibilities surely aggravated pre-existing burnout, the increased workload from new leadership roles among TACS at the local, national, and global levels during the COVID-19 pandemic certainly contributed to it as well.

The second specific additional stressor to which TACS were exposed during the pandemic was an abrupt and sustained increase in interpersonal violence among trauma patients. The COVID-19 pandemic and resultant policies implemented to address it had significant effects on the psychological, physical, emotional, and financial well-being of almost all individuals living in the USA. [41, 42] While intending to slow disease transmission, shelter in place orders had unintended consequences including forcing businesses to close and rendering millions unemployed. [43] Physical distancing orders further disrupted social support networks, contributing to a climate with the potential to increase firearm-related violence. [44] It is also speculated that unemployment, financial strain, and increased substance

abuse may have resulted in increased risk-taking behaviors and violent crimes [44]. [45] With increased access to firearms, a threefold greater odds of suicide and a twofold greater odds of homicide has been described as compared to those without access to firearms [46]. An increase in firearm violence was seen during stay-at-home and reopening orders in Ohio and the USA but not in California. [47] Another study suggests that the risk of gun violence was significantly higher in 28 states and significantly lower in only one state, Alaska [48]. Several studies report a surge in fatal and nonfatal firearm injuries in young children and inflicted by young children during the pandemic [49, 50] with one study reporting an 87% increase in the observed rate of pediatric firearm injuries above expected after the declaration of a nationwide emergency. [51] Finally, there was an increase in mass shootings, defined as shootings in which four or more people were killed or injured, observed from May 2020 onward compared with the trends in the years prior. [52] The deaths and injuries caused by the intensification of gun violence strained already taxed healthcare resources including blood products, intensive care unit beds, PPE, and hospital staff. Caring for the increased number of violently injured patients undoubtedly heightened physical exhaustion and compounded mental and emotional distress of TACS who were already in crisis because of the pandemic.

Our Experience at MetroHealth Medical Center

Our TACS group runs the premier ACS-verified Level I trauma center in Cleveland, OH, at MetroHealth Medical Center, which is the county hospital and a teaching institution. Like other TACS, we were intimately involved in our institution's COVID-19 response. In the beginning, patients who were critically ill from COVID-19 were admitted to the MICU, so to offload our pulmonology/critical care colleagues, a subset of critically ill patients without COVID-19 who otherwise would have been admitted to the MICU (e.g., gastrointestinal hemorrhage, non-biliary pancreatitis, chronic obstructive pulmonary disorder exacerbations) were instead admitted to our surgical and trauma intensive care units. As the pandemic progressed and the MICU census exceeded its capabilities, we created a COVID-19 stepdown unit nearly overnight to increase the hospital's overall capacity to care for these patients. This unit was covered by TACS, in addition to their usual service duties, increasing the overall number and complexity of patients under the care of our division. The winter nadir that we typically see in our trauma volumes was overridden by full ICUs, new stepdown units, and increased critical care censuses and responsibilities during COVID-19 waves during the winter months. This led to high censuses and late hours year-round for our trauma

team, and we headed into a busy trauma season without any respite.

In addition to managing increased patient numbers and severity of illness, we discovered that there were unanticipated challenges in operating on patients with COVID-19. Early in the pandemic when little was known about the transmissibility of COVID-19 in the surgical setting, our institution set guidelines to minimize the exposure of operating room staff and resources to the virus. This included seemingly benign rules like operating on COVID-19 patients at the end of the day to minimize exposure to other patients and ensuring all staff in a COVID-19 patient's case remained in the OR at all times to avoid carrying the virus to the rest of the operating suites. While intended to maximize patient and personnel safety, this also resulted in quite a few unintended negative downstream effects. COVID-19 patients, who were often sicker than their non-COVID-19 counterparts, ended up being operated on at night because that was when all other cases had concluded, no other patients were around, and the OR could be terminally cleaned without interfering with case flow, but this had the effect of sicker patients undergoing operations at a time of day when there were fewer resources available. Furthermore, because staff were confined to the OR in use to avoid the spread of the virus into hallways and other spaces, this meant that the surgeon of record could not be on call for TACS because they could not leave the OR in the hands of a capable surgical resident to see an urgent consult or run a trauma resuscitation, so a separate call schedule for surgeons to cover nighttime COVID-19 cases had to be created. Overall, the effect was to increase the difficulty of our work as well as the number of people required to do it, which contributed to our entire team's feelings of exhaustion and burnout.

