

LETTER To EDITOR

Medical Students' Learning in the High-Stress Clinical Environment of the Emergency Department

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Dear Editor

A substantial portion of medical students' learning is focused on clinical training, particularly in the field of Emergency Medicine (EM). The emphasis on hands-on experience is crucial, as it equips medical students with the skills and knowledge necessary to handle acute medical situations effectively (1). Although medical students learn to make quick decisions, work under pressure, and apply their medical knowledge in real-world scenarios in the aura of the Emergency Department (ED), the rotations of ED can be particularly demanding, and medical students experience high levels of stress largely due to the fast-paced and unpredictable nature of the environment. It is important to mention that medical students are required to process a vast amount of new information quickly while managing the complexities of acute patient care (2, 3). Additionally, the long work hours often contribute to physical and mental fatigue, making it essential to provide adequate support and resources to help students cope with the unique pressures of this critical clinical setting.

Stress and burnout are increasingly acknowledged as critical factors that significantly impact the abilities, learning experiences (4), professionalism, and patient care of medical trainees (5). These challenges can hinder their capacity to absorb knowledge effectively, maintain a high standard of professionalism, and provide quality care

to patients. As medical education becomes more demanding, understanding and addressing the effects of stress and burnout on trainees is essential for fostering a healthier learning environment and ensuring optimal patient outcomes (6). Recent studies have underscored the prevalence of stress and burnout among medical students, revealing that at least half of all medical students may experience these challenges, especially following the commencement of their clinical rotations. This period is often marked by increased responsibilities and pressures, which can exacerbate feelings of stress and lead to significant emotional and physical exhaustion. As a result, it is crucial to address these issues to support students' mental health and enhance their overall educational experience (7). In fact, approximately 27.7% of medical students experience depression, while 11.1% report having suicidal thoughts. These rates are significantly higher than those found in peer groups, such as U.S. college graduates aged 22 to 32 (8). This stark contrast highlights the unique challenges faced by medical students and underscores the urgent need for targeted mental health support and resources within medical education to address these alarming trends.

We should bear in mind that transitions in medical education, particularly the shift from preclinical to clinical learning, have been recognized as a particularly stressful period for students. This transition often involves a significant increase in responsibilities, exposure to real patient care, and the need to apply theoretical knowledge in practical

settings (9). As students navigate these challenges, they may experience heightened anxiety and pressure, making it essential to provide adequate support and resources to facilitate a smoother adjustment during this critical phase of their training.

The transition from the predominantly didactic preclinical curriculum to the patient-care-focused clerkships presents significant challenges for medical students. As they adjust to new learning environments, they must contend with unpredictable schedules and the complexities of providing patient care within the framework of clinical medicine. This shift requires students to adapt not only to practical skills but also to the emotional and ethical demands of interacting with patients. Consequently, this period can be overwhelming, emphasizing the need for supportive structures and guidance to help students navigate these changes effectively.

To assist medical students in navigating the demanding environment of the ED and enhancing their educational experience, we propose several strategies:

Structured orientation and training programs

Implementing structured orientation programs for medical students before they begin their ED rotations can help ease the transition. These programs should include simulations and role-playing scenarios that mimic real-life situations in the ED, allowing students to practice their skills in a controlled environment. Research indicates that such preparatory training can boost confidence and reduce anxiety (10). The role of medical teachers in this regard is significantly paramount (11).

Mentorship and peer support

Establishing mentorship programs where experienced clinicians guide medical students can provide emotional support and practical advice. Additionally, creating peer support groups allows students to share experiences and coping strategies, fostering a sense of community. Studies have shown that mentorship can significantly alleviate feelings of isolation and stress among medical trainees (12).

Mindfulness and stress management techniques

Incorporating mindfulness training and stress management workshops into the medical curriculum can equip students with tools to manage their stress effectively. Techniques, such as meditation, deep breathing exercises, and yoga have been found to reduce anxiety and improve overall well-being among medical students (13). Regular practice of these techniques can help students

maintain focus and composure in high-pressure situations.

Flexible scheduling and workload management

Implementing flexible scheduling and manageable workloads during ED rotations can help mitigate the stress associated with long hours and unpredictable shifts. Ensuring that students have adequate downtime to rest and recuperate is crucial for their mental health. Research highlights that reducing excessive workloads can lead to improved performance and better learning outcomes (14).

Access to mental health resources

Providing easy access to mental health resources, such as counseling services and workshops on resilience and coping strategies, is essential. Institutions should promote these resources actively and ensure that students feel comfortable seeking help. Evidence suggests that proactive mental health support can significantly reduce the incidence of burnout and depression among medical students (15).

Feedback and reflection opportunities

Encouraging regular feedback and reflection on clinical experiences can help students process their learning and emotional responses. Structured reflection sessions, where students discuss their experiences and feelings, can promote personal growth and resilience. Studies have shown that reflective practice enhances learning and reduces stress by fostering a deeper understanding of clinical experiences (16).

