



Winter is coming: Is the shine of surgery fading?

Güldeniz Karadeniz Çakmak

Department of General Surgery, Zonguldak Bülent Ecevit University Faculty of Medicine, Zonguldak, Türkiye

INTRODUCTION

Becoming a surgeon is one of the most challenging and demanding decisions to be made at the very beginning of a young physician's career following a well-deserved graduation earned through years of dedication, perseverance and sacrifice. This lifelong, 24/7 journey requires not only technical skill but also resilience, patience, and a profound commitment to patient care in any circumstance. The education period never ends and involves years of rigorous training, a strong academic establishment, and the ability to cope with high-pressure situations and overwhelming stress. Becoming a surgeon means being able to work as a team member, developing excellent communication skills, and exercising empathy with patients, families, and colleagues. The fortune, however, is significant, as the act of a surgeon is both impactful and profoundly irreversible, providing the privilege to create a permanent influence on the life of a human being. Along with all these facts, the decline in enthusiasm for surgery residency and attrition has been a subject of concern and a pressing issue for the past decades globally (1-3). Various factors contribute to this trend, and several issues have been addressed as etiologic reasons. The correct question should not focus on the quantity of the surgery residents, or the medical students matching surgery, but rather on the quality of the education they receive.

The demanding hours, intense physical and emotional strain, and a high level of responsibility that come with surgery residency can be exhausting for many students, particularly when work-life balance is an important consideration today. To reverse the trend, it's crucial to not only identify these challenges but also to create a supportive environment that focuses on well-being, improving quality of life through rational and practical strategies. Since surgery is not only a profession but also a lifestyle that requires personal sacrifices in terms of both physical and psychological comfort, the current generation of medical students has concerns about choosing this way of life. It is indeed a heavy emotional burden, compounded by long working hours. For medical students applying to residency programs, choosing a medical specialty is a complex and critical process (4). For the majority of applicants, this choice determines their career trajectory and provides solid evidence regarding their character and attitudes towards life. Questions remain about how they navigate the available specialty options and which factors tend to influence their interest in each specialty. When we narrow the scope and examine the reasons why medical students do not prefer a surgical residency, or why resident attrition occurs, there are several key points that should be emphasized. As the preference decreases, it is not the quantity, but rather the academic quality of residents that unfortunately declines. When we analyze the match scores for general surgery in Türkiye, we identify four major problems that could lead to irreversible, serious consequences. One issue is the unmatched and less desirable residency programs, particularly in low-population geographic regions, with limited social life facilities. Another important point to consider is that medical school graduates with the lowest scores in the matching exam are secure spots in general surgery residencies. The third issue,

Cite this article as: Karadeniz Çakmak G. Winter is coming: Is the shine of surgery fading?. *Turk J Surg.* 2025;41(2):114-117

Corresponding Author
Güldeniz Karadeniz Çakmak

E-mail: gkkaradeniz@yahoo.com
ORCID ID: orcid.org/0000-0001-5802-4441

Received: 20.04.2025

Accepted: 09.05.2025

Publication Date: 30.05.2025

DOI: 10.47717/turkjsurg.2025.2025-4-29

Available at www.turkjsurg.com



which stems from and is compounded by the previous one, is that their motivation is not driven by ambition or passion, but rather by the need to find a final refuge that provides financial relief during this period. The final issue is resident attrition, which is higher than the presumed rate. Solutions to this phenomenon have been explored in Europe and the US in recent decades, focusing on the key factors contributing to the problem (1-4). To begin with, work-life balance is a crucial concern for young physicians. Surgery residency is known for longer hours on-duty, excessive stress, night shifts, and intense workload, which can lead to burnout. Many medical students are now prioritizing their private time and may be deterred by the perceived difficulty of maintaining it during surgical training. The impact on personal life, with long and unpredictable hours during residency, often leaves little time for personal activities or family time, prompting many medical students to consider other specialties that offer more predictable hours and less stress. Creating structured schedules that allow for regular time off, more flexible rotations, and ensure that residents have the opportunity to decompress and take care of their personal lives could be a step in the right direction. One question to be asked at the very beginning of the residency program should be: Do you live to work, or work to live? Since surgery means a lifetime of work, the answer might need to be more descriptive.