Strategies to Prevent and Mitigate Burnout

Strategies to prevent and mitigate burnout can be divided into two categories: individual and organizational.

Individual strategies for managing burnout turn attention to the mind, the body, and the connection between the two. Balch and colleagues noted that all surgeons encounter personal and professional stressors and emphasized the importance of “personal renewal, emotional self-awareness, connection with colleagues, adequate support systems, and the ability to find meaning in work.” They also urged surgeons to take a proactive approach to prevent burnout and maintain well-being [53]. In a survey of members of the American College of Surgeons, Shanafelt et al. found that surgeons who maintained a positive outlook, prioritized work-life balance, and focused on what's important in life were less likely to be burned out. Furthermore, those who performed aerobic and strength exercises in accordance with Center of

Disease Control and Prevention recommendations and saw their primary care provider at least once in 12 months had a better quality of life [54]. Common to both of these studies is the finding that surgeons must consciously and actively manage well-being to avoid and lessen the ill effects of burnout.

Organizational strategies to manage burnout are very broad. A number of countries have restricted work hours and instituted mandatory breaks or rest periods for surgeons and/or trainees in some way, [55] and the Critical Care Societies Collaborative urged limiting the number of days worked consecutively as one of many bulwarks against burnout. [56] However, it is clear that the type of activities that are done during work hours is important as well — a 2009 study by Shanafelt et al. found that physicians who are able to focus on the aspect of work that is most meaningful to them had a lower risk of burnout. [57] Getting surgeons involved in their workplace is important as well — Dissanaiké suggested that “having a voice in your institution is actually protective against burnout, since it implies efficacy rather than helplessness.” [58] Some organizations also implemented creative solutions to ensure that surgeons feel better supported at work and in their personal lives and are able to prioritize meaningful tasks. In a 2017 article on burnout, Squiers et al. described innovative efforts at three different employers: At Baylor Scott & White Health, the Provider Support and Resource Committee, which addresses burnout among physicians, coordinates peer-to-peer support for affected individuals through the SWADDLE (Staff Well-being Assistance During Difficult Life Events) program; the Carolinas Healthcare System packages its burnout interventions within the LiveWELL (Work, Eat, Learn, and Live) program, which is its institutional comprehensive wellness initiative; and Stanford Health Care's physician-led wellness program includes a unique “time banking” pilot program, where physicians can earn credits for time spent on activities like mentoring, committee service, or cover a colleague's shift that generally do not result in direct compensation which can then be redeemed for assistance with work tasks or chores at home. [59] While these efforts are laudable, these projects pre-dated the pandemic and it is unknown if they remained effective during the constraints imposed by COVID-19.

The attempts to address surgeon and HCW burnout specifically related to the stressors of COVID-19 are just beginning. In their primer for self-care published early in the pandemic, Dort and colleagues, writing on behalf of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), acknowledged the emotional weight of caring for the ill and grappling with social isolation on surgeons and urged HCWs to promote wellness amongst themselves and not forget about hope for the inevitable end of the crisis [11]. Later that same year, the SAGES Reimagining the Practice of Surgery Task Force promoted “defensive” (coping

mechanisms, problem solving, and identification of a physician having wellness difficulties) and “offensive” (pursuing purpose and meaning and finding joy in one’s work) strategies against burnout and suggested that re-imagining and re-organizing surgical work around themes of meaning and joy. [60] The Institute of Healthcare Improvement published ‘*A Guide to Promoting Health Care Workforce Well-Being During and After the COVID-19 Pandemic*’ and noted that the “COVID-19 pandemic presents an opportunity to make fundamental and lasting change to better support healthcare workers’ health and well-being and foster a thriving workforce.” [61] While the COVID-19 pandemic was enormously destructive, it also presents an opportunity to make substantial meaningful improvements in the healthcare system that can result in HCWs being better able to weather similar upheaval in the future.

Is It Just Burnout?

Despite the proliferation of treatments and prevention strategies for burnout, it has become widely prevalent. These disturbing results beg the question — if all these treatments and preventative measures really work, then why is burnout so common? Something must be wrong with our healthcare system if so many brilliant and talented people fall prey to burnout. We propose that burnout alone is inadequate to describe what is happening to TACS and other HCW around the country. We believe that conceptualizing burnout as the sole cause of the distress that so many feel is harmful because it places the onus on individuals or relatively small groups to address the problem and fails to recognize the underlying structural issues within our healthcare system.

