JIMGS
Journal for International Medical Graduates
Volume 2 (02) September 21st, 2023
Editorial

The Prevalence of Anxiety and Depression Among Medical Students Comparing 10 Countries: Systematic Review

Esraa M. AlEdani, Japneet K. Bhangu, Khalid Javed, Prabhleen Kaur Manshahia, Shamsun Nahar, Srishti Kanda, Uzair Chatha, Victor A. Odoma, Aakanksha Pitliya, Safeera Khan
Journal for International Medical Graduates

Keywords: anxiety, depression, medical students, stress, suicidal ideation, eating disorder, academic load, financial burden, poor sleep quality, emotional stress.

Abstract
The prevalence and severity of anxiety and depression among medical students are increasing progressively due to the unhealthy and pressured environment students are surrounded with. Multiple risk factors differ from country to country, which play an important role in their mental health. A systematic review of depression and anxiety was searched in PubMed/MEDLINE, PubMed Central (PMC), and ScienceDirect papers from 2007 and after. Systematic reviews, cross-sectional studies, meta-analyses, and observational studies were included.

According to the search strategy, 131 papers were included, and after filtering, 51 papers remained, they were then screened by the title and abstract screening applied, and we ended up with 12; finally, the AMSTAR checklist was applied, and 11 papers were included in the study. Depression and anxiety are major issues that medical students suffer from in different parts of the world. There are a lot of factors that were shared between countries that affect the mental health of students; the most important are academic load and financial burdens.

The present review provides a clear picture of the psychological wellbeing of medical students in 10 countries and a comparison with each one, which is important to define which country has the more prevalence of anxiety and depression, and it's crucial to formulate a health policy for preventative measures and therapeutic purpose.

Introduction

The environment of the medical school overall is considered very stressful to deal with [1], and medical education leads to physical and emotionally damaging in the long term. Medical students can be exposed to numerous risk factors during their academic life, thought to be typical in the medical school environment.

They are exposed to psychological stressors, work overload, academic pressure, sleep deprivation, peer competition, fear of failure, financial issues, etc. In addition, they face personal life events like illness, marriage, and the death of relatives and family members [2]. Other factors include the high expectations from family members, teachers, and even ourselves to take responsibility for curing patients, which increases stress and depression [1]. Because of all these reasons, the students will suffer from impaired academic performance, cynicism, academic dishonesty, substance abuse, and suicide, and when we compare the medical students to the general population of the same age, they were found to have higher levels of depression and anxiety [3].

Statistics show about a third of medical students worldwide suffer from depression (about 3.9 - 6.6%). A higher level of depression is reported in first-year students. The studies also show the difference between anxiety and depression levels among public and private school students. A higher level of depression is reported in first-year students [2]. Medical students are at a high risk of developing depression due to academic load and financial burden, which can be severe enough to establish consequences such as emotional liability, mental health, and physical well-being, which can lead to serious consequences in the end, and also affect their grades and their future performance as future doctors in the healthcare field. So this study aims to estimate the prevalence and severity and associated risk factors of depression among medical students and how depression in this age group affects their grades.

Methods

Search Strategy

This systematic review was conducted according to the PRISMA 2020 guidelines [4]. We searched PubMed/MEDLINE, PubMed Central (PMC), and ScienceDirect to identify full-text and most relevant papers. They were thoroughly searched using the appropriate keywords and Medical Subject Headings (MeSH) terms. The MeSH strategy employed in PubMed was:
(anxiety) OR ("Anxiety/epidemiology"[Mesh] OR "Anxiety/psychology"[Mesh] OR "Anxiety/statistics and numerical data"[Mesh]) AND (Depression) OR("Depression/epidemiology"[Mesh] OR "Depression/psychology"[Mesh] OR "Depression/statistics and numerical data"[Mesh]) AND

(medical students) OR ("Students, Medical/psychology"[Mesh] OR "Students, Medical/statistics and numerical data"[Mesh])

For other databases, keywords used include anxiety, depression, and medical students.

