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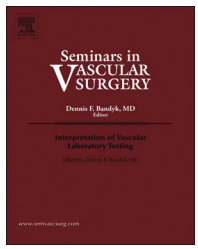

Prioritizing personal well-being during vascular surgery training

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ARTICLE INFO

ABSTRACT

Burnout among vascular surgery trainees is a significant problem and needs to be addressed at the level of the individual, training program duties, and at each institution. The clinical challenges and patient-oriented care required of a vascular surgeon generate a level of stress that requires its recognition and development of coping methods to promote well-being and personal happiness. There are ways to minimize burnout during surgical training, including acknowledgment of its symptoms, mentorship, self-care, and access to resources for stress reduction. Crucial factors in maintaining a positive outlook and a sense of meaningful work are faculty entrustability, receptive leadership, celebrating small victories, and recognition that resiliency is a skill that can be learned. Successful vascular surgeon training is a mission that requires everyone involved to actively promote well-being behavior and a supportive work environment. With appropriate implementation of these practices, our training programs can cultivate surgeons who are competent, compassionate, and committed to advancing vascular care.

1. Introduction

Burnout, defined as a syndrome of emotional exhaustion, feelings of depersonalization, and a lack of personal accomplishment [1] in relation to one's professional activity, is particularly high among surgeons and surgical trainees (approximately 53%) in comparison to the general population (approximately 26%) [2–4]. Frequently beset by disruptive behaviors, such as depression, substance abuse, interpersonal conflicts, attrition, and even suicidal ideation or action, burnout is implicated in medical errors and adversely affects patient care [5]. When parsed by surgical specialties, vascular surgeons have the lowest level of career satisfaction, high incidence of burnout (44.1%), lower mental quality of life, and a high percentage not recommending the specialty to their children [6]. Recent unpublished Annual Training survey data from the Association of Program Directors in Vascular Surgery collected during the 2016–2018 academic years revealed that more than one-third of trainees surveyed noted more than one feature of distress weekly, with 21% of respondents feeling burnout from work; approximately 17% feeling down, depressed, or hopeless; and an additional 27% perceiving their work as hardening them emotionally.

There are several reasons why this is alarming, including the studied fact that higher emotional exhaustion (a component of burnout) is associated with poor patient care and reduced professional work effort by surgeons [4], the potential for increased attrition during vascular surgery training [7], and the negative effects on recruitment into our specialty [6,8]. Additionally, the surgical team suffers in that burned-out trainees contribute poor mentoring to junior residents and medical students [8] and low team morale, create a non-compassionate work environment [9], and impair the

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https://doi.org/10.1053/j.semvascsurg.2019.01.003
0895-7967/$ - see front matter © 2019 Elsevier Inc. All rights reserved.

development of grit/resilience [10]. For these reasons, prioritizing trainee well-being in vascular surgery is necessary to help mitigate the most deleterious aspects of burnout and is paramount to the collective goal of producing competent, compassionate surgeons who will go on to provide collaborative, cost-efficient, high-quality care for our patient population and become effective surgical leaders in health care.

Faculty are encouraged to address physician wellness proactively to counter the risk of burnout, although there is no standard for screening or monitoring trainees presently. Manifestations of severe burnout include depression, alcoholism, substance abuse, suicidality, and personal life unraveling, leading to marital problems, poor job performance, compromised patient care, and disruptive behavior [5]. Who is at risk of burnout among our trainees? One of the paradoxes of burnout is that those most susceptible appear to be the most dedicated, hardworking, responsible, and motivated [11,12]. Individuals with these traits are often idealistic and may have perfectionist traits that lead them to devote themselves until they have nothing left to give. Thus, commitment to patients, attention to detail, and recognizing the responsibility associated with patients' trust—the very characteristics that define a superlative surgical trainee—also place these individuals at greatest risk [13]. Vascular surgery, in particular, is susceptible to generating hardened trainees shaped by burnout, due to the emergent nature of the specialty, as well as the high acuity level of our patient population. By default, this necessitates our trainees be diligent, attentive to detail, and compassionate—placing them squarely in the at-risk group of surgeons for developing burnout.

