Res Dev Med Educ. 2025;14:33304
doi: 10.34172/rdme.025.33304
https://rdme.tbzmed.ac.ir

Letter to Editor

Academic failure and enhancing success for medical students

Amin Beigzadeh[1], **Mehrdad Nazarieh**[2*]

[1]Education Development Center, Sirjan School of Medical Sciences, Sirjan, Iran
[2]Department of English Language, Faculty of Foreign Languages, Kerman Institute of Higher Education, Kerman, Iran

Received: January 11, 2025, **Accepted:** January 22, 2025, **epublished:** January 29, 2025

Dear Editor,

The phenomenon of academic failure among medical students represents a complex and multifaceted issue that can significantly impact individual students, the educational system, and the broader healthcare system.[1] Academic failure can be defined as an educational problem related to a student's insufficient development of basic skills or competencies.[2] This situation is associated with suboptimal performance, which may result in students exhibiting diminished interest in learning, possessing low academic aspirations and objectives, or developing a negative self-concept.[3] UNESCO has defined academic failure as "repeating the grade, early dropout, and decline in the educational quality of learners".[4] It is essential to note that the standards for academic failure can differ among various institutions and educational frameworks.

To the best of our knowledge, in the context of medical education, academic failure is especially concerning owing to the intense and demanding nature of the curriculum, which requires students to master vast amounts of complex information while developing essential clinical skills. It is more significant as future healthcare professionals must demonstrate not only academic proficiency but also critical competencies needed for patient care and safety.[1] Failure to meet these rigorous standards can lead to significant consequences, including delayed graduation, increased stress, and ultimately, a shortage of qualified healthcare professionals in the healthcare system. Thus, addressing academic failure is crucial for student success and healthcare outcomes.

Academic failure in medical education

Medical students encounter a high level of intensity and competitiveness early in their academic careers at the university level. They are tasked with the dual challenge of gaining an extensive body of knowledge while concurrently enhancing their clinical skills and professional competencies.[5] This challenging environment demands not only intellectual engagement but also emotional resilience, as students must navigate the complexities of patient care and ethical considerations.[6,7] The transition to medical school frequently entails a substantial adjustment in learning practices and anticipations, which may prove to be daunting for numerous students. Many find themselves grappling with new study methods, time management challenges, and the need for self-directed learning, all of which can lead to feelings of inadequacy.[5] The intense pressure to achieve high performance can result in heightened levels of anxiety, burnout, and, ultimately, academic failure.[8] Research indicates that the rates of academic failure among medical students are inconsistent; however, studies estimate that around 10%-20% of medical students encounter academic difficulties that are significant enough to necessitate intervention.[9] These challenges may present in several ways, such as poor examination results, inability to complete clinical rotations, or insufficient performance in practical evaluations.[10] We believe that the stigma associated with academic failure may intensify these challenges, making students reluctant to seek help or support, further entrenching their struggles. In the subsequent section, we will elaborate on the factors contributing to academic failure and then come up with some strategies that medical schools can implement to assist medical students in overcoming the challenges, ultimately promoting a conducive academic environment.

Factors for academic failure

It is crucial to realize the primary causes of academic failure among medical students to formulate effective intervention strategies. The following factors have been recognized as key contributors:

***Corresponding author:** Mehrdad Nazarieh, Email: Mehrdad.nazarieh@gmail.com

Personal factors

One of the factors for academic failure has a connection with previous academic performance, which is characterized by low scores on pre-admission assessments and poor academic records.[11] Such early academic difficulties frequently indicate deficiencies in foundational knowledge and study skills. As a result, students with a background of underachievement may encounter heightened risks of academic failure. Another factor can be related to psychological and personality issues which significantly influence academic achievement. A diminished sense of self-efficacy can undermine students' confidence in their skills, resulting in inadequate self-regulation and tendencies toward procrastination.[12] Furthermore, characteristics such as introversion may impede engagement in collaborative learning settings, while emotional dysregulation can adversely affect concentration and motivation.[13] These factors, when considered collectively, heighten the likelihood of academic failure among students. The third factor is related to motivation and goal setting. The absence of well-defined objectives can result in confusion and a lack of direction in academic endeavors, which may adversely affect performance. When students experience a decline in motivation, they often encounter difficulties in engaging with their coursework, prioritizing tasks, and sustaining concentration. This, in turn, can impede their capacity to attain academic success and realize their full potential.[14]

