FREQUENCY AND RISK FACTORS OF DEPRESSION AMONG MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY IN KARACHI

Sehrish Shafique[1], Aliza Tahir[2], Shaista Bakhat[3], Ayesha Saba Naz[4], Hadia Khursheed[5], Syed Bilal Yousuf Ghaznavi[6], Naveed Faraz[7]

Correspondence

[1]Sehrish Shafique, Associate Professor, Department of Medicine, Bahria University Medical and Dental College, Karachi
☎: +92-302-2988724
✉: drsehrish80@yahoo.com
[2]House Officer, Bahria University Medical and Dental College, Karachi
[3]Associate Professor, Department of Pathology, Bahria University Medical and Dental College, Karachi
[4]Associate Professor, Department of Anatomy, Bahria University Medical and Dental College, Karachi
[5]Lecturer, Department of Pathology, Bahria University Medical and Dental College, Karachi
[6]Lecturer, Department of Anatomy, Bahria University Medical and Dental College, Karachi
[7]Professor, Department of Pathology, Bahria University Medical and Dental College, Karachi

ABSTRACT

OBJECTIVES

The study aimed to determine the frequency of depression among medical students and to identify the different risk factors associated with depression.

METHODOLOGY

A cross-sectional study was conducted among medical students at a private medical college in Karachi. The study was initiated after approval was taken from the ethical committee. Consent was taken before the data collection after explaining the details of the study. Students were selected for this study as per inclusion criteria. They were provided with the PHQ-9 questionnaire in which they were inquired about the factors for depression. The total students with depression positive were presented by their frequencies with a 95% confidence interval.

RESULTS

Three hundred seventy medical students participated, and 207 (56%) tested positive for depression. Notably, depression was more prevalent among final-year students, with 80% affected. Additionally, the severity of depression gradually increased with advancing medical years, reaching the highest level in the final year, where 61 students (80%) reported significant depression. The most frequent causes of depression were living away from home and facing the challenges of a demanding curriculum.

CONCLUSION

The study findings revealed a higher likelihood of depression among medical students, particularly in their final year. This vulnerability was exacerbated by the stress associated with extensive coursework and peer pressure to achieve excellent exam grades.

KEYWORDS: *Depression, Medicine, Mental Health*

INTRODUCTION

Depression is one of the most common and frequent occurring mental health problems in medical students globally. The prevalence of depression in the Middle East is 31.8%, North America 30.3%, Asia 30.1%, South America 26.8%, and Europe 20%.[1] The estimated frequency of depression or its symptoms among medical undergraduates ranged from 1.4% to 73.5%. In Pakistan, the prevalence of this disease ranges from 22% to 60%.[2] Depression is a significant health problem among university students, of which one-third are affected. The World Health Organization defined health as "a complete physical, mental and social wellbeing and not merely the absence of disease or infirmity". This implies that not only the physical but mental health of a person is equally important. As we know that students are the most vulnerable population who faces stress and a wide range of psychological difficulties like anxiety and depression, which can contribute to functional impairment.[3] If this problem is not timely treated or addressed, so can lead to cognitive problems, lack of social wellbeing and personality disorders.[4,5] Because of the negative impact of this depression and stress on one's personality, it is essential that it should be diagnosed timely so that appropriate treatment should be provided.[6] The teaching environment of medical colleges and universities is very demanding because of frequent assessments, assignments, presentations and projects and tough competition in getting the good grades creates a negative impact on their physical health and psychosocial well-being.[7,8] All over the world, the psychological health of medical students is of high concern. They are a more prone population to depression and anxiety. Many other factors can also contribute to depression, such as tough curriculum and academics, competency among peers, problems reaching their desired specialities, and the transition phase from being a school student to almost being a

physician play an important role.[9,10] There are also other factors which can contribute to depression, which include expectations from parents and teachers who trained them to become qualified doctors.[11,12] Past studies also revealed that besides other factors contributing to depression, enough good quality nighttime sleep is also essential for improving long-term learning, better cognitive and psychomotor performance and physical and mental health, which is found to be less in medical students.[13] Therefore, sleep deprivation in medical students can make them more at risk of depressive and anxiety disorders. This study aims to determine the prevalence of depression among medical students in Pakistan and to identify the possible causes of depression in our study population. The strength of this study lies in collecting samples from all the medical years.

