Review article

Mental health and self-care strategies in medical students

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Abstract
Academic stress among medical students is a growing concern that affects their mental and emotional well-being. The heavy workload, performance pressure, and lack of coping strategies may contribute to the development of anxiety, depression, and burnout. In this context, self-care has been identified as a key tool to mitigate these negative effects. This study aims to describe mental health and self-care strategies in medical students, exploring practices such as mindfulness, physical activity, and resilience development. A narrative literature review was conducted, including original studies in English and Spanish published between 2000 and 2025, with priority given to those published from 2020 to 2025. The search was performed in PubMed, Scopus, and PsycINFO. The findings indicate that implementing self-care strategies may reduce stress, improve sleep quality, and may help prevent mental health disorders. These results highlight the importance of integrating evidence-based self-care programs into medical school curricula, promoting a preventive approach that enhances the well-being of future healthcare professionals.

Keywords
Self Care, Sleep Quality, Depression, Mental Health, Medical Students.

Resumen
El estrés académico en estudiantes de medicina es un problema creciente que afecta el bienestar mental y emocional. La alta carga de trabajo, la presión por el rendimiento y la falta de estrategias de afrontamiento pueden contribuir al desarrollo de ansiedad, depresión y agotamiento. En este contexto, el autocuidado se ha identificado como una herramienta clave para mitigar estos efectos negativos. Este estudio tiene como objetivo describir la salud mental y las estrategias de autocuidado en estudiantes de medicina, explorar prácticas como el *mindfulness*, la actividad física y el desarrollo de la resiliencia. Se realizó una revisión narrativa de la literatura, se incluyeron estudios originales en inglés y español publicados entre 2000 y 2025; se priorizaron las investigaciones del 2020 al 2025. La búsqueda se llevó a cabo en PubMed, Scopus y PsycINFO. Los hallazgos indican que la implementación de estrategias de autocuidado puede reducir el estrés, mejorar la calidad del sueño y prevenir trastornos mentales. Estos resultados subrayan la importancia de integrar programas de autocuidado basados en evidencia en los planes de estudio de medicina y promover un enfoque preventivo que contribuya al bienestar de los futuros profesionales de la salud.

Palabras clave
Autocuidado, Calidad del Sueño, Depresión, Salud Mental, Estudiantes de Medicina.

Introduction

In recent years, mental health disorders have increased significantly among medical students. More than 50 % of them experience anxiety, depression, and sleep disorders, reflecting the impact of academic stress on their emotional well-being. These data highlight the urgent need to implement self-care and support strategies to improve their quality of life during their medical training.[1]

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The survey conducted by Grasdalsmoen *et al.* in Norway revealed an alarming increase in the prevalence of mental health problems, suicidal thoughts, and non-suicidal self-harm among university students. In addition, it was found that between 12 % and 50 % of university students meet the criteria for one or more common mental disorders. These disorders affect students' well-being and are associated with poor academic performance, which can lead to school dropout and, in the long term, a loss of human capital for society.[2]

In addition, the work of healthcare professionals carries an emotional burden that can result in emotional exhaustion, resulting from stress, work overload, and constantly facing difficult decisions, including situations related to the death or end of life of patients. This exhaustion affects their energy, mental health, and the quality of care they provide to patients. It is associated with lower performance, greater conflict, and a greater intention to leave their jobs.[3]

The study conducted by Aguirre *et al.* revealed that 48 % of students reported having suffered at some point in their lives from one or more mental disorders such as depression, anxiety disorders, panic attacks or crises, manic-depressive disorder, bipolar disorder, mania, or other emotional problems.[4]

Graves *et al.*, analyzed gender differences in perceived stress and coping strategies in university students and found that women reported higher levels of stress. In addition, they used more emotional strategies, such as seeking support and emotional venting, while men leaned toward acceptance and humor.[5] Stress and distress can profoundly impact students' lives if not managed properly, resulting in a low quality of life and a general feeling of dissatisfaction. They can also trigger mental health problems, such as difficulty sleeping, headaches, and depression.[6]

The search strategy included original studies in English and Spanish published between 2000 and 2025, with an emphasis on recent research from 2020-2025. The literature search was conducted in PubMed, Scopus, and PsycINFO. The objective was to describe the mental health and self-care strategies of medical students during their academic training period.

