

Original Article

Association of Demographic Profile, Depression and Anxiety with Drug Abuse among Medical Students

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Abstract

Background: Substance abuse, also known as drug abuse, is a patterned use of a drug in which the user consumes the substance in amounts or with methods which are harmful to themselves or others, and is a form of substance related disorder. Drug abuse is a frequent public health issue globally. The pattern of substance abuse seen in young adults is generally followed by the medical students as well and warrants that strict surveillance is undertaken in order to prevent it further.

Objective: To determine the association of demographic profile, depression and anxiety with drug abuse in medical students of the different private and government Medical Universities of Lahore.

Methods: A total of 1500 students from different public and private institutes were enrolled after taking informed consent. Students from the institutions who were between the ages of 18 and 30 and enrolled in MBBS programs were included, regardless of gender. Non-probability consecutive sampling technique was used. DAST-20 scale was used for determining substance use disorder and the degree of involvement in drugs. A score of ≥ 6 out of 20 on DAST-20 was labeled to have substance use disorder. HADS was applied to assess depression and anxiety. All findings were noted down on a predesigned performa and was subjected to statistical analysis using Statistical Package for Social Sciences.

Results: The results showed that the mean age (in years), DAST-20 score, depression score and anxiety score of the patients was 24.29 ± 3.54 , 5.67 ± 4.76 , 4.78 ± 2.5 and 4.71 ± 2.44 respectively. Drug abuse was present in 11.6% of medical students out of which 5.6% had intermediate involvement, 3.6% had substantial involvement and 2.4% had severe involvement. Depression was present in 12.8% and anxiety was present in 6.8% patients and there was a significant association between these symptoms and drug abuse ($p=0.000$).

Conclusion: Medical students have been frequently found to be involved in drug related activity and depression and anxiety have been identified as a main predisposing factor leading to abuse.

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Introduction

Drug (substance) abuse is a significant public health issue that affects the health as well as well-being of millions of individuals worldwide.^{1,2} The pattern of substance abuse seen in young adults is generally followed by the medical students as well and they are

not exempted from the sequelae of drug abuse that may involve injuries, impaired functioning both at work and socially, increased risk of violence, sexual behavior that is risky, along with high risk of cardiovascular diseases, cancer and ultimately death.^{3,4}

Drug abuse and problems that are associated with it are of concern globally.⁵ Various substances such as tobacco, cannabis, alcohol and different allopathic medicines are being consumed and abused by students for numerous purposes despite knowing their harmful effects. An estimated 155 to 250 million people, or 3.5% to 5.7% of the world's population between the ages of 15 and 64, reported using illegal drugs at least once in the previous 12 months.⁶ Research carried out globally indicated that the estimated rate of prevalence of substance abuse among students from diverse fields is about 20-40% including the students in the field of medicine. These estimates revealed gender bias as well.⁷

According to a research conducted in the United States it was revealed that about 58% of students in the medical field were involved in binge drinking on a monthly basis, one in three students have used illicit substances in the previous year. According to this study, the use of drugs began typically in high school or college and the substances that were most commonly misused were alcohol and marijuana.⁸

A study conducted in India on the prevalence of substance abuse among medical students revealed that 20.43% (47/230) medical students were involved in drug abuse activities. Students in later medical years were involved more in drug abuse. Around 91.7% of those students who were abusing drugs were aware of the harmful consequences of these substances. The reported reasons by the student for abusing drugs was psychological stress (72.4%) and for recreational purposes (72.4%). Out of the total students who were abusing drugs, 59.6% had a failed trial at quitting drugs previously.⁷

Despite the fact that a lot of international studies have been conducted on prevalence of drug abuse in medical and other students, and availability of local data is there as well, there is still a dire need to investigate further the presence of certain psychiatric illnesses that can increase the trend towards substance abuse and can hinder the quality of life and education of medical students. According to researchers, the root cause behind use of substances by the practicing physicians may be the high frequency of substance use in the medical school tenure.^{9,10} Keeping this in mind, it is necessary to identify the rates as well as the risks associated with substance

use and to evaluate the social patterns that either increase or decrease the use of such illicit substances during medical education.

Therefore, the current study aimed to determine the frequency of demographic features, depression and anxiety as well as to determine the association of these variables with drug abuse in medical students of the different medical teaching institutions of Lahore. The current study would provide data regarding the frequency of psychiatric disorders i.e. depression and anxiety in medical students and would provide an insight regarding their association with substance use in order to help the governing authorities to establish further policies which could help in identifying these students earlier and thus implementing such actions which can restraint them from substance use, so that a sound environment for effective learning and promoting wellbeing of the students is established.