Perhaps it seems self-evident that trainees who notice these traits of burnout in themselves should seek professional help. However, several studies have shown that surgeons can be relatively inattentive to their own distress, often lack role models who readily acknowledge or show vulnerability, and are immersed in a professional culture where admission of personal shortcomings or seeking professional mental health is discouraged [14]. One means of acknowledging this problem is first to quantify it. The Maslach Burnout Index [15] is one example of a validated tool, among many others, used to measure burnout. These data could be followed longitudinally and assessed at regular intervals to identify those at risk and offer assistance. Ideally, training programs should prioritize resident well-being before the onset of distress and burnout. In the latest version of the ACGME CLER (Clinical Learning Environment Review) Pathways to Excellence (version 1.1), the focus area of duty hours, fatigue management, and mitigation has evolved into well-being, addressing four interrelated topics: work–life balance, fatigue, burnout, and support of those at risk of or demonstrating self-harm. This new focus area recognizes the important role of clinical learning environments in designing and implementing systems that monitor and support physician well-being. Resident well-being initiatives (or wellness programs) should consider the best practices that follow.

2. Culture

The importance of departmental leadership and a culture cannot be overstated. Culture should support physician well-being and faculty mentorship should model such. Mental health resources and well-being programs are often supported at a higher institutional level. Faculty development should consider educating surgical faculty to the warning signs of resident distress, while also focusing on surgeon well-being.

3. Relationships

There is a growing acknowledgment that relationships (peer support) both within and outside the work environment can have strong and valuable influence on well-being through support and coping supporting a peer buddy system. This concept that relationships have value from a socioeconomic standpoint is known as social capital, and its effect on well-being has been well-described in nonsurgical literature [16–18]. Recent efforts to quantify social capital has generated an 11-question version of the Adapted Social Capital Assessment Tool specifically for surgical trainees, developed with the explicit purpose of correlating social capital with well-being [19]. This could also be a tool used periodically in trainee evaluation and in the selection process, as the questions can be incorporated into the standard interview. From a self-care perspective, this tool could aid the trainee in gauging their well-being at given periods during residency, as well as serve as a rally to engage in proven habits. These include relying on a personal strategy to find meaning in work or training, engaging regularly in recreation, hobbies, or exercise, maintaining a positive outlook, and avoiding an attitude of mere survival [8]. These habits are the foundation for developing grit and resilience during vascular training.

Another important relationship is that of a mentor, designated as both formal and informal [3,8]. Mentorship is the cornerstone of academic medicine and an effective mentor is an advisor who exudes altruism, expertise, patience, and experience [20]. Resultantly, a mentor takes an interest in the mentee's academic training and in the mentee as a human being. One oft-cited impediment to proper mentorship is the generational gap inherent in surgery. Individuals entering vascular surgical training today were born between 1980 and 2000, and are termed *millennials*. These individuals account for about 25% of the work force today and will account for 40% and 75% of the workforce in 2020 and 2025, respectively [20]. To efficiently mentor these individuals, a paradigm shift in how mentoring is viewed must occur to incorporate concepts such as micromentoring [21], reverse mentoring [20], and mentorship teams [22]. Programs may consider assigned faculty mentoring programs, while trainees are also encouraged to seek out mentors that can help meet particular needs during training. Finally, investment in formal mentoring workshops during training helps mentors and trainees identify what they should look for in mentoring relationships, as well as best practices [23].

