

Depression, Stress and Anxiety in Post-Graduate Dentists

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ABSTRACT

Objective: To assess the level of depression, anxiety and stress in dental postgraduates by using DASS-21 scale.

Study Design: Descriptive cross-sectional study.

Place and Duration: Department of Prosthodontics, Altamash Institute of Dental Medicine, Karachi, from 1st May 2022 to 30th August 2022.

Methodology: This study was conducted on dental post graduates. DASS-21 validated scale was used to collect data from 100 participants. The data was analyzed with linear regression analysis to evaluate the relationship of independent variables with DASS-21. A p-Value of ≤ 0.05 was considered as statistically significant.

Results: The signs of depression were evident in 90% of post graduates. Regarding the causes of depression, 33.8% think saturation is the cause of depression followed by hectic schedules (21.3%), 21.3% marked pressure to pass the exams. 13.8% of participants think that peer pressure is cause of depression. We also found that 10% of the participants. Moreover, dental sector faced major crisis during COVID-19 outbreak. 78.8% think that COVID-19 has increased the already existing depression.

Conclusion: High levels of stress, anxiety and depression were evident in post graduates' dentists. Stress levels were raised due to lack of post-graduation and job opportunity. Furthermore, the ongoing COVID-19 pandemic augmented the DAS levels.

Keywords: COVID-19 Pandemic, Dentists, Depressive Disorder, Graduate; DASS-21, Psychological Health

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INTRODUCTION

World Health Organization has recognized depression, stress and anxiety as important contributors of mental health

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disorders¹. Occupational stress and anxiety in dental profession has been examined for many decades². Dentistry has been recognized as highly stressful profession due to high number of new graduates, saturation, long working hours and the need to become specialized³. Basudan et al, conducted a study that explains long term stress can be the cause of many psychological and physical disorders⁴.

Depression anxiety and stress also show some symptoms in post graduates dentists that include decreased motivation, lack of interest, pessimism, insomnia and disturbed appetite. This not only affect the mental health of a dentist but also their clinical performance⁵. In addition to it anxiety along with depression make a psychological disorder that presents itself as sweating, tremors, fear and apprehension etc. Stress on the hand is any type of environmental change that causes physical, emotional and psychological change⁶. According to Schmitter et al, stress encountered during dental education is more pronounced than during medical education⁷. Another study carried on 815 medical students concluded that anxiety and depression were decreased with increasing student's age and high anxiety levels were found in female students as compared to male students⁸. Dental post-graduation requires a lot of superior clinical skills along with long working hours. Several studies have shown that saturation in dental sector, pressure of work and expensive postgraduate studies have increased the level of DAS amongst graduates. Studies also showed that dental postgraduates are more prone to DAS as compared to general population.^{9, 10}. In addition, during COVID-19 outbreak dentist were at high risk

because of the aerosol procedures. The procedures were restricted to emergency and urgent ones only. COVID-19 not only increased the fear of health issues but also halt the training hence increased the depression anxiety and stress amongst postgraduates.^{11,12} Moreover, a study by Gayen et al also showed that COVID-19 outbreak has a significant role in the prevalence of depression anxiety and stress amongst dental postgraduates.¹³

Several studies have been carried out to evaluate the existence of depression, stress and anxiety in dental graduates. But according to our knowledge no study has been conducted yet to evaluate existence of depression stress and anxiety in dental postgraduates. Therefore, the aim of this study was to evaluate the levels of DAS amongst dental postgraduates and the factors affecting them by using DASS-21 scale.

METHODOLOGY

This cross-sectional study was conducted for a period of 04 months from 1st May 2022 to 30th August 2022 to assess the level of depression, anxiety and stress among dental postgraduates. The study was approved by the ethical and review committee of Altamash Institute of Dental Medicine, Pakistan. A total number of 100 postgraduates participated in the study from different institutes of Karachi and submitted the questionnaire. The sample size was calculated with Open-Epi software. Considering the minimum depression and anxiety level of 60%⁵ in students, with a confidence interval of 95% and margin of error 5%. The power of test 80. The estimated sample size was 100 participants. A well-constructed online questionnaire was designed and validated. A pilot study was conducted on participants for content validity of the questionnaire. The reliability or internal consistency of questionnaire items were tested with intra class correlation. A strong relation of 0.74 was found for item consistency.

Both male and female patients in the age range of years with 20 to 40 were included in the study. Dental graduates of last ten years i.e. 2010 to 2021, who are enrolled in any clinical postgraduate program were included in the study. The objective, consent statement for voluntary participation, declaration of anonymity and confidentiality were included in the questionnaire for all the participants to understand before agreeing for the study. The questionnaire was divided into three sections. The first section included demographic data along with gender, age, marital status, year of education "graduates of 2010 to 2021" and with current educational level. The second part included general questions related to depression, anxiety and stress level in postgraduates. A total of 8 closed ended questions were included in this section.

