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Journal of Neurology & Stroke

Review Article

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Mood disorders in medical students: an integrative literature review

Abstract

Mood disorders are psychiatric conditions that lead to alterations in behavior, cognition, emotional state, and overall well-being. Such changes in individual characteristics have a significant impact not only on those affected but also on their families and close relationships. Admission to higher education represents a period of substantial transformation in one's life, particularly for medical students who are exposed to intense pressures and stressors, including frequent contact with illness and critically ill patients. Understanding this context is essential, as the prevalence of mental disorders among medical students is higher than that observed in the general population. This study consists of an integrative literature review, structured according to the stages of the PRISMA protocol: identification of the topic and formulation of the research question; search and selection of scientific articles; data extraction and categorization from the selected studies; critical appraisal of the studies included in the review; synthesis of the results and presentation of the findings. Therefore, this research aims to investigate mood disorders among medical students in Brazil, assessing the factors within the medical environment that may contribute to their development, the prevalence of these disorders, and the associated determinants.

Keywords: mental health, medical students, mood disorders

Volume 16 Issue 3 - 2026

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Received: May 14, 2026 | **Published:** May 28, 2026

Introduction

The Diagnostic and Statistical Manual of Mental Disorders is the document created and used by the American Psychiatric Association (APA) to standardize and characterize diagnostic criteria for disorders that affect people's minds and emotions. In this text, mood disorders are described as psychopathologies involving severe mood disturbances, and are categorically divided into Major Depressive Disorder and Bipolar Disorder.[1]

In the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), the most current edition, the key to diagnosing depressive disorders "is the presence of a sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly impair the individual's ability to function," similar to the depressive episode that constitutes Bipolar Disorder. However, what distinguishes them are "aspects of duration, timing, or presumed etiology." It is characterized by distinct episodes lasting at least two weeks (although most episodes last considerably longer) involving clear changes in mood, cognition, and autonomic functions, and inter-episodic remissions.[1]

The term "bipolar" was first used in psychiatry in the late 19th century, but gained prominence starting in 1980 with the DSM-III, as prior to that manual the condition was referred to as *manic-depressive psychosis*.[2] Furthermore, bipolar disorder (BD) is characterized by extreme mood swings, with episodes of mania or hypomania alternating with episodes of depression. During manic episodes, individuals may experience an abnormal surge of energy, elevated mood, impulsive behavior, and other symptoms that can lead to significant problems in their lives. The complexity of bipolar disorder makes diagnosis and treatment particularly challenging.[3]

When observing the contemporary landscape of a society marked by excess and performance-oriented ideals, where capitalism "dictates the rules," it becomes clear that the population is driven to seek practical solutions to the malaise inherent to the human condition and the psychological suffering present in daily life.[4] The results of most Brazilian studies paint a similar picture among medical schools. A student's entry into the university setting involves multiple processes that expose aspiring students to situations of exhaustion, particularly in medical education, one of the most sought-after undergraduate programs in Brazil.[5,6]

The rates of mental health disorders among medical students are higher than those in the general population, raising concerns about medical students who often fail to recognize their own symptoms, particularly psychological ones.[7] In addition, there is frequent contact with critically ill patients, who are identified as significant stressors, especially for students with a support network (confidants, friends, and family) considered inadequate- that is, those who do not receive the necessary emotional support because they are far from their hometown or their parents.[8]

Starting with university entrance exams, initially known as "vestibular," students aspiring to become doctors experience a reduced quality of life, increased stress, and sleep deprivation due to the intense competition for a spot.[9] According to Sales et al.,[10] the prevalence of the most common mental disorders among medical students can reach 50%, causing negative effects on student performance, physical health, and psychosocial well-being. Among these, generalized anxiety disorder (GAD), major depressive disorder (depression), and attention-deficit/hyperactivity disorder (ADHD) stand out.

In this context, it was essential to analyze the university environment of medical students and relate it to the development of psychiatric mood disorders. By understanding the setting and the conditions in which students find themselves, it becomes possible to identify which factors contribute to the development of mood disorders, as well as their effects on mental health. It is crucial to understand this situation, since the rates of these disorders among medical students are higher than in the general population, and this poses a significant issue, as students often fail to recognize their own illnesses, particularly mental

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health conditions.[7] Given this, the objective of this study was to investigate mood disorders among medical students in Brazil.

