

Research Paper

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

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ABSTRACT

Medical college is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological well-being of the student. The purpose of the study has to explore about the depression, anxiety, stress and suicide among medical student. Literature has been searched the both electronic databases including PubMed, Google Scholar and manual searches for this. Students have been found to have depressed symptoms at higher rates than the general population, even medical students. On its own, anxiety is normal and natural both before and during an exam. What counts is the level of extreme anxiety or excitement that has the potential to impair performance. Stress in the classroom has a detrimental effect on learning and cognitive function and can cause mental distress. Among younger medical students, suicidal conduct is one of the ignored problems, while being a major public health crisis.

Keywords: *Stress, Anxiety, Depression, Suicide, Medical Students*

The World Health Organization considers mental health to be a vital aspect of overall health. A person may exhibit any combination of low mood, loss of interest or pleasure, guilt feelings, low self-esteem, decreased appetite, disturbed sleep, or disturbed concentration to be classified as depressed (Marcus M et al). Globally, depression is the primary cause of disability. Many symptoms are associated with it, such as low energy, diminished energy, decreased interest and enjoyment, mood depression, altered sleep and food, feelings of guilt or low self-worth, and difficulty concentrating (WHO, 2015). Compared to other specializations, medical students showed greater prevalence of depressed symptoms than the general population. Students in general suffer depression symptoms more frequently than the general population (Sherina MS et al). The second most common cause of death for those between the ages of 15 and 29 is suicide, the greatest consequence of depression. The average age of suicide among medical school candidates has been found to be 24 years old (Eller T et al). This supports the theory that suicide as a result of depression is the second most common cause of mortality at medical institutions and colleges overall. The psychological and physical side effects have been linked to depression, which can elicit feelings of anxiety, insecurity, wrath, and resentment in many

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medical students (Kessler RC, Walters EE). Depression is likely to have long-lasting repercussions, and practicing physicians commit suicide at a higher rate than the general population, which may be the result of untreated depression (Frank E et al). For a very long time, medical schools have been seen as stressful places for students to start their postsecondary studies. extended study sessions and the emotional burden they impose, (Rosenthal JM) high workload (Adams J) and significant financial strain as the main sources of stress. Therefore, it is not unexpected that compared to the general population, medical students have a considerably higher prevalence of depressed symptoms (Dahlin M et al).

A subjective sense of fear or dread about the present or the future that is accompanied by a variety of somatic symptoms and autonomic indicators, including palpitations, sweating, and tremors, is known as anxiety (Namboodiri VM. C Elsevier; 2009). Anxiety is common and reasonable on its own, both before and during the exam. What counts is the level of extreme anxiety or excitement that has the potential to impair performance (Gilavand A et al). Test-anxious students experience tension, fear, and worry in evaluation situations (Yusoff MS, Rahim AF,2010). High test anxiety is linked to poorer learning and performance levels among students, according to research on the relationship between test anxiety and academic achievement (Sub A, Prabha C).

Although it is unlikely that medical education varies from other higher education in this regard, it is generally believed to be stressful (Firth-Cozens J). Stress in education has a detrimental effect on learning and cognitive function and can cause mental distress (Saipanish R). They are under a lot of stress because of the social and personal sacrifices they must make in a highly competitive setting in order to preserve a decent academic result (Mannapur B et al). During their medical training, medical students face a lot of stress and a hard workload, which makes them more susceptible to sleep disorders (Azad MC et al). Medical education is by its very nature hard and stressful. A student who is overloaded with information has little time to unwind and have fun. Depression and stress have long been associated with negative consequences for both mental and physical health. While too much stress can have negative effects on health, just the right amount of stress can improve learning. This lowers pupils' self-esteem and has an impact on their academic performance. High levels of stress may negatively impact medical school students' cognitive development and learning (Abdulghani HM et al). The competitive climate of higher professional education puts young students at risk for stress. A analysis of the literature comparing stress levels between medical and non-medical students reveals that medical students experience more stress (Dyrbye LN **et al**). Frequently engaging in strong contacts with patients who have complex difficulties might lead to stress in healthcare providers (Maslach C, Jackson SE) and stressful conversations with colleagues (Barrack RL et al). It is important to remember that medical interns and residents experience stress, and that methods for reducing it should take into account both situational and individual aspects (Newbury-Birch D, Kamali F). Stress is especially common for residents who work with critically ill, difficult-to-diagnose patients in inpatient settings (Gopal R et al). Academic pressures, interpersonal stressors, teaching and learning stressors, and social stressors are the typical sources of stress for medical students. Consequently, early stressor identification among medical students may help to avoid negative effects on their health (Singh G et al). Academic performance among medical students may be impacted by stress and health problems. Stress among students can have an impact on their ability to care for patients, interact with teachers, and study in the future. Coping methods are particular techniques people use to deal with stress (Lee J, Graham A). High parental expectations, many exams, the breadth of the academic program, trouble sleeping, performance on recurrent exams, and

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future concerns are the most typical sources of stress for medical students. High parental expectations, many exams, the breadth of the academic program, trouble sleeping, performance on recurrent exams, and future concerns are the most typical sources of stress for medical students (Carver C S). Stress is the body's reaction to a change that necessitates a physical, mental, or emotional response. It is a cognitive (thought) process that arises in response to any occurrence that is believed to affect or threaten our well-being. The curriculum, test schedule, and educational organization of the Indian education system are all reminiscent of the colonial past (Dehaan RL, VenkatnarayanKM: Education for innovation) However, excessive stress can lead to severe discomfort and interfere with one's ability to concentrate and perform.

Medical students are recognized to experience extreme mental stress (Mannapur B et al). However, it's frequently difficult for everyone to see the dejected expressions hiding beneath the white jackets. Medical students go through several psychological shifts as they mature from shy, inexperienced students to capable doctors. They are under a lot of stress because of the social and personal sacrifices they must make in a highly competitive setting in order to preserve a decent academic result (Wolf TM, Kissling GE). Year 1 students in the UK were found to have the highest levels of emotional discomfort; this finding also indicated problems that would arise later in the research (Guthrie E et al). In Karolinska Institute research, 12% of medical students said they felt anxious or depressed (Wallin U, Runeson B). Nonetheless, it was discovered that Canadian medical students were less stressed than graduate students, lawyers, and the general public (Helmers KF et al) Despite this, when they went from basic to clinical training, medical students scored higher than average on stress and depression. There has been a suggestion that medical students who exhibit higher degrees of neuroticism—a personality trait that ranges from emotional stability (low neuroticism) to emotional instability (high neuroticism)—may be more susceptible to despair and thoughts of suicide (Tyssen R et al). There is a negative correlation between neuroticism and the intensity of depression symptoms (Gosling SD et al) and anxiety symptoms, while positively associated to stress vulnerability (Bunevicius A et al).

SUICIDE- One of the most prevalent illnesses that contributes to suicide is depression. It results from the intricate interplay of biological, cultural, environmental, and social elements at play in a person's life (Fleischmann A). The majority of individuals who have suicidal thoughts and desires do not actually attempt suicide; instead, they run the risk of ending their lives on their own (Akram B, Iliyas M). Suicide is the second most common cause of death for medical professionals and students, behind accidents (Wilkinson TJ & Grossman DC). In South-East Asia, India likewise has the highest suicide rate among females (14.5%) and the third-highest rate among males (18.5%). Research indicates that compared to the general population, medical students and doctors have a higher risk of suicide. Suicidal ideation and its aftermath, such as suicidal intentions, thoughts, attempts, and actual suicides, are together referred to as suicidal behavior (Kanchan T). Future medical professionals are more likely to engage in suicide conduct than other course participants and the general public (Akram B et al). Despite the abundance of information regarding the occurrence of sadness or thoughts of suicide in medical students (Mata et al., 2015; Rotenstein et al., 2016); However, few nations have published periodic statistics on completed suicides, and even in international literature, there has been little exploration of this phenomenon (Kamski et al., 2012). In India, a significant proportion of medical students and practitioners experience depression or suicidal thoughts, and many practicing or aspiring physicians commit suicide, exacerbating the situation (Goyal et al., 2012). Significantly, current estimates of the prevalence of suicidal ideation (SI) and suicide attempt (SA) among

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medical students worldwide indicate that 1.6% and 11.1%, respectively, had tried suicide in the year prior (Rotenstein LS et al).