4. Resiliency training

Resilience, the ability to respond positively and thrive in adverse situations [24], is a component of grit—defined as perseverance and passion toward long-term goals. Resilience is characterized by the ability to persevere during difficulties,

having self-motivation to achieve success, and maintaining a sustained effort over an extended time period [25]. A number of factors contribute to an individual's resilience: optimism, self-efficacy, impulse control, perseverance, flexibility, and emotional awareness [26]. While often considered an intrinsic personality trait, the importance of resilience (or grit) cannot be overstated and could be actively sought out in applicants for vascular surgical training. A longitudinal study of surgical trainees found that those with high grit scores (as assessed by the Short Grit Scale [27]) reported significantly less burnout and improved well-being after 6 months when compared to those with lower grit at baseline [28]. Therefore, enhancing grit and, thereby, resilience, is important in reducing the early stages of burnout and its consequences. Importantly, resiliency can be taught, and this training may form a part of preventative action to help trainees in vascular surgery before they develop serious difficulties [10]. With this knowledge, a handful of teaching hospitals have adopted this and offer resiliency training aimed at prevention and management of some of the stressors related to clinical practice. Examples are the Penn Resilience Program (aimed at military recruits) [29]; the SMART (Stress Management and Resiliency Training) program for radiology faculty [30]; and the Oregon Health Sciences University Integrative Self Care Initiative for students, which has established resiliency training as an elective class for their medical students and residents.

5. Faculty entrustment

Low trainee entrustment by faculty is often cited as a reason for burnout [8,19]. Fragmented faculty exposure to trainees, more stringent supervision requirements, and institutional pressure for efficiencies have led to faculty and resident dissatisfaction with the current training clime, which consequently seeds doubt in graduating seniors' confidence in their ability to practice as independent surgeons [31–35]. Optimizing intraoperative education is critical for the development of autonomy among trainees [34,36] and for engendering a greater sense of personal accomplishment—a component of burnout [37]. Recent work in this space, utilizing the OpTrust tool [34,38], showed that faculty entrustment was associated with resident entrustability moving forward. In this unique study, postgraduate year and individual resident character assessments, including perceptions of honesty, disposition, perceived lack of confidence or overconfidence, experience, and intended field of specialty, were correlated with faculty entrustability among general surgery trainees [38]. Utilization of the OpTrust tool can aid in increasing faculty awareness of entrustment behaviors they exhibit and to inform faculty about resident behavior and entrustability. Additionally, there are programs that allow for immediate feedback postoperatively, detailing areas for resident improvement and competency as dictated by faculty. One example is the System for Improving and Measuring Procedural Learning (SIMPL) application [39–43]. Available as an innovative, smartphone-based tool, SIMPL provides real-time intraoperative performance assessment for every case in which surgical trainees participate and provides a ready way for trainees to hone in and refine operative techniques and skills. We suggest that implementation and experimentation with systems such as SIMPL will not only increase trainee competence, but will also lead to increased faculty entrustability, which ultimately decreases burnout. Acknowledging that most vascular surgical faculty are trained surgeons but not trained educators, an opportunity lies herein for focused faculty development to help develop skills to appropriately teach and assess resident growth and development.

Enacting meaningful change requires receptive and innovative leadership that is not afraid to effect the sort of cultural, program-level, and institution-level changes needed to reduce burnout and improve well-being in vascular surgery trainees. The dimension of effective physician leadership could be summarized as: inform, engage, inspire, develop, and recognize [44]. The qualities of surgeon supervisors have a direct effect on the personal well-being of the trainees they serve and, to wit, the power of leadership can be used to create organizational strategies to combat burnout. Strategies may include acknowledgment and assessment of the problem of burnout, development and implementation of targeted interventions, cultivating community at work, aligning values and strengthening culture, promoting work–life integration, and providing resources to promote resilience and self-care [45]. These leadership initiatives contribute to a sense of meaningful work among our trainees by creating a culture of inclusion, mutual respect, and purpose.

6. Conclusions

While local program and institutional efforts to combat burnout in our trainees is necessary, support at the level of the premier vascular surgical societies as the Society for Vascular Surgery and the Association of Program Directors in Vascular Surgery is steering the cultural ship in making well-being a priority among vascular surgery trainees and faculty. This is essential to maintain effective recruitment and retention moving forward. In conclusion, burnout among vascular surgery trainees is a significant problem and needs to be addressed in a multipronged fashion—at the level of the individual, program or institution, and societal level. The challenging and rewarding work of the vascular surgical specialist generates on effective level of stress on which many of us thrive, however, there are ways to improve and promote well-being. We have identified burnout acknowledgement, mentorship, self-care, and access to resources, resiliency, faculty entrustability, and receptive leadership as crucial factors in promoting well-being and creating a sense of meaningful work among vascular surgery trainees [46]. We are confident that, with appropriate implementation of these practices, we can continue to cultivate surgeons who are competent, compassionate, and committed to advancing vascular care.