Inclusion and Exclusion Criteria

We include articles published in 2007 and after, the ones published in English, and full-text papers. Depression among medical students was the focus topic of the research, and there were no specifications for any country, so all the countries were included. Systematic reviews, cross-sectional studies, meta-analyses, and observational studies were included. Articles focusing on adults or geriatrics, unpublished or gray literature, and full-text articles were unavailable, and animal research was excluded.

Quality Assessment

After applying inclusion/exclusion criteria, the remaining articles were checked for quality using the New Castle Ottawa checklist for observational studies [5], and the Assessing the Methodological Quality of Systematic Reviews (AMSTAR) checklist for systematic reviews and meta-analysis studies [6]. Only articles with more than 70% satisfied of the checklist quality parameters were included in the review.

Results

Search Results

We conducted a thorough search using databases, including Pubmed, Medline, PMC, and ScienceDirect, and one hundred thirty-one articles were identified. The excluded papers were 80, and the remaining were 51; then, title screening was done, and we excluded 16 papers due to irrelevant titles. After that, we did the full-text screening, and we excluded 23 papers due to the absence of the full text or inability to reach it, so we ended up with 12 papers. Finally, a quality check was done using (AMSTAR) checklist, and 11 papers were included.

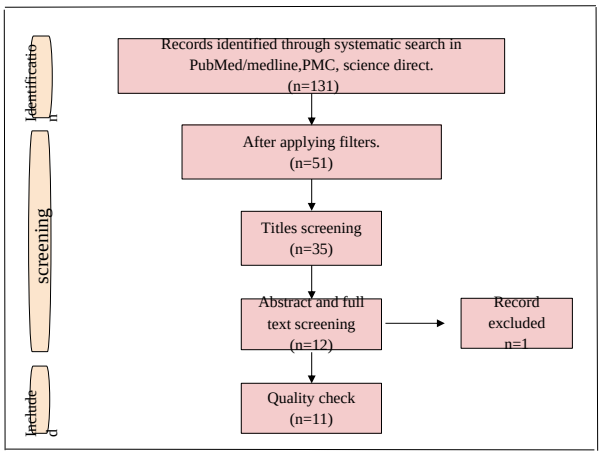

Figure 1: Identification of studies via databases.

Study Analysis

Table 1: represents the author's last name and the abbreviated name of the assessment tools utilized in the 11 articles. In these 11 papers, they utilized four assessment tools for depression, which include Zung self-rating depression scale SDS, Beck's Depression Inventory BDI, Patient Health Questionnaire (PHQ)-9, and the Center for Epidemiologic Studies Depression Scale (CES-D). Regarding anxiety, they used two different assessment scales, including The Beck Anxiety Inventory (BAI) and the generalized anxiety disorder assessment GAD-7. Three of the papers measured both, and they used scales that combined anxiety and depression, which include the AKUADS scale, The Depression, Anxiety and Stress Scale (DASS-21), and Hospital Anxiety and Depression Scale (HADS). The remaining papers utilized assessments conducted among Chinese medical students, including the APGAR Family Index, the Social Support Rating Scale (SSRS), and The Chinese Trait Coping Style Questionnaire (TCSQ). Copenhagen Burnout Inventory (CBI) and Medical Students' Stressor Questionnaire (MSSQ) were used to assess Nepalese medical students' burnout and stress rates. Two papers used SCL PID-5BF to assess psychological problems and maladaptive personality traits.

The studies are cross-sectional and observational, containing 36,924 individual participants in 10 countries, including Saudi Arabia, China, the UK, Switzerland, Nepal, Brazil, Italy, Egypt, Pakistan, and Palestine. All 11 articles were conducted in medical colleges or universities, one study focused on the premedical years, 1st, 2nd, and 3rd years in Qassim University in Saudi Arabia, and one article analyzed the 4th, 5th, and 6th academic years of Alexandria medical school, two articles were focusing on the final year medical students from private and public colleges in UK and Pakistan, one study was evaluated medical students and residents in Nepal, one article considered the medical and pharmaceutical colleges, the rest of the articles were focusing on undergraduate medical students in general.