Economic prospects and financial considerations have long been key factors in residency choices. Surgical training often comes with a heavy financial burden due to extended years of education, the need for additional training in subspecialties, and relatively low salaries during residency. For many students, this financial burden is compounded by the high cost of medical school. Potential residents may also be dissuaded by the longer path to earning a higher salary, especially when compared to specialties with shorter training periods or more predictable financial outcomes. Additionally, malpractice verdicts and related concerns act as cautionary factors for young physicians, influencing them to pursue specialties with less risk and greater protective measures during their training and beyond.

Being a surgeon requires unique qualities to cope with high stress and the emotional toll. Surgery, particularly in specialties like trauma or oncologic surgery, involves high-stakes procedures with life-or-death outcomes, leading to significant stress and emotional fatigue. This emotional burden, combined with long working hours, contributes to higher levels of burnout among residents and may deter individuals who prefer specialties with fewer emotional and physical demands. Other issues to be addressed are the cultural and gender-related factors (5). Surgery has historically been a male-dominated field, and while this gender imbalance is changing, some medical students may still perceive surgery as less welcoming to women or other minority groups. In addition, the intense, competitive nature of surgery and the "macho" culture associated with it may

discourage those who do not identify with this culture. Concerns about achieving gender equality and managing both career and family responsibilities during surgery residency are also major factors, particularly for female medical students (6,7). Surgery has traditionally been viewed as a high-stress, high-stakes profession with a somewhat rigid culture. Promoting diversity in gender, ethnicity, and career interests within the field could not only make surgery more appealing, fostering an environment with an inclusive culture, but also create a more collaborative and empathetic environment. Mentors and academicians should encourage female students to choose surgery. The presence of a role model has a significant positive influence on surgical career decision-making (8).

We recognize the evolving interests and expectations in the medical field. Today's medical students increasingly seek specialties that offer a balanced combination of intellectual challenges, patient interaction, and flexibility. Many find these qualities more prominent in fields such as internal medicine, dermatology, and family medicine. The rising popularity of lifestyle medicine and preventive care, along with advancements in medical technology, has led more students to pursue non-surgical specialties. Given the shifting expectations and values, surgery must be reframed to emphasize how it can be rewarding and impactful-not just in terms of patient outcomes, but also in terms of personal growth and contributions to the broader healthcare system. These changes will not be easy, but they have the potential to make surgery a more sustainable and desirable career path for future generations. On the other hand, the evolving nature of surgery, with minimally invasive surgery, robotics, and artificial intelligence, can be particularly impactful and appealing to a generation passionate about video games. A key factor to acknowledge is their capability and skill with these novel technologies, particularly their visuospatial abilities and hand-eye coordination (9). However, these advancements have led some to believe that surgery is becoming less "hands-on" or "traditional", which may make it less appealing to students interested in more physically demanding or technique-intensive practices.

From the perspective of mentors, our priority should be to engage in fearless and honest self-criticism. We must approach this with transparency, candor, and decisiveness to improve our training programs. One of the main areas for critique is the perceived lack of mentorship and support in some surgical residency programs, which can leave residents feeling unsupported or emotionally neglected. The hierarchical nature of surgical training (where more junior residents may feel isolated) can deter prospective candidates. Additionally, inadequate guidance on how to navigate the challenges of residency may contribute to a lack of interest in the field. Designing better support systems-ensuring access to mental health resources, mentorship programs, and

peer support networks—could help mitigate the emotional toll. Residency is a challenging time, and fostering a more supportive culture could lead to better retention rates. Another point with the potential to advance the field of surgery is the creation of a national blueprint for sustainable science in surgery. Being a surgeon-scientist should be promoted (10). Surgeon-scientists offer a distinct and innovative perspective in tackling critical scientific questions, blending clinical expertise with research-driven insights. The historic contributions of surgeon-scientists, including nine Nobel Prize laureates, highlight the unique perspective they bring to exploring critical questions about the biology and burden of disease (11). Surgeons possess a distinct approach and mindset that enables them to tackle key scientific challenges in innovative ways. Leaders in academic surgery must consider modernizing surgical training. We must adapt to the impact of generational changes on surgical residency applications, focusing on the preferences and values of millennial medical students, such as their desire for work-life balance, job satisfaction, and mental health support. Growth in mindset should be initiated by identifying a research focus in the decision-making process for a surgical career. Mentorship should be provided individually to each resident, which will reinforce the sense of belonging and prevent attrition.

