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Original Article

Comparison of Depression, Anxiety And Stress In Undergraduate And Postgraduate Medical Students

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ABSTRACT

Objective: To determine the frequency of depression, anxiety, and stress among medical students and to compare between undergraduate and postgraduate students.

Study Design: Comparative cross-sectional study.

***Place and Duration of Study*:** Pak Emirates Military Hospital Rawalpindi, Public Sector Medical College, Pakistan Jul to Dec 2019.

Methodology: A study was carried out on 200 medical students. One hundred undergraduates from all five years and 100 postgraduates/residents from varying specialities were asked to complete DASS 21(depression, anxiety, and stress score 21).

Results: Out of 200 students who completed the questionnaire, 116(58%) were depressed. Among the postgraduates, females were more likely to be depressed (p=0.029). 135(67.5%) students suffered from anxiety. Undergraduates were statistically more likely to suffer from anxiety (p=0.011). 101(50.5%) students were stressed. Overall, females were more stressed than male students (0.012). Among postgraduates, females were more likely to be stressed than males (p=0.013). Marital status does not appear to have any effect on depression, anxiety, and stress. 25(12.5%) students had suicidal ideation**.**

Conclusion: Depression, anxiety and stress are present in over half of our medical students, both undergraduates and postgraduates/residents. We need to address this in our hospitals and medical schools by providing easily accessible counselling facilities and psychologists to help them.

Keywords: Anxiety, depression, Medical students, Pakistan, Residents, Stress

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INTRODUCTION

Medicine is a highly demanding, difficult and intense profession. The training years in a doctor's career are the most difficult for undergraduates(UGs) and postgraduates (PGs)/residents. Physicians are highly intelligent and motivated individuals who come under much pressure, in terms of number of working hours, load of critical patients, sleep deprivation and family pressures.[1] All of these stresses combine and result in anxiety, stress and depression, which in turn may lead to suicide. Physicians have an increased risk of suicide. The prevalence of depression and psychological distress is also higher in medical students as compared to age-matched peers and the general population.[2] Beyond the personal effects of depression on the residents, it is also linked to poor patient care and increased medical errors.[3]

Higher rates of depression among medical students were found in female students. Higher depression scores were also found in students with poor physical health, poor socioeconomic status, prior psychiatric diagnosis, family history of psychiatric diagnosis and students with higher levels of anxiety.[4,5] It requires us to reconsider facets of medical education (such as shame-based learning) and overall teaching style and optimize the learning environment.[6]

There is a high prevalence of depression, anxiety and stress in medical students and physicians in the world. It is similarly high in our country in medical students. Depression, anxiety, and stress lead to suicide.[7] Various studies are showing a high incidence of depression and anxiety, and stress, in Pakistan. Fortunately, for us, suicide is relatively rare.[8,9]

We conducted this study to find the frequency of undergraduate(UGs) and postgraduate medical students (PGs) who experienced depression, anxiety and stress and compare them to find a relationship between demographic variables, family history of psychiatric disorder and depression anxiety and stress and to assess the frequency of students having suicidal ideation.

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METHODOLOGY

The comparative cross sectional study was carried out at Pak Emirates Military Hospital and Public Medical College, Rawalpindi, Pakistan, from July to December 2019 after Institutional Ethical Review Committee approval. The sample size was calculated using the software 'G Power. At an estimated response rate of 90%, the questionnaire was distributed to about 100 participants in each group.

Inclusion Criteria: Postgraduate medical students working in various clinical specialities (16 specialities) and undergraduate medical students (from all five years of medical college), were included.

Exclusion Criteria: None

To assess the frequency of depression, anxiety and stress among our medical students (UGs and PGs), we distributed a predesigned, pre-validated questionnaire, DASS 21, after written informed consent. Personal demographic details, personal and family history of psychiatric disorder, suicidal intent and drug abuse were also noted. We used non-probability consecutive sampling technique.

Statistical Package for Social Sciences (SPSS) version 24.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages. Chi-square test was applied to explore the inferential statistics. The *p*-value of 0.05 or less was taken as significant.

RESULTS

Two hundred students, 100 undergraduates and 100 postgraduates/residents, completed the questionnaire. The mean age of the students was 25.14+4.57, ranging from 17-38 years. There were 58(29%) male and 142(71%) female students. Table-I showed 116(58%) students were depressed. A total of 135(67.5%) students had anxiety. In Table-II, we compared depression, anxiety and stress among postgraduate and undergraduate students and also showed the distribution of severity of depression, anxiety and stress.

One hundred forty-three students were single (100 UGs and 44 PGs), 54 were married, and two did not respond. Among depressed students, 89(44.9%) were single, and 26(13.1%) were married; anxiety was seen in 101(51%) single students and 32(16.1%) married students, stress was seen in 76(38.3%) single and 25(12.6%) married students.