Six papers discussed and analyzed the prevalence of depression and anxiety [7,8,9,11,13,15]. Three articles discussed and analyzed the prevalence of anxiety, depression, and stress [14,16,17], one article analyzed the prevalence of depression only [12], and only one article analyzed the prevalence of depression, anxiety, suicidal ideation, and eating disorder [10]. Multiple determinants cause anxiety and depression among medical students, which are included in 3 categories: personal and demographic, academic, and social problems.

The demographic causes include gender, like being female, which is the most causative factor of anxiety and depression, especially in Arab countries like Saudi Arabia, Palestine, and Egypt. Other factors like the presence of mental problems or chronic illness or history of mental illness in the family, married students,

JIMGS
Journal for International Medical Graduates

Volume 2 (02) September 21st, 2023
Editorial

and students who live with their relatives revealed low to moderate depression, while severe to moderate depression among students who live in residence and students with high crowding index.

Students who attempt suicide show a high risk for depression, poor sleep quality, bad appetite, emotional stress, depersonalization, alcohol, cigarette, substance abuse, and marijuana. Academic causes include academic load and exam stress, or the fear that may not live up to the academic expectation, suspicion of the future, the surrounding environment not being suitable for studying, final examination, students with low GPAs and final years, or who failed in classes previously, students who live alone or had a bad relationship with their colleagues and students who didn't attend lectures had higher anxiety than who attends.

Social causes include: don't have a friend to talk to when under pressure, low socioeconomic status, married students showing low to moderate depression than students who live with their relatives, students using public transportation, not having a hobby or participating in sports, financial burden, students live in rural areas, parent's poor education, introvert's and have no friends, not satisfied with the career and violence against doctors in the field.

