

Burnout and Wellness: The Anesthesiologist's Perspective



Abstract: *Burnout syndrome results from unmanaged chronic workplace stress. It is characterized by emotional exhaustion, lack of a sense of personal accomplishment, and depersonalization. Burnout is associated with the development of poor work-related outcomes, mental health disorders, substance abuse, and cardiovascular disease. Burnout in physicians and other health care providers can negatively affect patient care. The prevalence of burnout in anesthesiology is among the highest of all medical specialties, with rates approaching 40%. Unique risk factors for the development of burnout in anesthesiologists may include environmental social isolation, long work hours, lack of control over one's career, and the presence of certain personality traits that select for a career in anesthesia. System-based interventions targeting workplace contributions to burnout and individual resilience and mindfulness training can be helpful in reducing burnout symptoms. Future research efforts examining both the health care environmental structure and the specific burnout risk factors for anesthesiologists will help produce targeted treatment strategies for members of the anesthesiology community.*

Keywords: anesthesia; attitudes; organizational factors; perceptions; training

Introduction

Burnout: the term is everywhere, but many wonder what it means and why everyone is talking about it all of a sudden. Heightened attention on the

become a well-worn term in the everyday vocabulary. As preventive medicine practices expanded, the fitness and self-help industries burgeoned, and employee wellness programs were introduced in many companies. Patients were being bombarded with strategies for wellness, but somehow, the physicians caring for them had missed the memo.

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prevalence and impact of physician burnout has made “physician wellness” one of the most popular topics in medicine today. And yet, these are not exactly new concepts. Burnout as a syndrome—its signs and symptoms, predisposing factors, and strategies for its prevention—first appeared in the literature in the mid-1970s in an article by psychologist Herbert Freudenberger in the *Journal of Social Issues*.¹ In 1979, Dan Rather ran a segment about the new health movement known as “wellness” on the popular television show, *60 Minutes*. By the 1990s, wellness had

Certainly, physicians have been aware of their tendency toward “unwellness” for some time. In 1982, the *New England Journal of Medicine* published an article on the stressors physicians frequently experience and the maladaptive coping strategies they use, essentially depicting the exact phenomenon Freudenberger had described as burnout.² And yet physician wellness as such did not come into focus until much later. Between 2010 and 2015, a number of reports began to identify alarming rates of burnout, depression, and suicide among physicians. Studies convincingly

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demonstrated a link between burnout and suboptimal patient care, and as these data emerged, physician wellness was thrust into the spotlight, sparking an impassioned discourse in the medical community.³

Acknowledging that burnout comes in many forms, it is unsurprising that each medical discipline encounters it with differing frequencies and, thus, may feel its effects in unique ways. The reasons that a primary care physician becomes frustrated and overwhelmed by their work likely have little to do with the reasons why a pathologist does. Anesthesiologists are undoubtedly aware of the tremendous threat substance abuse poses to members of the specialty. Are they at a greater risk for burnout as well, and if so, why is this? Additionally, would a better understanding of the causes of burnout that are specific to a specialty better predict responsiveness to the available interventions?

Recently added to the 11th revision of the International Classification of Diseases (ICD-11), the World Health Organization defines burnout as a syndrome resulting from chronic workplace stress that has been unsuccessfully managed.⁴ This article will provide insight into the constellation of symptoms and the pathophysiology behind physician burnout—a now well-recognized phenomenon of mental, physical, and emotional exhaustion among health care workers generally resulting from prolonged workplace stress and frustration. It will also focus on evidence-based techniques for improving wellness—specifically, emotional and physical well-being, improved job satisfaction, and professional success. This review aims to identify risk factors, highlight strategies for both burnout prevention and the promotion of wellness, and bring to light the knowledge gaps that warrant further study.

Burnout Pathophysiology

There is a relationship between stress, depression, and burnout. Exposure to chronic stress seems to play an important

role in the development of both burnout and depression. The physiological response to stress involves characteristic neuroendocrine pathways.⁵⁻⁸ Specifically, there is an association between dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, exposure to stress, and the likelihood of developing neuropsychiatric illnesses.⁹ The HPA axis is the primary means through which humans mediate the response to stress.¹⁰ With prolonged, chronic exposure to stress, the HPA axis's negative feedback loop can be lost, rendering the mechanism dysfunctional. This maladaptive process has been implicated in the development of both burnout and depression.