Theoretical background

Mental disorders are clinical conditions characterized by alterations in thoughts and emotions or by behaviors related to personal distress and/or the deterioration of psychological functioning, having harmful effects not only on the individual but also on the people in their social environment.[11]

Mental disorders, such as anxiety and depression, are responsible for functional disabilities, reduced quality of life, increased healthcare costs, and damage to interpersonal relationships. According to the World Health Organization (WHO), in Brazil in 2017, the prevalence of depression was 5.8% of the general population and 9.3% for anxiety disorders. A recent meta-analysis on mental health problems among medical students in Brazil identified a prevalence of 49.9% for stress, 32.9% for anxiety, and 30.6% for depression.[12]

The presence of inflammatory mediators is associated with the pathophysiology of both bipolar disorders and depressive and anxiety disorders. This occurs because neuroinflammation has the capacity to cause toxicity and apoptosis of nerve cells. The most commonly described inflammatory mediators are interleukins 1 and 6 (IL-1 and IL-6), and, most notably, tumor necrosis factor alpha (TNF-α). The latter is a primary focus of research, as it is one of the main pro-inflammatory mediators.[13]

In general, mood episodes have been described as pro-inflammatory states, with the most relevant findings being elevated serum levels of TNF-α and IL-6 during episodes of mania and depression, when compared to states of euthymia (balanced mood). In addition, brain-derived neurotrophic factor (*BDNF)* is a marker associated with improved neuroplasticity, a process closely related to synaptic strengthening of learning and memory.[13]

The term neuroprogression has gained prominence and is being used to define a pathological reorganization of the central nervous system (CNS). This reorganization may arise as a result of damage caused by inflammation and oxidative stress. In bipolar disorder, the neural substrate is altered by various mood episodes.[14] Data from various lines of research point to BDNF as a key contributor to changes in neuroplasticity in bipolar disorder, with reduced serum levels observed during depressive episodes and bipolar episodes, while levels remain stable during euthymia.[14] It is known that the medical training process is surrounded by various stressors that significantly affect students' lives. The consequences can be observed in both physical and mental aspects, such as the emergence of Common Mental Disorders (CMDs), jeopardizing these students' quality of life.[15]

In this context, studies indicate that, among the various possible mental disorders, anxiety and depression are the most common mental disorders (CMDs), with the highest prevalence among medical students, directly affecting their performance and, in some cases, potentially leading to dropping out of the program.[16] In a very unique way, the educational process proposed by medical schools is characterized by an overwhelming academic workload, an exhausting course load, competitiveness both before and after entering the program (related to the entrance exam and residency selection processes), exposure to critically ill patients, death, and suffering, and the lack of leisure time, among other factors.[17]

Methodology

Study Design

This is an integrative literature review. Literature review studies are characterized by the use and analysis of scientific documents, such as books, theses, dissertations, and scientific articles, without directly relying on empirical data. Therefore, bibliographic research relies on secondary sources - that is, authors' contributions on a specific topic - which distinguishes it from documentary research, characterized by the use of primary sources that have not yet undergone scientific analysis.[18,19]

In conducting this review, the following procedures were adopted: Formulation of the following guiding question: "What aspects of the medical environment contribute to the development of mood disorders?"; selection of articles published between 2015 and 2024, following inclusion and exclusion criteria, and a careful review of the selected articles; presentation of the results obtained; discussion of the findings and conclusion.

Databases

Articles were selected from the following electronic databases: Scientific Electronic Library Online (SCIELO), PubMed, and the Virtual Health Library (VHL).

Time frame and language

Articles published between 2015 and 2024, written in Portuguese and/or English, were selected.

Inclusion and exclusion criteria

The search for articles to structure this integrative review was conducted after consulting the Health Sciences Descriptors (DECs) by cross-referencing the following descriptors with the Boolean operator AND: (Mental Health) AND (Medical Students) AND (Mood Disorders); (Medical Students) AND (Mental Health); (Mental Health) AND (Medical Students) AND (Mood Disorders).

