



Burnout in the female surgical trainee; is it time to consider a more global approach to tackle this issue?

ARTICLE INFO

Keywords

Burnout
Suicidal ideation
Resilience
Physician wellness

ABSTRACT

Workplace related burnout is rampant in medicine. Prevalence is even higher in surgical specialties, higher during various stages of training, and higher still in females in these specialties. There has been a concerted effort by various deliberative bodies to institute policies to combat this. Efforts at institutional levels as well as community levels are encouraged. Some guidelines about techniques individuals can use have been reviewed recently in literature, i.e., resilience training, actively seeking mentorship, advocating for time for self-care, attention to medical needs etc. However, most of the published literature tackles different singular aspects of burnout. For female surgical trainees, we propose a comprehensive approach to tackling burnout. This paper outlines the various causes and the solutions currently in practice and hopes to act as a guide for female surgeons at various stages of their professional lives.

Introduction

Burnout is defined by Dr. Maslach, a psychologist and expert in burnout, as having three domains i.e., a state of: emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment. For many physicians, it is the emotional manifestation of a profound mismatch between our expectations for life as a physician and the reality of daily life [1,2].

Physicians are not immune to workplace burnout. An article published in Lancet 2012 reported a global trend towards increased physician stress, with data implying that younger physicians are more at risk for burnout. This is due to increasing pressures and decreasing autonomy seen in medicine over time [3,4]. Former President of the World Medical Association, Dr. Dana Hansen, described burnout in the bleakest of terms, labeling it the “silent desperation” of physicians [5].

Life as a physician has long been associated with chronic stress which is a risk factor for burnout. Burnout is seen in approximately 70% of the physician workforce. Depression rates are reported as high as 80% in some studies, with suicide rates being 40% above the general population for male physicians and 130% above the general population for female physicians [6–8]. There is a strong correlation between burnout and depression. Because of the overall changing landscape in medicine, respondents in several studies even report not wanting their children to become physicians [9–11]. Life as a surgeon often has even more stress, and the outlook for future surgical staffing is bleak. One in 5 residents who start in surgery will not finish their training in surgery. A prospective observational cohort study of 870 interns showed that only 80% completed their surgical training [12]. Eventually these high rates of attrition will become a threat to the US work force and eventually will affect society overall [12–15]. A few survey-based studies have attempted to determine the reasons for this attrition [14,15]. A host of factors were linked to increased likelihood of leaving residency, including worry about future work-life balance, lack of role models who

emulate good work-life balance, lack of camaraderie, feeling unprepared for practice after surgery and prioritization of clinical work over educational activities. Lack of a safe environment to voice concerns was also linked with high likelihood of leaving residency with an odds ratio of 1.2 [14]. All in all, these are the same risk factors that lead to burnout.

When we compound this with the fact that females face additional stressors in attempting to succeed in a traditionally male-dominated profession, their higher incidence of depression, anxiety, burnout and suicide is not surprising [7]. Interestingly, in some Muslim majority countries, females face different stressors, and even in female majority specialties like Obstetrics and Gynecology, burnout is still seen more frequently in females than in males [16,17]. A recent survey of 8000 US surgeons demonstrated that female surgeons have worse emotional exhaustion (22.9 vs. 20.6, $P < 0.001$), higher burnout (43.3% vs. 39%) and overall increase in depressive symptoms (33% vs. 29.5%) compared with their male colleagues [18–20].

A review of the literature reveals that most surgical programs offer a piecemeal approach to addressing workplace burnout. Multiple strategies can be effective in countering burnout including building resilience, providing a nurturing environment for learning, improving collegiality, and providing psychiatric and medical support for trainees. We propose that these various solutions should be implemented in an organized, intentional, and cohesive fashion, rather than in a piecemeal way.

Resilience training

Resilience is the ability to recover after adversity. While resilience is inherently present in individuals to varying degrees, a person can increase their resilience through training [21]. Some programs even screen for ‘resilience and grit’ when recruiting candidates to counterbalance future attrition and burnout issues [22]. Instead of specifically screening for resilience, we propose a better solution would be to train a broad and diverse group of physicians to be resilient [23].

