A Growing Epidemic: Plastic Surgeons and Burnout—A Literature Review

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Background: The prevalence of burnout is increasing among all physicians, including plastic surgeons. Burnout is not simply synonymous with being overworked. It is a complex physical, intellectual, and psychological entity that arises when the expectation and reality of the job do not match. In this article, the authors' goal is to define burnout, summarize its causes and consequences, and offer the plastic surgeons methods to prevent and address it.
Methods: A literature search of articles on burnout in medicine was performed. Articles that were relevant were selected, and were qualitatively analyzed to answer our questions on the definition, prevalence, causes, consequences, and treatments of burnout.
Results: Sixty-five relevant articles were included. The prevalence of burnout among physicians ranges between 29 and 55 percent. Risk factors for physician burnout include increased workload and call, junior academic rank, and fair physician health. There is significant overlap among burnout, depression, and substance abuse, and suicide is much more common among physicians than among the general population. Preventing burnout involves a multiprong approach that addresses the physical, intellectual, and psychological dimensions of the physician.
Conclusions: In this article, concrete steps to prevent and address burnout are presented to plastic surgeons. For physicians, the most important elements for burnout avoidance are the prevention of emotional exhaustion, and the development of professional autonomy and control. (*Plast. Reconstr. Surg.* 144: 298e, 2019.)

Over the past two decades, "burnout" has become a very frequently mentioned term in medicine. Despite the familiarity of most physicians with the term, few actually understand what burnout is, what causes it, how to prevent it, and how to treat it.

The term "burnout" was first used by Herbert Freudenberger in 1974 to describe symptoms including exhaustion, headaches, and irritability among volunteers at a free drug clinic.[1] Christina Maslach then standardized the concept of burnout by developing the Maslach Burnout Inventory,[2] which defines the diagnostic elements of burnout.

The prevalence of burnout among U.S. physicians appears to be increasing rapidly, reaching epidemic proportions: surveys have shown that it has risen from 40 percent in 2013 to 51 percent in 2017.[3] This number is expected to rise further among surgeons over the next few years, as the demands of the surgical profession are only expected to increase: the supply of surgeons is stagnant, whereas the demand for surgery is increasing.[4]

Physicians are taught to put the patient first, and often neglect themselves. Teaching physicians how to avoid, recognize, and treat burnout is essential. In this study, we aim to concisely summarize for the plastic surgeon what burnout is, how to recognize it, what the consequences of burnout are, and how to prevent it and/or address it.

METHODS

A PubMed search was performed using the search formula "burnout" AND ("plastic surgery" OR "physician" OR "medical"). The article titles and abstracts were evaluated for relevance to our topic. Among the relevant articles, the references were screened for additional relevant resources. A

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qualitative review of the articles was performed to answer the following questions:

1. How is burnout defined, and what causes it?
2. What is the prevalence of burnout among physicians in general and plastic surgeons in particular?
3. What are the causes of burnout?
4. What are the consequences of burnout?
5. How should burnout be prevented and treated, particularly its physical, intellectual, and mental aspects?

RESULTS

Database Search

The PubMed search resulted in 4404 articles. Three hundred ninety-eight non-English language articles were excluded. The abstracts of the remaining 4006 articles were screened manually, and 3947 articles not relevant to plastic surgeons were excluded. In the remaining 59 articles, review of the bibliography resulted in an additional five relevant articles and textbook chapters, for a total of 64 relevant references (Fig. 1).[1–64]

How Is Burnout Defined, and What Causes It?