author	year of publication	country	purpose of study	mental problem	causes	Assessment tool	number of patients	conclusion/result	types of studies
Bazmi Inam et al[7]	2007	Saudi Arabia	to measure the anxiety and depression among 1st 2nd and 3rd year students using questionnaire.	Depression and anxiety	female,1st year, inability to cope with curricular demands, academic stress and examination, alcohol, stress, drug abuse.	AKUADS	288 male,105 female	the prevalence of anxiety in female is higher in 1st year.	Cross sectional study.
Shao et al[8]	2020	China	to measure the prevalence of depression and anxiety and estimate its correlation with family function, social support, and coping style in china.	depression and anxiety	financial burden, big study-induced stress and poor sleep quality, students with large employment pressure, Students who live alone or had bad relationship with their lovers or classmates or friends.	SDS, Family APGAR Index, Social Support Rating Scale and Trait Coping Style Questionnaire.	2057 medical student	the prevalence increase in older students with financial burden, bad relationship with their lovers and family, less sleep quality and who live alone.	Cross sectional study.
Tabalipa et al[9]	2015	Brazil	to estimate the risk factors that lead to increase anxiety and depression in medical students.	depression and anxiety	female gender, high family pressure, more in students whose parents are not physicians cause they are pushed by their parents, more in south campus students, concern about future career, more in second semester than first.	(BDI), (BAI)	262	the prevalence of anxiety was higher in women, students their parents are not physicians and those who felt pushed by their parents, while depression increases in those whom their parents are physicians and who alsways concern about their futures.	Cross sectional study.
Zang et al[10]	2019	China	to provide a clear insight about depression that experienced by chinese medical students, and evidance base basis.	depression, anxiety, suicidal ideation, and eating disorders	heavy academic pressure on medical students, frequent violent attacks against healthcare workers, high-intensity internships, requent WPV, complex multipersonal relationships, and uncertainty regarding future careers.	BDI, SDS, CESD,PHQ-9,SCL-90.	30,817 Chinese medical students	the studies show that depression is higher than anxiety, eating disorder or suicidal ideation between chinese medical students, and there is no significant difference between genders or ages.	meta-analysis
Bertani at el[11]	2020	Italy	to assess the anxiety and depression among italian medical student by using HAD scale.	depression and anxiety	students with high study load, uncertainty about the future, high level of competitivenessss.	(HADS), PID-5-BF	459	combined anxiety-depressive symptoms were reported.	Cross sectional study.
Elsawy et al[12]	2020	Egypt	to estimate the prevalence rate of 4th, 5th and 6th medical students in Alexandria.	Depression	female, presence of mental problems, not having someone to talk to when under pressure, stressful life events, not being satisfied with the socioeconomic level, the surrounding environment is not suitable for studying.	BDI-II	390	moderate to severe depression were reported due to many risk factors like women gender, not having someone to talk to under pressure, stressful life conditions, socioeconomic status and not suitable environment for studying.	Cross sectional study.
Shawahna et al[13]	2020	Palestine	to investigate the sociodermographic factors and its relation to depressive and anxiety symptoms.	depression and anxiety	depression and anxiety higher in: family motives behind their choice, students in basic stages(1,2,3), students who had lower GPA or had failed in class previously, who attempt suicide, had low financial, mental or low social status.	BDI-II, BAI	425	more than have of invited students had minimal depression, and quarter of the sample had mild to moderate anxiety.	cross-sectional observational design
Kumar et al[1]	2019	Pakistan	to assess the rates of depression and anxiety among final year medical student.	Depression, Anxiety, and Stress	pressure from exams, pressure to live up to family's expectations, fear of enrolling into medical career and dissatisfication of the administration.	DASS-21	450	the mean score of anxiety and stress was scored higher in private colleges, while depression was higher in public colleges, because of too many factors include examination pressure, being afraid of not meeting family expectations and dissatisfication of theirselves.	observational study
Thiemann et al[14]	2020	UK	to estimate whether final examinations affect males or females more.	depression and anxiety	increases in students whom final exams are imminent, female higher rates of anxiety, higher depression in graduate course students.	HADS	446	anxiety increases during final exams and mostly occure in females.	a multicentre cross-sectional study
Pokhrel et al[2]	2020	Nepal	to study the depression, burnout and other risk factors among medical students and residents of Nepalese medical school.	Depression, anxiety, and burnout	increase in alcoholic people, cigarette & marijuana smokers, substance abuse, inadequate sleeping hours, work load, family history of mental problems, previous history of mental illness, not satisfied with career or academic performance.	HADS, CBI, MSSQ	651	burnout was more prevalnt in residents, whereas medical students have more anxiety and depression.	Cross sectional study.
Ernst et al[15]	2021	Switzerland	to determine the relations among emotional exhaustion and depersonalization with symptoms of depression of Swiss medical students.	Burnout, depression and anxiety	Emotional exhaustion and depersonalization.	PHQ-9, GAD-7	574	more than half of burnout cases occur in women with 23 median age, with correlations between depersonalizations and exhaustion.	Cross sectional study.

Discussion

This study conducted a systematic review to analyze 11 studies for the determinants, gender-based depression, country-based depression, and risk factors of depression and anxiety among medical students in Saudi Arabia, China, Egypt, Palestine, the UK, Switzerland, Nepal, Pakistan, Italy, and Brazil. The studies discuss multiple determinants and risk factors associated with increased depression among demographic, academic, and social medical students.

