

# Stress, Anxiety and Depression among the Dental Students of University College of Medicine and Dentistry Lahore; Pakistan

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## ABSTRACT

**Background:** Medical is a sensitive profession, needs dedication, hard work as well as good physical and mental health. The Initial years of undergraduate (medicine and dentistry) are tough, but comparatively work load on the student of dentistry is higher in the initial years. They study almost all subjects of basic sciences along with dental subjects in a limited period of time, which may increase the burden and leads to depression, anxiety and stress among students especially before final exam.

**Aim:** To assess the stress, anxiety and depression level in dental students especially before exams.

**Study design:** Descriptive Cross sectional study

**Place and duration of study:** This study was conducted at University college of medicine and dentistry from September to November 2016.

**Method:** A pre structured, valid and reliable questionnaire DASS 21 was used to access the depression, anxiety and stress in the students of the first and second year BDS. 77 students from first year and 75 students from second year BDS were enrolled. A Questionnaire was distributed among the BDS students three weeks before the final examination in university of Lahore.

**Results:** Out of 152 students 129 students completed the questionnaire. The response rate was 84.9%. The prevalence of depression, anxiety and stress was 31%, 41.9% and 12.5% respectively. First and second shows significant difference in depression and stress scores, both have the p-value < 0.05. Female students show depression (20%), anxiety (22.4%) and stress (6.6%), while male student's has depression (10%), anxiety (14%) and stress (5.3%).

**Conclusion:** The results showed that first year dental, medical students constitute a vulnerable group that has a high prevalence of psychiatric morbidity comprising of depression, stress and anxiety as compare to the second years dental students, similarly female are more prone to depression, stress and anxiety than males.

**Keywords:** Depression, Stress, Anxiety, Undergraduates, Prevalence, Dental students, DASS-21

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## INTRODUCTION

Mental health is an important component of health. According to world health organization (WHO) mental health is a state of well-being in which every individual realizes his/her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to community<sup>1</sup>. Medicine is a noble profession because it directly related with the human life, required devotion, hard work as well as good physical and psychological health<sup>2</sup>. Medical students are more susceptible to develop stress and other mental problems because of strenuous academic pressure and diverse environment. It has been reported that 15% to 25% of medical students show different psychiatric problem during their study in medical college<sup>3</sup>.

There are multiple factors that contributes in the mental illness and health problem in the medical students which effects their career<sup>4</sup>. Transition of the students from high school or college to a professional institute is a big change in their life<sup>5</sup>. Some students might feel difficulty to cope with this big jump. Early year in dental education are the hardest years in student's life<sup>6</sup>, Because of different environment, diverse teaching and learning strategies, increase academic demand, fear of failure and lot of work load. That may lead to stress and other mental problems in susceptible individuals<sup>4</sup>. Especially during first two years of studies as well as ward round. Patients care and prolong duty hours during last two years of medical education, makes the students more stressed and unsocial<sup>7</sup>, Other causes might be fear of undue pressure from institution or teachers. Smoking also increases stress, anxiety and depression<sup>8</sup> many studies shows that the dental students experience a high incidence of personal distress during their undergraduate dentistry course. Persistent stress may progress into anxiety and

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depression<sup>9</sup>. Learning and memory can be affected by stress<sup>10</sup>. Stress, anxiety and depression may affect personal and professional life of medical student. High levels of stress may present with low mood, decrease interest in daily life<sup>11</sup>, thoughts of guilt, loss of pleasure, disturbed sleep, appetite and concentration<sup>8</sup>. Professional consequences of disturbed mental health are compromised academic performance, deceitfulness, decrease in empathy, ethics, and high frequency of medical error<sup>3</sup>. Stress, health and emotional problems gradually increases during the period of undergraduate medical education<sup>12</sup>. Psychological mobility is also increase among undergraduate medical students<sup>13</sup>. It is crucial that medical educationist should be aware of the frequency and reasons of student's distress including institutional factors and its impact on their personal and professional life<sup>14</sup>. Lots of research has been conducted on the psychiatric issues of a medical student in Pakistan but little literature has been found regarding dental students especially in local context, therefore the researcher aim is to assess the prevalence of stress, anxiety and depression in dental students in early years of their study and specify the contributing factors. because many studies reported that the anxiety level in medical students are high, first when the academic year start and secondly before exam<sup>11</sup>.