RESULT

Table -1 Depression Among Medical Student

S.no	Authors	Year	Finding
1	Peterlini M et al.	2002	There were 2.1% of residents with symptoms compatible with severe, 4.2% with moderate and 27% with mild depression.
2	Inam SN et al	2003	60% students had anxiety and depression. Prevalence of anxiety and depression in students of 4th year, 3rd year, 2nd year and 1st year was 49%, 47%, 73% and 66% respectively. It was significantly higher in 1st year and 2nd year, as compared to 3rd and 4th year.
3	Sherina MS, Kaneson N	2003	35.9% of UPM medical students were found to have depression. Factors found to have significant association with depression were females, Malays, relationship of the respondents with their siblings, pressure prior to exam and problems with love (boy-girl) relationship. The prevalence of depression among medical students was high.
4	Eller T et al	2006	There were 21.9% students had symptoms of anxiety and 30.6% had symptoms of depression. The frequency of anxiety and depressive symptoms was higher in females. Authors found that some sleep problems indicated underlying symptoms of anxiety and depression.
5	Ahmed I et al,	2009	28.6% of medical student showed depression while 28.7% showed anxiety.
6	Goebert D et al	2009	12% had probable major depression and 9.2% had probable mild/moderate depression.
7	Singh A et al	2010	A total of 49.1% students reported depressive symptoms.
8	Jadoon NA et al	2010	A high prevalence of anxiety and depression (43.89%) was found amongst medical students.
9	Kumar GS et al	2012	The overall prevalence of depression was found to be 71.25%. Among those with depression, a majority (80%) had mild and moderate degree of depression.
10	Basnet B et al	2012	The overall prevalence of depression among the students was 29.78 percent.
11	Melo-Carrillo A et al	2012	In the first two years (2006-2007) the 36.29% of the students scored for positive depressive symptoms.
12	Vankar JR et al	2014	The Overall prevalence of depression was found to be 64%. Highest level of depression was seen in first year. Moderate to severe depression was found in 26.6% students. 73.3% students felt that having depression would negatively affect their education, and 52.3% saw depression as a sign of personal weakness.
13	Hope V, Henderson M	2014	Prevalence of 7.7–65.5% for anxiety, 6.0–66.5% for depression and 12.2–96.7% for psychological distress were recorded.
14	Mata DA et al	2015	The overall pooled prevalence of depression or depressive symptoms was 28.8%, with high between-study heterogeneity.
15	Bibi A et al	2015	In under graduates minimal to mild depression was reported 94.74% however only 5.26% students had moderate depression.
16	Rizvi SJ et al	2015	Increased disability rates were associated with history of childhood abuse, duration of current major depressive episode, comorbidity, benzodiazepine use, as well as greater depression and anxiety severity.

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S.no	Authors	Year	Finding
17	Puthran R et al	2016	There was no significant difference in prevalences of depression between medical and non-medical students.
18	Rotenstein LS et al	2016	Summary prevalence of Depressive symptom estimates ranged across assessment modalities from 9.3% to 55.9%.
19	Pan XF et al	2016	Socioeconomic factors and student characteristics such as male sex, low monthly income per capita, father's poor education background, and higher year of study were associated with higher prevalence of depressive symptoms among medical students.
20	Ngasa et al	2017	With regards to the severity of depression, 34.6% ,26.4%, 3.4%, and 0.80% students were classified as having mild, moderate, moderately severe and severe depression respectively.
21	Wolf MR et al	2017	Burnout was associated with a positive depression screen.
22	Olum R et al	2020	The prevalence of depression was 21.5% (n=71) of which 64.1% had moderate depression (n=50).

Table -2 Anxiety among medical student

S.no	Authors	Year	Finding
1	Cassady JC, Johnson RE	2002	Higher levels of cognitive test anxiety were associated with significantly lower test scores on each of the three course examinations. High levels of cognitive test anxiety also were associated with significantly lower Scholastic Aptitude Test scores.
2	Sender R et al	2004	Women scored significantly higher than men on trait anxiety and sensitivity to reward.
3	Sherina MS et al	2005	38.4% of the medical students were found to have anxiety.
4	Lashkaripour K et al	2006	Anxiety occurs in girls more than boys.
5	Inam SB.	2007	Prevalence of anxiety and depression in females were 66.6% and males 44.4%.
6	Ping LT et al	2008	Students with pre-existing anxiety traits had high anxiety scores 10 minutes into the examination and while with the examiners.
7	Hashmat S et al	2008	Among different factors contributing to exam anxiety, extensive course loads (90.8%), lack of physical exercise (90%) and long duration of exams (77.5%) were the most important factors reported by the students.
8	Pahwa B et al	2008	There was an increase in anxiety levels prior to exam, more so in females and in students with neuroticism and extraversion temperaments.
9	Rana R, Mahmood N.	2010	Anxiety is one of the factors which are responsible for students' underachievement and low performance but it can be managed by appropriate training of students in dealing with factors causing test anxiety.
10	Ghudasara SL et al	2011	depression and anxiety were more prevalent in the Vanderbilt medical student population than in their nonmedical peer group.

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S.no	Authors	Year	Finding
11	Mohammadyari G.	2012	As a result, Anxiety as a female characteristic and belief to be capable as a male characteristic can be imagined reasons of success in context of a gender role.
12	Bassols AM et al	2014	Anxiety symptoms were reported by 30.8% of first-year students and 9.4% of sixth-year students ($p < 0.001$). Female students were more affected by anxiety.
13	Shakir M.	2014	Research findings revealed an inverse relationship (negative correlation) between the academic achievement and the academic anxiety of students.
14	Patil SG, Aithala MR.	2017	The prevalence of high exam anxiety among Phases I-III were 37%, 28%, and 32%, respectively.
15	Khoshhal KI et al	2017	About 65% students experienced exam anxiety due to various reasons.
16	Moreira de Sousa J et al	2018	Prevalence of 21.5% for anxiety symptoms and 3.7% ($n = 28$) for depressive symptoms.
17	Srivastava S et al	2021	43.30% had minimal, 31.96% mild, 10.31% moderate and 14.43% severe anxiety.
18	Al-Johani WM et al	2022	Prevalence of Social anxiety disorder was almost 51%. While 8.21% and 4.21% had reported severe.