The sympathetic nervous system also contributes to the body's response to stress, primarily through the effects of brainstem noradrenergic neurons and adrenomedullary circuits.¹⁰ Repeated exposure to psychosocial stress results in exaggerated activation of both the HPA axis (described above) and the sympathetic nervous system.⁵ The toll that this kind of chronic stress exposure takes on the body is referred to as the "allostatic load." This can be quantified by studying the downstream effects of stress, such as measuring cortisol and catecholamine levels, systolic blood pressure, and heart rate variability.¹¹ Several attempts have been made to link burnout with increased allostatic load. In medical students, feelings of burnout have been associated with decreased markers of vagal activity and increased sympathetic tone.¹² However, a more recent study looking at 9 biomarkers of allostatic load failed to show any evidence of an increased physiological load in patients who had been clinically diagnosed with burnout as compared with controls.¹¹

On the other hand, some physiological markers have been positively correlated with burnout. For example, in a case-control study of French financial workers, individuals with professional burnout syndrome presented with higher levels of hemoglobin A_{1c}, C-reactive protein, leukocytes, neutrophils, monocytes, and total cholesterol as

compared with control group individuals.¹³ Unfortunately, these indicators are neither sensitive nor specific, and to date, no clear relationship between any individual biomarker and burnout has been established.¹⁴ The reasons why some individuals who experience chronic stress develop burnout and/or depression, whereas others do not, remain unknown. Studies have shown that DNA methylation in response to external stress may play a role; however, more research is needed to clearly define this relationship.¹⁵ Most likely, an individual's response to stress is influenced by a combination of environmental and genetic factors.¹⁶ Furthermore, biological research on the link between burnout and depression (and research on burnout in general) has historically been complicated by the use of multiple definitions and the lack of uniform diagnostic criteria.⁶ The inclusion of burnout into the ICD-11 will hopefully improve the accuracy of clinical identification, focus research efforts, and advance the development of efficacious treatment strategies.

Burnout Presentation

The typical symptoms reported by individuals experiencing burnout include difficulty with memory and/or concentration, insomnia, irritability, and the feeling of emotional exhaustion.¹⁴ As described above, neuroendocrine dysfunction may be underlying burnout's symptomatology. Repeated stimulation of the sympathetic nervous system and the HPA axis leads to overactivation of the amygdala, causing high levels of anxiety. The hippocampus becomes desensitized, and problems with memory ensue. High levels of cortisol further suppress the development of new neurons in the hippocampus. Without resolution, over time, limbic brain structures begin to atrophy.¹⁷

Although these symptoms may be easy to recognize, their impact can be difficult to quantify. The vast majority of the literature focusing on assessing and treating burnout uses the Maslach

Burnout Inventory (MBI) to diagnose burnout in physicians. The MBI assesses 3 components of the classic burnout triad: emotional exhaustion, lack of feelings of personal accomplishment, and depersonalization.¹⁸ Although many studies on burnout use the MBI to diagnose the condition in physicians across a broad range of specialties, up until recently, the scale had only been validated in physicians practicing as surgeons and in internal medicine subspecialties. A 2015 Serbian study validated the MBI for use in anesthesiologists after analyzing data from 200 surveys completed by physicians practicing in the specialty.¹⁹

Burnout Prevalence and Mental Illness in Anesthesiologists

One of the “ROAD” (radiology, ophthalmology, anesthesiology, dermatology) specialties, anesthesiology has historically been considered one of the least demanding medical professions from a lifestyle standpoint.²⁰ As such, it seems that the stress of a career in anesthesiology is greatly underestimated. Although difficult to prove empirically, several unique aspects of the practice of anesthesiology, such as isolation and lack of enduring patient-physician relationships, may contribute to anesthesiologists scoring higher on the MBI than their surgery or internal medicine colleagues. The prevalence of burnout in anesthesiologists is high, ranging from 10% to 41%.^{21,22} Anesthesiologists practicing in the intensive care setting appear to have the highest rates of burnout, with rates close to 55%.²¹

Burnout Risk Factors

A questionnaire-based study by Downey et al²³ found moderate to high degrees of burnout in anesthesiologists practicing in a large metropolitan area in the United States. The authors found that anesthesiologists scored highest on the emotional exhaustion and lack of personal accomplishment domains of the