<https://doi.org/10.1016/j.sipas.2023.100162>

Received 10 February 2023; Received in revised form 12 March 2023; Accepted 26 March 2023

Available online 5 April 2023

2666-2620/© 2023 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Resilience can be developed on an individual level, community level and/or institutional level. Survey-based studies have shown females to have more grit and resilience which is protective against burnout, evidenced by the fact that females who make it to surgical training have already overcome significant barriers [24]. Sadly, despite scoring higher for resilience, females still face higher attrition, burnout, depression, and suicide and are especially vulnerable during training [25].

Individual efforts to develop resilience can include practicing mindfulness, developing boundary-setting skills, and promoting self-monitoring and healthy engagements outside of the workplace [21,26,27]. Community/institutional based resilience training includes improving interpersonal bonds at the workplace and creating an open and supportive environment where the issue of burnout is acknowledged and efforts to mitigate it are proactive and respected. Interventions at an institutional level have been shown to have the greatest impact as compared to individual efforts [3]. Examples of such institutional interventions include a program at the Mayo clinic, at which biweekly small group meetings were introduced for practicing physicians. This group was given protected paid time for discussions about mindfulness, group learning and increased reflections. One year follow up on this intervention showed sustained improvement in participant engagement and decrease in depersonalization or numbness, a component of burnout [28–30]. Yale University and the University of Southern California offered web-based cognitive behavioral therapy modules to interns in multiple specialties. The interns who received this training were 60% less likely to report suicidal ideation [28,31]. Dr. Branch from the Emory School of Medicine examined an intervention in which surgical and medicine faculty from 30 different institutes trained in humanities for a proscribed period. Data from this study [32,33] showed the additional training in humanities for faculty increased their likelihood of participation in resilience training and fostered a sense of well-being amongst trainees [32,34]. A randomized controlled trial at Mayo Clinic showed increased resilience by implementing availability of coaching for practicing physicians [35]. These interventions are effective at the trainee level as well, with a formal resilience training course offered to senior residents and physicians demonstrating significant beneficial impact [33,36].

We propose a global, thoughtful, and comprehensive approach to increasing resilience to counter burnout which ideally should span medical careers from training to retirement. A proactive armamentarium of approaches should be available in each institution for building resilience [33,37] and these should complement, and not detract from individual or organizational efforts [33].

Individualizing surgical training

Competency-based, individualized learner-based training is emerging as the most successful model for medical education [38]. Such individualized training has given rise to academic ‘coaches,’ which are separate and distinct from mentors. While a mentor is a trusted advisor and role model and is very strategic in helping to proactively plan a career, a professional coach helps professionals navigate the daily machinations of their professions. Three different kinds of coaching are available to surgeons in various phases of their training: coaching of technical skills, coaching of non-technical skills and coaching for resilience building [39,40]. Academic coaches help a learner reach their full potential by identifying real time needs and helping to make and complete a plan to meet these needs [40]. Recognizing that females in training are an at-risk group, designating resources for their coaching can be an easy solution.

Mentorship

Females have faced increased stressors in attempting to succeed in a male-dominated profession, adding to the burden of depression, anxiety, burnout and suicide [7]. In other parts of the world, females face

burnout even in female-dominated professions like Obstetrics and Gynecology, due to structural and societal pressures [16,17]. A lack of role models is a common thread regardless of geography and was felt to be a huge factor for females when they were considering surgery as a career [15]. By having fewer females in positions of power, for those currently in training the idea of ever excelling to the top like their male cohorts appears even more intangible. It makes sense that more females report wanting to choose surgery when exposed to female surgeons who acted as role models [18].