The DASS-21 was included as the third part of the questionnaire. The DASS depression scale 21-items is a set of three self-reported scales designed to measure the emotional states of depression anxiety and stress. The S (scale) analysis was based on responses of Q 1, 6, 8, 11, 12, 14, 18; A (anxiety) was evaluated by Q2, 4, 7, 9, 15, 19, 20, and D (Depression) by Q3, 5, 10, 13, 16, 17, 21 items of the questionnaire. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-

deprecation, lack of interest, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale assesses difficulty relaxing, nervous arousal and being easily upset /agitated, irritable/over-reactive and impatient. The distribution of DASS-21 scores is presented in Table – I.

Table - I: Distribution of DASS-21 scale scores for depression, stress and anxiety. (N=80)

Grading	Depression	Stress	Anxiety
Normal	0-9	0-10	0-6
Mild	10-12	11-18	7-9
Moderate	13-20	19-26	10-14
Severe	21-27	27-34	15-19
Extremely severe	28-42	35-42	20-42

The questionnaire was uploaded at www.surveys.google.com. The online survey link was circulated through social media (WhatsApp, Facebook, and twitter) and emailed to dental graduates of Karachi.

Data Analysis: The data obtained were entered in SPSS version 25 for statistical analysis. Frequency and percentages were calculated for demographics, experience and satisfaction level of postgraduates. The linear regression analysis was carried out to analyze the relationship of independent variables (age, sex, marital status, post-graduation program, current work status, and reality shock. The level of significance was set top \leq 0.05

RESULTS

The total number of responses were 80, out of which 21(26.3%) were males and 59(73.8%) were females. Mean age calculated was 27. The 22(27.5%) participants were married and 57(71.3%) were unmarried. Participants included were graduates from last 10 year; 2011 to 2020. 31 (38.8%) participants were working in government setup while 49 (61.3%) were in private sector. In addition, 18(22.5%) participants were enrolled in basic post-graduation program and 62 participants were enrolled in clinical program which make 77.5% of total responses. Moreover, 43.8% participants were worried about their future in dentistry while 42.5% participants were 13.8% were not worried at all.

When participants were asked about depression, 90% think that depression exist in post-graduates and 3.8% think it does not, while 6.3% were not sure about it. Furthermore, when they were asked about causes of depression 33.8% think that saturation is the cause of depression followed by hectic schedules (21.3%) and pressure to pass exams (21.3%). 13.8% Of participants think that peer pressure is cause of depression. We also found academic load (10%) as one of the most important causes of depression. Moreover, when asked about 'REALITY SHOCK' 68.8% of participants think that it adds up to depression, 10% does not think it is related to depression whereas 21.3% were not sure about it. Majority of the participants (51.3%) think that they are unprepared for their future 26.3% think they are prepared for

their future while 22.5% are still clueless. Participants who marked that they are not prepared for their future think that law and insurance (8.8%), less experienced (26.3%), limited availability (48.8%), stressfulness of work (12.5%) and staff management (3.8%) could be the cause.

In addition, majority of participants think that they can cater depression by interaction with people (41.3%), counselling (32.5%), meditate (20%), antidepressants (41.3%) and a very small number of participants think drugs/smoking (1.3%) can cater depression. Moreover, when asked about career counselling to cater depression, 77.5% of the participants agreed with that, 11.3% disagreed and 11.3% were neutral about it.

Table –II: Distribution of mean DASS-21 scales scores (N=80)

DAS -21 Scale	Mean score	Standard Deviation
Depression	16.3	11.93
Stress	16.26	10.27
Anxiety	13.75	10.29

Everybody knows about the crisis of COVID-19 outbreak. Dental sector faced major crisis too. The 78.8% of the participants think that COVID-19 has increased the already existing depression while 5% disagreed and 16.3% were not sure about it. The mean total score of DASS-21 is shown in Table - II. 23% of the participants think that they have severe depression while stress and anxiety

were found to be 8% and 26%. The multiple linear regression showed multiple predictors. The p value≤0.05 was significant.

A regression analysis of depression, anxiety and stress level among participants with independent variables including sex, age, marital status, current work status, type of post-graduation program, reality shock and COVID-19 increases the depression as shown in Table - III. The analysis showed that a mild correlation between DASS-21 mean scores and independent variables exist. There was a significant correlation of anxiety with COVID-19 has increased depression (p=0.046). The correlation of other independent variables were not significant to depression anxiety and stress (p>0.05).

DISCUSSION

Several studies were carried out to determine the depression and anxiety provoking situations in medical and dental professionals. Dental students are more prone to stress as compared to the students of other health professions for the technique sensitive nature of the involved procedures, minimal margin of errors, pressure of excellence in academics and clinical aspect of the study, managing difficult patients, being concerned for the future, increased workload, and relatively a little relaxation time and altogether these factors predispose the dental students to a considerable level of stress.¹⁴⁻¹⁶

Table - III: Linear regression analysis of depression, anxiety and stress level among participants with independent variables (N=80)