We suggest that what is going widely unrecognized is moral injury. Moral injury was first defined in the 2000’s by Litz and colleagues as the perpetration, failure to prevent, or witnessing of acts that transgress deeply held moral beliefs and expectations in the context of the experiences of US warfighters in Iraq and Afghanistan. [62] In a searing article published online in 2018, Talbot and Dean extended this definition to HCWs and wrote that burnout was merely a symptom of a broken healthcare system and that moral injury more accurately described what many HCWs were experiencing. [63•] Specifically, they argued that the moral injury is the inability to provide high-quality care and healing within the confines of our healthcare system as it is today. Prior to the pandemic, clinicians were torn between the perversely competing demands of patients, paperwork and documentation, insurance companies, the hospital and healthcare system, and even their own financial security. [64] Given what TACS and other HCWs have experienced since the beginning of 2020 — widespread shortages of PPE, drugs, staff, and medical equipment; an unprecedented

number of patients dying in previously unimaginable circumstances; a poorly understood and evolving illness; a highly charged social and political environment — we believe that pandemic only further accelerated this process. We believe that persistent focus on physician burnout alone is wholly inadequate and that it will not meaningfully improve until concrete steps to address moral injury are also made.

We also believe that addressing TACS and HCW burnout will benefit the healthcare system as a whole. There is evidence that physician burnout and patient safety and mortality are inversely related [65–67]. West and colleagues noted in their 2018 review on physician burnout that burned out physicians leave their jobs and increase costs to their employers in a myriad of ways [68]. Given that the COVID-19 pandemic exacerbated physician and HCW turnover [69, 70] and strained the finances of many hospitals [71], addressing physician burnout may improve patient outcomes, stabilize job losses, and reduce healthcare system costs in the long term.

A Call to Action

Burnout among TACS threatens our ability to provide quality care to patients, stunts professional longevity, and warps our sense of fulfillment and meaning in our work. Over the last decade there has been an increasing focus on improving wellness and mitigating burnout among HCWs, but with the arrival of COVID-19 in the USA in early 2020, it is clear that efforts to do so are failing to adequately address the problem. The current situation is unsustainable.

Awareness of the problem has seemingly reached a fever pitch. As we performed research to draft this manuscript, we noted that the pace of publication of articles on burnout among physicians and HCWs was fast and furious. The highest echelons of the US healthcare system have taken note — in an editorial published in the *New England Journal of Medicine* this summer, Dr. Vivek Murthy, the surgeon general of the US, deplored “years of inaction” and implored “key stakeholders to step up and do their part.” [72••] Furthermore, he suggested that the federal government, accrediting bodies like the Joint Commission, and non-governmental organizations like the National Academy of Medicine have roles to play in ensuring that issues like burnout and HCW well-being become part of the national agenda, are evaluated and measured in a standardized manner, and are incorporated into accreditation standards.

Healthcare is one of the most highly regulated industries in the USA, and we are loath to add to the red tape, administrative requirements, and paperwork that burden our field. However, as noted by Dissanaik in her 2016 address to the Southwestern Surgical Congress, “drowning people can’t usually save themselves — by the time someone reaches

this point, it requires an external intervention to prevent a tragedy.” [58] Dean and Tabbot wrote, “Physicians are smart, tough, durable, resourceful people. If there was a way to MacGyver themselves out of this situation by working harder, smarter, or differently, they would have done it already.” [63•] The things that we have done in the past to address and mitigate burnout ourselves and from within our workplaces and surgical organizations are not working. If we cannot fix the problem ourselves, then it is time for other agencies like Congress, the Department of Health and Human Services, and the Joint Commission to step in, much as the New York State Legislature intervened to pass new occupational safety laws after the catastrophic Triangle Shirtwaist Factory fire of 1911. [73] Amplifying a national focus on HCW burnout and codifying measures of burnout into regulatory standards are the next logical steps in addressing this urgent problem.

Conclusion

Burnout, along with PTSD and moral injury, was prevalent among TACS before the advent of the COVID-19 pandemic, which spread and exacerbated the problem. Solutions to burnout existed prior to the pandemic, and the long-term impact of initiatives designed to address pandemic-related burnout is yet to be determined. Addressing TACS and HCW burnout will improve working conditions and benefit other stakeholders in our healthcare system. We urge that national institutions address burnout from a regulatory standpoint to mandate change for the better.

Data Availability Data sharing not applicable to this article as no datasets were generated or analyzed for the current study.

Declarations

Conflict of Interest The authors declare no competing interests.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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- Of major importance

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