MBI. The risk factors associated with burnout that they identified included female gender, younger physicians, physicians with children, and academic physicians.²³ In fact, younger female physicians have repeatedly been found to be at higher risk of burnout.^{21,23,24} Having children is also a recurring risk factor cited in multiple studies.^{22,23}

Postgraduate training may be a particularly high-risk period of time in the career of physicians with respect to burnout. This may be attributed to the high demand of patient care, financial stresses, lack of autonomy, and long work hours. Rates of burnout during anesthesiology residency are higher compared with rates found among medical students and among practitioners who have completed their training.²⁵ This pattern, identified in medicine overall, is consistent within the field of anesthesiology as well.

Anesthesiology residents have been found to have high rates of burnout, whereas academic anesthesiology faculty members reported a significantly higher sense of well-being than residents.²⁶

Although there is no consensus in the literature, there may be exist relationship between duration of practice and rates of physician burnout. Several studies report that early career physicians have higher rates of burnout compared with their more experienced counterparts. Contrary to this, one study reported that middle career physicians had the highest rates of burnout, regardless of age.²⁷ These findings were attributed to the longer work hours, higher call burden, lower career satisfaction, and higher rates of emotional exhaustion found in this cohort. Consistently, late career physicians report less burnout. One explanation may be the presence of a “survivor effect,” suggesting that those who are most burned out may be more likely to leave practice earlier in their careers, leaving only those who suffer less from burnout to remain practicing. An alternative theory is that older physicians have found healthy ways to cope with stress and treat burnout successfully throughout the course of their careers. Overall, the exact cause of

the discrepancy of burnout rates at different stages of physicians' careers has proven difficult to discern.

A 2017 review attempted to distinguish the risk factors associated with the high rates of burnout among anesthesiologists.²² The authors found that physicians with social isolation at work and/or at home and those with negative coping strategies, such as alcohol use, were associated with a higher risk of burnout. They also found that certain personality traits could be risk factors for burnout, including neuroticism and anxiety. Finally, the authors identified workplace environmental factors that can increase the risk of burnout in employees, such as long work hours, a feeling of lack of control over one's career, unclear job expectations, and a workplace culture that promotes bullying.²²

Long work hours seem to be a risk factor for physician burnout as well. In a survey-based study of members of the American College of Surgeons, the prevalence of burnout seems to be strongly related to the number of hours worked.²⁸ In this population, 40% of individuals were burned out and 30% screened positive for symptoms of depression. In addition to the total number of hours worked, the number of nights on call per week was also independently associated with the development of burnout. Other causes for the development of burnout included conflict between work and home—namely, missing family activities, meals, and time with spouses or others.²⁸ For health care workers overall, there is evidence that shorter or interrupted work schedules can help reduce occupational stress levels.²⁹

Burnout Impact

As discussed previously, there may be a link between burnout and other mental health disorders, such as anxiety and depression. Physicians have a higher suicide rate than the general population, and it is estimated that 300 to 400 practicing physicians commit suicide each year.³⁰ For physicians in training,

the stakes are particularly high. It has been shown that suicide is the second leading cause of death among resident physicians, trailing only neoplastic disease.³¹

It is believed that burnout may play a role in this problem; however, it can be difficult to differentiate between burnout and depression in physicians. Burnout itself is a risk factor for developing depression, substance abuse, heart disease, and somatic symptoms. There are multiple studies that relate depression to similar health outcomes, and depression can often be a confounding factor in researching the link between burnout and suicide.³²⁻³⁶ Burnout and depression have also both been shown to manifest in poor work-related outcomes, such as substandard job performance, absenteeism, and employment turnover.⁶

Interventions to Promote Wellness

Given the impact that burnout has on physicians and anesthesiologists specifically, identifying successful prevention and treatment strategies is imperative. The Accreditation Council for Graduate Medical Education (ACGME) has in many ways led this charge, focusing significant energy on the wellness of its newest physicians. A joint initiative between the ACGME and the American Board of Anesthesiology (ABA) has added wellness and the “responsibility to maintain personal emotional, physical, and mental health” into their Anesthesiology Milestones Project, a guide used to assess trainees’ development in the central tenets of the specialty.³⁷ Leaders within anesthesiology departments have taken note. In a survey of 75 anesthesiology department chairs, 74.7% of respondents acknowledged that they had referred at least 1 member of their department to wellness resources within the past 5 years.³⁸ The majority of these chairs voiced a strong interest in developing departmental wellness initiatives. Although the awareness is present, finding a successful approach to address burnout has proven a challenge.