Regarding demographic factors, first, The prevalence rates of depression and anxiety among medical students vary according to gender. A study conducted in Saudi Arabia showed it was significant in females 99% and males 68.7% [7]. Research in Brazil showed that anxiety increased among females by 42.2%, while in males, it was 27%. Depression was also higher in females by 40.1% and males by 23.5% [9]. Another study proposed in Italy clarified the prevalence of anxiety only, depression only, and anxiety & depression. Anxiety is higher in males at 22% while in females at 20%. In comparison, depression was equal between males and females at 7%, and the combination between anxiety and depression showed a higher percentage in women at 57%, while males at 38% [11]. A study in Palestine showed the prevalence of depressive and anxiety symptoms among Palestinian medical students was higher in women, 60.8%, while in males, 39.2% [13]. While in Uk a study conducted showed that 61.7% of females have depressive symptoms, while males were 28.3% [15].

Secondly, studies [7,13,1,15,2,14,8] showed that the most grade had depression and anxiety in was first, second, and third stages. At the same time, Saudi Arabia has more depression among first-year medical students, while in China, it was more severe among third-year medical students. In Palestine, it was more extensive among basic years in medical school (first, second, third) years. In Pakistan, final-year medical students were the most anxious; another study in Switzerland showed that first-year medical students expressed more depression, while the intern was the least. In Nepal, it was common among third-year

medical students; in the UK, students become more depressed when final exams are closer,

Risk factors and determinants in Different Countries Hinder Medical Students' abilities and make them more prone to depression and anxiety.

A study conducted in Saudi Arabia showed six determinants play a major role in depression among students. For example, being a female in Arabic society, being in premeds like the first, second, and third year, depression increases, especially in first-year medical students. Other factors are academic, like the inability to cope with curricular demands, continuous academic assessments and examinations, stress exams, and not functioning in class performance and clinical practice [7].

Another study conducted in Palestine showed there were eight risk factors, including family members behind the decision to enter medical school, depression higher in students who have lower GPAs or had failed in class previously, higher in students who attempt suicide and who have low socioeconomic status, low mental health, ad low religion commitment. At the same time, depression is lesser in basic-year medical students, like the first, second, and third years [13].

In Pakistan, there were seven risk factors: stress and pressure from exams, pressure to meet family expectations, feelings about a medical career in the future, missing family far from home, having no idea about school choices specialty, and dissatisfaction with the administration of their medical school. Anxiety and depression are more common among students from private colleges [1]. In Brazil, six determinants were major in anxiety and depression among medical students, including being female, family pressure, depression more In students whose families are not physicians, cause they are pushed by their parents more, more In the south campus students, more in students whose concern about their future career, and more in the second semester than first [9].

In Italy, three determinants came in the form of students with high study load, uncertainty about the future, and a high level of competitiveness in medicine [11]. There were two major determinants in the UK: imminent exams and graduate course students [14]. In Switzerland, emotional exhaustion and depersonalization were the most important factors that played a role in depression [15].

In Nepal, there were determinants, including work and study-related burnout, family history of mental problems, no satisfaction with job, career, or academic performance, Substance abuse, alcohol, cigarette, marijuana, disturbance in sleep hours, stressors, satisfaction with career choices, satisfaction with academic performance, previous history of mental health problems, family history of mental health problems. Third-year medical students, single students, Hindu, upper middle class, and first-year residents are more depressed [2].

In China, there were ten determinants: financial burden, big study-induced stress, large employment pressure, and Students who lived alone or had a bad relationship with their lovers, classmates, or friends. Students in the rural area report more anxiety than in urban areas; low parental education and parents caring indicate low anxiety and depression; introverted students report a high degree of anxiety and depression, heavy academic pressure on medical students, frequent violent attacks against healthcare workers, high-intensity internships, frequent WPV, complex multi personal relationships, and uncertainty regarding future careers [8].

Another study in China showed that Chinese medical students suffered from depression, anxiety, suicidal ideation, and eating disorders; their prevalence was 29%, 21%, 11%, and 2%, respectively [10]. In Egypt, they did not have someone to talk to when under pressure, had stressful life events, were not satisfied with their socioeconomic level, did not specify a grade to achieve, and had extreme dissatisfaction with the student's results, married students: had low to moderate depression. Students who lived with their relatives: had moderate and severe depression, while the lowest percentage of moderate and severe depression was noticed among students who had private residences.