## MATERIALS AND METHODS

This is a descriptive cross sectional study. This study was conducted at University College of Medicine and Dentistry, Lahore from September to November 2016. In this study, DASS-21(depression, anxiety and stress scale) data collection instrument was used. This questionnaire was developed by Lovibond, S.H. Lovibond, P.F. in 1995<sup>15</sup>. The validity and reliability of questionnaire has already been established<sup>16</sup>. DASS-21 is a 21-question scale, comprised of 7 questions that are summed for each subscale of depression, anxiety and stress. Each item is scored from 0(not at all) to 3(high level). The minimum score is zero and maximum score is 42<sup>16</sup>. The final score is shown in Table: 1

Sampling technique: Convenient sampling

Sample Size:  $N = \frac{1.96^2 \times (P)(1-P)}{d^2}$

Z value = 1.96 for 95% confidence interval

P = 15% as per previous study Reference)

D( Desired precision)= 0.06

=by using above formula calculated sample size was 136.

To combat the attrition 152 sample size was taken All students of first year and second year BDS at University College of Medicine and Dentistry, Lahore were enrolled in this study. The students who were

absent on the day of the survey were excluded from the study.

**Procedure:** This study was approved by an institutional review board of UCMD. Informed consent was taken from all participants. Confidentiality and anonymity were assured and name/signature was not asked. Researcher administered Questionnaire has two parts. The first part included bio-data (age, gender), and the second part was consist of DASS 21 standard questionnaire. Print form of questionnaire was distributed to the students during the class. Instruction and objective of the survey have been explained prior to the distribution of the questionnaire. The survey was done three weeks before the final exam<sup>17</sup>. 129 students filled and return the questionnaire. Data were entered and analyzed by using SPSS version 22. Independent sample t-test was used to compare depression, stress and anxiety score in two different years of students. All of the questions were of multiple choice types so p values have only been quoted where required.

## RESULTS

From 152 students, first year (n=77) and second year (n=75) BDS students. Only 129 students completely filled the questionnaires that were analyzed. The response rate was 84.86% (129 out of 152), out of which 41(32%) were males and 88(68%) were females. Mean age of respondents was 19 years with a range of 17-21 years.

The table 2 has description of both first and second year BDS students. It depicts that average depression score in first year students is 7.76 and second year is 5.95. These values show the significant difference in depression between both groups. While the average anxiety score in first year students is 7.89 and second year is 6.73 showing no significant difference between first and second year students. The Stress score also 9.54 in first year and 7.24 in second year students' shows significant difference in both groups.

Table 3 depicts that stress, anxiety and depression prevalence were higher among first year BDS students and declines as the year of study is expanding. The frequency of Anxiety is high in first year as compared to second year, although both groups show anxiety more than depression and stress

Table 4 illustrates the gender wise comparison of the prevalence of Desperation, Anxiety and Stress. Females were found to have more depression and anxiety than male (53.9% vs. 46.1%), most of the students show anxiety but the females show more anxiety than males.

Table 1: Recommended cutoff scores

DASS 21	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	Above 20	Above14	Above 25

Table 2: Association of depression, Anxiety and stress in study subjects across both year

	Year	N	Mean	Std. Error Mean	p-value
Depression	first year students	68	7.7647	0.55438	0.032
	second year students	61	5.9508	0.63048	
Anxiety	first year students	68	7.8971	0.49587	0.143
	second year students	61	6.7377	0.61932	
Stress	first year students	68	9.5441	0.52774	0.05
	second year students	61	7.2459	0.60942	

Table 3: Year Wise Distribution (%) of Depression, Anxiety and Stress in study subjects

Students		Depression	Anxiety	Stress
First year	Normal	34.9	27.1	45
	Mild	12.4	6.2	6.2
	Moderate	5.4	15.5	1.6
	Severe	0	3.9	0
Second year	Normal	34.1	31	42.6
	Mild	8.5	3.9	3.9
	Moderate	4.7	8.5	0.8
	Severe	0	3.9	0
Total(129)		100	100	100

Table 4: Gender wise Distribution (%) of Depression, Anxiety and Stress among Undergraduate dental Students