Methods

It was a cross-sectional study that was conducted in the different public and private medical Universities of Lahore. After receiving approval from the institution's Ethical Review Committee, the study was carried out for six months. A total of 1500 MBBS students, irrespective of gender, were enrolled from the colleges. These students ranged in age from 18 to 30. Students of other programs such as postgraduate trainees or other degrees, students with diagnosed mental health illness and past psychiatric history and students who refused to participate were excluded. In the study, Drug abuse was assessed by the DAST-20 scale for adults. Dast-20 has a score from 0-20. A score of ≥ 6 was labeled to have substance use disorder.

The involvement with the drugs was further categorized with DAST-20 as none (score 0), low (score 1-5), intermediate (6-10), substantial (11-15) and severe (16-20). The HAD anxiety scale was used to diagnose anxiety. Questions with odd numbers 1, 3, 5, 7, 9, 11, and 13 were posed. Anxiety disorders ranged from low (8-10) to moderate (11-14) to severe (15-21). Anxiety disorder was defined as a score of 8 or higher. The HAD score for depression defined depression as low mood, diminished energy and feelings of guilt or low self-worth, loss of interest or pleasure in daily activities, disturbed appetite or sleep, diminished concentration, pessimistic thoughts and thoughts of self-harm, and these symptoms for the majority of the day, nearly every day for at least two weeks (DSM-5). Questions with even numbers 2, 4, 6, 8, 10, 12, and 14 were posed. Depression was classified as mild (8-10), moderate (11-14), and severe (15-21).

A score of eight or higher was considered depressed.

The data was analyzed using the Statistics Package for Social Sciences (SPSS, IBM Statistics, USA: ver. 26.0). Various descriptive statistics were used to calculate percentages, frequencies, means and standard deviation. Quantitative data such as age, DAST-20, HADS score for anxiety and depression was presented as mean and standard deviation. Frequencies and percentages were used to express qualitative data, such as gender, marital status, drug use, anxiety, depression, and the degree of anxiety and depression. Following effect modifier stratification and a post-stratification chi square test, a p-value of ≤ 0.05 was considered significant. The Chi square test was used to find the relationship between substance use disorder and anxiety and depression, and a p value of ≤ 0.05 was deemed significant.

Results

The results showed that the mean age was 24.29 ± 3.54 years, the mean DAST-20 score was 5.67 ± 4.76 , mean depression score was 4.78 ± 2.5 and the mean anxiety score on HADS was 4.71 ± 2.44 (table 1).

There were 924 (61.6%) students of age group 18 to 25 years and 576 (38.4%) students of age groups 26-30 years. There were 882 (58.8%) males and 618 (41.2%) females in the study. Among the 1500 students, 828 (55.2%) were single, 630 (42%) were married and 42 (2.8%) were separated/divorced. Drug abuse was reported by 174 (11.6%) students. The extent of involvement was none in 1242 (82.8%) students, low in 84 (5.6%) students, intermediate in 84 (5.6%) students, substantial in 54 (3.6%) patients and severe in 36 (2.4%) students. Depression was reported by 192 (12.8%) students, out of which mild depression was present in 66 (4.4%) students, moderate depression was present in 96 (6.4%) patients and severe depression was present in 30 (2%) patients. Anxiety was present in 102 (6.8%), mild anxiety was present in 48 (3.2%) students, moderate anxiety was seen in 42 (2.8%) students and severe anxiety was seen in 12 (0.8%) students (Table 2). In terms of association between the demographic variables and drug abuse, it was revealed that there was no significant association between the age groups, marital status and gender as indicated by a p value of >0.05 . However, there was significant association between depression and its severity with DAST-20 ($p < 0.01$) and there was also significant association between anxiety and its severity with DAST-20 ($p < 0.01$) (Table-3). Furthermore, the results showed that the demographic factors had no significant association with either depression or anxiety ($p > 0.05$) (Table 4).