Interdisciplinary teamwork training

Training medical students to work effectively within interdisciplinary teams can enhance their collaborative skills and reduce feelings of inadequacy. Understanding their role within a team can provide students with a sense of belonging and support in the ED. Research indicates that teamwork training can improve both student satisfaction and learning outcomes (17).

In conclusion, the transition from preclinical education to clinical training, particularly within the high-stress environment of the ED, presents significant challenges for medical students. The demanding nature of this setting not only tests their clinical skills but also places immense pressure on their mental and emotional well-being. As evidenced by the alarming rates of stress, burnout, and mental health issues among medical trainees, it is imperative that medical education institutions prioritize the implementation of comprehensive

support systems. By adopting strategies, such as structured orientation programs, mentorship initiatives, mindfulness training, flexible scheduling, and accessible mental health resources, we can better equip medical students to navigate the complexities of their clinical rotations. Encouraging regular feedback and reflection, along with interdisciplinary teamwork training, will further enhance their learning experiences and promote resilience.

Ultimately, addressing the unique challenges faced by medical students in the ED is crucial not only for their personal well-being but also for the quality of patient care they provide. As the landscape of medical education continues to evolve, fostering a supportive and understanding environment (18) will ensure that future healthcare professionals are not only competent but also mentally and emotionally prepared to meet the demands of their profession.

Conflict of Interest

There is no conflict of interest to be declared.

References

1. Beigzadeh A, Sharifpoor E, Maroufi M. How can teaching in the emergency department be augmented?. *J Emerg Practice Trauma*. 2025;10(1):4-6.
2. Anderson ES, Hsieh D, Alter HJ. Social emergency medicine: embracing the dual role of the emergency department in acute care and population health. *Ann Emerg Med*. 2016;68(1):21-5.
3. Beigzadeh A, Yamani N, Sharifpoor E, Bahaadinbeigy K, Adibi P. Teaching and learning in clinical rounds: a qualitative meta-analysis. *J Emerg Practice Trauma*. 2021;7(1):46-55.
4. Sohail N. Stress and academic performance among medical students. *J Coll Physicians Surg Pak*. 2013; 23(1):67-71.
5. West CP, Huschka MM, Novotny PJ, Sloan JA, Kolars JC, Habermann TM et al. Association of perceived medical errors with resident distress and empathy: A Prospective Longitudinal Study. *JAMA*. 2006;296:1071-8.
6. Beigzadeh A, Yusefi AR, Sharifpoor E, Okhovati M. The Stressors of Medical Students in Emergency Department Rotations: A Mixed-method Sequential Explanatory Design. *J Emerg Practice Trauma*. 2024;10(1):38-46.
7. IsHak W, Nikravesh R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *Clin Teach*. 2013;10(4):242-5.
8. Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *JAMA*. 2016;316(21):2214-36.
9. Colbert-Getz JM, Baumann S, Shaffer K, Lamb S, Lindsley JE, Rainey R et al. What's in a transition? An integrative perspective on transitions in medical education. *Teach Learn Med*. 2016; 28(4):347-52.
10. Beigzadeh A, Yamani N, Bahaadinbeigy K, Adibi P. Challenges and strategies of clinical rounds from the perspective of medical students: A qualitative research. *J Educ Health Promot*. 2021;10(1):6-18.
11. Esmaeili M, Haghdoost AA, Beigzadeh A, Bahmanbijari B, Bazrafshan A. Personal and scientific characteristics of positive and negative role models among medical educators from the viewpoint of dentistry and pharmacy students in Kerman University of Medical Sciences Iran. *Stride Dev Med Educ*. 2013;10(3):298-311.
12. Rehman R, Usmani A, Omaeer Q, Gul H. "Mentorship" a stride towards maintenance of medical student's well being. *J Pak Med Assoc*. 2014;64(12):1352-57.
13. Shapiro SL, Shapiro DE, Schwartz GE. Stress Management in Medical Education: A Review of the Literature. *Acad med*. 2001;75(7):748-59.
14. 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(18):1377-85.
15. Ungar P, Schindler AK, Polujanski S, Rotthoff T. Online programs to strengthen the mental health of medical students: A systematic review of the literature. *Med Educ Online*. 2022;27(1):2082909.
16. Heydari S, Beigzadeh A. Medical students' perspectives of reflection for their professional development. *BMC Med Educ*. 2024;24(1):1399.
17. Beigzadeh A, Bazyar H, Delzende M, Razmi MH and Sharifi N. Comparing the effect of lecture method and cooperative teaching method on the learning, communication skills, and attitudes of students: a quasi-experimental study. *Front. Educ.* 2024;9:1449538.
18. Salajegheh M, Bahmanbijari B, Shokouhi M, Safipour Afshar A, Beigzadeh A. Educational Environment Assessment at Outpatient Clinics in Teaching Hospitals of Kerman University of Medical Sciences, Iran, from Resident's Perspective Based on the ACLEEM Questionnaire. *Stride Dev Med Educ*. 2015;12(Supplement):119-30.