

Self-Reported Depression and Its Relationship with Socio-Demographic Characteristics among Medical Students

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ABSTRACT

Objective: In Pakistan, among various cities, the rate of depression is reported to be between 60–70% among medical students. This study was performed to estimate the prevalence of depression and its factors among medical students at Muhammad Medical College, MirpurKhas, Sindh, Pakistan.

Methods: A cross-sectional study was performed at Muhammad Medical College MirpurKhas, Sindh. The study tool was a semitortured questionnaire comprising of sociodemographic questions and depression, anxiety, stress (DASS-42) self-reporting scale. Throughout the study, medical undergraduate students were hired using a random sample technique. The descriptive statistical analysis, i.e., mean, standard deviation, range, frequency, and percentages were calculated using SPSS version 26.

Results: The frequency rate of male and female students was 49.5% and 50.5%, respectively. Of all the 34% of medical students who showed positive depression symptoms, 27% had mild, and 7% had moderate depression. Female students had a higher depression frequency. Concerning the factors of depression, the rural residence demonstrated a significantly negative association [0.24 (0.104-0.574)], but living in a shared room showed a non-significantly positive association [OR 2.78 (0.501-15.46)] with depression among medical students. A monthly expense of 20000 PKR revealed a non-significantly positive association [1.078 (0.409-2.84)] with depression. In addition, parental level of education showed a significant association ($P < 0.005$) with depression.

Conclusion: Female students has high frequency of depression than male students. The depression factors among medical students were found to be financial, parental education, and living in shared room. So, the appropriate policies should be implemented to reduce the burden of disease.

Keywords: Frequency of depression, DASS-42 scale, Factors of Depression, Medical students.

INTRODUCTION

Depression is a multi-problematic condition that impairs psychological, social, interpersonal, and vocational functioning.¹ Globally, major depressive disorder is a primary contributing factor to the burden of illness, accounting for an overall 3.2% prevalence.² The depressive disorder also affects eating, sleeping, feeling, and thinking wellbeing of a person.^{1,3} The number of people suffering from depression or symptoms of depression has been steadily climbing over the past few decades everywhere in the world. According to WHO estimations, about 350 million people are affected by depression. Because of this, it has the potential to develop into a serious health problem, particularly in situations that are severe and persistent, and it is accountable for around one million suicides each year.⁴ In a study analysed a total of 89037 persons from 18 different countries and came to the conclusion that the expected lifespan and estimated prevalence of major depressive disorder were respectively 14.6% and 5.5% in rich nations and 11.1% to 5.9% in developing countries.⁵ According to a survey in Pakistan, it was assumed that about 60–70% of medical students at various colleges and universities were found with symptoms of psychological problems, most probably with depression.^{6,7} Some studies from Karachi, Sindh have reported a 60 to 70% prevalence of depression in medical students.^{8,9} A cross-sectional study that was conducted at People's University of Medical and Health Sciences for Women in Nawabshah, Sindh, Pakistan, reported a 39.49% rate of depression among the medical students.¹⁰ In another study, Kumari et al. stated that the majority of medical students, mean age 21.43 years, were suffering from mild depression. Of them, 2/3 of the participants were married females, while 3/4th participants were single.¹¹ Another cross-sectional study with undergraduate medical students from private and public medical colleges in Karachi reported a 9.7% prevalence of depression, being more common in female students (9.6%) than males (7.3%).¹² A survey of medical students in Faisalabad, Punjab revealed 57.1% depression.¹³ A study from Islamabad, Pakistan, revealed that 40.9% of medical students were depressed.¹⁴ In addition, having any form of psychiatric condition would have a major negative influence on the intellectual

learning and development in regards to having a very high cost for both the individual and the community.⁸

In general population, the reported sociodemographic risk factors of depression are place of residence, marital status, age, educational status, chronic noncommunicable diseases (such as CVD, diabetes mellitus, and the arthritis), and consumption of alcohol.¹ But students are a unique group of individuals going through a hard time in their lives.³ Higher education puts students into more stressful situations such as challenging coursework, rigorous job assignments, projects, and living in dormitories.³ Likewise, medical institutions are typically challenging places.¹⁵ So, the reported risk factors for depression like academic requirements, examinations, an inability to cope, a feeling of powerlessness, enhanced psychological stress, and psychological discomfort are common among medical students.^{9,16,17} Consequently, mental stress during education may develop into depression, which will affect cognitive functioning and learning.¹¹ Also, the students who live away from home, especially hostlers or those who share a room with friends, experience acute homesickness.^{13,18} Meeting new individuals might be stressful for some students. Therefore, those students would learn to handle their affairs and adjust to a unique living situation without parental guidance or expertise.¹³ Hence, they are more prone to developing unhealthy dietary habits, getting little sleep, or picking up new behaviors, such as smoking or drug usage.¹³