Table-3 Stress among medical student

S.no	Authors	Year	Finding
1	Radcliffe C, Lester H.	2003	A perceived lack of support from the medical school authorities also appeared to add to student stress levels.
2	Sherina MS et al	2003	41.9% of the medical student to have psychological stress, which was significantly associated with depression.
3	Dahlin M et al	2005	The prevalence of depressive symptoms among students was 12.9%, significantly higher than in the general population, and was 16.1% among female students versus 8.1% among males. A total of 2.7% of students had made suicide attempts, but none during the previous year.
4	Omigbodun OO et al	2006	Stressors associated with psychological distress in the students include excessive school work, congested classrooms, strikes by faculty, lack of laboratory equipment, family problems, insecurity, financial and health problems.
5	Sreeramareddy CT et al	2007	The overall prevalence of psychological morbidity was 20.9%. The most important and severe sources of stress were staying in hostel, high parental expectations, vastness of syllabus, tests/exams, lack of time and facilities for entertainment.
6	Abraham RR et al	2009	Prevalence of stress among the students was 37.3%. Among nonacademic problems, limited time for recreation and home-sickness were found to be the greatest sources of stress.
7	Shah C et al	2009	A majority of the 1st year medical students perceived stress. The stress profiles were as follows. 18-25% stressors were environmental. 21-40% stressors were due to office relationships. 18-25% stressors were due to social factors. 35-70% stressors were due to academic factors. As stress has a detrimental effect both on health as well as academic performance.
8	Al-Dabal BK et al	2010	More medical students (48.6%) reported being frequently stressed. Unsuitable teaching methods, an unsatisfactory study environment, and fear of failure in examinations were more

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S.no	Authors	Year	Finding
			frequently mentioned by medical than non-medical students ($P < 0.05$). While underlying social problems were significantly more common in medical students, economic problems were more prevalent among CASCs students ($P < 0.05$, $P < 0.05$). More medical than non-medical students reported a worse status of physical and mental health, anxiety and depression and negative life-style changes since initiation of the college programme.
9	Shah M et al	2010	'High parental expectations', 'frequency of examinations', 'vastness of academic curriculum', 'sleeping difficulties', 'worrying about the future', 'loneliness', 'becoming a doctor', 'performance in periodic examinations' were the most frequently and severely occurring sources of stress.
10	Sharma B et al	2011	It was also observed that the stress level was high. Academic examinations for medical students are stressful and produce changes in vital parameters which may affect their academic performance. Girls had more stress as compared to boys. Academics and examinations are the most powerful stressors in medical students
11	Abdulghani HM et al	2011	The total prevalence of stress was 63%, and the prevalence of severe stress was 25%. The prevalence of stress was higher ($p < 0.5$) among females (75.7%) than among males (57%).
12	Nandi M et al	2012	About 60% of the female students were stressed in contrast to 50% of the males, but this observed difference was not statistically significant.
13	Acharya VM et al	2012	Lack of support from clinical staff was identified as the major stressor.
14	Salam A et al	2013	Stress among Malaysian medical students was as high as 56% which is alarming.
15	Rahman NI et al	2013	Study found out that 47 (78.3%) students might be having stress related problem.
16	Harpell JV, Andrews JJ.	2013	Multiple linear regression analyses significantly identified Academic Stress and Age as predicting Worry; Academic Stress, Emotional Stress, and Physiological Stress, predicting Emotionality; Peer Interaction and Academic Self-Concept predicting Confidence; Academic Self-Concept and Behavioral Stress predicting Interference; and Academic Stress Academic Self Concept, Emotional Stress, Physiological Stress
17	Sohail N.	2013	Low level of stress was found in 7.5%, moderate level of stress was present in 71.67% and high level of stress was observed in 20.83% of the students.
18	Al Sunni A, Latif R	2014	The overall prevalence of stress found in this study was 71.7%. There was no significant difference in the mean stress scores of males and females students.
19	Qamar K et al	2015	Major elements responsible for stress identified were environmental factors, new college environment, student abuse, tough study routines and personal factors.
20	Joseph N et al	2015	Stress resulting from having to meet professional demands is common in the medical student's life. Perceived stress scores were found to be higher among first-year students.
21	Anuradha R et al	2017	Higher age-group, year of studying bachelor of medicine and bachelor of surgery, vastness of academic curriculum, fear of poor performance in examination, lack of recreation, loneliness, family problem, and accommodation away from home were

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S.no	Authors	Year	Finding
			important determinants of perceived stress.
22	Jia YF, Loo YT	2018	Prevalence rate of perceived stress among the undergraduate students was 37.7%.
23	Gazzaz ZJ et al	2018	Those students that were more stressed had lower marks in the last exam (< 80%) as compared to students with less stress who had higher marks (≥80%).
24	Rebello CR et al	2018	A total of 33.8% of participants had perceived stress scores of >28. Among academic stressors, performance in examinations (34.7%), lack of time for recreation (30.6%), curriculum (24.8%), and frequency of examinations (24.8%) were the highest rated stressors. Quality of food in the mess (50.4%) and lack of entertainment in the institution (39.7%) were the highest rated psychosocial stressors. There was a positive correlation between the PSS-14 scores and various academic stressors and the global PSQI score.
25	Bali H et al	2020	stress during exam 92.9% and preparation phase 88.5% stood out as the maximum stressors.
26	Srivastava R et al	2020	Vastness of academic curricula, frequency of examination ($P < 0.05$), and fear of failure/poor performance in examinations were important academic determinants of stress. High parental expectations and family problems were important psychosocial stressors. Accommodation away from home was an important predictor of stress ($P < 0.001$).
27	Satpathy P et al	2021	91% were suffering from high levels of stress.
28	Sharma R et al	2021	females had a significantly higher perceived stress level than the male . About 10% of the participants reported high perceived stress level , and moderate stress was reported in 69% of the participants. However, only 21% of the participants reported low stress . While only moderate anxiety (score 10–14) was reported in 16% of the participant and 4% of the participants reported severe anxiety .
29	Leombruni P et al	2022	Overall, 55.2% and 16.9% of the sample reported, respectively, medium risk and high risk of perceived stress.
30	Rajar AB et al	2022	13.3% reported feeling stressed, 48.0% reported mild stress, and 38.7% reported moderate stress. The academic program, high parental expectations, loneliness, living away from home, the standard of the food in the canteen or mess, the hostel's living conditions, roommate adjustment, trouble sleeping, and class attendance were the main causes of stress for the majority of the students.

Table-4 Suicide among medical student

S.no	Authors	Year	Finding
1	Wallin&Runeson	2003	A questionnaire including own attitudes on death and suicide and psychosocial circumstances was filled in by 63% of first and final year students.
2	Dyrbye et al	2008	Burnout was reported by 49.6% of students, and 11.2% reported suicidal ideation within the past year.
3	Goyal et al	2012	The prevalence of suicidal ideation amongst medical Students were 53.6%. Suicidal ideation was highest in first professional year medical students (64.4%) and lowest among the third

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S.no	Authors	Year	Finding
			professional year students (40.4%).
4	Osama M et al	2014	In the past one year, suicidal ideation was found in 118 (35.6%) students. Forty-six (13.9%) of all the students had made a plan in their life time to commit suicide while 16 (4.8%) of the 331 students tried to commit suicide at some point of time in their life. More females than males pondered suicide while first year medical students formed the majority of those with suicidal ideation.
5	Torres AR et al	2018	Suicidal ideation was present in 7.2%.
6	Coentre R, GóisC.	2018	The prevalence of suicidal ideation ranged from 1.8% to 53.6%.
7	Blacker et al	2019	U.S. medical student suicide rates were lower than those of the contemporaneous general population.
8	Ventriglio et al	2020	suicide in doctors is influenced by exposure to the physical and emotional distress endemic to the profession.
9	Desai et al	2021	The 2-week rates of depression and suicidal thoughts were 14% and 9%, respectively. The following factors were found to be significant predictors of suicidal thoughts: alcohol consumption, history of abuse of any kind, female gender, academic stress, family-related stress, and relationship-related stress. Academic stress was cited by half of the students as a significant source of stress in their lives.
10	Kishor M et al	2021	More than 80% were younger than 40 years.
11	Seo C et al	2021	Poor mental health outcomes including depression, burnout, comorbid mental illness, and stress presented the strongest risk for SI and Suicide attempt among medical students.
12	Chahal S et al	2022	With the exception of Kerala, the majority of suicide deaths occurred in South India overall. The biggest percentage of suicide deaths occurred in the discipline of anesthesiology (22.4%), followed by obstetrics-gynecology (16.0%). All of them utilized more violent methods of suicide, with hanging being the most popular option. The most common causes of suicide among medical students (45.2%), residents (23.1%), and doctors (26.7%) were marital problems and academic stress. The next most frequent cause among doctors (20%) and medical students (24%) was mental health issues, while harassment (20.5%) was more common among residents. Just 13% of those who had shown suicide warning signals had ever sought psychiatric assistance before to taking their own lives, while 26% had done so.
13	Garg S et al	2022	The identified risk factors significantly associated with higher suicidal behavior were depression, dissatisfaction with academic performances, and coping with mental disengagement, while coping with supportive strategies was investigated as a preventive factor for the suicidal behavior.