Articles published between 2015 and 2024, written in Portuguese and/or English, and available in full text were included. Exclusion criteria: Duplicate articles and studies conducted as integrative or systematic reviews. The analysis of the articles will follow the data flow diagram (Figure 1).[20]

Regarding ethical aspects, submission to or approval by the Research Ethics Committee was not required, as this work is a literature review and was based on the guidelines and regulatory standards established in Resolutions No. 466/2012 and 580/2018 of the National Health Council of the Ministry of Health.

Results

The initial search yielded 246 publications, with 190 found in the PubMed database, 45 in SCIELO, and 11 in the VHL. We then filtered the articles published between 2015 and 2024 and excluded 56 publications, as well as 14 studies that were not written in English and/or Portuguese.

After reviewing the titles and abstracts, 57 full-text articles remained eligible for the study, with 119 excluded after the title review. Of the 57 eligible studies, 17 articles were included in the review, as those not partially or fully related to the research question, objectives,

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or scope of this study were excluded. The selected and analyzed articles are presented in Table 1 to facilitate better visualization and understanding of the themes in each journal. The table contains 17 studies published between 2015 and 2024, providing a summary of the articles that includes authorship and year of publication; country of origin of the study; study design; sample studied; and main results.

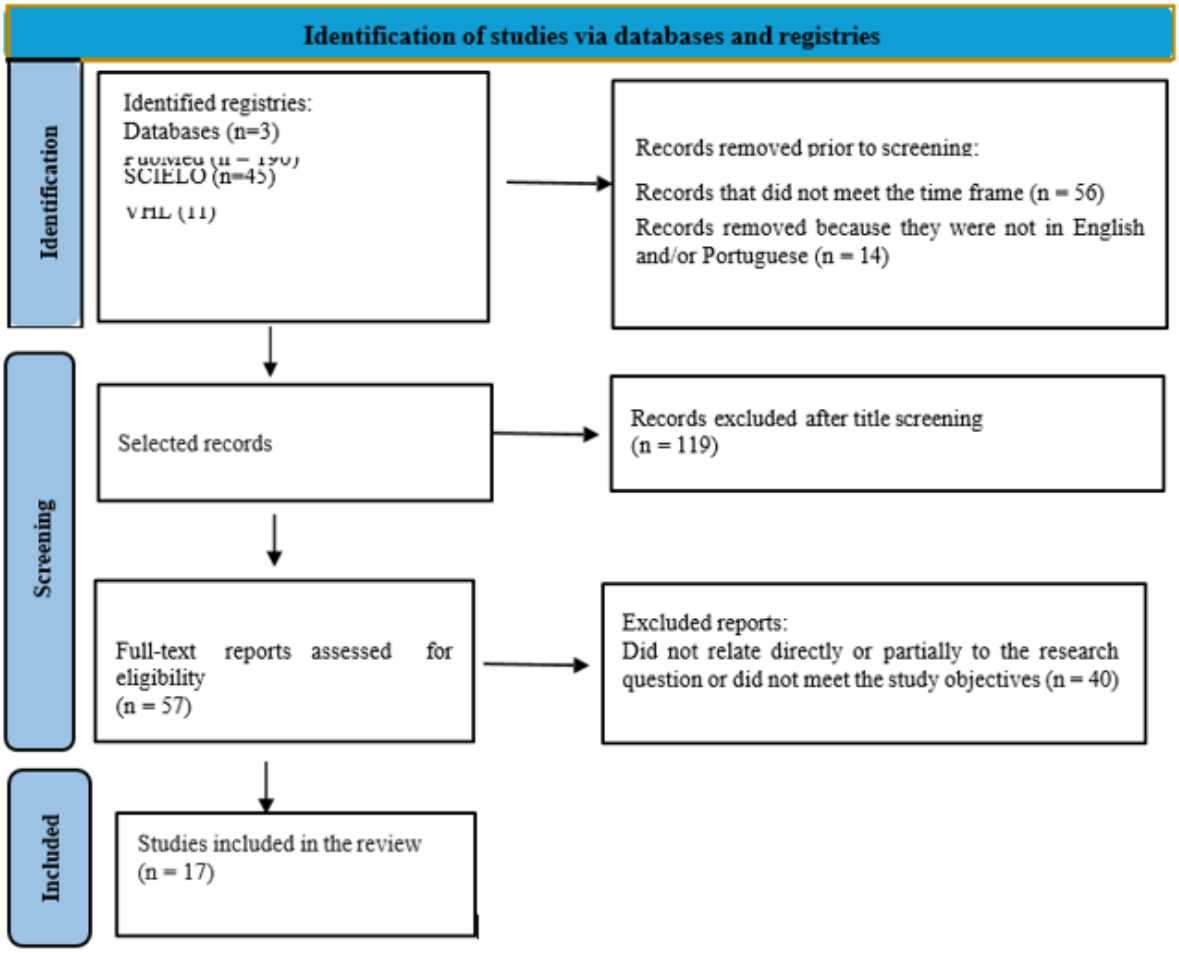

Figure 1 PRISMA Flow Diagram - Search and selection of scientific articles.

Table 1 Categorization of the articles included in the study according to title, authors, year, country of origin, study design, sample studied, and results

Title	Author(s) and Year (Country)	Study design	Sample studied	Results
Estimated prevalence and sociodemographic correlates of mental disorders in medical students in Hebei Province, China: A cross-sectional study	Lu et al.[21] (2023) China	Cross-sectional study	Medical students from 3 different years in Hebei, China	Mood disorders were the most common category, followed by anxiety disorders
Factors associated with the mental health status of medical students during the COVID-19 pandemic: a cross-sectional study in Japan	Arima et al.[22] (2020) Japan	Cross-sectional study	571 medical students	Significant level of psychological distress
Variation in stress levels, burnout, and resilience throughout the academic year in first-year medical students	Jordan et al.[23] (2020) United States	Prospective longitudinal study	172 first-year medical students	Increase in personal burnout throughout the year, with scores higher than the general population
Usefulness of a Mobile Application (Mentali) for Anxiety and Depression Screening in Medical Students and Description of the Associated Triggering Factors	Martinez-Fierro et al.[24] (2022) Mexico	Descriptive study	155 medical students in Mexico	Significant prevalence of moderate/severe symptoms of anxiety and depression