To date, many efforts are being made to save young people throughout the world. But unfortunately, a little bit of research work is reported from Pakistan on the prevalence of depression. Of them, a few studies are related to Sindh, Province, depicting an alarming level of depression among medical students.^{11,12,19,20} For this reason, it is a difficulty for all medical institutions to encourage undergraduate well-being and give students with the coping strategies they need to manage stress all throughout the entirety of their medical academic duration. To overcome certain issues, medical educators must understand the extent of student depression and the variables that cause it. On the other hand, to reduce mental health disparities in any population, it is important to evaluate the prevalence of depression by geographical region, country income, and assessment method.^{21,22} Moreover, to improve the quality of mental health of medical students, it is

needed to quantify the incidence rate of depression along with its associated sociodemographic factors. Considering the key points, the present study was aimed to assess the prevalence and different levels of depression using the DASS-42 self-reporting scale¹⁴ and its related sociodemographic factors among medical students attending Muhammad Medical College, Mirpurkhas, located in a remote district of Sindh, Pakistan.

MATERIAL AND METHODS

This analytical cross-sectional study was performed at Muhammad Medical College (MMC), Mirpurkhas, Sindh, from January 2021 to April 2021. The protocol of the proposed study was reviewed and approved by the Institutional Ethical Committee of the Institute of Biochemistry, University of Sindh, Jamshoro, Pakistan, 76080. A total of 300 medical students were approached randomly, and asked to participate in the present study and to provide the consent form. Thereafter, 230 medical undergraduate students completed the questionnaire. The students aged less than 18 years, already diagnosed and treated for any psychological disorder, were excluded. A semi-structured questionnaire in English language, comprised of sociodemographic characteristics such as gender, age, height, weight, ethnicity, disease history, medication history, permanent/current residence, accommodation type, marital status, monthly expenses, and parents' education level, was used. The DASS-42-item questionnaire,^{12,14} which consists of three different self-report scales that were intended to assess the negative psychological states of depression, anxiety, and stress. Every one of the three scales has 14 items, which are further subdivided into subscales ranging from 2–5 items that share content similarities. The participants are prompted to employ severity and frequency scales with four points each in order to rate the degree to which they have experienced every phase over the course of the most recent week.^{23,24} The depression scale of DAAS-42 assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. Score of depression, scale items of DAAS-42 are 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, and 42. The scores for each of the respondents are then evaluated as per the severity-rating index of DAAS-42 scoring.¹⁴ The acquired scores are categorized as (normal = 0-9), (mild = 10-13), (moderate = 14-20), (severe = 21-27), and the (extremely severe = > 28).^{23,25} The data was analyzed using the Statistical Package for Social Sciences SPSS version 26.

RESULTS

In this study, a total of 230 medical undergraduate students were studied with the help of a semi-structured questionnaire. The number of male and female undergraduate students was 116 (50.4%) and 114 (49.6%), respectively. A majority of students belonged to the Punjabi (28%) ethnic group, followed by non-migrants (24.0%), and Saraiki, 22.1%. Whereas, the peak mean age of students was 23–24 years (49.5%), after which it was 21–22 years (26%) and >24 years (21%). Of all the cases, mild depression was in 27.0% of the cases and moderate depression was in 7.0% of the students, while 66.1% were seen as normal without depression. However, overall depression was 34.0%. The frequency of depression was statistically significant as per most of the demographic characteristics, as shown in table 1-3.