The current study revealed that out of a total of 1500

Table 1: Showing Mean of Quantitative Variables

Quantitative Variables	N=1500 Mean \pm SD
Age (in years)	24.29 \pm 3.54
DAST-20	5.67 \pm 4.76
Depression score	4.78 \pm 2.5
Anxiety score	4.71 \pm 2.44

SD = standard deviation

Table 2: Showing Frequency of Qualitative Variables

Variables	N=1500 Frequency (Percentage)
Age Groups:	
18-25 years	924 (61.6%)
26-30 years	576 (38.4%)
Gender:	
Male	882 (58.8%)
Female	618 (41.2%)
Marital Status:	
Single	828 (55.2%)
Married	630 (42%)
Separated/divorced	42 (2.8%)
Drug Abuse:	
Yes	174 (11.6%)
No	1326 (88.4%)
Extent of involvement with drugs:	
None	1242 (82.8%)
low	84 (5.6%)
intermediate	84 (5.6%)
substantial	54 (3.6%)
severe	36 (2.4%)
Depression:	
Yes	192 (12.8%)
No	1308 (87.2%)
Depression Severity:	
No depression	1308 (87.2%)
Mild	66 (4.4%)
Moderate	96 (6.4%)
Severe	30 (2%)
Anxiety:	
Yes	102 (6.8%)
No	1398 (93.2%)
Anxiety Severity:	
No anxiety	1398 (93.2%)
Mild	48 (3.2%)
Moderate	42 (2.8%)
Severe	12 (0.8%)

Table 3: Relationships Between Dast-20 And Demographic Variables, Depression, And Anxiety

Variables	Drug Abuse (N=1500)		P Value
	Yes	No	
Age Groups:			
18-25 years	90 (6%)	834 (55.6%)	0.245
26-30 years	84 (5.6%)	492 (32.8%)	
Marital Status:			
Single	126 (8.4%)	702 (46.8%)	0.116
Married	48 (3.2%)	582 (38.8%)	
Separated/divorced	0 (0%)	42 (2.8%)	
Gender:			
Male	90 (6%)	792 (52.8%)	0.410
Female	84 (5.6%)	534 (35.6%)	
Depression:			
Yes	126 (8.4%)	66 (4.4%)	0.000
No	48 (3.2%)	1260 (84%)	
Severity of Depression:			
No depression	48 (3.2%)	1260 (84%)	0.000
Mild Depression	42 (2.8%)	24 (1.6%)	
Moderate Depression	66 (4.4%)	30 (2%)	
severe Depression	18 (1.2%)	12 (0.8%)	
Anxiety:			
Yes	90 (6%)	12 (0.8%)	0.000
No	84 (5.6%)	1314(87.6%)	
Severity of Anxiety:			
No Anxiety	84 (5.6%)	1314(87.6%)	0.000
Mild Anxiety	42 (2.8%)	6 (0.4%)	
Moderate Anxiety	36 (2.4%)	6 (0.4%)	
Severe Anxiety	12 (0.8%)	0 (0%)	

*P value ≤ 0.05 was considered significant

medical students, 174 i.e. 11.6% were abusing drugs. Among these students, intermediate involvement in drugs was seen in 5.6% medical students, substantial involvement was seen in 3.6% and severe involvement in drugs was seen in 2.4% students. Depression was present in 12.8% and anxiety was present in 6.8% students as was assessed by HADS. It was found that drug abuse was more common in medical students of age 18 to 25 years i.e. 6%, who were single (8.4%) and were males (6%). However, this association of drug abuse with demographic factors was not significant statistically. Medical students who were depressed and anxious had more drug abuse reported i.e. 8.4% and 6% respectively and this association was found to be statistically significant ($p=0.000$). Drug abuse was more frequently reported by the students who had moderate depression i.e. 4.4% followed by those who had mild depression i.e. 2.8% ($p=0.000$). In terms of anxiety, drug abuse was commonly reported by medical students who had mild anxiety (2.8%) followed by those who had moderate anxiety (2.4%) (0.000).

Discussion

The current study revealed that in medical students, mild depression was common in the age group 26 to 30 years (2.4%), who were single (3.2%) and were females (2.4%). Moderate depression was common in the age group 18-25 years (3.6%), in single students (40%) and in makes (4%). Severe depression was common in age group 26 to 30 years, who were single (1.2%) and females (1.6%). However, the association of age groups, marital status and gender with depression and its severity was not statistically significant. With regards to anxiety, it was found that mild anxiety was more common in age groups 18 to 25 years, single

Table 4: Association of Demographic Variables with Depression Among Students

Variables	Depression (N=1500)				Significance (P value)
	No Depression	Mild Depression	Moderate Depression	Severe Depression	
Age Groups:					
18-25 years	828 (55.2%)	30 (2%)	54 (3.6%)	12 (0.8%)	0.447
26-30 years	480 (32%)	36 (2.4%)	42 (2.8%)	18 (1.2%)	
Marital Status:					
Single	702 (46.8%)	48 (3.2%)	60 (40%)	18 (1.2%)	0.580
Married	570 (38%)	12 (0.8%)	36 (2.4%)	12 (0.8%)	
Separated/divorced	36 (2.4%)	6 (0.4%)	0 (0%)	0 (0%)	
Gender:					
Male	786 (52.4%)	30 (2%)	60 (4%)	6 (0.4%)	0.245
Female	522 (34.8%)	36 (2.4%)	36 (2.4%)	24 (1.6%)	

