Original Article

A Cross-sectional Study to Access the Levels of Depression, Anxiety, and Stress among Dental Students in Ghaziabad City

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Abstract

Background: Dental students are prone to academic stress, particularly freshers, due to the transitional nature of school to college life as well as increasing obligations, resulting in homesickness. Dental education is a highly complicated, demanding, and hard field with a distinct environment in which students are expected to develop academic and clinical competence as well as interpersonal abilities. **Materials and Methods:** The purpose of this institution-based cross-sectional study was to evaluate the levels of stress, anxiety, and depression among dental undergraduates at a private dental college in Modinagar, Uttar Pradesh, India. The depression, anxiety, and stress scale (DASS) is a 42-item self-report tool that assesses the three connected negative emotional states of depression, anxiety, and stress. Descriptive statistics such as Chi-square analysis and ANOVA were used. **Results:** The majority of research participants are 3rd year (24.7%), whereas the lowest percentages are 2nd year and intern students (16.3%). The Chi-square value of each year student shows significant differences in depression, anxiety, and stress whereas the mean score showed statistically significant differences in depression, anxiety and stress, and DASS, with a $P = 0.042$, 0.048, 0.025, and 0.031, respectively. **Conclusion:** In general, mental health issues such as depression, anxiety, and stress are prevalent among dental professionals due to the nature of their job, which involves dealing with patients in a high-pressure environment. It is essential to identify and address these issues early on to provide the necessary support and treatment to dental professionals.

Keywords: Anxiety, Dental, Depression, Stress, Students.

Introduction

Mental health plays an important role in general well-being, and it affects the lives of dental students.[1] Compared to other student populations, dental students may experience elevated levels of stress, anxiety, and depression due to specific problems they encounter.[2] These challenges include the rigorous academic workload, the pressure to succeed academically and clinically, long hours of studying and working in the clinic, financial concerns, and the emotional strain of working with patients.[3] As a result, dental students are at risk of experiencing mental health issues that can have a profound impact on their academic performance and overall quality of life (Kernan, 2019).[4] According to the National College Health Assessment, out of a sample of 130 undergraduate dental students, it was found that a significant proportion experienced depression, anxiety, and stress.[5]

Stress is becoming an increasingly prevalent problem in today's competitive world. Stress is a condition of emotional anguish brought on by a variety of factors related to daily living, such as social, political, economic, and occupational factors.[6] It is frequently experienced in daily life and is brought on by the body's natural response to internal or external pressure on the body. Stress turns into an issue when difficulties feel like too much to handle.[7] Long-term stress has been connected to the onset of other diseases. Research on a Swedish population discovered a link between varied stress levels and mental health: high stress levels were related to depression, whereas low and moderate stress levels were related to anxiety.

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The World Health Organization defines depression as "a common mental disorder characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, tiredness, and poor concentration." It can be persistent or recurrent, significantly affecting a person's capacity to carry out everyday tasks, work, or learn.[8] The strenuous professional responsibilities of medical school training have a significant impact on both students' psychological health and personalities. Thus, it is not surprising that there is a large amount of evidence demonstrating increased psychiatric morbidity among medical students. For example, multiple studies have found that medical students have a high frequency of depression, anxiety, stress, and sleeping problems.[9]

Dental students are prone to academic stress, particularly freshers, due to the transitional nature of school to college life as well as increasing obligations, resulting in homesickness.[10] Dental education is a highly complicated, demanding, and hard field with a distinct environment in which students are expected to develop academic and clinical competence as well as interpersonal abilities.[11] In addition to learning dental procedures, dental professional students are expected to understand how to manage patients' anxiety and fear in adults, children, and senior citizens.[12] Therefore, dental education can be a major cause of stress and depressive symptoms for dental students,[13] and research has shown that dental students experience higher levels of stress than the general population.[8] Dentists appear to be more prone to professional burnout, anxiety disorders, and clinical depression as a result of the multitude of stressors encountered during their careers, which can begin as early as university.[14,15] Students who suffer from both anxiety and depression are more likely to do poorly in school and have lower grade point averages.

Depression is a multidimensional illness that negatively impacts the interpersonal, social, and occupational sectors of students' lives.[13] Depression refers to a mood disorder characterized by persistent feelings of sadness, hopelessness, and a lack of interest in daily activities.[16] Anxiety, on the other hand, is a condition characterized by excessive worry, fear, and restlessness.[17] Both depression and anxiety can be caused by a variety of factors, including biological, environmental, and psychological factors.[18] Research has shown that there is a complex interplay between genetic factors and environmental triggers in the development of depression and anxiety. The depression, anxiety, and stress scale (DASS-42) assesses all three dimensions of these psychological illnesses on a single, compact, and comprehensive scale. To the best of our knowledge, this test has not been used solely to assess these psychological disorders among undergraduate dental students.[8] Thus, it is critical for educators to identify potential stressors in the field of dental education. Previous research has focused on three types of stressors: Academic expectations, social issues, and financial problems.[11] Hence, the current study is going to assess the levels of depression, anxiety, and stress using the DASS 42 scale among dental students.