Discussion

Coping strategies are key to predicting stress levels in university students. Students who resort to avoidance strategies, such as substance abuse or denial, tend to experience higher level of stress than those who apply positive strategies, such as seeking social support or exercising. This suggests that the way students manage stress may significantly influence their overall well-being.[7]

Various coping strategies have been shown to be effective in reducing stress among physicians. In this context, the study entitled The Impact of Psychological Interventions with Elements of Mindfulness (PIM) on Empathy, Well-Being, and Reduction of Burnout in Physicians found that 70 % of participating physicians in a mindfulness-based program reported a significant reduction in their stress levels. In addition, 60 % of physicians who took part in mindfulness meditation sessions also reported a decrease in mental and physical exhaustion. These results underscore the effectiveness of mindfulness-based interventions as a valuable tool for improving physicians' mental well-being and mitigating the effects of stress on their professional performance.[8] A multiple regression analysis revealed that a greater sense of mastery and belonging, as well as supportive relationships and structures, are associated with higher levels of well-being. These findings justify the need to implement strategies that promote resilience and self-care to help reduce academic stress and improve students' mental health.[9]

The practice of biopsychosocial-spiritual self-care techniques, such as meditation and breathing, has been associated with improvements in self-compassion and mindfulness, while reducing anxiety, depression, and stress. These practices contribute to individuals' overall well-being, strengthening their ability to cope with academic and professional challenges.[10] According to Murphy *et al.*, health science students employ various strategies to manage academic stress, including planning, active problem solving, and proactive coping, as well as seeking social support and relaxation techniques such as meditation and mindfulness. In addition, they documented that these strategies were more effective in older students and those in advanced courses, who achieved better stress management. These findings highlight the importance of tailoring stress management interventions to the specific characteristics of each student group to optimize their effectiveness.[11]

Self-care strategies

In medical students, sleep disturbances are closely related to anxiety and depression. Olarte-Durand *et al.*, found that 50 % of these students sleep less than seven hours, more than half suffer from insomnia, and one in ten fall asleep after 2:00 a.m. In addition,

those who experience insufficient sleep, insomnia, or irregular sleep schedules have a higher prevalence of anxiety and depression. These data highlight the importance of adequate sleep hygiene for mental well-being in this population.[12] The variability in the prevalence of these problems among medical students may be due to differences in assessment methods, cultural and academic contexts, and the length of time they spend studying. However, in this population, the high prevalence of poor sleep quality, anxiety, and depression is consistent across various studies, underscoring the need for interventions aimed at improving mental health and sleep hygiene.[13] Improving sleep quality is a key strategy for reducing stress, anxiety, and depression. Sleeping at least six hours a day, maintaining regular schedules, and avoiding interruptions during rest optimizes mental well-being. In addition, these practices, along with physical exercise and proper time management, help balance the emotional and academic aspects of medical training (Table 1).[14]

Medical students face various stressors, such as a demanding academic workload that causes physical and mental exhaustion, competition with peers, poor quality of life due to lack of sleep and poor diet, pressure from professors, high self- expectations, social isolation, and little time for leisure.[15]

University students worldwide develop psychiatric disorders during their academic training, with higher rates than in the general population and non-university youth. The most common disorders among these students are depression and anxiety disorders.[16] Mindfulness-based meditation techniques are among the strategies most cited by medical schools across countries to promote the well-being of university students.[17] Mindfulness is a state of consciousness based on intentional, non- judgmental attention to the present moment. Its practice combines formal meditation and daily activities to apply it in everyday life. Training attention regulation helps manage stress, such as during exam periods, without relying on traditional health interventions.[18] The technique has been shown to influence various cognitive functions, such as attention, perception, self-regulation, self-assessment, memory, planning, decision-making, logic, and inhibitory control. In addition, meditation activates areas of the brain related to happiness, empathy, and compassion.[19] The study by Hölzel *et al.*, suggests that mindfulness meditation is associated with neuroplastic changes in key brain areas, such as the anterior cingulate cortex and the insula, which promote self-regulation. These changes improve attention, body awareness, emotional regulation, metacognitive development, and self-perspective, contributing to physical and mental well-being.[20] Tzelepi *et al.*, evaluated a mindfulness-based stress reduction program for medical students, consisting of eight weeks of intervention with weekly two-hour sessions and daily 30-minute exercises. The program included techniques such as mindfulness of breathing, body scanning, and yoga, focusing on improving awareness of the present moment and reducing emotional reactivity to academic stress. The results showed a 25 % reduction in perceived stress, a 35 % decrease in anxiety, a 30 % decrease in depression, and a 20 % improvement in sleep problems.[21]

The World Health Organization defines physical activity (PA) as any bodily movement produced by skeletal muscles that requires energy expenditure. PA includes activities performed during leisure time, commuting, work, or household chores.[22] As a self-care strategy, regular PA improves academic and cognitive performance and enhances skills such as calculation and reading comprehension. Different levels of PA intensity have different impacts on cognitive function, with vigorous PA offering the greatest benefits. Integrating PA into the daily routine contrib-