The instruments used to measure burnout, depression, and quality of life are summarized in Table 1. In most studies on physician burnout, burnout was defined as a high score on the emotional exhaustion and depersonalization components of the Maslach Burnout Inventory.[20]

Maslach's concept of burnout consists of three main elements: emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment.[2] Emotional exhaustion refers to a constant feeling of being drained and depleted.[5] Depersonalization refers to viewing others as objects in a detached, cynical manner.[6,7] In essence, Maslach and colleagues found that burnout occurs when there is a disconnect between the employer and the employee in six domains: excessive quantitative and qualitative job demands, lack of control and autonomy, lack of rewards, lack of positive relationships with coworkers, perceived lack of fairness, and mismatch between the job and values.[8]

When looking from the point of view of the worker, burnout may develop when the reality of the job does not coincide with expectations. Importantly, the lack of control over the job

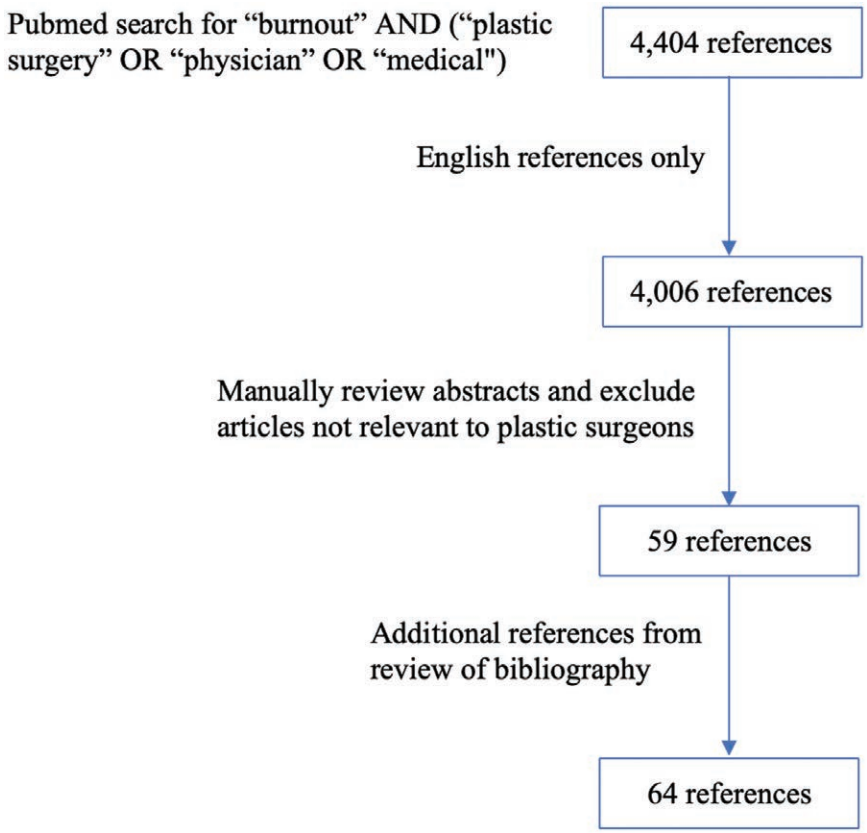

Fig. 1. Attrition diagram of the references included in this study.

Table 1. Instruments Used in the Referenced Studies

Instrument	No. of Questions	Outcome Measure	Components	References
Maslach Burnout Inventory (MBIP)	22 items	Burnout	Emotional exhaustion, personal achievement, depersonalization	2,3,6,7,12,16–20, 22,28,29,42,59
Primary Care Evaluation of Mental Disorders (PRIME MD)	2 items	Depression		16,18,19,22
Medical Outcomes Study Short Form (SF-8)	8 items	Quality of life	Mental and physical quality of life	16,18,19,22

environment has been found to be the most powerful predictor of burnout.[9]

Among physicians in general, risk factors for burnout include a perceived imbalance between career and family, and a lack of autonomy at work.[6] Physicians with a compulsive personality, which is defined as the triad of doubt, guilt, and an exaggerated sense of responsibility,[10] are at higher risk of burnout. Another risk factor for burnout is an unstable familial background[11]: physicians whose childhood was defined by poor father-child relationship and poor health have been found to be at higher risk of burnout and depression. Physicians who are burnt out have also reported bureaucratic tasks, in combination with higher productivity requirements,[60] as one of the major causes. Physicians now spend twice as much time on electronic health records and paperwork as they spend on patient care.[12]