REFERENCES

[1] Pines A, Maslach C. Characteristics of staff burnout in mental health settings. Hosp Commun Psychiatry 1978;29:233–7.

[2] Pulcrano M, Evans SR, Sosin M. Quality of life and burnout rates across surgical specialties: a systematic review. JAMA Surg 2016;151:970–8.
[3] Patti MG, Schlottmann F, Sarr MG. The problem of burnout among surgeons. JAMA Surg 2018;153:403–4.
[4] Shanafelt TD, Dyrbye LN, West CP, et al. Potential impact of burnout on the US physician workforce. Mayo Clin Proc 2016;91:1667–8.
[5] Shanafelt TD, Balch CM, Bechamps G, et al. Burnout and medical errors among American surgeons. Ann Surg 2010;251:995–1000.
[6] Balch CM, Shanafelt TD, Sloan JA, et al. Distress and career satisfaction among 14 surgical specialties, comparing academic and private practice settings. Ann Surg 2011;254:558–68.
[7] Dodson TF, Webb AL. Why do residents leave general surgery? The hidden problem in today's programs. Curr Surg 2005;62:128–31.
[8] Dyrbye L, Shanafelt T. A narrative review on burnout experienced by medical students and residents. Med Educ 2016;50:132–49.
[9] Lown BA, McIntosh S, Gaines ME, et al. Integrating compassionate, collaborative care (the "Triple C") into health professional education to advance the triple aim of health care. Acad Med 2016;91:310–6.
[10] Halliday L, Walker A, Vig S, et al. Grit and burnout in UK doctors: a cross-sectional study across specialties and stages of training. Postgrad Med J 2017;93(1101):389–94.
[11] Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. Arch Intern Med 2012;172:1377–85.
[12] Shanafelt TD, Oreskovich MR, Dyrbye LN, et al. Avoiding burnout: the personal health habits and wellness practices of US surgeons. Ann Surg 2012;255:625–33.
[13] Vaillant GE, Sobowale NC, McArthur C. Some psychologic vulnerabilities of physicians. N Engl J Med 1972;287:372–5.
[14] Shanafelt TD, Balch CM, Dyrbye L, et al. Special report: suicidal ideation among American surgeons. Arch Surg 2011;146:54–62.
[15] Belcastro PA, Gold RS, Hays LC. Maslach Burnout Inventory: factor structures for samples of teachers. Psychol Rep 1983;53:364–6.
[16] Lomas J. Social capital and health: implications for public health and epidemiology. Soc Sci Med 1998;47:1181–8.
[17] Pearce N, Davey Smith G. Is social capital the key to inequalities in health? Am J Publ Health 2003;93:122–9.
[18] Szreter S, Woolcock M. Health by association? Social capital, social theory, and the political economy of public health. Int J Epidemiol 2004;33:650–67.
[19] Kaplan SJ, Seabott HM, Cunningham EB, et al. Resident wellness and social support: development and cognitive validation of a resident social capital assessment tool. J Surg Educ 2018;75:313–20.
[20] Waljee JF, Chopra V, Saint S. Mentoring millennials. JAMA 2018;319:1547–8.
[21] Chopra V, Arora VM, Saint S. Will You be my mentor? Four archetypes to help mentees succeed in academic medicine. JAMA Int Med 2018;178:175–6.
[22] Chopra V, Saint S. 6 Things every mentor should do. Available at: https://hbr.org/2017/03/6-things-every-mentor-should-do. [Accessed 24 April 2018].
[23] Sinclair P, Fitzgerald JE, Hornby ST, Shalhoub J. Mentorship in surgical training: current status and a needs assessment for future mentoring programs in surgery. World J Surg 2015;39:303–13. discussion 314.
[24] Howe A, Smajdor A, Stockl A. Towards an understanding of resilience and its relevance to medical training. Med Educ 2012;46:349–56.
