

The Impact of Stress on Medical Student's Mental Health: A Narrative Review

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ABSTRACT

Medical education involves intense academic demands, clinical responsibilities, and high-performance expectations, which can increase medical students' vulnerability to stress and mental health issues. This narrative review examines the factors contributing to stress among medical students, its impact on mental health, and its implications for academic performance and professional development. Relevant literature was identified through searches on Google Scholar, PubMed, and other scientific databases. The search initially focused on publications from 2019 to 2024, with earlier references included when necessary. The literature was reviewed thematically to identify key stressors, impacts on mental health, and potential management strategies. Medical students experience stress due to academic demands, clinical responsibilities, and personal challenges. Prolonged stress can contribute to anxiety, depressive symptoms, sleep disturbances, and a decline in academic performance, whereas manageable stress can support motivation and adaptive coping mechanisms. Effective stress management requires individual coping strategies and institutional support. Stress is a significant issue in medical education due to its potential impact on mental health, academic performance, and professional development. A supportive learning environment, easily accessible mental health services, and appropriate coping strategies are essential for improving the well-being of medical students.

Keyword : Academic stress; Anxiety; Depression; Medical students; Mental health.

Introduction

Medical education is a demanding process that requires sustained intellectual effort, emotional adaptability, and the ability to manage competing academic and personal responsibilities^{1,2}. Medical students must acquire extensive theoretical knowledge, develop clinical competencies, undergo periodic evaluations, and gradually prepare themselves for

professional responsibilities related to patient health and safety. While these experiences are crucial for professional development, they can also subject students to significant psychological stress³⁻⁵.

The transition to medical school presents several challenges, including changes in learning methods, an increased academic workload, a competitive assessment environment, and the need to adapt to an unfamiliar social and institutional environment. These demands can be exacerbated by financial difficulties, limited social support, living far from family, and personal experiences such as illness or the loss of a loved one^{6,7}. Consequently, stress among medical students cannot be understood solely as a response to academic workload; it also reflects the interaction between individual circumstances, environmental demands, and available coping resources^{8,9}.

Previous research has identified mental health issues among medical students, including psychological stress, anxiety, symptoms of depression, and chronic fatigue. The educational environment may contribute to these issues through ongoing performance pressures, limited opportunities for recovery, sleep disturbances, and repeated exposure to illness, suffering, and death during clinical training. Individual vulnerabilities and differences in coping strategies may further influence how students respond to these demands¹⁰⁻¹³. However, the presence of stress does not always indicate a mental disorder, and the psychological consequences of stress can vary greatly from person to person.

Prolonged stress is particularly concerning because its effects can extend beyond emotional well-being. Difficulties with concentration, memory, decision-making, and emotional regulation can interfere with the learning process and clinical performance. Stress can also affect students' relationships with peers, their willingness to seek support, and their perceptions of their future professional roles. Conversely, manageable challenges can actually foster motivation, perseverance, and the development of adaptive coping skills when adequate support is available^{14,15}.

Although stress is frequently discussed in medical education, its relationship to mental health requires consideration of the sources of stress, the differences between short-term and chronic stress, and the factors that can exacerbate or mitigate its effects¹⁶. Understanding these relationships is essential for developing an educational environment that supports both academic achievement and psychological well-being.

Therefore, this narrative review aims to examine the key factors contributing to stress among medical students, discuss its potential impact on mental health and academic functioning, and explore approaches that can help prevent or mitigate its negative

consequences. By integrating these aspects, this review seeks to provide a broader understanding of stress as both an educational challenge and a mental health issue.

Material and Methods

This study used a narrative review approach to examine the relationship between stress and mental health among medical students. Relevant literature was identified through searches on Google Scholar, PubMed, and other available scientific literature databases. The initial search focused on publications from 2019 to 2024 to obtain relatively up-to-date evidence, while earlier publications were considered when necessary to explain basic concepts or provide context for well-established findings.

Search terms included combinations of keywords such as “stress”, “academic stress”, “medical students”, “mental health”, “psychological disorders”, “anxiety”, “depression”, and “burnout”. Publications were considered relevant if they addressed sources of stress among medical students, the relationship between stress and mental health outcomes, consequences for academic or clinical functioning, or stress management strategies. Studies involving college students more broadly were considered if their findings provided relevant contextual information.