Citation: Maia EB, Silva Ics, Cavalcante jf, et al. Mood disorders in medical students: an integrative literature review. *J Neurol Stroke.* 2026;16(3):106–113. DOI: 10.15406/jnsk.2026.16.00660

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Table 1 Continued....

Medical Student Psychological Distress and Mental Illness Relative to the General Population: A Canadian Cross-Sectional Survey	Maser et al.[25] (2019) Canada	Cross-sectional study	4,613 medical students from all years of study at 17 medical schools in Canada	Significantly higher rates of diagnosed mood and anxiety disorders, psychological distress, and suicidal ideation
Prevalence of depression and its associated factors among clinical-year medical students in the Eastern Province, Saudi Arabia	AlShamlan et al.[26] (2020) Saudi Arabia	Cross-sectional study	527 clinical- year medical students (4th, 5th, and 6th years)	Higher prevalence of depression among women and students who did not feel prepared for the profession
Stress among pre-university and undergraduate medical students	Santos et al.[15] (2017) Brazil	Cross-sectional study	Pre-university and undergraduate medical students in Minas Gerais	Significant association between the presence of mood disorders and level of exhaustion
Prevalence of common mental disorders and associated factors among medical students: a comparative study	Ferreira et al.[27] (2016) Brazil	Prospective longitudinal study	134 medical students at a public university in the South	Increased prevalence of common mental disorders
Mental health of medical students with different teaching models	Tenório et al.[28] (2016) Brazil	Cross-sectional and qualitative study	78 medical students (38 from the traditional model and 40 from the PBL model)	Lower levels of psychological distress among PBL students, though with similar associated factors
Depression, stress, and anxiety in medical students: A cross-sectional comparison between students from different semesters	Moutinho et al.[29] (2017) Brazil	Cross-sectional study	761 medical students from various years of the program	Prevalence of depression, anxiety, and stress, higher among females
Prevalence of suicidal behavior among medical students	Schlittler et al.[30] (2023) Brazil	Cross-sectional study	722 students at Unicamp	Prevalence of suicidal behavior and associated factors (multifactorial analysis)
Depression among medical students in 2022: a comparative study between traditional and active learning	Montenegro-Pires and Alves de Sousa[31] (2022) Brazil	Cross-sectional study	138 students	The mean age was 23.55 ± 3.96, with a predominance of females (65.33%). A prevalence of depression of 36.6% was observed among eighth-semester medical students. Teaching methodology and depression had a statistically significant impact on suicidal ideation
Impact of the COVID- 19 pandemic on the prevalence of common mental disorders among medical students	Lima et al.[32] (2023) Brazil	Observational study	289 medical students	There was no difference in the prevalence of Common Mental Disorders (CMD) between the periods before and during the pandemic. During the pandemic, there was an increase in religious involvement and alcohol consumption. Among the students, an increase in CMD was observed among men; an increase among those with religious involvement; and an increase across all academic years.