Gender		Depression	Anxiety	Stress
Male (n=41)	Normal	21.7	17.8	26.3
	Mild	6.2	3	4.6
	Moderate	3.8	8.5	0.7
	Severe	0	2.3	0
Female (n=88)	Normal	47	40	61.2
	Mild	14.7	6.9	5.4
	Moderate	6.2	15.5	1.5
	Severe	0	5.4	0
Total (129)		100		

## DISCUSSION

This Study was conducted in UCMD to identify the prevalence of stress, anxiety and depression with the dental students. The current study shows the prevalence of moderate to severe Depression, Anxiety and Stress is 10.1, 31.8 and 2.4% respectively. This is lower than one study done among Melaka Manipal Medical College, Malaysia students whereby the percentages are 30.7%, 55.5%, and 16.6% respectively<sup>16</sup>. It can be taken as reliable indicator for assessment of mental health of the students; It is well known that medical students might face problems to particular tasks which can impact their psychological behavior and quality of life<sup>7</sup>. This was the first study on dentistry students in a private medical college of Pakistan to check the traits of depression, anxiety and stress between two different classes. In this study we assess year and

gender wise difference in depression, anxiety and stress. Hence many studies have reported significant depression among dentistry students<sup>18</sup>. In our study 65% students had stress, anxiety and depression. High levels of stress have a negative effect on mastery<sup>12</sup>. It may affect the general performance of students and lead to a cascade of consequences at both professional as well as personal levels<sup>19</sup>.

The prevalence of depression, stress and anxiety appears high in first year students (51.2%) then second year (34.2%) BDS students. Galan<sup>20</sup> also found the high prevalence of burnout and depression in dental students in Spain. This could be due to a new learning environment in first year where as second year students probably utilize more appropriate coping methods to deal with stress, anxiety and depression. Psychological illness can lead to unconstructive outcomes as well as

impairment in ability to work professionally, deterioration in relationships, and other health issues<sup>7</sup>.

As we expected, the results of our study provide some gender difference regarding stress, anxiety and depression among dental students. The current study shows depression (20%), anxiety (22.4%) and stress (6.6%) in female students, while in male student's depression (10%), anxiety (14%) and stress (5.3%). Female shows more depression, anxiety and stress than males<sup>21</sup>. It is the fact that women articulate depressive symptoms, even minor ones, more easily than males. This results could also due to high proportions of female students, the males might be less forth coming about feelings of depression, anxiety and depression. A study from India also reported that the female students had reported higher scores of depression, anxiety and stress compared with their male students<sup>13</sup>. While another study from Malasia did not find any significant association between age, sex, study course and academic performance with depression, anxiety and stress<sup>16</sup>.

The finding of our study indicates that the trait of depression, anxiety and stress level increases with higher levels of academic studies.

In the light of the above discussion, we recommend that psychological screening of the students should be done at the time of induction in medical college. Mentoring system should be established which might be helpful to reduce the stress and anxiety. Students psychotherapy unit with all required services and trained staff should be established in the college premises to provide appropriate help to the students having any psychological problem<sup>16</sup>.

**Limitations:** limitation includes lack of baseline information about the mental status of the students, which should be done at the time of student induction in medical college. This study includes only first year and second year BDS students from one institute. In a future increase number of student and institutions should be included, So that we can identify more representative finding which will be helpful to improve the mental health of the students and ultimately improve the patient care.

## CONCLUSION

The dental students had high levels of traits of depression, anxiety, and stress in first academic year but found progressively less in second academic year. Depression, anxiety, and stress bearing abilities are good in male than female students. Extracurricular activities and stress reduction program could be offered regularly to motivate the students