Surgeons are at especially high risk for burnout. Significant risk factors for burnout among members of the American College of Surgeons are income based entirely on billing (32 percent increased risk of burnout), hours worked per week (2 percent increase for every additional hour), nights on call per week (5 percent increase for every additional night), and having children younger than 21 years (54 percent increase).[16]

Among plastic surgeons, risk factors for burnout are excessive work (>70 hours of work per week, >2 nights of call per week), microsurgical or aesthetic subspecialty, junior academic rank, and salary less than $250,000.[19] Interestingly, salary greater than $750,000 is also associated with burnout. Having children appears to decrease the risk of burnout. Another study of members of the American Society of Plastic Surgeons found that predictors of burnout included working longer than 60 hours per week, age between 40 and 50 years, poor/fair physician health, and frequent emergency department call. In addition, surgeons in a group practice, those in private practice, and those with a primarily reconstructive practice were more likely to have burnout.[17]

It is important to note that burnout often coexists with depression, alcohol abuse, and substance abuse. In a study of 549 surgical oncologists, Kuerer et al. found that surgeons who had less than 25 percent of their time devoted to research were three times as likely to be emotionally exhausted, 2.5 times as likely to abuse alcohol, and 2.5 times as likely to be burnt out.[17] Surgeons with depression are more than seven times as likely to abuse alcohol.[13] Alarmingly, in a self-reported survey, 15 percent of plastic surgeons screened positive for physical and mental impairment, 8 percent were positive for alcohol abuse, and 5 percent were positive for substance abuse.[19]

What Is the Prevalence of Burnout among Physicians in General and Plastic Surgeons in Particular?

The prevalence of burnout among physicians is rising: a 2014 survey of 6880 U.S. physicians found that 54.4 percent of them exhibited signs of burnout.[3] This was significantly higher than what the same survey had found in 2011 (45.5 percent). Female physicians are at especially high risk: the Physician Worklife Study found that female physicians are at a 60 percent higher risk of burnout than male physicians.[14] A survey of 7905 surgeons from all specialties, conducted by the American College of Surgeons, found that 40 percent of surgeons satisfied criteria for burnout.[15]

Interestingly, the study above found that plastic surgeons were among the surgical specialties with the highest career satisfaction. However, plastic surgeons are still at high risk for burnout. Streu et al. surveyed 505 members of the American Society of Plastic Surgeons using the Maslach Burnout Inventory.[16] Twenty-nine percent of plastic surgeons had evidence of significant emotional exhaustion, and 16 percent had evidence of significant depersonalization. Those numbers were similar to those found in other specialties.[6,16,17] In another survey of 1691 U.S. plastic surgeons, the rate of burnout was found to be similar at 29.7 percent.[18]

Among plastic surgery residents, the rate of burnout has been found to be as high as 33 percent.[19] In those plastic surgery residents, work hours did not affect the risk of burnout. Weekly rounds

with a senior surgeon and regular staff meetings were protective against burnout. Dyrbye et al. found that high rates of depression and burnout were even present as early as medical school.[20,21] Overall, there are mixed data on the effect of work hours on burnout, with some studies finding that long work hours increased the risk of burnout,[16,17,19] and others not.[20]

What Are the Consequences of Burnout?