All these factors are shaping the future of surgery residency programs. Our primary responsibility is not only to increase the quantity of surgical residency programs but also to enhance the fundamental academic quality of surgeon candidates. Simply increasing the number of surgical residency programs will not solve the problem if it is not accompanied by a focus on maintaining or improving the academic and clinical quality of surgeons. It is not just about producing more surgeons; it is about ensuring that those entering the field are well-prepared, compassionate, and capable of handling the complexities of modern surgery. Key approaches to improving the academic quality of surgical residency programs could include enhancing training standards and focusing on high-quality, evidence-based education in both the technical and non-technical aspects of surgery. This involves refining teaching methods, integrating simulation-based learning, and offering opportunities for residents to engage in research and innovation. The goal is to ensure that every resident is trained to the highest standards, equipped with both advanced skills and critical thinking capabilities. Additionally, designing individualized learning paths is essential, recognizing that surgical residents come from diverse backgrounds and have varying strengths and areas for growth. Tailoring training to individual needs through mentorship, assessments, and targeted learning could help residents develop more effectively in their specialties and reduce attrition.

While technical skills are crucial, the emotional and cognitive challenges of surgery are equally important. Building emotional

and cognitive resilience, with a focus on stress management and decision-making skills, can better prepare surgeons for the challenges they will face on the ground. This could be integrated into the curriculum through formalized training in communication, leadership, and ethical decision-making. Furthermore, residents should not feel isolated or unsupported after graduation. Implementing lifelong mentorship policies within residency programs to create stronger relationships between residents and attending surgeons can help ensure that residents are not only mastering the technical aspects of surgery but also developing their professional identities as well-rounded healthcare providers. Mentors can assist residents in navigating the emotional and personal aspects of their career paths, such as managing burnout, stress, and work-life balance concerns. It is crucial to assess not only the clinical skills of residents but also their professional growth and overall well-being. Regular, continuous feedback and evaluations that are constructive, actionable, and focused on both personal and professional development can lead to better outcomes and the early identification of areas where residents may be struggling.

As mentors and faculty members, we must embrace the cultural shift in surgical education. A culture that emphasizes collaboration, diversity, and inclusion can help make surgery a more welcoming and accessible field. The surgical discipline is essential, but it can be approached with a more compassionate mindset. Encouraging open dialogue about mental health, work-life balance, and the stresses of residency can help transform the traditional, often tough, persona of surgery into one that recognizes the humanity of the individuals behind the scalpel. By changing our mindsets and approaches related to the expectations of residents, we can foster a more supportive and sustainable environment for their professional development. Residents should be encouraged to learn English, which is the lingua franca of science, to follow current literature updates. Cultivating a culture that prioritizes well-being and holistic growth will better prepare residents to navigate the inherent challenges of surgical training. Such a shift would not only enhance retention but also contribute to the creation of more compassionate, resilient, and proficient surgeons. Moreover, encouraging residents to participate in global health initiatives, collaborate with international colleagues, and engage in innovative surgical techniques and technologies can broaden their perspectives and offer new insights into their training. This, in turn, will drive quality improvements on a national scale. Moving away from old-school thinking and improving the academic quality of surgical residency programs is essential for cultivating skilled and visionary surgeons. By focusing on these key areas, we can ensure that we not only increase the quantity of surgeons but also significantly enhance the quality of care and innovation in surgery. As policymakers and faculty members, we must acknowledge the fundamental rule of