Table-5 Depression, anxiety, stress among medical student

S.no	Authors	Year	Finding
1	Khan MS et al	2006	A very high prevalence of anxiety and depression (70%) was found among students.
2	Bunevicius A et al	2008	Symptoms of anxiety and symptoms of depression were prevalent in medical students (43% and 14%, respectively) and in humanities

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			students (52% and 12%, respectively).
3	Alvi T et al	2010	Anxiety was present in 133 (47.7%) students and depression in 98 (35.1%) students. Both were found concomitantly in 68 (24.37%) students. Age ($p=0.013$), gender ($p=0.016$), examination criteria dissatisfaction ($p=0.002$) and overburden with test schedule ($p=0.002$) were significantly associated with depression. Anxiety was significantly associated with gender ($p=0.007$), birth order ($p=0.049$), year of study ($p=0.001$), examination criteria dissatisfaction ($p=0.010$) and overburden with test schedule ($p=0.006$).
4	Akinsola EF, Nwajei AD.	2013	Test anxiety, trait anxiety, and depression co-exist and are positively related and they are negatively related to academic performance.
5	Hope V, Henderson M.	2014	Prevalences of 7.7–65.5% for anxiety, 6.0–66.5% for depression and 12.2–96.7% for psychological distress were recorded.
6	Abdallah AR, Gabr HM	2014	The prevalence of depression, anxiety, and stress among students was 63.6, 78.4 and 57.8%, respectively.
7	Saravanan C, Wilks R	2014	44% of the students were anxious and 34.9% were depressed. More female students exhibited anxiety compared to male students. Stress is a predictor for depression and anxiety.
8	Iqbal S et al	2015	More than half of the respondents were affected by depression (51.3%), anxiety (66.9%) and stress (53%). Females reported higher score as compared to their male counterparts.
9	Kunwar D et al	2016	The overall prevalence of depression was 29.9%, anxiety was 41.1% and stress was 27% among all participated medical students. Depression was significantly associated with living condition (living in hostel or rented house).
10	Yadav R et al	2016	The overall prevalence of depression and anxiety was found to be 64%. Among those with anxiety and depression, a majority (73%) had mild and moderate degree of depression. The study showed that females (63%) were more depressed in comparison to male (54%). The prevalence of depression was comparatively more among first year medical students (61%). The prevalence was significantly more among those with family problems, using substance abuse, staying in hostel and having family history of depression and anxiety.
11	Aboalshamat K et al	2017	The prevalence of depression was high at 67.4%, anxiety was 79.7%, stress was 64%, and low self-esteem was 23.4%. Depression and stress were the highest among Saudis. Stress was higher among non-married and clinical year students than for married students and interns.
12	Sarkar S et al	2017	The prevalence rate of depression varied from 8.7% to 71.3%, while the pooled prevalence rate of depression from 16 studies. Similarly, the pooled prevalence rate of anxiety from four studies ($n = 686$) was 34.5%, and the pooled prevalence rate of stress from 28 studies ($n = 5354$) was 51.3%. Female students had higher rates of depression and stress as compared to males.
13	Al Saadi T et al	2017	Prevalence of depression, anxiety and stress was 60.6%, 35.1%, and 52.6%, respectively.
14	Iorga M et al	2018	There exists a noteworthy positive association between perceived stress and depression, as well as a negative correlation with the quantity of course credits completed. During stressful academic

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			times, over half of students report feeling more anxious and consuming more alcohol, coffee, sweets, or smokes.
15	Kebede MA et al	2019	The prevalence of co-morbid depression and anxiety was found to be 21.20% (16.35% to 26.05%) and prevalence of depression and anxiety was 51.30% (45.37% to 57.23%) and (30.1% 24.66% to 35.54%), respectively..
16	Mao Y et al	2019	The prevalence of depression ranged from 13.10 to 76.21% with a mean of 32.74%, and the prevalence of anxiety ranged from 8.54 to 88.30% with a mean of 27.22%.
17	Ramlan H et al	2020	Unhealthy level of anxiety was found to be highly prevalent compared with depression and stress. The medical students experienced higher depression, anxiety, and stress symptoms as early as 6 months during the medical programme.
18	Arun P et al	2021	13.9% were found to have depression (moderately severe or severe) and 20.2% were found to have anxiety disorders (moderate or severe). A total of 29.6% students were found to have a suicidal risk.
19	Abed HA et al	2021	88.8%, 82.6% & 82.7% experienced depression, anxiety, and stress respectively.
20	Pandey U et al	2021	Females had significantly higher median anxiety and depression scores than male participants.

DISCUSSION

Numerous research on medical students' anxiety, sadness, stress, and suicide have been conducted. Additional research revealed that stress, anxiety, and depression are more common when pursuing a medical degree. According to research by Aboalshamat K et al, there was a significant prevalence of stress (64%), anxiety (79.7%), and depression (67.4%). Medical students have a significant prevalence of anxiety and sadness, according to research by Khan MS et al. Stress levels are high among medical students, according to Salam A et al. and Satpathy P et al. Medical students have a significant frequency of anxiety and sadness (43.89%), according to research by Jadoon NA et al. According to Goyal et al.'s findings, first-year professional medical students had the highest rate of suicidal ideation (64.4%), while third-year students had the lowest rate (40.4%). Osama M et al found that first-year medical students made up the majority of individuals with suicidal ideation, and that women were more likely than men to consider suicide. According to Pan XF et al., there is a correlation between a higher frequency of depressive symptoms among medical students and socioeconomic factors and student characteristics including male sex, low monthly income per capita, fathers with low educational backgrounds, and higher years of study. Test anxiety and students' academic achievement have a negative, substantial link, according to research by Mohammadyari G. et al. Research results, according to Shakir M. et al., showed a negative correlation (inverse link) between students' academic anxiety and achievement. It was highlighted by Puthran R et al that year 1 students had the greatest rates of depression, at 33.5%, and that these rates progressively declined to 20.5% by year 5. In a similar vein, Vankar JR et al. discovered that first-year students had the highest level of depression. Yadav R discovered that first-year medical students had a much higher prevalence of depression (61%). I and II-year students had high levels of anxiety and sadness, according to research by Inam SN et al. According to Bassols AM et al., 30.8% of first-year students and 9.4% of sixth-year students, respectively, reported having anxiety symptoms ($p < 0.001$). The majority of Shri M.P. Shah Medical College first-year medical students reported feeling stressed, according to Shah C et al. First-year students had higher perceived stress levels, according to research by Joseph N. et al. According to Goyal et al., first-year professional