Thirty-five (17.5%) students had a family history of psychiatric disorders. 27(77.1%) students with a family history of psychiatric disorder were depressed, while 89(53.9%) without a family history of depression were depressed. This difference was statistically significant (p=0.014). One hundred and seven(64.8%) students without a family history of depression suffered from anxiety, while 28(77.1%) of those with a family history of psychiatric disease suffered from anxiety. Twenty-three (65.7%) with a family history of psychiatric disorder were suffering from stress, while 78(47.2%) without a family history of psychiatric disorder were suffering from stress. Those with a family history of a psychiatric disorder were more likely to be depressed but not anxious or stressed.

Twenty-five (12.5%) students had suicidal ideation in our study. Out of these 17(8.5%) were UGs while 8(4.5%) were pgs. Although suicidal ideation was more common in UGs than PGs. The difference between suicidal ideation among the different years of medical schools was statistically significant, with more students having suicidal ideation in the second year and third year(p=0.047). No student had attempted suicide.

DISCUSSION

Medical education is an arduous task, both for UGs and PGs/residents. Long working hours, financial constraints, high societal expectations, lack of leisure time8, peer pressure, parental hopes and

Table-I: Frequency of Depression, Anxiety and Stress in medical students with respect to Gender (n=200)

	Males	Females	*P*-value	Total
Depression	30(51.7%)	86(60.5%)	0.272	116(58%)
Depression mild/ moderate/severe/extremely severe	11/14/3/2	20/43/13/10		
Anxiety	35(60.3%)	100(70.4%)	0.185	135(67.5%)
Anxiety mild/moderate/severe/extremely sever	13/11/4/7	25/24/23/28		
Stress	21(36.2%)	80(56.3%)	0.012	101(50.5%)
Stress mild/moderate/severe/extremely severe	9/10/2/0	27/30/19/4		

Table-II: Frequency of Depression, Anxiety and Stress Among Undergraduates and Postgraduate Medical Students (n=200)

	Residents/ PGs	UGs/ Medical students	*p*-value
Depression total	52	64	0.057
Depression Mild/moderate/severe/extremely severe	19/24/5/4	12/33/11/8	
Anxiety total	60	75	0.034
Anxiety mild/moderate/severe/extremely severe	18/21/13/8	20/14/14/27	
stress	41	60	0.011
Stress mild/moderate/severe/extremely severe	14/17/8/2	22/23/13/2	

curricular burden all contribute to depression and stress.10 Our study found a frequency of depression of 58%; this was similar to data from other Pakistani studies.

A meta-analysis from 167 cross-sectional studies(n=116628) and 16 longitudinal studies across 43 countries found the prevalence of depression to be 27.2%(range 9.3% to 55.9%). 11 Prevalence rates did not differ significantly between preclinical and clinical students.

Depression in UG medical students was reported in 57.9% and 60.8% of Egypt,12 11.5% of Bangladesh, 13 34.9% from Malaysia, 14 36% male students and 35% female students from Iran, 15 51.3% from India,16 6.0-66.6% in the UK, Europe and other countries outside North America17 and 16.4% from USA.[18]

In post graduates/residents, the rate of depression ranged from 6% to 22%, varying with speciality from UAE,19 29.2% of 1st-year residents and 27.6% of 2nd-year residents from Japan, 20 in less than half of cardiology residents from Argentina.[21]

In our study, those students who had a family history of a psychiatric disorder were more likely to suffer from depression but not anxiety or stress. Another study similarly showed that those who had a family history of depression and anxiety were more likely to be depressed and suffer from anxiety. Our study showed the frequency of anxiety to be 67.5%. Other studies in medical students revealed rates of 66.9% from India, 16 64.3% from Eygpt, 12 38.6% males and 39.1% females from Iran, 15 44% from Malaysia, 14 11% from Bangladesh,13 between 7.7-65.5% in UK and Europe,17 20.3% in USA.[18]

Our study found the frequency of stress to be 50.5%, statistically significantly more in females than males. Studies from other countries in medical students showed stress in 53% from India,16 62.4% from Egypt,12 59.7% from Lahore, Pakistan, 8 25.2 % in UG male students and 24.7% among UG female students from Iran,15 and 12.2-96.7% from UK and Europe.[17]

Depression is a leading cause of suicide6. Suicide is a leading cause of death among medical students, second only to road traffic accidents24. Suicides highlight the need to address depression in medical students and residents. Fortunately, for us in Pakistan, suicides are not very common among undergraduate or postgraduate students, but we need to be wary to prevent them. Very few studies in Pakistani literature address this topic, especially among residents. Our study found the suicidal ideation to be 12.5%, although no one had attempted suicide.

LIMITATIONS

As depression, anxiety, and stress are very personal matters, all doctors and students may not be willing to participate in the study or comment on their mental disorders or drug abuse for fear of repercussions and fear of lack of confidentiality.

CONCLUSION

The frequency of depression, anxiety and stress symptoms among medical students was relatively high. This study aims to highlight the high frequency of depression, anxiety and stress to plan timely interventions at institutional levels to reduce suicide and promote resilience.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

NI & TK: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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