evolution—the survival of the fittest—which applies to the current state of surgery. If we wish to remain as a shining star in the future, as we were in the past when we were revered as the “hands of the gods on earth”, we must adapt to the current ecosystem desired by the new generation and accept that change has already arrived in surgery. While surgery remains one of the most prestigious fields, the decline in interest is largely driven by lifestyle factors, including the desire for a more predictable and manageable work schedule and financial considerations. On a national basis, along with educational institutes’ efforts, there remains a crucial responsibility of the Turkish Surgical Society, which is the most inclusive professional and umbrella organization encompassing surgeons in Türkiye. Turkish Surgical Society, should address the root causes of the problem and take urgent action to reverse the declining interest in pursuing surgical careers in our country. Turkish Surgical Society should initiate steps to address this issue, which has the potential to cause significant problems in the future. The designation of regional councils, including department heads and education coordinators, might be the first step forward. This would foster collaboration and cooperation, and determine the limits and strengths of each institute regarding the basic training of residents. Moreover, a web-based educational programme that includes essential educational content and information about being a surgeon medical students considering surgical residencies might be impactful. The curriculum should include educational modules and simulation-based basic surgical skills courses for medical students. The establishment of a committee of medical students aspiring to a career in surgery would foster interest in the field early on. The effect of surgical experience, including operation theater actions, involvement in operative procedures, welcoming attitudes of attendants and treating them as members of the team, has a great impact and serves as a motivator for student attitudes toward surgical careers (12). To open doors, like initiating shadowing a surgeon programme as a medical student, online meetings with well-known mentors, seminars on guidance for career planning in surgery, open question forum for medical student to reach surgical experts to receive accurate and comprehensive answers and lectures about what makes being a surgeon special and the reasons behind the mystery of surgery can help them to determine if surgery is the right path for her or him. The ultrastructure of the steps to be taken can be guided and revised with the recommendations and insights of educators from training institutions, and can be modified according to the requirements of each region across Türkiye. A task force hosted by the Turkish Surgical Society, with investment and engagement from various stakeholders, including academic surgeons, surgery department chiefs, governmental representatives, and funding institutes, can take the required deliberate action to transform the future of Turkish surgeon-scientists and pave the way for

next-generation surgeons to possess not only theoretical and practical competence, but also research and ethics proficiency, ultimately, securing a well-deserved seat on the international platform of value-based surgical health care.

CONCLUSION

In summary, the decreasing interest in surgery residency is a dynamic and multifaceted issue, stemming from work-life balance concerns, the emotional and physical burden of surgery, and shifting societal values around career goals and personal well-being. Addressing these challenges—by improving residency conditions, offering better support systems, and showcasing a more diverse and inclusive surgical culture—could help reverse the trend and encourage more students to pursue a career in surgery.

Keywords: Excision, general surgery, incision

Footnotes

Financial Disclosure: The author declared that this study received no financial support.

REFERENCES

1. Peel JK, Schlachta CM, Alkhamesi NA. A systematic review of the factors affecting choice of surgery as a career. *Can J Surg.* 2018;61:58-67.
2. Schmidt LE, Cooper CA, Guo WA. Factors influencing US medical students’ decision to pursue surgery. *J Surg Res.* 2016;203:64-74.
3. Thomas A, Murtaza AN, Michael Spiers HV, Zargarani A, Turki M, Mathur J, et al. Declining interest in general surgical training - challenging misconceptions and improving access at undergraduate level. *Ann Med Surg (Lond).* 2019;40:3-8.
4. Berger AP, Giacalone JC, Barlow P, Kapadia MR, Keith JN. Choosing surgery as a career: early results of a longitudinal study of medical students. *Surgery.* 2017;161:1683-1689.
5. Maullu-Wallis MC, Park B, Hill AG, Jin JZ, Unasa H, Locke M. Have factors influencing female medical students’ intention to pursue a career in surgery changed over the last 10 years? A systematic review. *J Am Coll Surg.* 2022;234:1221-1237.
6. Giantini Larsen AM, Pories S, Parangi S, Robertson FC. Barriers to pursuing a career in surgery: an institutional survey of harvard medical school students. *Ann Surg.* 2021;273:1120-1126.
7. Bozkurt H, Çolak T, Tuna S, Özcan C, Reyhan E. A questionnaire on the perception of social and academic discrimination against female general surgeons in Türkiye. *Turk J Surg.* 2025;41:69-77.
8. Peel JK, Schlachta CM, Alkhamesi NA. A systematic review of the factors affecting choice of surgery as a career. *Can J Surg.* 2018;61:58-67.
9. Keleş HO, Omurtag A. Video game experience affects performance, cognitive load, and brain activity in laparoscopic surgery training. *Turk J Surg.* 2023;39:95-101.
10. Ladner DP, Goldstein AM, Billiar TR, Cameron AM, Carpizo DR, Chu DI, et al. Transforming the future of surgeon-scientists. *Ann Surg.* 2024;279:231-239.
11. Yağmurlu A. Surgeons who have won the Nobel Prize. *Turk J Surg.* 2006;22:120-128.
12. Marshall DC, Saliccioli JD, Walton SJ, Pitkin J, Shalhoub J, Malietzis G. Medical student experience in surgery influences their career choices: a systematic review of the literature. *J Surg Educ.* 2015;72:438-445.