The literature was reviewed thematically, with findings organized according to the nature of stress in medical education, contributing factors, mental health outcomes, academic and interpersonal consequences, and potential management strategies. As this is a narrative review, the aim is to synthesize and discuss relevant findings, rather than to conduct a quantitative meta-analysis. The databases, keywords, and publication periods described above must reflect the search that was actually conducted. The final manuscript must also report the estimated number of records identified, the criteria used to assess relevance, and the number and types of publications included, if these details can be reliably reconstructed.

Results and Discussion

Stress is a physical and psychological response that occurs when a person feels that the demands placed on them exceed the resources, they have to cope with them¹⁷. In medical education, stress can arise from various sources, including academic workload, exams, peer competition, clinical responsibilities, and the challenges of balancing academic and personal life. These demands may be compounded by financial difficulties, limited social support, and challenges in adapting to a new learning environment; particularly among first-year students transitioning from high school to college^{8,18,19}. Clinical exposure can present additional challenges as students begin to encounter patient suffering, serious illnesses, and the responsibilities associated with healthcare practice. Therefore, stress among medical

students can be understood as a multifactorial experience influenced by academic, personal, social, and institutional factors^{3,20,21}.

Mental health, as defined by the World Health Organization (WHO), encompasses a state of well-being that enables individuals to recognize their abilities, cope with the normal stresses of life, work productively, and contribute to their communities. In this context, stress is closely linked to mental health because its effects can vary depending on its intensity, duration, and the resources available to cope with it. Manageable levels of stress can boost motivation, alertness, and readiness to face academic challenges^{12,17}. However, when stress becomes excessive or prolonged, it can be linked to anxiety, symptoms of depression, emotional exhaustion, sleep disturbances, and difficulty regulating emotions. Nevertheless, stress should not automatically be considered a mental disorder, as each individual can respond differently to similar situations, and psychological symptoms require proper assessment^{10,13,14,20,22}.

Several studies conducted among medical students in a number of Asian countries have reported varying estimates of stress prevalence. In Bangladesh, a study involving medical students from public and private medical schools found a stress prevalence of 54% among 990 respondents, with similar proportions among male (53%) and female (55%) students. The study also reported higher stress scores among students at public medical schools compared to those at private institutions²³. In Sabah, Malaysia, the prevalence of stress reached 33.3% among 396 medical students, with academic stress and inadequate financial support identified as relevant contributing factors²⁴. Meanwhile, a study conducted in Saudi Arabia reported a higher prevalence of stress, 87.6%, with academic-related stress being the primary concern²⁵. Overall, these findings indicate that stress is a relevant issue among medical students across various regions of Asia, although the reported prevalence varies significantly. These differences must be interpreted with caution, as they might be influenced by variations in the study populations, institutional environments, assessment instruments, and the criteria used to define stress. Therefore, these estimates provide contextual evidence regarding stress among medical students, rather than a direct comparison of stress levels across countries.

Stress can also affect student's academic performance, interpersonal relationships, and their preparation for professional practice. Excessive or prolonged stress can impair concentration, attention, memory, and decision-making, which can potentially affect their participation in lectures, exams, and clinical activities^{14,26}. In clinical learning settings, these difficulties can affect student's self-confidence as well as their communication with patients

and peers. Stress can also contribute to social withdrawal or difficulty maintaining supportive relationships. On the other hand, academic challenges that are managed appropriately can provide students with opportunities to develop time-management skills, problem-solving abilities, adaptability, and coping strategies that can be useful in their future professional roles. Therefore, the impact of stress depends not only on the demands faced but also on an individual's coping capacity and the support available^{14,17,21,27}.

Given these potential outcomes, stress management is a critical component of student well-being and medical education. Individual approaches can include effective time management, adequate sleep, regular physical activity, relaxation techniques, supportive social relationships, and seeking professional help when needed^{28,29}. At the institutional level, clear academic expectations, easily accessible counseling services, supportive mentoring, and a learning environment that encourages students to discuss the difficulties they face can help reduce unnecessary pressure and facilitate appropriate problem-solving strategies³⁰⁻³². These approaches are complementary, not contradictory, as student well-being is shaped by the interaction between personal resources and the educational environment. Further research, particularly longitudinal studies and evaluations of stress management interventions, will help clarify how stress develops over time and which approaches are most effective for various groups of medical students.