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Table 1 Continued....

Common mental disorders in medical students: prevalence and associated factors	Cunha et al.[33] (2023) Brazil	Cross-sectional study	556 students (289 women and 267 men)	Prevalence of MCT in more than half of the study group, with anxiety, poor sleep quality, and suicidal ideation as the main associated factors
Prevalence of depression among medical students at a university in Goiás	Oliveira et al.[18] (2024) Brazil	Cross-sectional study	1,609 students	Prevalence of 30–42% for depression, with sleep deprivation, heavy course load, traditional teaching methods, anxiety, isolation, final semesters, and female gender as the main associated factors.
Performance and psychological distress in medical school	Guimarães et al.[34] (2024) Brazil	Qualitative study - semi-structured interviews	24 students	No concrete findings regarding the development of mental disorders.
Impact of the Covid-19 pandemic on the mental health of medical students in Pernambuco	Brito et al.[35] (2023) Brazil	Cross-sectional and descriptive-analytical study	416 students	Significant rates of moderate/severe anxiety, in addition to data on depression. High resilience and pre-pandemic support as protective factors. Being in the clinical rotation increased the risk of anxiety and depression.

Source: Prepared by the authors, 2025.

Discussion

Thus, upon analyzing the articles selected for this study, it is noted that the key themes and findings were:

Degree of psychological distress and stress experienced

In this context, the analyzed articles indicate that levels of stress, exhaustion, and psychological distress are present at all stages of medical training; however, the intensity and characteristics of these symptoms vary according to the student's stage of undergraduate study. In the early semesters, high levels of anxiety are observed, which are mainly related to academic adjustments, a heavy course load, and high competitiveness among students. Although the prevalence of depression in this group is at less severe stages, significant impacts on mental health are already noticeable, in addition to a 47.1% prevalence of stress identified in a questionnaire administered in a medical program at the Federal University of Juiz de Fora.[29]

This situation worsens considerably during the clinical rotation. Brito et al.,[35] in a study of medical students in Pernambuco, demonstrated that being in the 5th to 8th academic semesters increased the risk of anxiety by approximately twofold (OR = 1.95; p = 0.02) and more than doubled the risk of moderate to severe depression (OR = 2.74; p = 0.01). These findings indicate that increased contact with patients, theoretical and practical demands, and growing academic responsibility are factors that have significant effects during this period, particularly in terms of psychological distress.

In the final years, corresponding to the internship, various studies also describe increased levels of stress and emotional exhaustion resulting from factors that trigger mental distress, such as heavier workloads, integration into the hospital environment, direct exposure to human suffering, and the approaching transition to professional practice. Cunha et al. (2023), in investigating common mental disorders among 556 students at a public university in Bahia, found a prevalence of 53.3%, suggesting that more severe symptoms are more frequently concentrated in the advanced stages of training.

Prevalence of depression and anxiety among medical students

In this regard, the prevalence of mood disorders among medical students, particularly major depressive disorder, in conjunction with anxiety, has proven to be significantly higher than that observed in the general population of the same age group, indicating that the academic environment, the medical context of constant internal and external pressure, and exposure to human frailty and vulnerability are important risk factors for the development of psychological distress observed in this group.