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## REFERENCES

1. WHO | Mental health: a state of well-being. World Health Organization;
2. Ahmady S, Lakeh MA, Esmaeilpoor S, Arab M, Yaghmaei M. Educational Program Evaluation Model , From the Perspective of the New Theories. 2014;3(1):5–8.
3. Carneiro EB, Braga RT, Silva LFD, Nogueira MC. Prevalence of Anxiety and Depression among Medical Students. *Rev Bras Educ Med*. 2015;39(3):388–94.
4. Jadoon NA, Yaqoob R, Raza A, Shehzad MA, Choudhry ZS. Anxiety and depression among medical students: A cross-sectional study. *J Pak Med Assoc*. 2010;60(8):699–702.
5. Kumaraswamy N. Academic Stress , Anxiety and Depression among College Students- A Brief Review Introduction : *Int Rev Soc Sci Humanit*. 2013;5(1):135–43.
6. milagros C Rosal, Ira S Ockene JKO. A Longitudnal Study of Students' Depression at One Medical College. *Academic Medicine*; 1997. p. 542–6.
7. Abdallah AR, Gabr HM. Depression , anxiety and stress among first year medical students in an Egyptian public university. 2014;2(February):11–9.
8. Kulsoom B, Afsar NA. Stress, anxiety, and depression among medical students in a multiethnic setting. *Neuropsychiatr Dis Treat [Internet]*. 2015;11:1713–22. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4509544&tool=pmcentrez&rendertype=abstract>
9. Melaku L, Mossie A, Negash A. Stress among Medical Students and Its Association with Substance Use and Academic Performance. *J Biomed Educ*. 2015;2015.
10. Saipanish R. Stress among medical students in a Thai medical school. *Medical teacher*. 2003. p. 502–6.
11. Yusoff MSB. Effects of a brief stress reduction intervention on medical studentss depression, anxiety and stress during stressful period. *Asean J Psychiatry*. 2011;12(1).
12. Abdulghani HM. Stress and depression among medical students: Across sectional study at a medical college in Saudi Arabia. *Pakistan J Med Sci*. 2008;24(1):12–7.
13. Iqbal S, Gupta S, Venkatarao E. Stress, anxiety & depression among medical undergraduate students & their socio-demographic correlates. *Indian J Med Res [Internet]*. 2015;141(3):354–7. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4442334&tool=pmcentrez&rendertype=abstract>
14. Eva EO, Islam MZ, Mosaddek ASM, Rahman MF, Rozario RJ, Iftekhar AFMH, et al. Prevalence of stress among medical students: a comparative study between public and private medical schools in Bangladesh. *BMC Res Notes [Internet]*. BioMed Central; 2015;8:327. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4520268&tool=pmcentrez&rendertype=abstract>

15. Lovibond SH, Lovibond PF. Depression, Anxiety and Stress Scale-21 items (DASS-21). *Man Depression Anxiety Stress scales*. 1995;1–2.
16. Teh CK, Ngo CW, Aniyah R, Vellasamy R, Suresh K. Depression, Anxiety and Stress among Undergraduate Students: A Cross Sectional Study Choon. *Open J Epidemiology*. 2015;5(November):260–8.
17. Kulsoom B, Afsar NA. Stress, anxiety, and depression among medical students in a multiethnic setting. *Neuropsychiatr Dis Treat* [Internet]. 2015;11:1713–22. Available from: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84937597596&partnerID=40&md5=53da1f93346f79412e69ee3dcb2aeca5>
18. Galan F, Rios-Santos J, Polo J, Rios-Carrasco B, Bullon P. Burnout, depression and suicidal ideation in dental students. *Med Oral Patol Oral y Cir Bucal* [Internet]. 2014;e206–11. Available from: [http://www.medicinaoral.com/pubmed/medoralv19\\_i3\\_p206.pdf](http://www.medicinaoral.com/pubmed/medoralv19_i3_p206.pdf)
19. S .N. B. Inam, Saqib A, Alam E. Prevalence of Anxiety and Depression among Medical Students of Private University. *J Nerv Ment Dis*. 2003;53(2):6–9.
20. Alzahem AM, van der Molen HT, Alaujan AH, Schmidt HG, Zamakhshary MH. Stress amongst dental students: a systematic review. *Eur J Dent Educ* [Internet]. 2011 Feb [cited 2016 Jan 22];15(1):8–18. Available from: [http://www.readcube.com/articles/10.1111%252Fj.1600-0579.2010.00640.x?r3\\_referer=wol&tracking\\_action=preview\\_click&show\\_checkout=1&purchase\\_referrer=onlinelibrary.wiley.com&purchase\\_site\\_license=LICENSE\\_DENIED\\_NO\\_CUSTOMER](http://www.readcube.com/articles/10.1111%252Fj.1600-0579.2010.00640.x?r3_referer=wol&tracking_action=preview_click&show_checkout=1&purchase_referrer=onlinelibrary.wiley.com&purchase_site_license=LICENSE_DENIED_NO_CUSTOMER)
21. Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of Depression , Anxiety and their associated factors among medical students in Karachi, Pakistan. *Int J Psychol*. 2012;3:583–6.