Conclusion

Stress is a common problem in medical education, arising from the interplay between academic demands, clinical responsibilities, personal circumstances, and the resources available to cope with stress. Its impact on medical students' mental health, academic performance, and interpersonal relationships can vary depending on its intensity, duration, and the support available. While manageable stress can enhance motivation and personal growth, prolonged or excessive stress can disrupt students' well-being and learning experience. Therefore, efforts to promote medical students' mental health require a balanced approach that combines individual coping strategies with a supportive educational environment and easily accessible mental health services. Further research is needed to evaluate effective interventions that support students' well-being throughout their medical education.

Declaration of Generative AI in Scientific Writing

The authors affirm that the usage of generative artificial intelligence tools, including ChatGPT (OpenAI) and DeepL, is intended solely for assist with the language editing process, including grammar correction, vocabulary refinement, and

improvements in clarity and readability . These tools were not used for generating content, data analysis, or interpretation. The authors are fully responsible for the accuracy and integrity of the content as well as the conclusions presented in this study

References

1. Du X, Kassab SE, Al-Moslih AM, et al. Identifying essential competencies for medical students. *J Appl Res High Educ* 2019;11(3):352–366; doi: 10.1108/JARHE-07-2018-0114.
2. 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.
3. Shaban EE, Elmelliti H, Shaban A, et al. Impact of early clinical exposure on medical students' competency development: a systematic review of evidence from Asian and African countries. *BMC Med Educ* 2025;25(1):1723; doi: 10.1186/s12909-025-08103-9.
4. Terech J, Sarnowska P, Bikowska K, et al. Who Thrives in Medical School? Intrinsic Motivation, Resilience, and Satisfaction Among Medical Students. *Healthcare* 2025;13(23):3049; doi: 10.3390/healthcare13233049.
5. Maity S, De Filippis SM, Aldanese A, et al. Enhancing emotional intelligence in medical education: a systematic review of interventions. *Front Med* 2025;12; doi: 10.3389/fmed.2025.1587090.
6. Loera B, Graziano F, Molinengo G, et al. Academic Well-Being Among STEM University Students Living Away from Home: A Mixed-Methods Study. *Int J Environ Res Public Health* 2026;23(5):608; doi: 10.3390/ijerph23050608.
7. Inta T, Dankai W, Chokjamsai M, et al. Perceptions of the Transition Process From Senior High School to First-Year Medical School at Chiang Mai University. *Cureus* 2025; doi: 10.7759/cureus.96354.
8. Bergmann C, Muth T, Loerbroks A. Medical students' perceptions of stress due to academic studies and its interrelationships with other domains of life: a qualitative study. *Med Educ Online* 2019;24(1):1603526; doi: 10.1080/10872981.2019.1603526.
9. Nikolova SP, Small E, Velikova MS, et al. Examining the multidimensional structure of stress among international medical students: a construct-based approach. *BMC*

Med Educ 2026;26(1):342; doi: 10.1186/s12909-026-08667-0.

10. Agyapong-Opoku N, Agyapong-Opoku F, Agyapong B, et al. Anxiety and depressive symptoms among medical students—A scoping review of systematic reviews and meta-analyses. *Front Public Heal* 2026;13; doi: 10.3389/fpubh.2025.1710333.
11. El Asmar N, Yazbeck Karam V, Aoun Bahous S, et al. Mental health profiles and resilience among medical students in an active conflict zone: a cluster analysis. *Med Educ Online* 2026;31(1); doi: 10.1080/10872981.2026.2626139.
12. Nair M, Moss N, Bashir A, et al. Mental health trends among medical students. *Baylor Univ Med Cent Proc* 2023;36(3):408–410; doi: 10.1080/08998280.2023.2187207.
13. Vidović S, Rakić N, Kraštek S, et al. Sleep Quality and Mental Health Among Medical Students: A Cross-Sectional Study. *J Clin Med* 2025;14:2274; doi: 10.3390/jcm14072274.
14. Córdova A, Caballero-García A, Drobnić F, et al. Influence of Stress and Emotions in the Learning Process: The Example of COVID-19 on University Students: A Narrative Review. *Healthcare* 2023;11(12):1787; doi: 10.3390/healthcare11121787.
15. Khodami MA, Contemori G, Battaglini L, et al. Stress effects on cognition: Evidence for stress-related disruption of attention and inhibitory control. *Heliyon* 2026;12(4):e44660; doi: 10.1016/j.heliyon.2026.e44660.
16. Ruzhenkova V, Ruzhenkov V, Khamaskaya (Lukyantseva) I, et al. Academic stress and its effect on medical students' mental health status. *Drug Invent Today* 2018;10:1171–1174.
17. Schneiderman N, Ironson G, Siegel SD. Stress and Health: Psychological, Behavioral, and Biological Determinants. *Annu Rev Clin Psychol* 2005;1(1):607–628; doi: 10.1146/annurev.clinpsy.1.102803.144141.
18. Sajid MR, Raddaoui L, Abu Shagra F, et al. Faith, Friends, and Humor: How Medical Students Cope with Academic Stress in a Private Medical University in Saudi Arabia. *Adv Med Educ Pract* 2024;Volume 15:1205–1213; doi: 10.2147/AMEP.S475224.
19. Fauziah RS, Hanami Y. Balancing Academic and Personal Life: Challenges for Medical StudentsPersonal Life in Medical Students. *Psyche* 165 J 2024;228–234; doi: 10.35134/jpsy165.v17i3.390.
20. Thomas L, Harry E, Quirk R, et al. Evidence-Based Interventions for Medical Student, Trainee and Practicing Physician Wellbeing: A CHARM Annotated