Dr. Freischlag, a noted vascular surgeon and Dean at Wake Forest School of Medicine, has paved the way for many female surgeons and has written a powerful impact statement on Mentorship, published in JAMA surgery [41]. Her work looks at causes of attrition in general surgery, with mentorship being a means to counter that. She posits that mentorship can be from anyone and a good mentor can make a surgeon’s journey far less perilous and so much more rewarding [41]. We recommend offering mentorship as a formal support during training and beyond, as already done informally in some training programs.

Protection from sexual harassment and sex-based biases

Sex-based or gender discrimination and sexual harassment in traditionally male-dominated professions is also a risk factor for burnout for females in surgery. Gender discrimination is defined as unequal treatment that individuals experience based on gender. Sexual harassment would include being subjected to crude, explicit or sexually demeaning remarks, stories, or jokes, having unwanted sexual imagery or materials sent to you, receiving unwanted verbal sexual attention, offensive body language, receiving unwanted physical sexual attention or frank sexual coercion. Despite the strides made by the “me too” movement, surveys report that up to 75 percent of females having experienced sex-based or sexual harassment during the span of their careers. Sadly, this number has not been decreasing over time [7,42]. A recent survey after the 2019 American Board of Surgery In-service Training Exam (ABSITE) of more than 6000 residents from 300 surgical training programs reported that 80 percent of female residents face gender discrimination and 42 percent report sexual harassment [25]. Microaggressions, discrimination and overt harassment are increasingly recognized and reported. Having awareness of this issue is a good first step.

Females have long been thought of as outsiders for some intervention-based specialties in medicine and breaking this academic glass ceiling will be a crucial step in changing the tone. Females in leadership positions have a point of reference to draw from when it comes to gender-based biases and sexual harassment in the workplace. This wealth of knowledge can help navigate these at times difficult challenges [43].

Peer based support

Historically, deterrents to a career choice of surgery included a lack of workplace support and negative interactions with people in positions of authority [15]. Sharing experiences, especially negative ones, has been shown to be cathartic for the person sharing, and liberating for the person receiving information [23]. Peer based debriefing sessions have been implemented in various forms, always having positive effects [44,45]. Surgeons have unique experiences and concerns that are often difficult for families, superiors, and even professional coaches to understand. It is not unusual for surgeons to experience the highest of professional highs and the lowest of professional lows. In times of distress, those who are in the trenches with us can validate our concerns [44,46,47]. Organizations like the Association of Women Surgeons provide multiple venues for peer support and community building.

Fertility support

Delaying childbirth is a reality for most women in medicine [48,49].

Most female physicians perceive that pregnancy will negatively impact their careers. They worry about extending training, losing out on fellowships, and even having pregnancy-related complications [49,50]. Almost 60% of female trainees regret their choice of delaying childbirth [48,50]. A JAMA surgery study of about 900 surgical recruits showed that being single led to an increase incidence of attrition rate [12]. In fact female physicians who are single or childless are at increased risk for affective disorders like depression or anxiety and more likely to commit suicide [7]. It comes as no surprise that 20% of our female physician workforce would choose a different specialty if given the choice again [14,51].

There are a host of female-specific issues that are not yet addressed in our current training environment. Infertility, though not unique to women, is disproportionately underrepresented as an issue for female physicians. A study from Ann Arbor, Michigan reviewed a random sample of female physicians. A quarter of respondents who had attempted to conceive were diagnosed with infertility. This is likely due to a combination of decreasing fertility overall in the western world and to the delay in childbirth due to professional constraints [51]. This is supported by a survey of Obstetrics and Gynecology residents showing that female surgeons report increased worry about fertility if they are considering a fellowship, which extends their training even longer [52].

One survey shows that female physicians showed an increased interest in oocyte cryopreservation (OC) after a simple anti-Müllerian hormone (AMH) test showed diminished fertility. Proof of dwindling fertility in respondents changed the willingness to undergo OC from 38 to 60% [53]. Formal education about elective fertility preservation is a valuable tool. Despite these women having some professional knowledge in the subject of fertility, one survey shows that formal education improved knowledge about fertility preservation markedly (78% post intervention vs. 55% pre-test) [54]. Providing resources and increasing awareness about this issue can help counteract this issue of decreased fertility [52,54]. In 2021, guidelines for providing safe and supported pregnancy during training were published in a call to action for Surgery Chairs and Program Directors [55].