*P value ≤ 0.05 was considered significant

Table 5: Association Of Demographic Variables With Anxiety Among Students

Variables	Anxiety (N=1500)				Significance (p value)
	No Anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety	
Age Groups:					
18-25 years	876 (58.4%)	36 (2.4%)	6 (0.4%)	6 (0.4%)	0.06
26-30 years	522 (34.8%)	12 (0.8%)	36 (2.4%)	6 (0.4%)	
Marital Status:					
Single	750 (50%)	42 (2.8%)	30 (2%)	6 (0.4%)	0.602
Married	606 (40.4%)	6 (0.4%)	12 (0.8%)	6 (0.4%)	
Separated/divorced	42 (2.8%)	0 (0%)	0 (0%)	0 (0%)	
Gender:					
Male	840 (56%)	18 (1.2%)	18 (1.2%)	6 (0.4%)	0.483
Female	558 (37.2%)	30 (2%)	24 (1.6%)	6 (0.4%)	

students (2.8%) and females (2%). Moderate anxiety was more common in the age group 26 to 30 years, who were single (2%) and females (1.6%). Severe anxiety was present equally in both age ranges i.e. 0.4% each, was equal in single and married students i.e. 0.4% and equal in terms of gender (0.4%). However, this association between demographics and anxiety and its severity was not significant statistically.

One of the most significant life transitions is medical school, during which time students may begin using drugs like alcohol and tobacco.^{11,12} Medical students are constantly overburdened with coursework and clinical rotations, and they have easy access to medications, which could lead to substance abuse.^{13,14} Alcohol, tobacco, cannabis, benzodiazepines, cocaine, and opioids are among the substances that medical students frequently consume, and their usage may impair their academic and clinical performance as well as their judgment^{15,16}. Additionally, patients' health results are impacted by the detrimental effects on their clinical and academic performance.^{17,18} Substance abuse has the greatest impact on college students' psychological well-being because they are more likely to develop a substance use disorder, which can cause significant behavioral changes like mood disorders, anxiety, etc., as well as long-term consequences like cancer.¹⁹ There are also more repercussions, such as criminal activity and poor social habits.²⁰ Therefore, it is important to closely examine the way of life and conduct of medical students.

In a study by Niranjan et al., it was revealed that drug abuse among medical students was present in 21.4% medical students, psychological distress was reported by 20.7% students and was more common in students in the latter years of medical education, in males and who were sleep deprived.¹¹ The current study similarly

reported higher incidence of psychological distress among students who abused drugs and drug abuse was more common in male students, but who were in their early years of medical education. The reported incidence of drug abuse in the current study was also low compared to that of Niranjan et al. i.e. 11.6% vs 21.4%.¹¹ Molodyski et al. revealed that mental health issues were reported by 75% of the students and drug abuse was reported by 25.6% of the medical students.¹² Sharma et al. reported that the prevalence rate of drug abuse among medical graduates was 23.3% and 1.3% of these medical students had mental breakdown and 5.3% had stress.¹⁷ The prevalence rate in the current study was low compared to the previously conducted studies and may be because of different religious and cultural backgrounds being followed in our society.

The current study had certain limitations. Firstly, the reasons for drug abuse were not assessed thoroughly. Secondly, the type of drugs was not evaluated in the study. Lastly, the students who were indulged in such activities were not engaged in any rehabilitation.

Conclusion

The current study concluded that among medical students, drug abuse was significantly associated with psychological distress i.e. depression and anxiety, but not with demographic profile. Future studies must be carried out further in order to validate the findings and establish the causes of drug abuse in medical students in order to reduce the rates of abuse in these students that can hinder their functioning.

Ethical Approval: The Technical & Ethical Review Committee (TERC), Shaikh Zayed Medical Complex, Lahore approved this study vide letter No. SZMC/TERC/Internal/450/2023.

Conflict of Interest: The authors declare no conflict of interest.

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Authors' Contribution

FB: Conception & design, acquisition of data, analysis & interpretation of data, approval of final draft, critical revisions

NI: Conception & design, acquisition of data, analysis & interpretation of data

MI: Data analysis, drafting of article

AB: Conception & design, Analysis & interpretation of data

HM: Interpretation of data, critical revision

TA: Analysis & interpretation of data.

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