Bibliography. 2017.

21. Zeng D, Zubair A, Dong H. Academic Stress and Mental Health Challenges Among International Students in China. *Behav Sci (Basel)* 2026;16(7):1212; doi: 10.3390/bs16071212.
22. Benítez Agudelo J, Restrepo D, Navarro Jiménez E, et al. Longitudinal effects of stress in an academic context on psychological well-being, physiological markers, health behaviors, and academic performance in university students. *BMC Psychol* 2025;13; doi: 10.1186/s40359-025-03041-z.
23. Eva EO, Islam MZ, Mosaddek ASM, et al. Prevalence of stress among medical students: a comparative study between public and private medical schools in Bangladesh. *BMC Res Notes* 2015;8(1):327; doi: 10.1186/s13104-015-1295-5.
24. Aldrin Musiun, Khamisah Awang Lukman, Mohammad Saffree Jeffree, et al. Prevalence of Stress and its Associated Factors Among Medical Students In Sabah, Malaysia Borneo. *Malaysian J Public Heal Med* 2019;19(2):116–125; doi: 10.37268/mjphm/vol.19/no.2/art.179.
25. Al-Shahrani MM, Alasmri BS, Al-Shahrani RM, et al. The Prevalence and Associated Factors of Academic Stress among Medical Students of King Khalid University: An Analytical Cross-Sectional Study. *Healthcare* 2023;11(14):2029; doi: 10.3390/healthcare11142029.
26. Sabaliauskas S, Ingelevič K, Misiūnienė O, et al. The Relationship Between Stress, Academic Motivation, and Subjective Vitality Among Nursing Students. *Nurs Reports* 2025;15(8):300; doi: 10.3390/nursrep15080300.
27. Jamshidi N, Molazem Z, Sharif F, et al. The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. *Sci World J* 2016;2016:1–7; doi: 10.1155/2016/1846178.
28. Majerová N, Sokolová L. Well-being and academic stress in higher education students: interview and diary study. *Int J Qual Stud Health Well-being* 2025;20(1); doi: 10.1080/17482631.2025.2602369.
29. Bin Abdulrahman KA, Hefny M, Alghamdi SA. The value of stress management programs for medical students: a systematic review. *Front Public Heal* 2026;13; doi: 10.3389/fpubh.2025.1737330.
30. Tiagan W, Custodio K, Omantod A, et al. The Academic Stress and Cognitive Function of The General Science Students at Universidad De Manila. 2025; doi: 10.13140/RG.2.2.34985.25442.

31. Aziz AL, Talib CA, Hakim AR, et al. Mental health and well-being in higher education: A review of international students living abroad. Soc Sci Humanit Open 2026;14:103120; doi: 10.1016/j.ssaho.2026.103120.
32. Ruihua L, Che Hassan N, Saharuddin N. Understanding academic help-seeking among first-generation college students: a phenomenological approach. Humanit Soc Sci Commun 2025;12(1):56; doi: 10.1057/s41599-024-04165-0.