Moutinho et al.,[29] in a study conducted with 761 medical students from various years of study, identified a prevalence of 34.6% for depressive symptoms and 37.2% for anxiety symptoms - significant figures that reflect the magnitude of this issue in the national context. Furthermore, similar results were found by Brito et al.[35] in a study conducted at 11 educational institutions in Pernambuco, using the Beck Scales (a set of psychological tests that assess the intensity and severity of symptoms of depression, anxiety, hopelessness, and suicidal ideation). When applying these scores, a large proportion of students were classified as having at least a minimal level of anxiety (33.2%) and depression (54.3%). The study also highlighted that the stage of the program was directly associated with symptom severity, demonstrating increasing vulnerability as students progress through their undergraduate studies.

Internationally, Maser et al.,[25] in a study of 4,613 medical students from 17 Canadian medical schools, showed that the students evaluated had significantly higher rates of mood disorders, anxiety, psychological distress, and suicidal ideation compared to the general population of college graduates in the same age group as the study

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group. Furthermore, factors such as female gender and being in the clinical training phase were associated with a higher risk of developing mental disorders, indicating that certain individual characteristics and stages of medical training may intensify psychological vulnerability.

In an Asian context, a study conducted in Saudi Arabia by AlShalam et al.[26] identified a 39.3% prevalence of depression among 527 students in their clinical years. The authors reported that female gender and the perception of being unprepared for the future specialty were associated with a higher risk of severe depression, while students further along in the program tended to have a lower likelihood of severe depressive symptoms. This finding suggests that progressive adaptation to the clinical environment may mitigate some of the psychological distress potentially present among medical students.

In addition, the study by Lu et al.,[21] conducted among 7,117 medical students in Hebei Province, China, using the MINI 5.0 structured diagnostic interview, found a 12-month prevalence of 7.4% for any mental disorder, with 4.3% for mood disorders and the remainder (3.9%) for anxiety disorders. Although the rates found in these studies are lower, one important point is that the study was conducted during the active phase of the pandemic and presents data from formal diagnoses; thus, the methodological difference between clinical diagnosis (MINI) and screening instruments (PHQ-9, BDI, DASS-21) often results in lower estimates in diagnostic terms.

Thus, even though there are numerical discrepancies between Brazilian and international studies - whether due to methodological, cultural, or contextual differences - the body of evidence indicates that medical students exhibit significant prevalences of depression and anxiety. The recurrence of these findings across different countries reinforces the global scale of the problem and points to the need for institutional policies focused on prevention, early detection, and the efficient provision of multidisciplinary and professional psychosocial support.

Effect of the pandemic on psychological distress and the development of symptoms

The COVID-19 pandemic represented a significant event in the history of the modern world, with a major impact on people's mental health. In particular, there was a worsening of psychological distress, reflected above all in medical students, as it intensified symptoms of anxiety, depression, and stress previously described in the literature.

In the Brazilian context, Brito et al.[35] observed that the pandemic contributed to an increase in anxiety and depression, mainly due to the emotional overload associated with the suspension of in-person classes, adaptation to remote learning, and concerns regarding clinical competencies. The authors also highlighted that the reduction in interpersonal contact and interaction with preceptors was a factor in intensifying psychological distress. The assessment of the Beck Anxiety Scale, according to the study's clinical-epidemiological characteristics, revealed a higher percentage of moderate anxiety among students diagnosed with COVID-19 (35.85%), compared to those with previously diagnosed conditions (33.3%) and those who experienced an exacerbation of a previously reported symptom.

Furthermore, the study found a significant percentage of anxiety cases among university students during the COVID-19 pandemic, with a mild anxiety level of 29.3%, but with a markedly higher frequency of moderate (27.2%) and severe (10.2%) anxiety compared to a study conducted by Wang et al.,[36] which reported self-reported anxiety symptoms in 24.9% of university students during the pandemic period, of whom 21.3% had mild anxiety, 2.7% moderate anxiety, and 0.9% severe anxiety. However, there was no significant association between a COVID-19 diagnosis and the Beck Depression Inventory score.

From an international perspective, some also point to the detrimental effects of the pandemic. Lu et al. (2023), for example, in their assessment of medical students in China, reported that the circumstances during the COVID-19 pandemic were linked not only to increased levels of psychological stress, but also to low demand for professional help, since only 15% of students sought psychological counseling in the 12 months prior to the survey, 5.7% had a psychiatric consultation, and only 10% used any medication during the same period, revealing additional barriers to managing symptoms.