Cognitive factors

Medical students exhibit a variety of learning styles, including visual, auditory, and kinesthetic preferences.[15] Traditional teaching methods, which often emphasize lectures and rote memorization, may not effectively engage all students.[16] This mismatch can lead to disengagement and hinder comprehension, emphasizing the need for diverse instructional approaches that cater to different learning preferences for optimal academic success.[17] Test anxiety is a prevalent concern among medical students, especially in the context of high-stakes evaluations. This form of anxiety can elicit a physiological stress response, which negatively affects concentration and memory recall during examinations. Consequently, suboptimal performance can exacerbate feelings of inadequacy, thereby perpetuating a harmful cycle of failure.[18] When evaluations are not aligned with learning objectives or do not consider diverse learning styles, students may find it challenging to accurately showcase their true abilities.

Institutional factors

The educational context plays a crucial role in determining student success within medical education.[19,20] Effective instruction and clinical role models develop student engagement and understanding,[21] while the availability of resources—including textbooks, technology, and mentorship—augments learning opportunities.[22] Furthermore, a supportive and collaborative environment contributes to student well-being and motivation, thereby establishing an ideal framework for both academic success and personal development in rigorous curricula. In addition, insufficient remediation opportunities and inadequate academic support can considerably intensify the academic challenges faced by medical students. Empirical studies suggest that when educational institutions do not implement timely interventions, students may find it difficult to surmount obstacles, resulting in heightened stress levels and an increased likelihood of failure. Robust support systems are crucial for cultivating resilience and facilitating academic achievement, as they assist students in effectively managing their educational experiences.[9]

Social factors

The absence of social support from peers, medical teachers, or family members can substantially exacerbate feelings of isolation among students, thereby adversely affecting their academic performance. In the absence of encouragement and empathy from their support networks, students may find it difficult to manage stressors and challenges, which can result in diminished motivation and engagement. This sense of isolation may ultimately increase the likelihood of academic failure, highlighting the critical role of community in the educational experience.[23] By the same token, the influence of family background, specifically the educational attainment of parents and their socioeconomic status, is significant in determining academic performance. High levels of parental education are frequently associated with enhanced academic support and resources, which create a favorable learning environment. In contrast, lower socioeconomic status can restrict access to educational resources and opportunities, leading to challenges that may negatively impact students' academic achievements and aspirations.[11]

Strategies to tackle academic failure

To address academic failure and enhance success rates among medical students, a variety of strategies may be implemented:

Early identification and intervention

The first strategy is regular monitoring. Consistent monitoring via regular formative assessments and the observation of student behavior in collegiate activities is crucial for the early detection of academic failure.[24] This proactive strategy enables medical teachers to implement timely interventions, customized support, and resources aimed at assisting students in overcoming obstacles. By developing an environment characterized by continuous feedback, educational systems can improve student engagement and facilitate academic achievement.

The second strategy in this category is proactive advising which encompasses the implementation of a structured

framework in which academic advisors engage in regular meetings with students to review their academic progress and address any challenges they may encounter. This method facilitates open lines of communication, enabling advisors to detect potential issues at an early stage and offer customized support. Empirical studies suggest that proactive advising markedly improves student retention rates and academic performance by fostering a sense of accountability and promoting the establishment of academic goals.[25]

Enhanced learning support

The provision of enhanced learning support via personalized learning plans customizes educational experiences to align with the unique needs and learning preferences of individual students.[26] By evaluating each student's strengths and challenges, medical teachers can develop specific strategies that enhance engagement and understanding. Personalized learning styles not only improve academic performance but also contribute to the creation of a more inclusive educational environment, thereby addressing the diverse profiles of learners.