Table 1. Self-care strategies and their impact on the mental health of medical students

Self-care strategy	Evidenced pattern	Main benefits
Sleep hygiene	50 % sleep < 7 hours; > 50 % suffer from insomnia; one in ten falls asleep after 2:00 a.m[12–14]	Less anxiety and depression; improved mental well-being
Academic stress management	High academic workload, competition, isolation, lack of leisure time[15–16]	Prevention of burnout, reduction of anxiety and depression
Mindfulness and meditation	Eight-week programs show a 25% reduction in stress, 35% reduction in anxiety, 30% reduction in depression, and 20% improvement in sleep[17–21]	Better emotional regulation, attention, memory, and compassion
Physical activity	≥ 30 min daily, five times/week are associated with better academic performance and less anxiety/depression[22-25]	Physical and mental well-being, better academic performance

utes to mental well-being and academic performance.[23] Medical students tend to prioritize their studies over PA, especially during exam periods. The challenges of their training, such as prolonged educational workload and lack of time, affect their quality of life, making them more vulnerable to anxiety and depression. However, studies have shown a significant positive relationship between PA and academic performance. People who engage in at least 30 minutes of physical exercise per day, five times a week, tend to perform better academically.[24] The study by Alnofaiey *et al.* examined 2819 medical students in Saudi Arabia and found that 45.3 % had anxiety and 31.6 % had depression, with those under the age of 21 being the most affected. Through PA and mental health questionnaires, they found that those who exercised regularly had less anxiety and depression and performed better academically. This highlights the importance of exercise as an effective tool for mental and academic well-being in young people. Encouraging physical activity could be key in university settings to improve students' quality of life.[25]

Impact of self-care interventions

Psychological well-being encompasses thriving, overcoming difficulties, achieving meaningful goals, growing as a person, and fostering quality relationships. Its analysis is key in medical education, as it directly impacts students' well-being.[26] Resilience, the ability to face and overcome difficulties, is an essential factor in positive adaptation to adversity. It acts as a protector against stress, promotes emotional well-being, and helps people better manage stressful experiences. Strengthening resilience promotes better emotional regulation, which contributes to a significant reduction in the negative effects of stress on mental health.[27] In addition, resilience facilitates more effective management of adversity more effectively and can also act as a key mediator between stress and overall well-being. By developing this capacity, people improve their responses to difficult situations, promote greater emotional stability, allowing them to quickly recover their well-being after stressful experiences.[28] Neufeld *et al.* measured resilience through a survey of medical students and evaluated the relationship between resilience and satisfaction with basic psychological needs, such as autonomy, competence, and interpersonal connection. The latter refers to relationships, feeling valued and supported in interactions with others, whether with peers or teachers. The results showed that competence influences well-being through its impact on resilience, while autonomy and relationships have direct effects. In addition, women reported lower resilience than men, which highligths the importance of fostering these needs to improve resilience and well-being in medical students.[29]

According to Dobos *et al.*, the Mind-Body Medicine (MBM) course, developed by Aviat Haramati and Nanci Hadzouk at Georgetown University School of Medicine, aims to improve medical students' self-care skills and to promote self-awareness and resilience. This approach highlights the influence of emotional, mental, social, spiritual, and behavioral factors on health.[30] MBM courses have been evaluated using various tools, such as self-reported quantitative scores, qualitative surveys, and stress biomarkers. Although these courses were generally found to reduce stress and promote empathy, self-care, and well-being, the results of quantitative measures, such as the Perceived Stress Scale (PSS), were not consistently observed across different studies.[31] Researchers Scullion *et al.*, included 26 medical students from Georgetown University who participated in a group MBM course. Participants were evaluated using quantitative surveys, such as the PSS, and qualitative feedback, including personal reflections and interviews. The PSS showed a reduction in stress levels, while qualitative comments indicated increased empathy and greater self-awareness. The results highlighted improvements in stress management, self-efficacy, and overall well-being, suggesting the positive impact of the course on students' resilience and emotional health.[32]

Burnout is a stress-related process caused by a high workload and limited resources to cope with it.[33] Its dimensions include emotional exhaustion, depersonalization (treating others as objects), and a diminished sense of personal accomplishment. It is common among healthcare professionals, such as doctors and medical students, who, by focusing on caring for others, often sacrifice their own well-being.[33] A meta- analysis that included 42 studies with 26 824 medical students found an overall prevalence of burnout of 37.23 %. The prevalence of emotional exhaustion was 38.08 %, depersonalization was 35.07 %, and lack of personal accomplishment was 36.85 %. Medical students, compared to controls of similar age and education, were more likely to experience burnout, with the percentages increasing as they progressed through

their studies.[34] Despite the high prevalence of burnout among medical students and its negative effects, not all students experience it, and some are able to overcome it.