METHODOLOGY

It was a cross-sectional study conducted among medical students at a private medical college in Karachi within a period of 1 month. The investigation commenced after the ethical approval was taken from the ethical committee. Consent was taken before the data collection after explaining the details of the study. The sample size was calculated using Raosoft calculator, taking a 95% confidence interval and a 5% margin of error. The required sample size was found to be 370. Students who fulfilled the inclusion criteria were selected, and a simple random sampling technique was used. They were provided with the PHQ-9 questionnaire and another questionnaire in which they were inquired about the factors for depression. This PHQ-9 questionnaire has been widely used to make a provisional diagnosis of current depression. In this nine-item questionnaire, the total score can range from 0 to 27. Scores of 5, 10, 15, and 20 were considered cut-points of mild, moderate, moderately severe, and severe depression, respectively.[15] Male and female medical students aged 18-25 years were included in this study. Participants with known psychiatric illnesses and on treatment for depression were excluded. For data analysis, SPSS version 23.0 will be used.
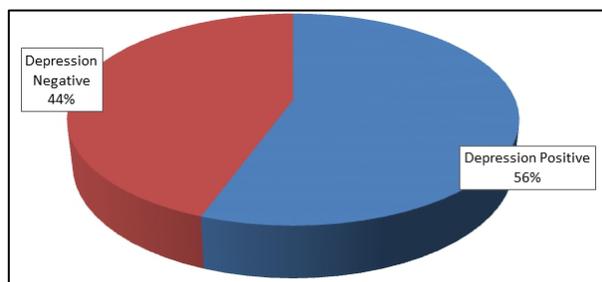
RESULTS

Figure 1: Frequency of Depression among the Medical Students

Table 1: Frequency of Depression among Different Years of Medical Students

	Depression Positive	Depression Negative
1st Year Students	24	34
2nd Year Students	36	27
3rd Year Students	40	34
4th Year Students	46	27
5th Year Students	61	15

Table 2: Depression in Medical Students According To PHQ Scale

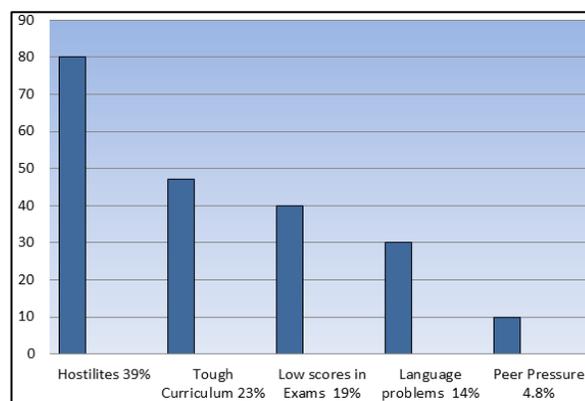| Depression among the Medical Students	Mild	Moderate	Severe
1st Year	12(50 %)	05(21%)	07(29%)
2nd Year	10(28%)	12(33 %)	14(39%)
3rd Year	06(15%)	20(50%)	14(35%)
4th Year	06(13%)	18(39%)	22(48%)
5th Year	05(8.1%)	20(33%)	36(59%)