Table 1: Regression analysis between demographic characteristics and depression among medical students

Characteristics	Total (%)	Normal (%)	Depression (%)	Odds Ratio (95% CI)	p-value (≤0.05)
Permanent Residence					
Urban	42	30	12	1.0 Reference	
Rural	58	36	22	0.24 (0.104-0.574)	0.001
Marital status					
Married	5.2	2.6	2.6	1.0 Reference	
Unmarried	94.8	63	31.8	0.51 (0.086-2.967)	0.33
Age groups (years)					

<20	3.5	1.7	1.7	1.0 Reference	
21-22	26.1	16.1	10	0.62 (0.066-5.933)	1.05
23-24	49.1	36.1	13	0.79 (0.090-7.071)	1.16
>24	21.3	12.2	9.1	0.75 (0.077-7.316)	1.15
Current Residence					
Home	18.54	12.6	5.94	1.0 Reference	
Hostel	73.6	50	23.6	1.017 (0.336-2.982)	0.71
Shared with friends	7.86	3.4	4.46	2.78 (0.501-15.46)	0.19
Monthly Expenditures (PKR)					
20000	28	18	10	1.078 (0.409-2.84)	1.0
20-25000	50	33	17	1.0 Reference	
25-30000	22	15	7	0.906 (0.31-2.64)	1.0
Odd ratio >1: Positive association, odd ratio <1: Negative association, odd ratio =1: No association					

Table 2: One-way ANOVA results for father's levels of education associated with a score of Depression for medical students of MMC

Father's educational level	Test of Homogeneity of Variance				ANOVA	
	Mean	S. D	Levene Statistic	Sig	F	Sig
Illiterate	13.41	3.96	10.722	0.000	14.523	0.000
Primary	10.37	3.04				
Matric	9.29	2.75				
Intermediate	8.66	1.55				
Bachelor	7.88	.949				
Master	8.00	.816				

Table 3: One-way ANOVA results for Mother's levels of education associated with a score of Depression for medical students of MMC

Mother's educational level	Test of Homogeneity of Variance				ANOVA	
	Mean	S. D	Levene Statistic	Sig	F	Sig
Illiterate	12.21	3.58	5.914	0.000	12.065	0.000
Primary	10.10	3.24				
Matric	8.63	2.25				
Intermediate	8.36	1.46				
Bachelor	8.54	1.59				
Master	8.50	.577				

DISCUSSION

Young adulthood is regarded as a period in which individuals encounter social and physical transformations and this phase can be seen of as one during which a participant's identity is formed. As per widespread perception that medical school is a period during which great emotional strain can be experienced, a number of researchers have focused their attention on the mental health of young medical students. In this study males were 50.4% and females were 49.6%, there was a majority Punjabi students (28%), followed by non-migrants and 24.0%, Saraiki were 22.1%. Whereas, the peak mean age of students was 23-24 years (49.5%). Likewise, in a study from Karachi, Sindh, the authors have reported a high rate of Urdu speaking students.¹² Henceforth, this variation may be subjected to the locality of the origin of students at Muhammad Medical College.

This study revealed that 34% students have a total sum of mild and moderate depression 27% and 7% respectively as per DASS-42, and females suffer more depression as compared to males. Furthermore, among the depressed students. Depression among medical students affects their academic performance and has been witnessed as a significant determinant of quality of life and survival²⁶. The response rate students in this study were 80.33%, which is consistent with previous studies²⁰⁽¹⁵⁾. In contrast, Lakhiar et al. had reported a higher frequency 60.5% of depression among medical students.²⁰ However, findings of this study were compatible with a previous study from Nawab shah and Larkana

city medical colleges. Wherein, the authors have reported 75.39% mild, 23.01% moderate, and 1.58% severe depression levels²⁰ among medical students. Some studies at the public universities have reported a lower incidence of depression among medical students, like 15.2% in the USA, 21.7% in Malaysia, 24% in the UK, 29.1% in India, and 43.8% in Pakistan. However, the degree of depression among private medical students was estimated as 19% in the USA, 49.1% in India, and 60% in Pakistan¹². Moreover, Mubashir et al. found 60% and 70% depression among medical students of two different medical colleges. As far as the gender-wise difference of depression is concerned, a few studies from Pakistan have reported a high frequency of depression among female students compared to males.^{11,12,20} This statement agrees with the present study, as the frequency of females (50.5%) was high, even with a significantly higher (16%) percentage of female medical students with mild depression as compared to male students (figure 3). In contrast to the present study, Mubashir et al. has reported no gender difference in developing depression symptoms.¹²