Thus, the low treatment rate identified in this study, in conjunction with other Brazilian studies, reinforces that the pandemic not only influenced the onset or intensification of symptoms but also exposed weaknesses in access to psychological/psychiatric support during health crises across different sociocultural contexts. This restriction on access to mental health support and care has also been reported in other academic populations, constituting a global problem. Thus, there is a need for qualified institutional policies capable of offering continuous, accessible, and integrated support within the medical curriculum, with the aim of effectively preparing students to face future health crises.

Relationship between the medical context and the development of mood disorders

The medical training environment has increasingly sparked interest and debate regarding teaching conditions and the circumstances in which students are immersed, being widely identified as a significant risk factor for the development of stress, psychological and emotional distress, and, consequently, mood disorders among students. The intensity of the course load, cutthroat competition, pressure for high performance, and early exposure to situations of human suffering create a scenario conducive to the emergence of depressive and anxiety symptoms, which may progress to more severe clinical conditions.

Cunha et al.,[33] in a study conducted with medical students in Bahia, state right in the introduction that the medical curriculum is marked by high cognitive demands, competitiveness in the admissions process, an intense workload, and early and constant contact with patients and situations of suffering - stressors inherent to the medical context that contribute to psychological burnout.

According to the results of the SRQ-20 in this study - a questionnaire developed and validated to map psychological morbidities - the most frequently reported items associated with the demands of the academic environment are: feeling nervous, tense, or worried (78.8%); sleeping poorly (56.8%); constant fatigue (approximately 61% reported "feeling tired all the time"); and suicidal ideation (6.5% with a positive response). Furthermore, a significant relationship was found between academic variables and MSD. Being in the 7th semester was correlated with a 17% higher probability of developing common mental disorders compared to students in the 6th and 8th semesters. Thus, it is noted that the transition between clinical rotations and internship, along with the stress inherent in the demand for adaptation, can precipitate more pronounced psychological symptoms.

It was also found that a perception of poor health (self-assessment of physical/mental health as "fair" or "poor") was associated with a 53% higher prevalence of MHD. Thus, the analysis of the study by Cunha et al. (2023) shows that the medical environment, especially at points of curricular transition and the shift to clinical practice - where there are performance expectations and academic insecurity - is closely linked

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to the emergence or intensification of psychological symptoms that constitute mood disorders.

In parallel, the study by Ferreira et al. (2016) adopted a longitudinal design,also using the SRQ-20 for screening. One of the key findings was an increase in the prevalence of MDD, rising from 35.8% at the beginning to 51.5% at the end of the semester, revealing that academic demands, constant assessments, and the accumulation of course material act as emotional stressors during the academic term. Furthermore, this study associated two important factors with the increase in MCS: low per capita family income (< R$ 2,000.00) and poor sleep quality, suggesting that students with greater socioeconomic vulnerability may be more susceptible to psychological distress. At the end of the semester, the factor that remained statistically significant was poor sleep quality, and the reported symptoms that increased between the beginning and the end were nervousness/tension, fatigue, a feeling of constant tiredness, and insomnia. These symptoms are consistent with depressive and anxiety disorders and reflect the mental overload to which undergraduate students are exposed on a daily basis.

Thus, the study by Ferreira et al.[27] provides important evidence that the progressive medical context (beginning and end of a semester) can precipitate or exacerbate mental health symptoms. Furthermore, it demonstrates that poor sleep quality is a significant risk factor, highlighting deficiencies in structural elements within the medical environment, such as intense and exhausting study routines, irregular schedules, and lack of rest.

The study conducted by Santos et al.[15] with medical students, comparing them to high school students preparing for college entrance exams in Montes Claro, Minas Gerais, used the Lipp Stress Symptoms Inventory for Adults (ISSL), which classifies stress phases (alarm, resistance, and exhaustion), allowing for the inference of stress progression based on the academic context. The study's results indicated that pre-university entrance exam students showed higher scores in the resistance and exhaustion phases compared to medical students.