Figure 2: Frequency of Depression among the Medical Students

DISCUSSION

In our study, 370 subjects were included, among which 207 (56%) were found to have depression according to PHQ-9 questionnaire, as shown in Figure 1. The results of our study were consistent with those done in the past among medical college students by Alim et al. in Bangladesh, but were inconsistent with another study done in Bangladesh by Islam et al., 69.5%, lower rates of depression 43% are also reported in Saudi Arabia in a study done by Kulsoom and Afsar.[15,16,17] In this study, we have also assessed the prevalence of depression in different medical years shown in Table 1. As shown in the table, the prevalence is 32 % in the first year, 48% in 2nd year, and it then gradually rises in the subsequent years, being highest in the final year at 80%. This can be attributed to multiple factors as the first three years of medical are mainly preclinical, so they include subjects of basic sciences, but as the year progresses, as third-year clinical teaching is also started so the students find difficulty in coping with the curriculum so can be the reason of worsening of symptoms. Our study's results are similar to those of Hansell MW, Ungerleider RM et al., Rosal MC,

Ockene IS, Dyrbye LN, Wittlin NM.[18,19,20] The severity of depression was also assessed according to PHQ -9 in different medical years, and as shown in Table 2, in 1st year, the frequency of mild depression was high (50%). However, as the years progressed, the frequency of moderate to severe depression rises severe depression being 48% in 4th year and 59% in the final year Vankar et al. found that 26.6% of the medical students scored ≥10 on PHQ-9 in his study, which can be due to lack of diagnosis in the early years leading to the progression of depression in final years and also due to stress of final professional exams, the peer pressure all aggravates the condition.[21] Other Studies done in the past also showed similar results. Different causes for depression were also inquired in this study as shown in Fig (2) showed that most of the students were hostilities 39%, so homesickness is one of the highlighted factors contributing to depression, along with a tough curriculum 23%, low scores in exams 19% language problems 14% which causes difficulty in communication and lack of gaps between the module exams along with peer pressure 4.8% were the frequent factors for depression. Academic stress, vast syllabuses that need to be covered within a specific period, abrupt changes in their learning techniques, consideration of exam failure, relationship with peers, expectations from their parents and changes in the educational medium. Similar factors were also seen in studies done in the past by Muzafar Y et.al. Rehmani N et.al. Besides this, students from rural areas suffer from mood disorders more than urban residents, and because of this, they have difficulty communicating with teachers. Similar results were seen in the past study by Hammouda et al.[22,23,24]

LIMITATIONS

The study is conducted in only one setting. It should be multi-centred. The sample size was small. More parameters should be considered for comparison.

CONCLUSIONS

Depression increases during medical years, and due to the high prevalence of depressive symptoms in medical students, due to extensive syllabus, frequent assessments, and peer pressure, so early counselling sessions should be done in the first years so that this problem should not exceed further till the final years and the causes should be identified and corrected in the beginning, because if timely diagnoses are made, early treatment can be provided to them. They are also safe for the patient's welfare if they are mentally healthy.