Despite a large number of published studies evaluating the efficacy of burnout interventions, effective prevention and treatment strategies have yet to be identified. A recently published systematic review of interventions for physician-specific burnout concluded that most of the published studies lack randomization and detailed treatment descriptions.³⁹ These factors make it challenging to formulate guidelines on how to most effectively address burnout.⁴⁰

Many different treatment interventions have been evaluated. For classification purposes, these interventions are typically divided into individual-based or system-based strategies. The majority of published studies have investigated the treatment of burnout using individual-based approaches, including exercise, meditation, resilience training, or the use of specific coping mechanisms. Unfortunately, there remains a paucity of literature on the prevention and treatment of burnout using system-based approaches. One meta-analysis that included randomized controlled trials (RCTs) for burnout treatment attempted to fill this knowledge gap.⁴¹ The interventions in the RCTs ranged from individual strategies to a combination of individual interventions with systematic/workplace interventions. Overall, the authors concluded that no intervention showed significant success in relieving burnout symptoms. Furthermore, the majority of the included studies were small, and the impact of the interventions may be only minimal. The results of the meta-analysis demonstrate that the individual interventions are often not successful in alleviating burnout symptoms in isolation.⁴¹

Considering the physician population, the results of a systematic review/meta-analysis found that specific individual-based interventions were associated with only small significant reductions in burnout. Notably, system-based interventions were associated with higher treatment effects compared with physician-directed interventions.⁴² System-based interventions that combined multiple elements, such as

structural changes, improving health care team communication, and instilling senses of teamwork and job control, were the most effective in reducing burnout among physicians.⁴²

Attention from the ACGME and ABA has spurred a number of trials targeted at improving wellness in residency training programs. Reduced work hours in internal medicine and orthopedic surgery residents did not show a significant effect on burnout rates.⁴³ A study of protected sleep time for internal medicine interns similarly did not demonstrate any effect on depression, burnout, or empathy.⁴⁴ An RCT evaluating the effect of specialized communication and stress management skills training in internal medicine residents did not produce changes in burnout rates but was associated with significant improvements in self-efficacy and decreases in stress levels surrounding communication.⁴⁵ Brief self-care workshop interventions in pediatrics residents have not been effective in improving burnout rates; however, they have been found to decrease the component of depersonalization that can contribute to burnout.⁴⁶ Additionally, resident participation in a stress management workshop that focused on increasing social support, attending to self-care, recognizing and avoiding maladaptive behaviors, and maintaining a positive outlook was effective in reducing emotional exhaustion.^{39,47}

One general surgery training program has described the effects of implementing a tool called the well-being “fuel gauge.” This simple, online assessment was found to be well received by trainees and fostered improved mentorship and levels of support.⁴⁸ In an RCT that included anesthesiology residents, an intervention centered on teaching better coping skills for work and family stress did not show a statistically significant difference in sense of well-being but did demonstrate a positive trend.⁴⁹ Although statistically insignificant, the treatment arm of the study reported decreased use of alcohol and avoidance behaviors as coping mechanisms. Peer support groups in

anesthesiology residency focused on stress and burnout have been found to be beneficial in reducing isolation and improving validation and support.⁵⁰ In a cross-sectional study evaluating the effect of an Anesthesiology Resident Wellness Program in a Canadian residency program, individuals reported high levels of satisfaction with the program.⁵¹ Specifically, team-building activities, mentorship for junior residents, and wellness nights were identified as the most valuable components of the program.