Work-life balance

Constraints when dealing with work-life balance are a huge factor for burnout, depression, and overall dissatisfaction with surgery as career choice [19]. 68% of females who had their first child while in medical school reported receiving workplace support as opposed to 89% of females who had children after training [51]. This perceived difference of support in female trainees can be a viable area for intervention. Currently within GME there are no standardized guidelines for parental leave and childcare [49,50]. Despite more awareness of domestic issues, women are still usually responsible for the majority of home domestic work [56].

Psychiatric support

Given the high rate of suicide amongst female physicians and in female surgeons in particular, access to therapy should be improved [7]. Hesitancy to engage in mental health support can come from fear of being “found out”, the stigma associated with having a mental health disorder, and the potential for difficulties during licensing, accreditations and promotions. A recent study of 7000 surgeons, funded by the American College of Surgeons, shows that even though almost 7 percent of respondents reported suicidal ideation within the last 12 months, only 26% of these respondents would seek psychiatric care [10,11,57].

The University of Oregon initiated a program for physician wellness 17 years ago, developed with the help of their Department of Psychiatry. A recent report on the program speaks to changing attitudes. In 2013, 87% of participants expressed interest in receiving counseling and support, but far fewer believed it to be helpful [58]. The follow-up results in 2021 show a greater demand for this support across all

specialties and ethnic subgroups, reinforcing the fact that if help is provided, trainees would welcome it [58,59]. A variation of mental health support comes in the form of professional coaching. This form of “therapy”/support is more acceptable for physicians. Professional coaching has also been shown to improve burnout related issues and has shown to improve resilience [33,35,60].

Suicide prevention

In the US the rate of suicide is higher in males than in females in the general population. However, among physicians the ratios show higher female prevalence. Female medical students commit suicide at the same rate as male medical students [7]. This data proves the increased burden of disease amongst female physicians. A study of aggregate data from 25 studies shows the rate of suicide being 40% higher in male physicians when compared to men in general and 130% higher in female physicians when compared to women in general [6,7]. A recent publication in the Journal of Academic medicine showed that in ACGME accredited programs, while suicide is not the leading cause of death in female physicians, it is second only to malignancy [61]. The physician wellness program at the University of Oregon showed that of the residents who sought help, 9% of trainees were suffering from suicidal ideation [59]. Older or more senior surgeons had an even higher burden of psychiatric morbidity i.e., burnout, depression, and suicidal ideation [10,19] but younger female trainees remain at higher risk.

Despite these statistics, the reality is that physicians are less likely to seek therapy when compared to the average population [10,23,62,63], but also remain at higher risk.

Screening for suicide can help prevent it. At the University of California, Davis Health implemented a suicide screening program for trainees and faculty in 2011. Data from 6 consecutive years was collected and analyzed. Amongst the trainees who were screened, 33% of the participants reached out to the counselor made available through the program and 19% of the participants who were screened were further referred to mental health professionals [64].

Grief counseling

Death and dying are a very real part of surgical training. Most of us can remember our first patient death. Some deaths are expected (i.e., at the end of a lengthy illness) and some are very sudden and can be completely overwhelming. Surgeons report sadness, guilt and a more acute sense of personal responsibility and failure compared to non-surgeon physicians [10]. At Massachusetts General Hospital, in-depth interviews of physicians and trainees were conducted, where they were asked about their most impactful patient deaths. The trainees who were interviewed reported coping with the disturbing emotions in isolation. They also reported the experiences to be powerful enough to alter career paths and clinical behaviors at the time [65].

A program colloquially known as ‘Death rounds’ was first introduced at University of Washington almost 20 years ago [66,67]. Residents and faculty at these rounds meet to discuss patients who have died, and the basic concept is to have a moment to debrief and process. 76% of participants in one survey think this method of debriefing should be implemented in all ICU rotations [68], perhaps because this rotation would have the sickest patients and therefore the most deaths. Since then, various training programs have implemented one form or another of ‘Death Rounds’ with encouraging results.