Also, study skills workshops play a crucial role in equipping students with effective initiatives for learning, time management, and examination preparation. These workshops offer practical tools and strategies that not only enhance academic performance but also alleviate anxiety and promote independent learning. By refining these skills, students are likely to experience increased confidence and improved readiness to tackle their academic failure.[27]

Improving the educational environment

Investment in faculty development initiatives is essential for the enhancement of teaching quality and the promotion of student engagement, thereby mitigating the risk of academic failure. Training initiatives that emphasize innovative pedagogical strategies and inclusive practices empower educators to more effectively address the diverse needs of students, thereby cultivating a supportive learning environment.[28] Technology integration is another strategy. The incorporation of educational technology into the curriculum has the potential to effectively address a range of learning needs and styles, thereby mitigating the risk of academic underachievement. Evidence highlights that the integration of artificial intelligence (AI) in medical education is transforming the pedagogical methodologies utilized in the instruction and learning of medical students.[29] This methodology contributes to the creation of a more wide-ranging educational environment, ultimately facilitating student success across various academic disciplines. Moreover, the integration of flexible learning modalities, including online courses can effectively address the varied needs and schedules of adult learners. Such alternatives offer the requisite flexibility to facilitate the balancing of professional responsibilities, familial obligations, and educational pursuits to evade academic failure.[30]

In conclusion, learning is a lifelong process that should not be limited to the formative years. For medical students, being in a clinical learning environment signifies a desire to enhance their knowledge, expand their clinical skill set, and pursue new opportunities. However, academic failure can hinder their progress and undermine their confidence. Academic failure is a multifaceted issue that requires a comprehensive understanding of its causes and the implementation of targeted strategies to promote success. By addressing personal, cognitive, institutional, and social factors, educational systems can create an environment that supports students in overcoming challenges and achieving their academic goals. Ultimately, early educational interventions, fostering a culture of support, and improving the aura of the educational system will not only benefit the students but also enhance the quality of future healthcare professionals.

Authors' Contribution

Conceptualization: Amin Beigzadeh, Mehrdad Nazarieh.
Investigation: Amin Beigzadeh, Mehrdad Nazarieh.
Writing–original draft: Amin Beigzadeh, Mehrdad Nazarieh.
Writing–review & editing: Amin Beigzadeh, Mehrdad Nazarieh.

Competing Interests

The authors declare no conflict of interest.

Ethical Approval

Not applicable.

Funding

None.

References

1. Ahmady S, Khajeali N, Sharifi F, Mirmoghtadaei ZS. Factors related to academic failure in preclinical medical education: a systematic review. J Adv Med Educ Prof. 2019;7(2):74-85. doi: 10.30476/jamp.2019.44711.
2. Field S, Kuczera M, Pont B. Education and Training Policy No More Failures Ten Steps to Equity in Education: Ten Steps to Equity in Education. OECD Publishing; 2007. doi: 10.1787/9789264032606-en.
3. Hwang MH, Lee D, Lim HJ, Seon HY, Hutchison B, Pope M. Academic underachievement and recovery: student perspectives on effective career interventions. Career Dev Q. 2014;62(1):81-94. doi: 10.1002/j.2161-0045.2014.00072.x.
4. Najimi A, Sharifirad G, Mohammad Amini M, Meftagh SD. Academic failure and students' viewpoint: The influence of individual, internal and external organizational factors. J Educ Health Promot. 2013;2:22. doi: 10.4103/2277-9531.112698.
5. Heydari S, Beigzadeh A. Medical students' perspectives of reflection for their professional development. BMC Med Educ. 2024;24(1):1399. doi: 10.1186/s12909-024-06401-2.
6. Cleary M, Visentin D, West S, Lopez V, Kornhaber R. Promoting emotional intelligence and resilience in undergraduate nursing students: an integrative review. Nurse Educ Today. 2018;68:112-20. doi: 10.1016/j.nedt.2018.05.018.
7. Beigzadeh A, Naghibzadeh Tahami A, Rezaei H, Bahman Bijari B, Nazarieh M, Seyed Askari SM. Epidemiology of trauma in Shahid Bahonar hospital in Kerman. J Emerg Pract Trauma. 2016;2(2):33-6. doi: 10.15171/jept.2015.16.