Recommendations

The information learned from these studies serves as a starting point for the development of a more robust set of recommendations for the prevention and treatment of burnout among physicians, and anesthesiologists specifically. Given the overlap between depression and burnout, it seems reasonable that some of the strategies shown to be effective in improving depressive symptoms might also be effective in the setting of burnout. Within this framework and acknowledging the lack of evidence showing a consistent benefit in burnout, the following recommendations for the general promotion of wellness are provided below:

1. Individual-based interventions

(a) *Engage in regular exercise.* Both acute and chronic exercise can improve energy and minimize fatigue. Compared with a sedentary control, an acute period (15-20 minutes) of moderate-intensity aerobic exercise significantly improved subjective energy levels among adults with depressive symptoms. In this population, environmental influences (ie, indoor vs outdoor exercise) did not alter the effect, although exposure to nature in general produces healthier cortisol levels and reduces markers of internal stress.^{17,52} Additionally, more frequent, shorter periods of

exercise may lead to a greater cumulative effect on energy versus fewer bouts of longer duration.⁵²

(b) *Eat a healthy diet.* The quality of a person's diet is related to their risk for developing mental disorders, such as depression.⁵³ In adults, high intake of fruits, vegetables, fish, and whole grains may be associated with a reduced risk of depression.⁵⁴ Along these lines, adherence to a Mediterranean diet (one with a high intake of vegetables, fruits, cereals, nuts, and seeds, with moderate consumption of dairy products, fish, poultry, eggs, and unsaturated fats and with low to moderate intake of wine during meals and low intake of red meats, processed meats, and saturated fats) is associated with a reduced risk for depression and cognitive impairment.⁵⁵ In patients with moderate to severe depression, participation in a 12-week dietary improvement program resulted in significant improvements on a depression rating scale as compared with a control group not participating in the program.⁵⁶ Overall, dietary improvement may represent an efficacious treatment strategy for the treatment of depression, and the benefits may extend to the management of similar conditions, such as burnout.

(c) *Focus on resilience.* Resilience is defined as the "ability to bounce back or recover from stress." It can be considered a dynamic process of positive attitudes and effective strategies.^{57,58} There are many different dimensions of physician resilience. These can include (1) attitudes and perspectives (valuing the physician role, expressing gratitude, accepting personal limitations), (2) balance and prioritization (setting limits), (3) practice management style (sound business management,

using effective staffing arrangements), and (4) supportive relations (positive personal/professional relationships and effectively communicating, personal coaching, or honest discussions with family and colleagues to identify personal strengths and weaknesses).^{21,58} There is evidence that self-administered, online interventions based on increasing pleasure, engagement, meaning, positive relationships, and accomplishment can increase well-being and reduce symptoms of depression and/or burnout.⁵⁹

(d) *Be mindful.* Mindfulness has been defined as "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally, (p. 75)."⁶⁰ Especially in those with psychological conditions, there is evidence that mindfulness-based interventions are linked to better clinical outcomes, including improvements in anxiety, depression, and self-compassion.⁶⁰ Specifically, mindfulness-based interventions such as meditation can be beneficial in the management of some psychiatric disorders such as depression. A recently published systematic review and meta-analysis found that mindfulness treatments were generally of similar potency to first-line psychological and psychiatric interventions.⁶¹ In working adults, brief mindfulness-based stress reduction interventions were noted to be effective for reducing the negative psychological effects of the work environment. Despite this, there is little evidence to suggest that they are more effective than other types of stress management interventions such as relaxation training or yoga.⁶² For physicians, sustained

improvements in meaning and work engagement have been achieved following participation in an intervention that offered protected time with a facilitated small-group curriculum incorporating elements of mindfulness, reflection, shared experience, and small-group learning.⁶³ In primary care physicians, participation in an intensive mindfulness-based communication course improved features of well-being and decreased burnout, allowing more patient-centered care.⁶⁴ Features of this course included self-awareness exercises, discussions about meaningful clinical experiences, and appreciative interviews.

2. **System-Based Interventions.** Whenever possible, individuals should attempt to modify the organizational structure and work flow processes if these are believed to be contributing to physician burnout.⁵⁷ They should also participate in work-based stress management programs and professional development opportunities, if available.^{42,57} Important features of a positive work environment include a healthy work-life balance, a family-friendly environment, and flexible working hours. Other features that have been identified as attributes of a work environment that prevents burnout include protection from exposure to occupational hazards, provision of childcare options, and compensation for reduced work time (eg, maternity/paternity leave).⁵⁷

Conclusion

Despite the recent surge in research directed toward improving wellness, physicians still have much to learn. Understanding what makes one individual more susceptible to burnout versus another may help focus attention on those at highest risk. Identifying the specific drivers of burnout relevant to anesthesiologists will help better target

interventions. Finding ways to address the systemic drivers of burnout, which are unfortunately also the most difficult to change, will likely have the most significant impact on the current epidemic in the global anesthesiology community.

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