Conclusion

Female surgeons often describe surgery as being a calling. Surgical mentors encourage us to recognize and appreciate that surgery has come a long way [69]. The efforts of pioneers in the field have given us a great foundation to build on, but there is still a long way to go.

The World Medical Association may have despaired about the

'suffering' of doctors, but they have also provided a way forward. They report how having a healthy physician is cost effective and leads to increased productivity, patient care and a more sustainable workforce [70]. While the entire health care system needs an overhaul in addressing and preventing burnout [3,71], it is encouraging to note efforts on individual and organizational levels are showing results [3].

Strategies and various methods of helping our female surgical trainees combat burnout and its effects are outlined, and hopefully attention to these issues will encourage programs to empathize and implement many, if not all, of these solutions for their respective programs. In the meantime, knowledge about the issues and their solutions can give future female surgeons-in-training tools to effectively navigate their training.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

Roswell Park Comprehensive Cancer Center is supported by NCI/NIH grant P30-CA016056.

References

- [1] Kassam A, Horton J, Shoimer I, Patten S. Predictors of well-being in resident physicians: a descriptive and psychometric study. *J Grad Med Educ* 2015;7:70–4.
- [2] Cole SPai. Burnout prevention and resilience training for critical care trainees. *Int Anesthesiol Clin* 2019;57:118–31.
- [3] Panagioti M, Panagopoulou E, Bower P, Lewith G, Kontopantelis E, Chew-Graham C, et al. Controlled interventions to reduce burnout in physicians: a systematic review and meta-analysis. *JAMA Intern Med* 2017;177:195–205.
- [4] Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, 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.
- [5] Hanson D.D., "The global forum of health leaders conference", ed, 2009.
- [6] Schernhammer ES, Colditz GA. Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). *Am J Psychiatry* Dec 2004;161:2295–302.
- [7] Schernhammer E. Taking their own lives – the high rate of physician suicide. *N Engl J Med* 2005;352:2473–6.
- [8] Dutheil F, Aubert C, Pereira B, Dambrun M, Moustafa F, Mermillod M, et al. Suicide among physicians and health-care workers: a systematic review and meta-analysis. *PLoS ONE* 2019;14:e0226361.
- [9] Balch CM, Oreskovich MR, Dyrbye LN, Colaiano JM, Satele DV, Sloan JA, et al. Personal consequences of malpractice lawsuits on American surgeons. *J Am Coll Surg* Nov 2011;213:657–67.
- [10] DeCaporale-Ryan L, Sakran JV, Grant SB, Alseidi A, Rosenberg T, Goldberg RF, et al. The undiagnosed pandemic: burnout and depression within the surgical community. *Curr Probl Surg* 2017;54:453–502.
- [11] Patti MG, Schlottmann F, Sarr MG. The problem of burnout among surgeons. *JAMA Surg* 2018;153:403–4.
- [12] Abelson JS, Sosa JA, Symer MM, Mao J, Michelassi F, Bell R, et al. Association of expectations of training with attrition in general surgery residents. *JAMA Surg* 2018;153:712–7.
- [13] Shaw C, Sarosi Jr GA. Reducing Surgical Resident Attrition. *JAMA Surg* 2018;153:717–8.