Chronic burnout has detrimental effects on workers' physical health. In a prospective study of 650 employees over 5 years, Melamed found that burnout was associated with a 67 percent increased risk of developing musculoskeletal pain.[22] Toker et al. followed 8838 workers over a period of 3.4 years, and found that those with chronic burnout had a 41 percent increased risk of developing coronary heart disease during the study period.[23] This is believed to be attributable to chronic dysregulation of the hypothalamic-pituitary-adrenal axis, leading to chronically elevated levels of stress hormones.[24]

Burnout is also harmful to workers' intellectual health. Sandström et al. found that chronic burnout resulted in impaired memory and attention.[25] This is believed to be attributable to structural changes in the hippocampus that have been demonstrated in people with chronic stress.[26] In plastic surgeons, the risk of self-reported medical errors was 89 percent higher among surgeons with burnout.[19] There is also evidence from other medical specialties that burnt-out physicians are more prone to making medical errors.[27,28] A recent meta-analysis of 47 studies analyzing 42,473 physicians found that physician burnout is associated with a 96 percent increase in patient safety incidents, a 131 percent increase in unprofessionalism, and a 128 percent increase in dissatisfied patients.[29] This is because burnt-out physicians just want to survive the day and go home,[60] resulting in ineffective communication with patients.

Burnout has also been found to negatively affect workers' mental health. Among physicians, especially surgeons, training is based on the psychology of perpetually delayed gratification, and this can have damaging mental consequences.[30] Burnout may explain, at least in part, the higher risk of suicide among U.S. physicians. Despite the fact that the prevalence of depression among U.S. physicians is similar to the general population at approximately 12 percent,[31] physicians are 70 percent more likely than the general population to commit suicide.[32] In particular, female physicians are 130 percent more likely than women from the general population to commit suicide.[33,34] One number that emphasizes the point is the following: 400 physicians commit suicide in the United States every year.[34] Risk factors for physician suicide include being Caucasian, single, depressed, workaholic, and having access to the means for suicide. As discussed above, there is vast overlap among burnout, depression, and substance abuse.[13,18,19] In addition, burnout has damaging consequences on marital relationships, and has been linked to marital conflicts.[35]

DISCUSSION

In view of the problem delineated above, concrete measures are needed to help physicians address this epidemic. Unfortunately, little research has been done on alleviating burnout.[36] In this section, we present some of the measures that have been shown to improve the physical, intellectual, and mental health of workers in general and physicians in particular. The measures are summarized in Figure 2.

Improving Physical Health

There is strong evidence that regular exercise improves the overall well-being of physicians. Weight et al. found that residents who engaged in an exercise program had improved quality of life.[37] In a survey of 7197 members of the American College of Surgeons, Shanafelt et al. found that those who exercised regularly had significantly higher overall and physical well-being scores,[38] and a lower prevalence of burnout (25 percent versus 30 percent). The study also found that a significantly lower risk of burnout was associated with having seen a primary care physician in the past year, and with being up-to-date with age- and sex-appropriate health screening. Plastic surgeons should not act as their own primary care physicians.[39] They need to accept the fact that they are human, and that they too are allowed to get sick.

There is an established relationship between musculoskeletal pain and burnout, although it is unclear whether there is any causality.[23] In a previous study, we found that plastic surgeons are at high risk of musculoskeletal pain.[40] We also found that surgeons who regularly performed core-strengthening exercises and stretching exercises had fewer musculoskeletal symptoms.

Improving Intellectual Health

As discussed previously, the single most important predictor of burnout is the lack of control over the job environment.[9] The perception of increased control over one's work environment has been shown to increase job satisfaction and decrease burnout.[41] Physicians, in particular, crave control