In this study according to the sociodemographic factors with depression, it was revealed that the most of the medical students with depression were belonged to rural areas (22%) as compared to the urban areas (12%). Taking the metropolitan area as the reference; because urban areas in Sindh have better facilities of life than the rural areas; the rural residence status depicted a significant negative association [0.24 (0.104-0.574)] with depression. On the other hand, concerning the current residential group (during academic activities) of students, the accommodation in a shared room with friends revealed a non-significantly positive association [OR 2.78 (0.501-15.46)] with depression having about the home residence. But the OR for hostel residence was found 1.017 (0.336-2.982), which is slightly greater than that of reference residence (Home), suggesting a minor impact on student mental health. Additionally, the medical students with monthly expenses of 20000 PKR/month also showed a non-significantly positive association [1.078 (0.409-2.84)] with depression, compared with a monthly expense of 20-25000 PKR/month. The present study's other demographic variables, such as unmarried status, different age groups, and a monthly expense of 25000 to 30000 PKR, were found non-significantly negatively associated with depression. In several studies, the root causes of depression among medical students are formed to be age, gender, ethnicity, residence, length of schooling, rating of school, satisfaction with current academic grades, academic pressure, attitude towards a future career, the capability to manage with interpersonal connections, the education level of parents, the work level of parents, the financial position of the family, the level of social support elements, and a few other aspects.²⁷ In the present study, medical students of the rural area have a significant negative association [0.24 (0.104-0.574)] with depression (table 1). Likewise, other researchers have also reported the same findings, which might be attributed to the lack of facilities in rural areas, especially in villages, or a substantial financial burden of a family.²⁸ While a hostel a shared room with friends [2.78 (0.501-15.46), p-value 0.19] and a monthly expense of 20 thousand PKR were found as no-significant positive association depression (table 1) among medical students. It is reported that family income and social status may also contribute to depression²⁰. However, other causes could be the academic pressure and high expectation of parents from students in the form of excellent academic grades.⁴ In turn, it may hold up more time of students at hostel/room/library, thus lacking students' physical and social life activities.²⁹ Mubashir et al. stated that those students belonging to the middle and lower classes of society suffer a higher social, cultural, and economic pressure.¹² Thus, sure students should be given more attention than their peers.²⁷ Other demographic variables like urban residence, unmarried age groups, and a monthly expense between 25 to 30 thousand PKR revealed a non-significant negative association with depression (table 1). But, a high portion (22%) of students were aged between 23-24 years following the 21-22 years (10%) and >24 years (9%)

(figure 2). A few previous studies from Sindh have reported the age of 20 years²⁰ and 20–23 years than 24–25 years among medical students suffering from depression. Also, in this study, only 2.6% of students were found to have current marital status (figure 2).

In this study fathers' levels of education have a moderately significant role in their children's (medical students) mental health as observed by comparing with depression anxiety stress scale (DASS-42) score. The children of illiterate parents had significantly higher levels of depression (Mean= 13.41, SD= 3.96) as compared with the rest of educational levels of fathers, ($F_{6, 223} = 14.523$, $P < 0.001$). Since the Levene Statistic is significant, the equal variance was not assumed. Furthermore, the maternal levels of education concerning depression have an almost similar pattern to the paternal as the significant solid association in developing depression among medical students compared to parents having a higher level of education. ($F_{5, 224} = 12.065$, $P < 0.001$). Since the Levene Statistic is significant, the equal variance was not assumed. Furthermore, the post-hoc test by using Dunnet's T3 was used to check out the comparison between seven maternal educational groups. The test indicated that the mean score for illiterate mothers ($M = 12.21$, $SD = 3.58$) was significantly different from other academic levels followed by primary ($M = 10.10$, $SD = 3.24$) with intermediate, bachelor, and masters. This suggests that, like paternal, the maternal levels of education have the almost same pattern of relationships with the DASS-42 scale score. The highest rate of illiterate fathers and mothers followed by the primary level of education was observed in depressed medical students compared to students without depression. In contrast, the rate of matric, intermediate, bachelor's, master's education was only found high among medical students without depression. Based on such results, it can be stated that the parents' education level had a significant impact on the mental health setup, working ability, and performance of an individual.³⁰

CONCLUSION

This study revealed that most of the undergraduate medical students are normal while one-third have mild to moderate levels of depression as scored with the depression, anxiety, stress scale (DASS-42). Females are more depressed than males, followed by hostlers, shared room students, and monthly pocket money. 20K PKR has a non-significant positive association with depression. In contrast, rural residents have a significantly negative association with depression. Furthermore, the parental level of education has been observed to be moderately associated with depression. Illiteracy on both maternal and paternal sides has a strong significant association with depression, followed by the primary level of education. In contrast, matric, intermediate, bachelor, and master have a non-significant association in terms of developing depression among medical students.

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