Moderate to severe depression record a lower percentage among students with high crowding index. Moderate and severe depression were more common among students who were not using public transportation, not practicing sports and did not have a hobby. Students who smoked cigarettes had moderate and severe depression compared to those who did not. Moderate and severe depression was noticed among the students who reported substance abuse compared to those who did not. The connections between these factors and the level of depression were not statistically significant. Moderate and severe depression was higher among students who reported having chronic diseases, students who reported having a mental illness, and students who reported having a family history of mental illness.

Social life, academic environment:

Moderate and severe depressive symptoms were higher among students who had no close friends, did not have someone to talk to when under stress, experienced stressful life event(s) during the previous six months, and were not satisfied with their socioeconomic level. The relationship between the grades achieved during the previous academic year and the rate of depression was tested among males and females.

Among males, the rate of moderate to severe depression was 33% between those with an excellent score, 48.6% among those with a fair score, and 37.5%

among those who failed. Among females, the prevalence of moderate and severe depression increased with the decrease in the score achieved (49.6% among those with excellent and very good scores, 53.8% among those with good or fair scores, and 66.7% among those who failed). A high level of prevalence was also noticed among students who did not have a specific grade to achieve for the current year (53.2%).

Students who attended lectures frequently and those who didn't attend frequently had a lower prevalence of moderate to severe depressive symptoms (about 39% each) compared to those who sometimes did (55.3%). The prevalence of moderate and severe depressive symptoms was higher among students who reported that their surrounding environment was unsuitable for studying. Students strongly disagreed that studying medicine allows them to balance their social and academic life. Students strongly disagreed that the gap between exams was sufficient[12].

Conclusion

This systematic review highlights the common problem of depression and anxiety among medical students of different countries and the risk factors in these countries that contribute to this depression and anxiety. Most of the depressed students were in their third year, suffering from financial burdens, future career concerns, stressful life, and inability to keep up with the academic loads. Some of the students shows high risk to depression and suicidial liability due to substnace abuse, alcohol and marijuana. In addition to that, females from middle east countries shows alot of pressure based on their gender, beside academic load, parents domination and examination which leads them develop more anxiety and depression in Arab countries. Measures should be taken, and academic support should be implemented in colleges and institutes; major steps should be taken to decrease the level of depressed students.

Abbreviation

PMC: PubMed Central.
SDS: Zung self-rating depression scale.
BDI: Beck's Depression Inventory.
PHQ-9: Patient Health Questionnaire.
CES-D: The Center for Epidemiologic Studies Depression Scale.
BAI: The Beck Anxiety Inventory.
GAD-7:Generalized Anxiety Disorder Assessment.
AKUADS: The Aga Khan University Anxiety and Depression Scale.
DASS-21:Depression, Anxiety, and Stress Scale.
HADS: Hospital Anxiety and Depression Scale.
SSRS: The Social Support Rating Scale.
TCSQ: The Chinese Trait Coping Style Questionnaire.
CBI: Copenhagen Burnout Inventory.
MSSQ: Medical Students' Stressor Questionnaire.
PID-5 BF: Personality Inventory for DSM-5 Brief Form.
GPA: Grade Point Average.

References:

1- Kumar, B., Shah, M. A. A., Kumari, R., Kumar, A., Kumar, J., & Tahir, A. (2019). Depression, Anxiety, and Stress Among Final-year Medical Students. Cureus. doi:10.7759/cureus.4257

2- Pokhrel, N. B., Khadayat, R., & Tulachan, P. (2020). Depression, anxiety, and burnout among medical students and residents of a medical school in Nepal: a cross-sectional study. BMC Psychiatry, 20(1). doi:10.1186/s12888-020-02645-6

3- Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. Mayo Clin Proc. 2005 Dec;80(12):1613-22. doi:10.4065/80.12.1613. PMID: 16342655.