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medical students had the greatest rate of suicidal ideation (64.4%). Similarly, Osama M et al. discovered that first-year medical students constituted the majority of individuals with suicidal ideation, and that women were more likely than men to consider suicide. There are other studies that demonstrate that women's scores on stress, anxiety, and depression were noticeably higher than men's. According to Eller T et al. and Inam SB, women experienced higher rates of anxiety and depression. Sender et al. discovered When it came to trait anxiety and sensitivity to reward, women outscored males by a large margin. Test anxiety is more common in girls than in boys, according to Lashkaripour K et al.'s findings. In a similar vein, Patil SG and Aithala MR discovered that men experienced higher levels of exam anxiety than women. It was highlighted by Pahwa B et al that there was a rise in anxiety levels before the exam, especially in women. Anxiety affected female students more, according to research by Bassols AM et al. Males were shown to have higher levels of exam anxiety than females, according to Patil SG and Aithala MR. According to Shah M. et al., this is noticeably greater among female students. Sharma B. et al. discovered that girls had higher levels of stress than boys. According to Abdulghani HM et al, women were more likely than men to experience stress (75.7%), with a p-value of less than 0.5. The prevalence of depressed symptoms among students was reported by Dahlin M et al to be 12.9%, which is substantially higher than the general population. Moreover, female students had a greater prevalence of depressive symptoms than male students, at 16.1% against 8.1%. According to Yadav R et al., the study revealed that women (63%) had higher rates of depression than men (54%). Female students reported higher rates of stress and depression than male students, according to research by Sarkar et al. Female participants showed considerably higher median anxiety and depression levels than male participants, according to research by Pandey U et al. According to Abed HA et al., women had considerably higher mean anxiety and stress levels than men. Similarly, Al Sunni A discovered that the mean stress scores of male and female students did not differ significantly. According to research by Abraham RR et al, the two biggest causes of stress related to academic issues were determined to be frequent exams and knowledge overload. The biggest causes of stress among non-academic issues were determined to be home sickness and a lack of free time. The most common and severe sources of stress, according to Shah M et al., were "high parental expectations," "frequency of examinations," "vastness of academic curriculum," "sleeping difficulties," "worrying about the future," "loneliness," "becoming a doctor," and "performance in periodic examinations." In a similar vein, Sharma B. et al. discovered that medical students' academic performance may be impacted by the stressful nature of their exams, which also cause changes in important metrics. Due to curricular overload, Rahman NI et al. discovered that academic stress is a major source of stress. The extensiveness of academic curriculum, the frequency of exams, and the anxiety associated with failing or performing poorly on exams were determined to be significant academic stressors by Srivastava R et al. Academic stressors, exam performance (34.7%), lack of leisure time (30.6%), curriculum (24.8%), and exam frequency (24.8%) were determined to be the most highly regarded stressors by Rebello CR et al. According to Rajar AB et al, the majority of students experienced stress as a result of their academic program, high parental expectations, loneliness, living away from home, the quality of the food in the canteen or mess, living conditions in the hostel, adjusting to a roommate, trouble sleeping, and class attendance. Radcliffe C. and Lester H. discovered that the most stressful parts of medical school were said to be the pressure of work, particularly when it came to getting ready for exams and gaining professional knowledge, abilities, and attitudes.

CONCLUSIONS

It has been determined that anxiety contributes to students' poor performance and underachievement, but that anxiety can be controlled by providing students with the right kind of instruction on how to deal with anxiety-inducing situations. A statistically significant difference was observed in the prevalence of depression, anxiety, stress, and suicide among first-year students. Subsequent year groups shown a progressive decline in the frequency of sadness, anxiety, and stress until the final year. The most stressful parts of medical school, according to reports, were the pressures of the job, particularly with regard to getting ready for exams and developing professional knowledge, abilities, and attitudes. Transitional phases were identified as particularly stressful, including those between school and medical school, preclinical and clinical training, and clinical training leading up to qualifying. Stress levels among students also seemed to be exacerbated by a perceived lack of assistance from the medical school administration. Stressors linked to psychological distress in students include an overwhelming workload, crowded classrooms, teacher strikes, a shortage of laboratory supplies, family issues, insecurity, and issues with money and health.

REFERENCES

- Abdallah AR, Gabr HM. Depression, anxiety and stress among first year medical students in an Egyptian public university. *Int Res J Med Med Sci*. 2014 Feb;2(1):11-9.
- Abdulghani HM, AlKanhah AA, Mahmoud ES, Ponnampereuma GG, Alfaris EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *Journal of health, population, and nutrition*. 2011 Oct;29(5):516.
- Abed HA, El-Raouf A, Salah M. Stress, Anxiety, Depression Among Medical Undergraduate Students at Benha University and Their Socio-Demographic Correlates. *The Egyptian Journal of Hospital Medicine*. 2021 Oct 1;86(1):27-32.
- Aboalshamat K, Jawhari A, Alotibi S, Alzahrani K, Al-Mohimeed H, Alzahrani M, Rashedi H. Relationship of self-esteem with depression, anxiety, and stress among dental and medical students in Jeddah, Saudi Arabia. *J Int Med Dent*. 2017;4(2):61-8.
- Abraham RR, Zulkifli EM, Fan ES, Xin GN, Lim JT. A report on stress among first year students in an Indian medical school. *South East Asian J Med Educ*. 2009;3(2):78-81.
- Acharya VM, Cox J, West M, Anderson C. Stressors experienced by third-year medical radiation sciences students during their clinical education. *Focus on Health Professional Education: A Multi-disciplinary Journal*. 2012 Oct;14(1):41-53.
- Ahmed I, Banu H, Al-Fageer R, Al-Suwaidi R. Cognitive emotions: depression and anxiety in medical students and staff. *Journal of critical care*. 2009 Sep 1;24(3): e1-7.
- Akinsola EF, Nwajei AD. Test anxiety, depression and academic performance: assessment and management using relaxation and cognitive restructuring techniques. *Psychology*. 2013 Jun 22;4(06):18.
- Al Saadi T, Zaher Addeen S, Turk T, Abbas F, Alkhatib M. Psychological distress among medical students in conflicts: a cross-sectional study from Syria. *BMC medical education*. 2017 Dec;17(1):1-8.
- Al Sunni A, Latif R. Perceived stress among medical students in preclinical years: A Saudi Arabian perspective.
- Al-Dabal BK, Koura MR, Rasheed P, Al-Sowielem L, Makki SM. A comparative study of perceived stress among female medical and non-medical university students in Dammam, Saudi Arabia. *Sultan Qaboos University Medical Journal*. 2010 Aug;10(2):231.
- Azad MC, Fraser K, Rumana N, Abdullah AF, Shahana N, Hanly PJ, Turin TC. Sleep disturbances among medical students: a global perspective. *Journal of clinical sleep medicine*. 2015 Jan 15;11(1):69-74.