Materials and Methods

Study design and study setting

The purpose of this institution-based cross-sectional study was to evaluate the levels of stress, anxiety, and depression among dental undergraduates at a private dental college in Modinagar (Ghaziabad), Uttar Pradesh, India. The study was ethically approved (DJD/A1–2018) by the Institutional Review Board of D.J College of Dental Sciences and Research in Modinagar, Ghaziabad.

Study subjects

Before beginning the investigation, a pilot study with approximately 30 participants was conducted to ensure the study's dependability. The study included 380 respondents (among 450 students) from Dental College who were present on the survey day and willing to participate. The study includes students from first to final year, as well as interns. All participants in the study provided informed consent. The questionnaire was created in English, and each year, students were contacted following the lecture. A volunteer gave a brief introduction to the questionnaire before giving participants 10 min to do it. The participants of the pilot study were not included in the study.

Questionnaire

The DASS is a 42-item self-report tool that assesses the three connected negative emotional states of depression, anxiety, and stress. It has 14 items each for stress, anxiety, and depression. Each item must be graded using a four-point scale. The rating system is as follows: 0 (did not apply to me at all), 1 (applied to me to some extent, or some of the time), 2 (applied to me to a considerable degree, or a good part of the time), and 3 (applied to me very much, or most of the time). The final score includes 14 items for stress, anxiety, and depression, which are then classified as normal, mild, moderate, severe, or extremely severe. A stress score of 0–14 is considered normal, 15–18 is mild stress, 19–25 is moderate, 26–33 is severe, and >34 is extremely severe stress.

Data management and statistical analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS) 21.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics such as Chi-square analysis and ANOVA were used.

Results

A total of 380 dental students from the D.J. College of Dental Sciences and Research, Modinagar, were included in the sample size for this study. Of the study subjects, 69.9% were female and 39.1% were male. 96.1% of the research participants were unmarried. The majority of research participants are 3rd year (24.7%), whereas the lowest percentage are 2nd year and intern students (16.3%). The preferred field of study for 58.4% of the students is dentistry. The majority of students are between the ages of 17–20, accounting for around 36.3%. Approximately 71.6% of the study participants are hostellers (Table 1).

In Table 2, the Chi-square value of every year student shows a significant difference in depression, anxiety, and stress, with a value of 42.91, 25.44, and 30.90, respectively, whereas the *P*-value is statistically significant in all parameters.

Table 3 compares mean DASS scores and dimensions for dental students in their undergraduate year of study, using variables and *P*-value. The ANOVA test is used to reveal significant differences in DASS scores (Mean ± SD) among dental students in different years. The mean score showed statistically significant differences in depression, anxiety, stress, and DASS, with a $P = 0.042$, 0.048, 0.025, and 0.031, respectively.

Table 4 shows reduction methods, including emotional support, physical exercises, activities, giving up, attempts to take action, professional help, and other factors which are statistically non-significant.

Discussion

The assessment of depression, anxiety, and stress among dental students is a critical issue that deserves attention. Numerous studies have found that dentistry students are very stressed, anxious, and depressed during their education. This is confirmed by the sources presented, which emphasize the link between academic accomplishment and mental health difficulties among medical and nursing students (Yeh *et al*., 2007).[19]

The purpose of this study is to get an insight into dentistry students' mental health and the elements that contribute to their overall well-being. In this study, the prevalence of depression, anxiety, and stress is higher in final-year students than in other year students, which contradicts the findings of Galán *et al*. who found that 2nd-year students are much more numerous.[14] In this study, we discovered that emotional support from others is effective in the reduction technique, but Basudan *et al*. found that activities are more helpful in the reduction method.[8] In the current study, 69.9% of the participants are female which is in agreement with the study done by Galán *et al*., however, in the study conducted by Basudan *et al*., the number of male participants is higher. The recent study revealed that 58.4% of students believed that dentistry was their first option, which is consistent with the findings of Basudan *et al*.[8] In comparison to other student populations, dentistry students have particular difficulties that may lead to increased levels of stress, anxiety, and depression.