Resilience is a key personal skill that can protect against burnout, helping individuals cope with and adapt to adversity without becoming exhausted.[35] According to Michael *et al.*, resilience was found to be directly associated with reduced burnout in medical students. A resilience questionnaire was used to assess how students coped with challenges and how this influenced their experience of burnout. The results showed that greater resilience was associated with lower levels of emotional exhaustion and a greater sense of personal accomplishment. This finding suggests that resilience can help mitigate the impact of burnout.[36]

Barriers and facilitators to implementing self-care strategies

Recent reviews have noted concerns about how medical students manage end-of-life care and cope with death in their training.[37] Increased anxiety, emotional distress, and impaired physical and mental well-being in medical students increase the risk of making medical errors and negatively affect communication and patient care. These findings underscore the urgent need to revise curricula and support services, and to innovate in self-care education. This aspect still receives little attention in most medical schools.[38] There is also a growing need for personalized approaches to help students manage their multiple academic, clinical, social, and family commitments, as well as the ethical and existential dilemmas they face.[39]

Fostering students' ability to develop effective self-care strategies is essential in this context. However, self-care education for medical students faces significant barriers, such as a lack of integration into the curriculum, limited time for implementation, unfavorable academic environments, and a lack of adequate training for the teachers who teach them. These difficulties have been documented in studies, which emphasize the need to incorporate effective strategies to promote self-care in this population (Table 2).[40] In addition, longitudinal evaluation of these strategies is insufficient, limiting understanding of their real impact on student wellbeing. However, interventions such as peer-led mindfulness programs have shown promising results, improving engagement, personal well-being, and quality of patient care.[41] Overcoming these barriers requires greater investment of time and resources to teaching self-care, tailoring strategies to individual student needs, and creating academic environments conducive to these practices. Effective integration of these interventions into medical programs is essential to promote emotional and mental well-being during medical training.[42]

Self-directed learning involves medical students independently identifying and managing their wellness practices, which promotes personal responsibility and adaptation to their specific needs. However, a lack of professional guidance can lead to the adoption of ineffective strategies, which may increase stress and burnout.[43] Many students struggle to manage self-directed care due to a lack of time, academic workload, and the absence of clear guidance on how to apply it effectively. The scarcity of resources and adequate support also represents an obstacle, hindering its adoption and limiting the effectiveness of self-care strategies in reducing stress and burnout.[44] This approach can be both beneficial and challenging.

Table 2. Main factors for the implementation of self-care strategies in medical students

Factor	Description	Impact/outcome
Academic stress and workload*	High academic workload, competition, lack of time, and limited support	Increased anxiety, exhaustion, and medical errors
Confrontation with terminal patients and ethical dilemmas*	Exposure to difficult decisions, death, and complex ethical situations	Increased emotional distress, need for support, and specific self-care strategies
Self-directed learning	Independent management of wellness practices without professional guidance	Promotes responsibility and adaptation, but can increase stress and burnout if ineffective
Use of technologies	Videos, self-assessment tools, management apps	Improves autonomy, learning efficiency, and management of academic demands

*Barriers.
**Facilitators.

On the one hand, it promotes personal responsibility and allows students to tailor wellness practices to their individual needs. On the other hand, the absence of professional guidance can lead to the adoption of inappropriate or ineffective methods, increasing the risk of stress and burnout.[45] The use of technologies such as videos, self-assessment tools, and management applications facilitates self-directed learning in medical students. Factors such as perceived usefulness and social support influence their adoption. When properly integrated, these resources can improve autonomy and learning efficiency by enhancing the management of academic demands.[46]

Conclusion

Self-care strategies, such as sleep regulation, physical activity, mindfulness, and resilience, are essential for the mental health of medical students, who experience high levels of stress during their academic training. Despite barriers such as lack of time, lack of integration in the curriculum, limited support, and the absence of emotional coping strategies, self-care strategies have been shown to be effective in reducing anxiety, depression, and burnout, and in improving overall well-being. To optimize their impact, medical schools must implement these strategies in a structured, preventive manner, promoting education in self-care and self-attention, and ensuring the provision of adequate support and accessible resources that facilitate their adoption, thereby contributing significantly to students' mental health and academic performance.

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