- [14] Gifford E, Galante J, Kaji AH, Nguyen V, Nelson MT, Sidwell RA, et al. Factors associated with general surgery residents' desire to leave residency programs: a multi-institutional study. *JAMA Surg* 2014;149:948–53.
- [15] Bongiovanni T, Yeo H, Sosa JA, Yoo PS, Long T, Rosenthal M, et al. Attrition from surgical residency training: perspectives from those who left. *Am J Surg* 2015;210:648–54.
- [16] Kalani SD, Azadfallah P, Oreyzi HR, Azizkhani R, Adibi P. Prevalence of Burnout Syndrome among the Residents in Isfahan University of Medical Sciences, Isfahan, Iran. *J Isfahan Med School* 2017;35:993–9.
- [17] Dabiran N., Ghorbany S., Khajehnasiri M., "Self reported assessment of health status and psychological condition among hospital medical residents in Iran".
- [18] Viola KV, Bucholz E, Yeo H, Piper CL, Bell Jr RH, Sosa JA. Impact of family and gender on career goals: results of a national survey of 4586 surgery residents. *Arch Surg* 2010;145:418–24.
- [19] Oskrochi Y, Maruthappu M, Henriksson M, Davies AH, Shalhoub J. Beyond the body: a systematic review of the nonphysical effects of a surgical career. *Surgery* 2016;159:650–64.
- [20] Dyrbye LN, Shanafelt TD, Balch CM, Satele D, Sloan J, Freischlag J. Relationship between work-home conflicts and burnout among American surgeons: a comparison by sex. *Arch Surg* 2011;146:211–7.
- [21] Epstein RM, Krasner MS. Physician resilience: what it means, why it matters, and how to promote it. *Acad Med* 2013;88:301–3.
- [22] Burkhart RA, Tholey RM, Guinto D, Yeo CJ, Chojnacki KA. Grit: a marker of residents at risk for attrition? *Surgery* 2014;155:1014–22.
- [23] Danhauer SC, Files K, Freischlag JA. Physician suicide-reflections on relevance and resilience. *JAMA Surg* 2020;155:721–2.
- [24] Hewitt DB, Chung JW, Ellis RJ, Cheung EO, Moskowitz JT, Hu YY, et al. National evaluation of surgical resident grit and the association with wellness outcomes. *JAMA Surg* 2021;156:856–63.
- [25] Schlick CJR, Ellis RJ, Etkin CD, Greenberg CC, Greenberg JA, Turner PL, et al. Experiences of gender discrimination and sexual harassment among residents in general surgery programs across the US. *JAMA Surg* 2021.
- [26] Dunn LB, Iglewicz A, Moutier C. A conceptual model of medical student well-being: promoting resilience and preventing burnout. *Acad Psychiatry* 2008;32:44–53.
- [27] Zwack J, Schweitzer J. If every fifth physician is affected by burnout, what about the other four? Resilience strategies of experienced physicians. *Acad Med* 2013;88:382–9.
- [28] Beresin EV, Milligan TA, Balon R, Coverdale JH, Louie AK, Roberts LW. Physician wellbeing: a critical deficiency in resilience education and training. *Acad Psychiatry* 2016;40:9–12.
- [29] West CP, Dyrbye LN, Rabatin JT, Call TG, Davidson JH, Multari A, et al. Intervention to promote physician well-being, job satisfaction, and professionalism: a randomized clinical trial. *JAMA Intern Med* 2014;174:527–33.
- [30] West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet* 2016;388:2272–81.
- [31] Guille C, Zhao Z, Krystal J, Nichols B, Brady K, Sen S. Web-based cognitive behavioral therapy intervention for the prevention of suicidal ideation in medical interns: a randomized clinical trial. *JAMA Psychiatry* 2015;72:1192–8.
- [32] Branch Jr WT, Frankel RM, Hafner JP, Weil AB, Gilligan MC, Litzelman DK, et al. A multi-institutional longitudinal faculty development program in humanism supports the professional development of faculty teachers. *Acad Med* 2017;92:1680–6.