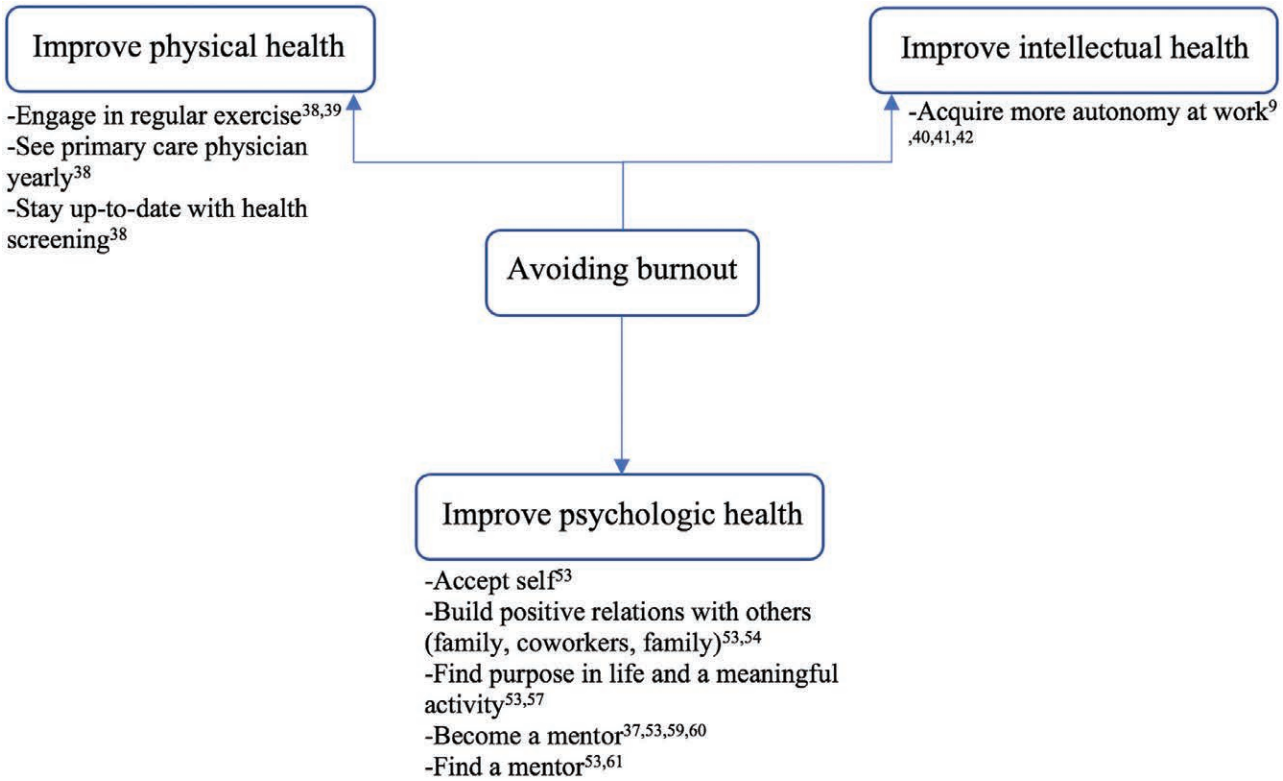

Fig. 2. Summary of the evidence-based measures to avoid and treat physician burnout.

and autonomy, and should be allowed control over their workplace.[42,43] Indeed, health care organizations have an economic incentive to provide such control to physicians. Numerous studies show that satisfied physicians are more economically productive and safer than burnt-out physicians.[44–52]

Therefore, when analyzing their work environment, physicians should deemphasize monetary remuneration, and look more closely at certain intangible aspects of the job that are more likely to offer intellectual well-being (e.g., control of surgical case mix, operating room environment, control of scheduling, autonomy). Indeed, for plastic surgeons in particular, improving intellectual well-being and satisfaction is very important, because up to 31 percent of plastic surgeons would not choose the same career again if they had a choice.[40,53]

Improving Psychological Health

Health organizations have implemented various support mechanisms to identify and treat burnout.[54] Most of these support mechanisms involve counseling, mindfulness exercises, and other relaxation methods. However, as discussed above, the strongest predictor of burnout is lack of control at work, and enhanced control decreases burnout. Therefore, the most qualified person to advocate for the physician, and identify and/or address burnout, is the physician themselves. Just as Maslach attributed burnout to a mismatch between the employer and employee in six domains,[8] Ryff and Singer delineated the six elements needed for psychological well-being in physicians[55]:

1. Self-acceptance.
2. Positive relations with others: This includes family, coworkers, and patients. Physicians must consciously strive to maintain their personal relationships. Improved communication between physicians and patients is known to lower the risk of burnout.[56] One instance in which this is especially true is when delivering bad news to the patient and their family, such as when prognosis is poor, or when complications have occurred. Delivering bad news can make the physician feel emotionally drained.[57] Baile et al. present a set of cognitive, behavioral, and verbal techniques to facilitate the delivery of bad news.[58] Physicians must separate the message (bad news) from the messenger (themselves), sit down when speaking to the patient, and respond empathetically to the patient's reaction by acknowledging and validating the patient's feelings.
3. Autonomy.

4. Control over environment: In the face of a shifting health care environment where physicians are becoming more likely to be hospital-employed and less independent, autonomy and control over work environment are now harder than ever to achieve. The idea that autonomy and control prevent and treat burnout did not originate in the medical field. In fact, virtually nothing has been written about this topic in medicine. Well-designed, controlled studies in Finnish white-collar workers showed that, when these workers were bestowed the ability to control the elements in their work that caused them dissatisfaction, they became less cynical, less exhausted, and less burnt out.[42] Even though the general direction of medicine is toward decreasing physician autonomy, plastic surgeons must, at the individual level, be mindful of their autonomy, and advocate for enhanced control at work.
5. Finding purpose in life: Chaput et al. found that 25 percent of plastic surgery residents suffered from depersonalization.[19] Depersonalization causes physicians to be constantly detached and emotionally numb. These physicians are simply surviving, but not thriving. Plastic surgeons can fight this depersonalization by spending at least 20 percent of their time in the activity that is most meaningful to them.[59] This meaningful activity is up to the surgeon to choose. Surgeons should choose activities that help them emotionally recharge, keeping in mind that emotional exhaustion is the most common feature of burnout among physicians.[60]
6. Continued personal growth: This is one method to ensure personal growth at all stages of one's career is mentorship. Several authors advocates becoming a mentor as a way to find meaning in one's work.[37,61–63] In their relationship with their mentees, mentors are encouraged to listen, share knowledge, set a good example (at work and at home), motivate, and rejoice in the success of mentees. For younger surgeons, the corollary is also true: finding a mentor is advocated as a measure against burnout. Mentees are encouraged to take initiative, seek advice, take ownership of the long-term outcomes of their patients, and accept the fact that they will make mistakes. This last point is very important: physicians are trained to solve problems independently, and seeking help when they make mistakes may be seen as a sign of weakness. Physicians may also fear losing their job or even license if their psychological struggles become public.[60] Keeping the problem secret is simply the easiest option. Physicians should resist the temptation to ignore their problems, and should learn to identify emotional problems early, and seek help. Having a reliable and trustworthy mentor allows physicians to verbalize the problem without fear of repercussions.

Prevention Is Better Than Treatment

Most interventions that have been advocated in the literature are aimed at treating, rather than preventing, burnout.[8] Maslach and Goldberg emphasize that responsibility for burnout prevention rests with the individual worker, not the organization.[64] Workers must first learn to recognize the harbinger signs of burnout, to prevent its progression. Workers should then modify their work patterns, optimize how they respond to stressors, and seek help early. This concept of individual responsibility confirms the role of physicians as self-advocates that we have described above.

Plastic surgeons must also develop healthy coping skills. The temptation to turn to alcohol and other substances must be resisted. Eight percent of plastic surgeons surveyed by Qureshi et al. screened positive for alcohol abuse, and 5 percent screened positive for substance abuse.[18]

CONCLUSIONS

In this article, we define physician burnout, illustrate its prevalence, detail its causes and consequences, and offer plastic surgeons a road map to avoid it and address it. Burnout can have harmful consequences, not only on physicians, but on their patients too. Surgeons must act as their own advocates in the fight against this epidemic.

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