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- Al-Sahman LA, Al-Sahman RA, Joseph B, Javali MA. Major factors causing examination anxiety in undergraduate dental students-a questionnaire based cross-sectional study. *Annals of Medical and Health Sciences Research*. 2019;9(6).
- Al-Johani WM, AlShamlan NA, AlAmer NA, Shawkhan RA, Almayyad AH, Alghamdi LM, Alqahtani HA, Al-Shammari MA, Gari DM, AlOmar RS. Social anxiety disorder and its associated factors: a cross-sectional study among medical students, Saudi Arabia. *BMC psychiatry*. 2022 Dec;22(1):1-8.
- Alvi T, Assad F, Ramzan M, Khan FA. Depression, anxiety and their associated factors among medical students. *J Coll Physicians Surg Pak*. 2010 Feb 1;20(2):122-6.
- Anuradha R, Dutta R, Raja JD, Sivaprakasam P, Patil AB. Stress and stressors among medical undergraduate students: A cross-sectional study in a private medical college in Tamil Nadu. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*. 2017 Oct;42(4):222.
- Arun P, Ramamurthy P, Thilakan P. Indian medical students with depression, anxiety, and suicidal behavior: why do they not seek treatment?. *Indian journal of psychological medicine*. 2022 Jan;44(1):10-6.
- Adams J. Straining to describe and tackle stress in medical students. *Med Educ* 2004;38(5):463-4.
- American Division of Research. Highlights of changes from dsm-iv to dsm-5: Somatic symptom and related Psychiatric Association disorders. *Focus*. 2013 Oct;11(4):525-7.
- Akram B, Iliyas M. Coping Strategies, Mental Health and HIV Status: Predictors of Suicidal Behaviour among PWIDs. *J Pak Med Assoc*. 2017; 67:568-572.
- Akram B, Ahmad MA, Akram A. Coping mechanisms as predictors of suicidal ideation among the medical students of Pakistan. *J Pak Med Assoc* 2018; 68 (11) 1608-1612
- Bali H, Rai V, Khanduri N, Tripathi R, Adhikari K, Sapkota B. Perceived stress and stressors among medical and dental students of Bhairhawa, Nepal: a descriptive cross-sectional study. *JNMA: Journal of the Nepal Medical Association*. 2020 Jun;58(226):383.
- Basnet B, Jaiswal M, Adhikari B, Shyangwa PM. Depression among undergraduate medical students. *Kathmandu university medical journal*. 2012;10(3):56-9.
- Bassols AM, Okabayashi LS, Silva AB, Carneiro BB, Feijó F, Guimarães GC, Cortes GN, Rohde LA, Eizirik CL. First-and last-year medical students: is there a difference in the prevalence and intensity of anxiety and depressive symptoms?. *Brazilian Journal of Psychiatry*. 2014 Jul; 36:233-40.
- Bibi A, Humayun E, Bibi S, Rehman AU, Shujaat N, Ullah I. Rate and predictors of depression among selected under graduates and post graduate students of Hazara University Mansehra, Pakistan. *Int J Indian Psychol*. 2015;3:C00339V112015.
- Blacker CJ, Lewis CP, Swintak CC, Bostwick JM, Rackley SJ. Medical student suicide rates: a systematic review of the historical and international literature. *Academic medicine*. 2019 Feb 1;94(2):274-80.
- Barrack RL, Miller LS, Sotile WM, Sotile MO, Rubash HE. Effect of duty hour standards on burnout among orthopaedic surgery residents. *ClinOrthopRelat Res*. 2006; 449:134-137.
- Bunevicius A, Katkute A, Bunevicius R. Symptoms of anxiety and depression in medical students and in humanities students: relationship with big-five personality dimensions and vulnerability to stress. *International Journal of Social Psychiatry*. 2008 Nov;54(6):494-501.
- Cassady JC, Johnson RE. Cognitive test anxiety and academic performance. *Contemporary educational psychology*. 2002 Apr 1;27(2):270-95.
- Chahal S, Nadda A, Govil N, Gupta N, Nadda D, Goel K, Behra P. Suicide deaths among medical students, residents and physicians in India spanning a decade (2010-2019): an

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- exploratory study using on line news portals and Google database. *International journal of social psychiatry*. 2022 Jun;68(4):718-28.
- Carver C S, Connor-Smith J. Personality and coping. *Annu Rev Psychol*, 2010; 61, 679-704.
- Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. *Medical education*. 2005 Jun;39(6):594-604.
- Desai ND, Chavda P, Shah S. Prevalence and predictors of suicide ideation among undergraduate medical students from a medical college of Western India. *medical journal armed forces india*. 2021 Feb 1;77: S107-14.
- Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, Durning S, Moutier C, Szydlo DW, Novotny PJ, Sloan JA. Burnout and suicidal ideation among US medical students. *Annals of internal medicine*. 2008 Sep 2;149(5):334-41.
- Dehaan RL, Venkatnarayan KM: Education for innovation. Rotterdam: Sense Publishers; 2008:13-14
- Dandona R, Kumar GA, Dhaliwal RS, Naghavi M, Vos T, Shukla DK, Vijayakumar L, Gururaj G, Thakur JS, Ambekar A, Sagar R. Gender differentials and state variations in suicide deaths in India: the Global Burden of Disease Study 1990–2016. *The Lancet Public Health*. 2018 Oct 1;3(10): e478-89.
- Duarte D, El-Hagrassy MM, e Couto TC, Gurgel W, Fregni F, Correa H. Male and female physician suicidality: a systematic review and meta-analysis. *JAMA psychiatry*. 2020 Jun 1;77(6):587-97.
- Eller T, Aluoja A, Vasar V, Veldi M (2006) Symptoms of anxiety and depression in Estonian medical students with sleep problems. *Depress Anxiety* 23: 250-256.
- Frank E, Biola H, Burnett C. Mortality rates and causes among US physicians. *Am J Prevent Med*. 2000;19:155–159.
- Firth-Cozens J. Medical student stress. *Med Educ* 2001;35 (1):6–7.
- Fleischmann A. World Suicide Prevention Day, 10 September 2008: Think Globally, Plan Nationally, Act Locally. Department of Mental Health and Substance Abuse. Geneva. WHO. 2008.
- Garg S, Chauhan A, Singh S, Bansal K. Epidemiological Risk Factors of Suicidal Behavior and Effects of the Components of Coping Strategies on Suicidal Behavior in Medical Students: A North-Indian Institution-Based Cross-Sectional Study. *Journal of Neurosciences in Rural Practice*. 2022 Jun 8.
- Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burnout in medical students: a 5-year prospective longitudinal study. *J R Soc Med* 1998;91 (5):237–43.
- Gilavand A, Moezzi M, Gilavand S. Test Anxiety in Dental Students: A Study at the Ahvaz Jundishapur University of Medical Sciences, Iran. *Journal of Research in Medical and Dental Science*. 2019 Jan;7(1):108-13.
- Gazzaz ZJ, Baig M, Al Alhendi BS, Al Suliman MM, Al Alhendi AS, Al-Grad MS, Qurayshah MA. Perceived stress, reasons for and sources of stress among medical students at Rabigh Medical College, King Abdulaziz University, Jeddah, Saudi Arabia. *BMC medical education*. 2018 Dec;18(1):1-9.
- Ghodasara SL, Davidson MA, Reich MS, Savoie CV, Rodgers SM. Assessing student mental health at the Vanderbilt University School of Medicine. *Academic Medicine*. 2011 Jan 1;86(1):116-21.
- Goebert D, Thompson D, Takeshita J, Beach C, Bryson P, Ephgrave K, Kent A, Kunkel M, Schechter J, Tate J. Depressive symptoms in medical students and residents: a multi school study. *Academic medicine*. 2009 Feb 1;84(2):236-41.
- Goyal A, Kishore J, Anand T, Rathi A. Suicidal ideation among medical students of Delhi. *J Ment Health Human Behavior*. 2012;17(1):60-9.