- [33] Cordova MJ, Gimmler CE, Osterberg LG. Foster well-being throughout the career trajectory: a developmental model of physician resilience training. *Mayo Clin Proc* 2020;95:2719–33.
- [34] Nedrow A, Steckler NA, Hardman J. Physician resilience and burnout: can you make the switch? *Fam Pract Manag* 2013;20:25–30.
- [35] Dyrbye LN, Shanafelt TD, Gill PR, Satele DV, West CP. Effect of a professional coaching intervention on the well-being and distress of physicians: a pilot randomized clinical trial. *JAMA Intern Med* 2019;179:1406–14.
- [36] Dyrbye LN, Shanafelt TD, Werner L, Sood A, Satele D, Wolanskyj AP. The impact of a required longitudinal stress management and resilience training course for first-year medical students. *J Gen Intern Med* 2017;32:1309–14.
- [37] Menon NK, Trockel MT, Hamidi MS, Shanafelt TD. Developing a portfolio to support physicians' efforts to promote well-being: one piece of the puzzle. *Mayo Clin Proc* 2019;94:2171–7.
- [38] Skochelak SE, Stack SJ. Creating the medical schools of the future. *Acad Med* 2017;92:16–9.
- [39] Lovell B. What do we know about coaching in medical education? A literature review. *Med Educ* 2018;52:376–90.
- [40] Deiorio NM, Carney PA, Kahl LE, Bonura EM, Juve AM. Coaching: a new model for academic and career achievement. *Med Educ Online* 2016;21:33480.
- [41] Freischlag JA, Silva MM. Preventing General Surgery Residency Attrition-It Is All About the Mentoring. *JAMA Surg* 2017;152:272–3.
- [42] Frank E, Brogan D, Schiffman M. Prevalence and correlates of harassment among US women physicians. *Arch Intern Med* 1998;158:352–8.
- [43] Pololi LH, Jones SJ. Women faculty: an analysis of their experiences in academic medicine and their coping strategies. *Gend Med* 2010;7:438–50.
- [44] Branch Jr WT. Use of critical incident reports in medical education. A perspective. *J Gen Intern Med* 2005;20:1063–7.
- [45] Lightowers SV, Thompson MK, Hunt SL. Not all interventions for burnout cost money: the value of debrief groups. *BMJ* 2017;358:j4377.
- [46] Feudtner C, Christakis DA. Making the rounds. The ethical development of medical students in the context of clinical rotations. *Hastings Cent Rep* 1994;24:6–12.
- [47] Coulehan J, Williams PC. Conflicting professional values in medical education. *Camb Q Healthc Ethics* 2003;12:7–20.
- [48] Stack SW, Jaggi R, Biermann JS, Lundberg GP, Law KL, Milne CK, et al. Child-bearing decisions in residency: a multicenter survey of female residents. *Acad Med* 2020;95:1550–7.
- [49] Camero K. We must normalize and better support parenting during medical training. *Acad Med* 2021;96:935–6.
- [50] Vassallo P, Jeremiah J, Forman L, Dubois L, Simmons DL, Chretien K, et al. Parental leave in graduate medical education: recommendations for reform. *Am J Med* 2019;132:385–9.
- [51] Stentz NC, Griffith KA, Perkins E, Jones RD, Jaggi R. Fertility and childbearing among American female physicians. *J Womens Health (Larchmt)* 2016;25:1059–65.
- [52] Schwartz KM, Martin CE, Hipp HS, Kawwass JF. Pregnancy and fertility concerns: a survey of United States obstetrics and gynecology residents. *Matern Child Health J* 2021;25:172–9.
- [53] Hurley EG, Ressler IB, Young S, Batcheller A, Thomas MA, DiPaola KB, et al. Postponing childbearing and fertility preservation in young professional women. *South Med J* 2018;111:187–91.