Despite the apparent initial superiority of medical students, the study identified that among medical students, there is a significant correlation between mood disorders and levels of exhaustion (which are accentuated during undergraduate studies), suggesting a scenario in which the accumulation of stress during undergraduate studies contributes to the onset of emotional symptoms.

Among medical students, burnout emerged as a statistically significant correlate of symptoms consistent with mood disorders (p=0.023). From this perspective, it becomes evident that as the university medical context imposes continuous workloads, reduced time for rest and leisure, rigorous daily evaluations, and the accumulation of stress, students may transition from a phase of resilience to emotional exhaustion, which serves as a predisposing factor for the development of psychological distress and, consequently, depressive and anxiety symptoms.

At the international level, Jordan et al.[23] used validated scales to investigate levels of resilience, stress, and burnout among students, such as the Brief Resilience Scale (BRS), the Copenhagen Burnout Inventory (CBI), and the Perceived Stress Scale (PSS-10). This study, based on a systematic review of 195 articles, reported a prevalence of 11.1% of suicidal ideation among medical students, and among those diagnosed with depression, only 15.7% sought treatment. Furthermore, in another large-scale national survey with 35% participation from all medical students, 44.6% of students presented with high levels of burnout, 58.2% tested positive for depression, 9.4% reported suicidal ideation in the past 12 months, and, finally, 57.7% reported high levels of fatigue.

In this context, the article points to factors such as high academic rigor, the curriculum format, and the belief that students need to "be strong enough" to cope with stress and exhaustion in order to achieve their goals, as well as the lack of attention given to mental health (compared to physical health care) as a context conducive to the deterioration of medical students' mental health.

Finally, a study conducted by Oliveira et al.[18] with 1,609 students at a medical school in Goiás found that participants classified as having low social support had a higher prevalence rate than those with high social support. In this context, part of the typically higher rates of depressive symptoms can be explained by a grueling routine in many cases, direct contact with sick people, and the fact that students often live alone and far from their families. The study also showed an association between depression, smoking, and substance use, as well as problems arising from alcohol consumption.

Final considerations

Thus, this integrative review concluded that the prevalence of mood disorders among medical students is a significant and multifactorial mental health issue, examining the conditions that lead future physicians to develop mental disorders. According to the findings, the medical environment is characterized by constant and exhausting routines and demands, which contribute to the emergence of anxiety and depressive symptoms throughout medical school, with a tendency to intensify during clinical rotations and residencies - periods marked by greater exposure to human suffering, academic overload, and performance pressure.

Furthermore, the COVID-19 pandemic further exacerbated this scenario by imposing abrupt changes in academic routines, social isolation, and a progressive increase in uncertainty about the future, in addition to being a moment that exposed human fragility. Several studies have indicated that this event was marked by an increase in psychological distress, revealing vulnerabilities in the emotional support provided to students and the importance of establishing permanent strategies for psychological support and follow-up. Overall, the findings of this review indicate that addressing mood disorders among medical students requires multidimensional actions, involving not only early recognition and treatment but also institutional and pedagogical reforms, as the current system often neglects students' mental health care and fails to provide the necessary support to prevent their emotional decline. Thus, it is essential to incorporate into medical education spaces for listening, ongoing academic debates, programs focused on mental health, and methodologies that value the balance between academic performance and psycho-emotional well-being. Furthermore, it is fundamental to foster an institutional culture of support and the promotion of empathy, with the aim of dismantling stigmas related to emotional vulnerability.

It is therefore concluded that mood disorders and mental health problems among medical students represent a collective and structural challenge. Thus, the consolidation of a healthier academic environment depends on the integration of teaching, psychological support, and institutional prevention policies, ensuring that medical education promotes not only technical competence but also resilience and emotional balance.

Acknowledgements

None.

Citation: Maia EB, Silva Ics, Cavalcante jf, et al. Mood disorders in medical students: an integrative literature review. *J Neurol Stroke*. 2026;16(3):106–113. DOI: 10.15406/jnsk.2026.16.00660

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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Citation: Maia EB, Silva Ics, Cavalcante jf, et al. Mood disorders in medical students: an integrative literature review. *J Neurol Stroke*. 2026;16(3):106–113. DOI: 10.15406/jnsk.2026.16.00660