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- Guthrie EA, Black D, Shaw CM, Hamilton J, Creed FH, Tomenson B. Embarking upon a medical career: psychological morbidity in first year medical students. *Medical education*. 1995 Sep;29(5):337-41.
- Gopal R, Glasheen JJ, Miyoshi TJ, Prochazka AV. Burnout and internal medicine resident work-hour restrictions. *Arch Intern Med*. 2005; 165:2595–2600.
- Gosling SD, Rentfrow PJ, Swann Jr WB. A very brief measure of the Big-Five personality domains. *Journal of Research in personality*. 2003 Dec 1;37(6):504-28.
- Harpell JV, Andrews JJ. Relationship between school-based stress and test anxiety. *International Journal of Psychological Studies*. 2013 Jun 1;5(2):74.
- Hashmat S, Hashmat M, Amanullah F, Aziz S. Factors causing exam anxiety in medical students. *Journal-Pakistan Medical Association*. 2008 Apr 1;58(4):167.
- Hope V, Henderson M. Medical student depression, anxiety and distress outside North America: a systematic review. *Medical education*. 2014 Oct;48(10):963-79.
- Helmets KF, Danoff D, Steinert Y, Leyton M, Young SN. Stress and depressed mood in medical students, law students, and graduate students at McGill University. *Acad Med* 1997;72 (8):708–14
- Ibrahim NK, Battarjee WF, Almeahmadi SA. Prevalence and predictors of irritable bowel syndrome among medical students and interns in King Abdulaziz University, Jeddah. *Libyan Journal of Medicine*. 2013;8(1).
- Inam SB. Anxiety and depression among students of a medical college in Saudi Arabia. *International journal of health sciences*. 2007 Jul;1(2):295.
- Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *Journal-Pakistan Medical Association*. 2003 Feb 1;53(2):44-6.
- Jadoon NA, Yaqoob R, Raza A, Shehzad MA, Zeshan SC. Anxiety and depression among medical students: a cross-sectional study. *JPMA. The Journal of the Pakistan Medical Association*. 2010 Aug 1;60(8):699-702.
- Jia YF, Loo YT. Prevalence and determinants of perceived stress among undergraduate students in a Malaysian University. *Journal of Health and Translational Medicine*. 2018 Apr 30;21(1).
- Kebede MA, Anbessie B, Ayano G. Prevalence and predictors of depression and anxiety among medical students in Addis Ababa, Ethiopia. *International journal of mental health systems*. 2019 Dec;13(1):1-8.
- Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. *Journal-Pakistan Medical Association*. 2006 Dec 1;56(12):583.
- Khoshhal KI, Khairy GA, Guraya SY, Guraya SS. Exam anxiety in the undergraduate medical students of Taibah University. *Medical teacher*. 2017 Mar 16;39(sup1):S22-6.
- Kishor M, Chandran S, Vinay HR, Ram D. Suicide among Indian doctors. *Indian journal of psychiatry*. 2021 May;63(3):279.
- Kumar GS, Jain A, Hegde S. Prevalence of depression and its associated factors using Beck Depression Inventory among students of a medical college in Karnataka. *Indian journal of Psychiatry*. 2012 Jul;54(3):223.
- Kunwar D, Risal A, Koirala S. Study of depression, anxiety and stress among the medical students in two medical colleges of Nepal. *Kathmandu Univ Med J*. 2016 Jan 1;14(53):22-6.
- Kessler RC, Walters EE. Epidemiology of DSM-III-R major depression and minor depression among adolescents and young adults in the national comorbidity survey. *Depression and anxiety*. 1998;7(1):3-14.
- Kamski L, Frank E, Wenzel V. Suicide in medical students: case series. *Der Anaesthetist*. 2012 Nov 1;61(11):984-8.

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- Kanchan T, Menezes RG. Suicidal hanging in Manipal, South India—victim profile and gender differences. *Journal of forensic and legal medicine*. 2008 Nov 1;15(8):493-6.
- Lashkaripour K, mohammadBakhshani N, Solaimani MJ. The relationship between test anxiety and academic achievement in students of guidance schools in Zahedan in 2006. *Zahedan journal of research in medical sciences*. 2006 Dec 31;8(4).
- Leombruni P, Corradi A, Lo Moro G, Acampora A, Agodi A, Celotto D, Chironna M, Cocchio S, Cofini V, D'Errico MM, Marzuillo C. Stress in Medical Students: PRIMES, an Italian, Multicenter Cross-Sectional Study. *International journal of environmental research and public health*. 2022 Apr 20;19(9):5010.
- Lee J, Graham A. Students' perception of medical school stress and their evaluation of a wellness elective. *Med Educ*. 2001; 35:652–9.
- Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, Sen S. Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *Jama*. 2015 Dec 8;314(22):2373-83.
- Melo-Carrillo A, Van Oudenhove L, Lopez-Avila A. Depressive symptoms among Mexican medical students: High prevalence and the effect of a group psychoeducation intervention. *Journal of affective disorders*. 2012 Feb 1;136(3):1098-103.
- mohammadyari G. Comparative study of relationship between general perceived self-efficacy and test anxiety with academic achievement of male and female students. *Procedia-Social and Behavioral Sciences*. 2012 Dec 24; 69:2119-23.
- Marcus M, Yasamy MT, van Ommeren MV, Chisholm D, Saxena S. Depression: A global public health concern.
- Mannapur B, Dorle AS, Hiremath LD, Ghattargi CH, Ramadurg U, Kulkarni KR. A study of psychological stress in undergraduate medical students at SN Medical College, Bagalkot, Karnataka. *J ClinDiagn Res*. 2010 Aug;4(04):2869-74.
- Moreira de Sousa J, Moreira CA, TellesCorreia D. Anxiety, depression and academic performance: a study amongst Portuguese medical students versus non-medical students. *Actamedicaportuguesa*. 2018;31(9):454-62.
- Maslach C, Jackson SE. *Maslach Burnout Inventory: Manual*. 3rd ed. Palo Alto, Calif: Consulting Psychologists Press; 1996.
- Nandi M, Hazra A, Sarkar S, Mondal R, Ghosal MK. Stress and its risk factors in medical students: an observational study from a medical college in India. *Indian J Med Sci*. 2012 Jan 1;66(1-2):1-2.
- Ngasa SN, Sama CB, Dzekem BS, Nforchu KN, Tindong M, Aroke D, Dimala CA. Prevalence and factors associated with depression among medical students in Cameroon: a cross-sectional study. *BMC psychiatry*. 2017 Dec;17(1):1-7.
- Namoodiri VM. *Concise Textbook of Psychiatry*. 3rd ed. New Delhi: Elsevier; 2009; 202.
- Newbury-Birch D, Kamali F. Psychological stress, anxiety, depression, job satisfaction, and personality characteristics in preregistration house officers. *Postgraduate medical journal*. 2001 Feb 1;77(904):109-11.
- Olum R, Nakwagala FN, Odokonyero R. Prevalence and factors associated with depression among medical students at Makerere University, Uganda. *Advances in Medical Education and Practice*. 2020; 11:853.
- Osama M, Islam MY, Hussain SA, Masroor SM, Burney MU, Masood MA, Menezes RG, Rehman R. Suicidal ideation among medical students of Pakistan: a cross-sectional study. *Journal of forensic and legal medicine*. 2014 Oct 1; 27:65-8.
- Omigbodun OO, Odukogbe AT, Omigbodun AO, Yusuf OB, Bella TT, Olayemi O. Stressors and psychological symptoms in students of medicine and allied health professions in Nigeria. *Social psychiatry and psychiatric epidemiology*. 2006 May;41(5):415-21.