- [54] Anspach Will E, Maslow BS, Kaye L, Nulsen J. Increasing awareness of age-related fertility and elective fertility preservation among medical students and house staff: a pre- and post-intervention analysis. *Fertil Steril* 2017;107:1200–5.
- [55] Bamdad MC, Hughes DT, Englesbe M. Safe and supported pregnancy: a call to action for surgery chairs and program directors. *Ann Surg* 2022;275:e1–2.
- [56] Ghasemi S. How have women health care adjusted their approach to work-life balance as the world adapts to the "new normal"? *Am J Surg* 2021;222:700–1.
- [57] Shanafelt TD, Balch CM, Dyrbye L, Bechamps G, Russell T, Satele D, et al. Special report: suicidal ideation among American surgeons. *Arch Surg* 2011;146:54–62.
- [58] Ey S, Moffit M, Kinzie JM, Choi D, Girard DE. If you build it, they will come": attitudes of medical residents and fellows about seeking services in a resident wellness program. *J Grad Med Educ* 2013;5:486–92.
- [59] Ey Ph DS, Ladd Ph DB, Soller Md M, Moffit Ph DM. Seeking help in the "perfect storm": why residents and faculty access an on-site wellness program. *Glob Adv Health Med* 2021;10:21649561211017471.
- [60] Gazelle G, Liebschutz JM, Riess H. Physician burnout: coaching a way out. *J Gen Intern Med* 2015;30:508–13.
- [61] Yaghmour NA, Brigham TP, Richter T, Miller RS, Philibert I, Baldwin Jr DC, et al. Causes of death of residents in acgme-accredited programs 2000 through 2014: implications for the learning environment. *Acad Med*, 92; 2017. p. 976–83.
- [62] Kalmoe MC, Chapman MB, Gold JA, Giedinghagen AM. Physician suicide: a call to action. *Mo Med* 2019;116:211–6.
- [63] Gold KJ, Sen A, Schwenk TL. Details on suicide among US physicians: data from the national violent death reporting system. *Gen Hosp Psychiatry* 2013;35:45–9.
- [64] Sciolla AF, Haskins J, Chang CH, Kirshnit C, Rea M, Uppington J, et al. The suicide prevention, depression awareness, and clinical engagement program for faculty and residents at the university of California, Davis Health. *Acad Psychiatry* 2021; 45:272–8.
- [65] Jackson VA, Sullivan AM, Gadmer NM, Seltzer D, Mitchell AM, Lakoma MD, et al. It was haunting..": physicians' descriptions of emotionally powerful patient deaths. *Acad Med* 2005;80:648–56.
- [66] Vallurupalli M. Mourning on morning rounds. *N Engl J Med* 2013;369:404–5.
- [67] Khot S, Billings M, Owens D, Longstreth Jr WT. Coping with death and dying on a neurology inpatient service: death rounds as an educational initiative for residents. *Arch Neurol* 2011;68:1395–7.
- [68] Hough CL, Hudson LD, Salud A, Lahey T, Curtis JR. Death rounds: end-of-life discussions among medical residents in the intensive care unit. *J Crit Care* 2005;20: 20–5.
- [69] Deveney KE. Transition from residency to practice: life does get better! *JAMA Surg* 2014;149:954.
- [70] Doctors get ill too. *Lancet* 2009;374:1653.
- [71] Hartzband P, Groopman J. Physician burnout, interrupted. *N Engl J Med* 2020;382: 2485–7.

Quratulain Sabih^{a,g}, Helen Cappuccino^a, Stephen Edge^a,
Kazuaki Takabe^{a,b,c,d,e,f,*}, Jessica Young^{a,*}

^a Department of Surgical Oncology, Roswell Park Comprehensive Cancer Center, Buffalo NY, 14263, United States

^b Departments of Gastroenterological Surgery, Yokohama, Kanagawa, 236-004, Japan

^c Department of Surgery, University at Buffalo Jacobs School of Medicine and Biomedical Sciences, the State University of New York, Buffalo, NY, United States

^d Department of Breast Surgery and Oncology, Tokyo Medical University, Tokyo, 160-8402 Japan

^e Department of Surgery, Niigata University Graduate School of Medical and Dental Sciences, Niigata, 951-8510 Japan

^f Department of Breast Surgery, Fukushima Medical University, Fukushima, Japan

^g Department of Breast Surgery, Magee-Womens Surgical Associates, University of Pittsburgh Medical Center, Pittsburgh PA, 15213 USA

* Corresponding authors at: Elm & Carlton Streets, Buffalo NY 14263 USA.

E-mail address: Jessica.Young@RoswellPark.org (J. Young).