4-Page MJ, McKenzie JE, Bossuyt PM, et al.: The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021, 372:n71. 10.1136/bmj.n71

5- Newcastle-Ottawa Quality Assessment Form for Cohort Studies

6- Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, Moher D, Tugwell P, Welch V, Kristjansson E, Henry DA. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomized or non-randomized studies of healthcare interventions, or both. BMJ. 2017 Sep 21;358:j4008.

7- Inam SB. Anxiety and Depression among Students of a Medical College in Saudi Arabia. Int J Health Sci (Qassim). 2007 Jul;1(2):295-300. PMID: 21475441; PMCID: PMC3068631.

8-Shao R, He P, Ling B, Tan L, Xu L, Hou Y, Kong L, Yang Y. Prevalence of depression and anxiety and correlations between depression, anxiety, family functioning, social support and coping styles among Chinese medical students. BMC Psychol. 2020 Apr 22;8(1):38. doi: 10.1186/s40359-020-00402-8. PMID: 32321593; PMCID: PMC7178943.

9-Tabalipa, F. de O., Souza, M. F. de, Pfützenreuter, G., Lima, V. C., Traebert, E., & Traebert, J. (2015). Prevalence of Anxiety and Depression among Medical Students. Revista Brasileira de Educação Médica, 39(3), 388–394. doi:10.1590/1981-52712015v39n3e02662014

10- Zeng W, Chen R, Wang X, Zhang Q, Deng W. Prevalence of mental health problems among medical students in China: A meta-analysis. Medicine (Baltimore). 2019 May;98(18):e15337. doi: 10.1097/MD.0000000000015337. PMID: 31045774; PMCID: PMC6504335.

11-Bertani DE, Mattei G, Ferrari S, Pingani L, Galeazzi GM. Anxiety, depression and personality traits in Italian

medical students. Riv Psichiatr 2020;55(6):342-348. doi 10.1708/3503.34892

12- Elsawy WIH, Sherif AAR, Attia MSED, El-Nimr NA. Depression among medical students in Alexandria, Egypt. Afr Health Sci. 2020 Sep;20(3):1416-1425. doi: 10.4314/ahs.v20i3.47. PMID: 33402990; PMCID: PMC7751550.

13-Shawahna, R., Hattab, S., Al-Shafei, R. et al. Prevalence and factors associated with depressive and anxiety symptoms among Palestinian medical students. BMC Psychiatry 20, 244 (2020). https://doi.org/10.1186/s12888-020-02658-1

14- Thiemann, P., Brimicombe, J., Benson, J. et al. When investigating depression and anxiety in undergraduate medical students timing of assessment is an important factor - a multicentre cross-sectional study. BMC Med Educ 20, 125 (2020). https://doi.org/10.1186/s12909-020-02029-0

15- Ernst J, Jordan KD, Weilenmann S, Sazpinar O, Gehrke S, Paolercio F, Petry H, Pfaltz MC, Méan M, Aebischer O, Gachoud D, Morina N, von Känel R, Spiller TR. Burnout, depression, and anxiety among Swiss medical students - A network analysis. J Psychiatr Res. 2021 Nov;143:196-201. doi: 10.1016/j.jpsychires.2021.09.017. Epub 2021 Sep 2. PMID: 34500349.

Authors:

Esraa M. AlEdani,
esraaaledani0@gmail.com

Japneet K. Bhangu,
japneetbhangu98@gmail.com

Khalid Javed,
kjaved0611@gmail.com

Prabhleen Kaur Manshahia,
manshahiapk065@gmail.com

Shamsun Nahar,
shamsun.nahar.dmc@gmail.com

Srishti Kanda,
srishtikanda5@gmail.com

Uzair Chatha,
uzairchatha28@gmail.com

Victor A. Odoma,
odomavictorameh@gmail.com

Aakanksha Pitliya,
bubblypitliya@gmail.com

Safeera Khan,
safeerakhan79@gmail.com