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- Pahwa B, Goyal S, Srivastava K, Saldanha D, Bhattacharya D. A study of exam related anxiety amongst medical students. *Industrial Psychiatry Journal*. 2008 Jan 1;17(1):46.
- Pan XF, Wen Y, Zhao Y, Hu JM, Li SQ, Zhang SK, Li XY, Chang H, Xue QP, Zhao ZM, Gu Y. Prevalence of depressive symptoms and its correlates among medical students in China: a national survey in 33 universities. *Psychology, health & medicine*. 2016 Oct 2;21(7):882-9.
- Pandey U, Corbett G, Mohan S, Reagu S, Kumar S, Farrell T, Lindow S. Anxiety, depression and behavioural changes in junior doctors and medical students associated with the coronavirus pandemic: a cross-sectional survey. *The Journal of Obstetrics and Gynecology of India*. 2021 Feb;71(1):33-7.
- Patil SG, Aithala MR. Exam anxiety: Its prevalence and causative factors among Indian medical students.
- Peterlini M, Tibério IF, Saadeh A, Pereira JC, Martins MA. Anxiety and depression in the first year of medical residency training. *Medical education*. 2002 Jan;36(1):66-72.
- Ping LT, Subramaniam K, Krishnaswamy S. Test anxiety: state, trait and relationship with exam satisfaction. *The Malaysian journal of medical sciences: MJMS*. 2008 Apr;15(2):18.
- Puthran R, Zhang MW, Tam WW, Ho RC. Prevalence of depression amongst medical students: A meta-analysis. *Medical education*. 2016 Apr;50(4):456-68.
- Qamar K, Khan NS, Bashir Kiani MR. Factors associated with stress among medical students. *J Pak Med Assoc*. 2015 Jul 1;65(7):753-5.
- Radcliffe C, Lester H. Perceived stress during undergraduate medical training: a qualitative study. *Medical education*. 2003 Jan;37(1):32-8.
- Rahman NI, Ismail S, Seman TN, Rosli NF, Jusoh SA, Dali WP, Islam MZ, Haque M. Stress among preclinical medical students of University Sultan ZainalAbidin. *Journal of applied pharmaceutical science*. 2013 Nov 29;3(11):076-81.
- Rajar AB, Soomro AM, Azam A, Memon A, Usman G, Das W. Pattern of Stress and Stressors in The Undergraduate Medical Students: A Cross Sectional Study. *Annals of Punjab Medical College (APMC)*. 2022 Jun 30;16(2):118-22.
- Rana R, Mahmood N. The relationship between test anxiety and academic achievement. *Bulletin of Education and research*. 2010 Dec 2;32(2):63-74.
- Rebello CR, Kallingappa PB, Hegde PG. Assessment of perceived stress and association with sleep quality and attributed stressors among 1st-year medical students: A cross-sectional study from Karwar, Karnataka, India. *Tzu-Chi Medical Journal*. 2018 Oct;30(4):221.
- Rizvi SJ, Cyriac A, Grima E, Tan M, Lin P, Gallagher LA, McIntyre RS, Kennedy SH. Depression and employment status in primary and tertiary care settings. *The Canadian Journal of Psychiatry*. 2015 Jan;60(1):14-22.
- Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, Sen S, Mata DA. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *Jama*. 2016 Dec 6;316(21):2214-36.
- Rosenthal JM, Okie S. White coat, mood indigo – depression in medical school. *N Engl J Med* 2005;353 (11):1085–8.
- Saipanish R. Stress among medical students in a Thai medical school. *Medical teacher*. 2003 Jan 1;25(5):502-6.
- Sub A, Prabha C. Academic performance in relation to perfectionism, test procrastination and test anxiety of high school children. *Psychological Studies*. 2003.
- Sohail N. Stress and academic performance among medical students. *J Coll Physicians Surg Pak*. 2013 Jan 1;23(1):67-71.

Depression, Anxiety, Stress and Suicide among Medical Student: A Brief Overview

- Salam A, Yousuf R, Bakar SM, Haque M. Stress among medical students in Malaysia: A systematic review of literatures. *Int Med J.* 2013 Dec 1;20(6):649-55.
- Saravanan C, Wilks R. Medical students' experience of and reaction to stress: the role of depression and anxiety. *The scientific world journal.* 2014 Jan 1;2014.
- Sarkar S, Gupta R, Menon V. A systematic review of depression, anxiety, and stress among medical students in India. *Journal of Mental Health and Human Behaviour.* 2017 Jul 1;22(2):88.
- Satpathy P, Siddiqui N, Parida D, Sutar R. Prevalence of stress, stressors, and coping strategies among medical undergraduate students in a medical college of Mumbai. *Journal of Education and Health Promotion.* 2021;10.
- Sender R, Salamero M, Vallés A, Valdés M. Psychological variables for identifying susceptibility to mental disorders in medical students at the University of Barcelona. *Medical education online.* 2004 Dec 1;9(1):4350.
- Seo C, Di Carlo C, Dong SX, Fournier K, Haykal KA. Risk factors for suicidal ideation and suicide attempt among medical students: A meta-analysis. *PloS one.* 2021 Dec 22;16(12): e0261785.
- Shah C, Trivedi RS, Diwan J, Dixit R, Anand AK. Common stressors and coping of stress by medical students. *J ClinDiagn Res.* 2009 Aug;3(4):1621-6.
- Shah M, Hasan S, Malik S, Sreeramreddy CT. Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school. *BMC medical education.* 2010 Dec;10(1):1-8.
- Shakir M. Academic anxiety as a correlate of academic achievement. *Journal of Education and Practice.* 2014;5(10):29-36.
- Sharma B, Wavare R, Deshpande A, Nigam R, Chandorkar R. A study of academic stress and its effect on vital parameters in final year medical students at SAIMS Medical College, Indore, Madhya Pradesh. *Biomedical Research.* 2011 Jul 1;22(3):361-5.
- Sharma R, Bansal P, Chhabra M, Bansal C, Arora M. Severe acute respiratory syndrome coronavirus-2-associated perceived stress and anxiety among indian medical students: A cross-sectional study. *Asian Journal of Social Health and Behavior.* 2021 Jul 1;4(3):98.
- Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Medical Journal of Malaysia.* 2004 Jun 1;59(2):207-11.
- Singh A, Lal A, Shekhar A. Prevalence of depression among medical students of a private medical college in India. *Online Journal of Health and Allied Sciences.* 2010;9(4):8-12.
- Singh G, Hankins M, Weinman JA. Does medical school cause health anxiety and worry in medical students? *Medical education.* 2004 May;38(5):479-81.
- Sreerama Reddy CT, Shankar PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. *BMC Medical education.* 2007 Dec;7(1):1-8.
- Srivastava R, Jyoti B, Pradhan D, Kumar M, Priyadarshi P. Evaluating the stress and its association with stressors among the dental undergraduate students of Kanpur city, India: A cross-sectional study. *Journal of Education and Health Promotion.* 2020;9.
- Srivastava S, Jacob J, Charles AS, Daniel P, Mathew JK, Shanthi P, Devamani K, Mahasampath G, Rabi S. Emergency remote learning in anatomy during the COVID-19 pandemic: A study evaluating academic factors contributing to anxiety among first year medical students. *medical journal armed forces india.* 2021 Feb 1; 77: S90-8.
- Torres AR, Campos LM, Lima MC, Ramos-Cerqueira AT. Suicidal ideation among medical students: prevalence and predictors. *The Journal of nervous and mental disease.* 2018 Mar 1;206(3):160-8.

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- Tyssen R, Hem E, Vaglum P, Grønvold NT, Ekeberg Ø. The process of suicidal planning among medical doctors: predictors in a longitudinal Norwegian sample. *Journal of affective disorders*. 2004 Jun 1;80(2-3):191-8.
- Ventriglio A, Watson C, Bhugra D. Suicide among doctors: A narrative review. *Indian journal of psychiatry*. 2020 Mar;62(2):114.
- Wallin U, Runeson B. Attitudes towards suicide and suicidal patients among medical students. *European Psychiatry*. 2003 Nov;18(7):329-33.
- Woolf K, Cave J, McManus IC, Dacre JE. 'It gives you an understanding you can't get from any book. 'The relationship between medical students' and doctors' personal illness experiences and their performance: a qualitative and quantitative study. *BMC medical education*. 2007 Dec;7(1):1-8.
- Wolf MR, Rosenstock JB. Inadequate sleep and exercise associated with burnout and depression among medical students. *Academic psychiatry*. 2017 Apr;41(2):174-9.
- World Health Organization. Preventing suicide: A global imperative. World Health Organization; 2014
- Wilkinson TJ, McKenzie JM, Ali AN, Rudland J, Carter FA, Bell CJ. Identifying medical students at risk of underperformance from significant stressors. *BMC Medical Education*. 2016 Dec;16(1):1-9.
- Yadav R, Gupta S, Malhotra AK. A cross sectional study on depression, anxiety and their associated factors among medical students in Jhansi, Uttar Pradesh, India. *Int J Community Med Public Health*. 2016 May;3(5):1209-14.
- Yusoff MS, Rahim AF, editors. The medical student stressor questionnaire (MSSQ) manual. Universiti Sains Malaysia; 2010 Feb.

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Conflict of Interest

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