Variables	Unstandardized coefficients (BO)	Standardized Coefficient Beta (B)	Value of test	p-Value	95% confidence interval for B		Collinearity	
					Lower bound	Upper bound	Tolerance	VIF
Depression								
Sex	1.458	.054	.488	.627	-4.491	7.407	.975	1.026
Age	-1.129	-.236	-1.852	.068	-2.345	.087	.739	1.354
Marital status	-.904	-.044	-.379	.706	-5.661	3.853	.891	1.122
Current work status	1.164	.048	.413	.681	-4.458	6.786	.890	1.123
Type of post-graduation	-1.428	-.050	-.399	.691	-8.551	5.696	.755	1.325
Reality shock	-2.289	-.159	-1.277	.206	-5.861	1.283	.776	1.288
COVID-19 increased depression	-2.140	-.135	-1.069	.289	-6.130	1.851	.750	1.333
Stress								
Sex	2.494	.107	.939	.351	-2.803	7.790	.975	1.026
Age	-.570	-.138	-1.050	.297	-1.653	.512	.739	1.354
Marital status	-.463	-.026	-.218	.828	-4.698	3.773	.891	1.122
Current work status	.333	.016	.133	.895	-4.672	5.339	.890	1.123
Type of post-graduation program	1.695	.069	.533	.596	-4.647	8.037	.755	1.325
Reality shock	-2.085	-.168	-1.307	.195	-5.264	1.095	.776	1.288
COVID-19 increased depression	-1.693	-.124	-.950	.345	-5.246	1,859	.750	1.333
Anxiety								
Sex	.159	.007	.061	.952	-5.041	5.359	.975	1.026
Age	-.962	-.233	-1.0804	.075	-2.025	.101	.739	1.354
Marital status	-.245	-.014	-.117	.907	-4.403	3.914	.891	1.122
Current work status	-.079	-.004	-.032	.975	-4.993	4.836	.890	1.123
Type of post-graduation program	2.192	.089	.702	.485	-4.034	8.419	.755	1.325
Reality shock	-.567	-.046	-.362	.718	-3.690	2.555	.776	1.288
COVID-19 increased depression	-3.547	-.259	-2.027	.046	-7.035	-.059	.750	1.333

In this study, females were found to be more prone to DAS. Similar finding was seen in the study by Ikram et al. One of the explanations for this finding can be the relative increased number of female participants in the study. Also, the women being more articulate and expressive of their depressive symptoms, even minor ones, could also explain the finding. Additionally, the increased prevalence of certain physiological states such as social phobia, panic, depression, and stress could also prone them to the mentioned emotions.¹⁷⁻²¹

This study reveals some important causative factors for the depression including saturation, followed by hectic schedules, peer pressure and academic load. Whereas, Juneja et al in their study found out that the dental environment, patterns of university examination, and synopsis, thesis and library dissertation, fear of unemployment after the course, the level of available staff support during clinical work in the midst of the pandemic, lack of enough infrastructure and competing the postgraduate requirements were the identified stressful factors in the postgraduate dental students during COVID-19 pandemic²².

Feeling unprepared for the future came out to be an interesting finding observed in the majority of the participants of this study which is comparable to the study by Gorter et al who reported law and insurance issues, management by the staff, work stress and the limited facilities run by state for jobs to be the main causative factors²³ whereas our study found out that law and insurance, being less experienced, limited availability, work stress and management by staff as the possible causative factors causing DAS.

Regarding the management of stress and anxiety, our participants ranked human interaction and professional counseling as the two most preferred options which is in concordance with the findings by Ayers et al²⁴. However, exercise and workout were chosen to be the most preferred strategies in the study by Bhat et al²⁵.

Regarding the role of the COVID-19 pandemic in the already existing physiological states of dentists, it was found to be acting as an additional burden which further compromised their mental health. The falling economy, uncertainty of finding a job, a fear of passing on the infection to the family or loved ones, gap in the clinical training or the unavailability of the support staff are some of the possible explanations of the finding^{22,4}.

In this study, DASS 21 revealed severe depression, anxiety and stress in 23%, 26% and 8% in the participants, respectively and their causes were affiliated with limited opportunities, expensive programs, and the global pandemic. Whereas, Basudan et al showed high levels of DAS as 55.9%, 66.8% and 54.7%, respectively among the undergraduates. These findings suggest that, dentists, be it under-graduate or post-graduate are prone to significant level of DAS²⁶.

Limitations of this study, despite a good response rate include unequal distribution of male and female ratio (majority being of female participants). Moreover, the questionnaire was filled online through internet access and being a web-based study, there is usually a coverage error²⁷. Additionally, chances of bias of self-selection in the sampling cannot be eliminated as it is high likely that the objective was more relevant to those who accepted the invitation. Lastly, this study lacked funding.

CONCLUSION

High levels of stress, anxiety and depression were evident in post graduates' dentists. Stress levels were raised due to lack of post-graduation and job opportunity. Furthermore, the ongoing COVID-19 pandemic augmented the DAS levels.

AUTHOR'S CONTRIBUTION

Salahuddin A: Conception and design of study, Literature review, Manuscript writing

Minallah S: Conception and design of study, Literature review, Manuscript writing

Sajjad B: Data Collection and Compilation

Vankwani AA: Literature review, Manuscript writing

Ahmed N: Statistical analysis, data interpretation, Critical Review

Abbasi MA: Manuscript writing, Final review

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