[25] Duckworth AL, Peterson C, Matthews MD, et al. Grit: perseverance and passion for long-term goals. J Person Soc Psychol 2007;92:1087–101.
[26] Eley DS, Cloninger CR, Walters L, et al. The relationship between resilience and personality traits in doctors: implications for enhancing well being. Peer J 2013;1:e216.
[27] Duckworth AL, Quinn PD. Development and validation of the short grit scale (grit-s). J Person Assess 2009;91:166–74.
[28] Salles A, Cohen GL, Mueller CM. The relationship between grit and resident well-being. Am J Surg 2014;207:251–4.
[29] Reivich KJ, Seligman ME, McBride S. Master resilience training in the U.S. Army. Am Psychol 2011;66:25–34.
[30] Sood A, Sharma V, Schroeder DR, et al. Stress Management and Resiliency Training (SMART) program among Department of Radiology faculty: a pilot randomized clinical trial. Explore 2014;10:358–63.
[31] Hashimoto DA, Bynum 4th WE, Lillemoe KD, et al. See more, do more, teach more: surgical resident autonomy and the transition to independent practice. Acad Med 2016;91:757–60.
[32] Sandhu G, Teman NR, Minter RM. Training autonomous surgeons: more time or faculty development? Ann Surg 2015;261:843–5.
[33] Scally CP, Sandhu G, Magas C, et al. Investigating the impact of the 2011 ACGME resident duty hour regulations on surgical residency programs: the program director perspective. J Am Coll Surg 2015;221:883–889.e1.
[34] Sandhu G, Magas CP, Robinson AB, et al. Progressive entrustment to achieve resident autonomy in the operating room: a national qualitative study with general surgery faculty and residents. Ann Surg 2017;265:1134–40.
[35] Mattar SG, Alseidi AA, Jones DB, et al. General surgery residency inadequately prepares trainees for fellowship: results of a survey of fellowship program directors. Ann Surg 2013;258:440–9.
[36] Brunett P. Autonomy versus control: finding the sweet spot. Acad Emerg Med 2013;20:952–3.
[37] West CP, Dyrbye LN, Erwin PJ, et al. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. Lancet 2016;388(10057):2272–81.
[38] Sandhu G, Nikolian VC, Magas CP, et al. OpTrust: validity of a tool assessing intraoperative entrustment behaviors. Ann Surg 2018;267:670–6.
[39] Bohnen JD, George BC, Williams RG, et al. The feasibility of real-time intraoperative performance assessment with SIMPL (System for Improving and Measuring Procedural Learning): early experience from a multi-institutional trial. J Surg Educ 2016;73:e118–30.
[40] George BC, Bohnen JD, Williams RG, et al. Readiness of US general surgery residents for independent practice. Ann Surg 2017;266:582–94.
[41] Williams RG, George BC, Meyerson SL, et al. What factors influence attending surgeon decisions about resident autonomy in the operating room? Surgery 2017;162:1314–9.
[42] Williams RG, Swanson DB, Fryer JP, et al. How many observations are needed to assess a surgical trainee's state of operative competency? Ann Surg 2019;269:377–82.
[43] Mellinger JD, Williams RG, Sanfey H, et al. Teaching and assessing operative skills: from theory to practice. Curr Prob Surg 2017;54:44–81.
[44] Shanafelt TD, Gorringe G, Menaker R, et al. Impact of organizational leadership on physician burnout and satisfaction. Mayo Clinic Proc 2015;90:432–40.
[45] Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. Mayo Clin Proc 2017;92:129–46.
[46] Martela F, Pessi AB. Significant work is about self-realization and broader purpose: defining the key dimensions of meaningful work. Front Psychol 2018;9:363.