CONFLICT OF INTEREST: None

REFERENCES

1. Kumar B, Shah MAA, Kumari R, Kumar A, Kumar J, Tahir A. Depression, anxiety, and stress among final-year medical students. Cureus. 2019;11(3): e4257.
2. Nisar M, Mohammad RM, Fatima S, Shaikh PR, Rehman M. Perceptions pertaining to clinical depression in Karachi, Pakistan. Cureus. 2019;11(7): e5094.
3. Moir F, Yielder J, Sanson J, Chen Y. Depression in medical students: current insights. Adv Med Educ Pract. 2018; 9:323–33.
4. Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: A systematic review and meta-analysis: A systematic review and meta-analysis. JAMA. 2016;316(21):2214–36.
5. Heinen I, Bullinger M, Kocalevent R-D. Perceived stress in first year medical students - associations with personal resources and emotional distress. BMC Med Educ. 2017;17(1).
6. Ranasinghe PD, Owusu JT, Bertram A, Michtalik H, Yeh H-C, Cofrancesco J Jr, et al. Depressive symptoms and burnout among medical students: A prospective study. J Gen Intern Med. 2022;37(1):64–9.
7. Mirza AA, Milaat WA, Ramadan IK, Baig M, Elmorsy SA, Beyari GM. Depression, anxiety and stress among medical and nonmedical students in Saudi Arabia: An epidemiological comparative cross-sectional study. Neurosciences. 2021;26(2):141–51.
8. Marques JG. Still Regarding Anxiety, Depression and Academic Performance: A Study Amongst Portuguese Medical Students Versus Non-Medical Students. Med Port. 2018; 31:607–8.
9. Fitzpatrick O, Biesma R, Conroy RM, McGarvey A. Prevalence and relationship between burnout and depression in our future doctors: a cross-sectional study in a cohort of preclinical and clinical medical students in Ireland. BMJ Open. 2019;9(4): e023297.
10. Ezmeirlly HA, Farahat FM. Illness anxiety disorder and perception of disease and distress among medical students in western Saudi Arabia. Saudi Med J. 2019;40(11):1144–9.
11. Gabal HA, Wahdan MM, Eldin G. Daprevalence of anxiety, depression and stress among medical students, and associated factors. Egyptian Journal of Occupational Medicine. 2022;46(1):55–7.
12. Kemp S, Hu W, Bishop J, Forrest K, Hudson JN, Wilson I, et al. medical student wellbeing - a consensus statement from Australia and New Zealand. BMC Med Educ. 2019;19(1).
13. Frajerman A, Morvan Y, Krebs M-O, Gorwood P, Chaumette B. Burnout in medical students before residency: A systematic review and meta-analysis. Eur Psychiatry. 2019; 55:36–42.
14. Kroenke K, Spitzer RL, Jbw W. The PHQ-9: validity of a brief depression severity measure J Gen Intern Med. J Gen Intern Med. 2001;16(9):606–13.
15. Alim SMAHM, Rabbani MG, Karim E, Mullick MSI, Mamun AA, Fariduzzaman, et al. Assessment of depression, anxiety and stress among first year MBBS students at a public medical college, Bangladesh. Banglad J Psychiatr. 2017;29(1):23–9.
16. Islam S, Akter R, Sikder T, Griffiths DM. Prevalence and Factors Associated with Depression and Anxiety Among First-Year University Students in Bangladesh: A CrossSectional Study. Int J Ment Health Addiction. 2022; 20:1289–302.
17. Kulsoom B, Afsar NA. Stress, anxiety, and depression among medical students in a multi-ethnic setting. Neuropsychiatr Dis Treat. 2015;(11):1713–22.
18. Hansell MW, Ungerleider RM, Brooks CA, Knudson MP, Kirk JK, Ungerleider JD. Temporal trends in medical student

burnout. Fam Med. 2019;51(5):399- 404.

19. Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, Hebert JR. A longitudinal study of students' depression at one medical school. Acad Med. 1997;72(6):542–6.

20. Dyrbye LN, Wittlin NM, Hardeman RR, Yeazel M, Herrin J, Dovidio JF, et al. A prognostic index to identify the risk of developing depression symptoms among U.s. medical students derived from a national, four-year longitudinal study. Acad Med. 2019;94(2):217–26.

21. Vankar JR, Prabhakaran A, Sharma H. Depression and Stigma in Medical Students at a Private Medical College Indian J Psychol Med. J Psychol Med. 2014;36(3):246–54.

22. Muzafar Y, Khan HH, Ashraf H, Hussain W, Sajid H, Tahir M, et al. Burnout and its associated factors in medical students of Lahore, Pakistan. Cureus. 2015;7(11): e390.

23. Rehmani N, Khan Q-U-A, Fatima SS. Stress, Anxiety and Depression in students at a private medical school in Karachi, Pakistan. Pak J Med Sci Q. 2018;34(3).

CONTRIBUTORS

1. **Sehrish Shafique -** *Concept & Design; Drafting Manuscript*
2. **Aliza Tahir -** *Data Acquisition*
3. **Shaista Bakhat -** *Data Analysis/Interpretation*
4. **Ayesha Saba Naz** - *Drafting Manuscript*
5. **Hadia Khursheed -** *Critical Revision*
6. **Syed Bilal Yousuf Ghaznavi -** *Data Acquisition*
7. **Naveed Faraz –** *Supervision; Final Approval*