8. Yang HJ. Factors affecting student burnout and academic achievement in multiple enrollment programs in Taiwan's technical–vocational colleges. Int J Educ Dev. 2004;24(3):283-301. doi: 10.1016/j.ijedudev.2003.12.001.
9. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. Mayo Clin Proc. 2005;80(12):1613-22. doi: 10.4065/80.12.1613.
10. Bennion LD, Durning SJ, LaRochelle J, Yoon M, Schreiber-Gregory D, Reamy BV, et al. Untying the Gordian knot: remediation problems in medical schools that need remediation. BMC Med Educ. 2018;18(1):120. doi: 10.1186/s12909-018-1219-x.
11. Yates J. Development of a 'toolkit' to identify medical students at risk of failure to thrive on the course: an exploratory retrospective case study. BMC Med Educ. 2011;11:95. doi: 10.1186/1472-6920-11-95.
12. García-Ros R, Pérez-González F, Tomás JM, Sancho P. Effects of self-regulated learning and procrastination on academic stress, subjective well-being, and academic achievement in secondary education. Curr Psychol. 2023;42(30):26602-16. doi: 10.1007/s12144-022-03759-8.
13. Abdulghani HM, Al-Drees AA, Khalil MS, Ahmad F, Ponnamperuma GG, Amin Z. What factors determine academic achievement in high achieving undergraduate medical students? A qualitative study. Med Teach. 2014;36 Suppl 1:S43-8. doi: 10.3109/0142159x.2014.886011.
14. Stegers-Jager KM, Cohen-Schotanus J, Themmen AP. Motivation, learning strategies, participation and medical school performance. Med Educ. 2012;46(7):678-88. doi: 10.1111/j.1365-2923.2012.04284.x.
15. Karim MR, Talukder MH, Mondol RU, Ghose RK, Hossain MM. Learning styles of undergraduate medical students and their relation with preferred teaching-learning methods. TAJ J Teach Assoc. 2022;35(2):19-26.
16. Beigzadeh A, Bazyar H, Delzendeh M, Razmi MH, 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. doi: 10.3389/feduc.2024.1449538.
17. Feeley AM, Biggerstaff DL. Exam success at undergraduate and graduate-entry medical schools: is learning style or learning approach more important? A critical review exploring links between academic success, learning styles, and learning approaches among school-leaver entry ("traditional") and graduate-entry ("nontraditional") medical students. Teach Learn Med. 2015;27(3):237-44. doi: 10.1080/10401334.2015.1046734.
18. Patel RS, Tarrant C, Bonas S, Shaw RL. Medical students' personal experience of high-stakes failure: case studies using interpretative phenomenological analysis. BMC Med Educ. 2015;15:86. doi: 10.1186/s12909-015-0371-9.
19. Beigzadeh A, Yamani N, Sharifpoor E, Bahaadinbeigy K, Adibi P. Teaching and learning in clinical rounds: a qualitative meta-analysis. J Emerg Pract Trauma. 2021;7(1):46-55. doi: 10.34172/jept.2020.32.
20. 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(Suppl):119-30.
21. 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.
22. 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;10:6. doi: 10.4103/jehp.jehp_104_20.
23. Pereira L, Radovic T, Haykal KA. Peer support programs in the fields of medicine and nursing: a systematic search and narrative review. Can Med Educ J. 2021;12(3):113-25. doi: 10.36834/cmej.71129.
24. Beigzadeh A, Yamani N, Bahaadinbeigy K, Adibi P. Challenges and problems of clinical medical education in Iran: a systematic review of the literature. Stride Dev Med Educ. 2019;16(1):e89897. doi: 10.5812/sdme.89897.
25. Drake JK. The role of academic advising in student retention and persistence. About Campus. 2011;16(3):8-12. doi: 10.1002/abc.20062.
26. Rahmati Najarkolai A, Beigzadeh A, Karbasi Motlagh M, Sabzevari S. The relationship between learning styles and baseline characteristics of postgraduate students at Kerman University of Medical Sciences during 2013-2014. Thrita Journal of Neuron. 2015;4(2):e27809. doi: 10.5812/thrita.4(2)2015.27809.
27. Wilkinson TJ, Frampton CM. Comprehensive undergraduate medical assessments improve prediction of clinical performance. Med Educ. 2004;38(10):1111-6. doi: 10.1111/j.1365-2929.2004.01962.x.
28. Steinert Y. Faculty development in the new millennium: key challenges and future directions. Med Teach. 2000;22(1):44-50. doi: 10.1080/01421590078814.
29. Kashani M, Beigzadeh A. Improving medical education through the integration of artificial intelligence. Res Dev Med Educ. 2024;13:30. doi: 10.34172/rdme.33293.
30. Choitz V, Prince H. Flexible Learning Options for Adult Students. US Department of Labor, Employment and Training Administration; 2008.