These findings are consistent with a study conducted in 2010 by Silverstein and Kritz-Silverstein and Mofatteh in 2021.[1,2] All of the metrics' mean standard deviation scores in this analysis are statistically significant, which is consistent with the findings of Sravani *et al*.'s 2018 study.[20] According to a 2019 study by Kernan *et al*., dentistry students who also deal with physical disease, emotional distress, or interpersonal issues may be more likely to suffer from poor academic outcomes.[3,4] These results imply that the psychological stress faced by dental students is a result of the rigorous nature of dental education as well as other elements such as clinical experience and assessment techniques. It is also clear that mental health problems can negatively affect both general well-being and academic achievement. It is critical that dentistry schools identify and meet their students' mental health needs. Numerous techniques for stress management among dentistry students have been presented and explored in the literature. These techniques include stress management workshops, interpersonal approaches including counseling systems, programs aimed at enhancing study and test-taking skills, and relaxation techniques. Since stress is almost always inevitable in an educational setting for dentistry, stress

Table 1: Demographics of the sample population

Demographic variables	No	%
Gender		
Male	118	31.1
Female	262	69.9
Marital status		
Single	365	96.1
Married	15	3.9
Year of study		
1st year	76	20
2nd year	62	16.3
3rd year	94	24.7
4th year	85	22.4
Intern	63	16.3
Dentistry 1st choice		
Yes	222	58.4
No	158	41.6
Age group		
17–20	138	36.3
21–24	129	34
25–28	113	29.7
Types of residence		
Hosteller	272	71.6
Day scholar	108	28.4

Table 2: Comparison of percentages of depression, anxiety, and stress according to DASS scores based on the undergraduate year of study

Variables	1st year *n* (%)	2nd year *n* (%)	3rd year *n* (%)	4th year *n* (%)	Intern *n* (%)	Chi-square value	*P*-value
Depression	46 (12.1)	29 (8.1)	27 (7.1)	63 (16.2)	41 (10.7)	42.91	0.000*
Anxiety	56 (14.7)	37 (9.7)	52 (13.6)	58 (15.3)	23 (6.1)	25.44	0.000*
Stress	43 (11.3)	35 (9.2)	46 (12.1)	72 (18.9)	28 (7.3)	30.96	0.000*

Chi-square test was used, *significant ($P \leq 0.05$). DASS: Depression, anxiety, and stress scale

Table 3: Comparison of mean DASS scores and its dimensions based on the undergraduate year of study for dental students

Variables	DASS scores (Mean±SD)					*P*-value
	1st year	2nd year	3rd year	4th year	Intern	
Depression	10.4±3.2	9.7±3.6	9.9±3.7	11.8±4.1	10.9±3.4	0.042*
Anxiety	10.8±3.6	9.8±3.2	10.2±3.4	12.4±4.3	11.3±3.8	0.048*
Stress	11.2±3.9	10.2±3.8	10.6±3.6	13.1±4.7	11.7±4.2	0.025*
DASS	32.4±10.7	29.7±10.6	30.7±10.7	37.3±13.7	33.9±11.4	0.031*

Analysis of variance test used, *significant ($P \leq 0.05$). DASS: Depression, anxiety, and stress scale

Table 4: Reduction methods

Methods	*n* (%)	Chi-square value	*P*-value
Emotional support from other	154 (40.5)	10.55	0.992**
Physical exercises	74 (19.5)		
Activities	34 (8.9)		
Giving up	19 (5)		
Attempts to take action	14 (3.7)		
Professional help	39 (10.3)		
Other factors	46 (12.1)		

**Not significant ($P > 0.05$)

management techniques might be suggested as an early and essential component of the dental curriculum. These methods can mostly concentrate on enhancing one's ability to perceive stressful situations, cultivating coping mechanisms, and avoiding unhealthy coping.[8] Our findings might potentially have a significant impact on determining the best age and training period to begin identifying and preventing student distress and suicidal thoughts. We suggest an intervention that might involve reevaluating the standard curriculum, offering students confidential resources that are available on their own or at an off-campus institution that is covered by student health insurance, as well as individual career counseling, education on stress management and prevention, and coping mechanisms.[14] Dental schools can enhance their students' overall success and contentment by offering sufficient support services and putting mental health promotion initiatives into practice. There are certain limitations in this study such as its small sample size and study design as this is cross-sectional in nature, therefore it cannot be generalized. A future study utilizing a longitudinal design with a larger number of institutions at the national or worldwide level is recommended to increase the accuracy of the results.

Conclusion

However, in general, mental health issues such as depression, anxiety, and stress are prevalent among dental professionals due to the nature of their job, which involves dealing with patients in a high-pressure environment. It is essential to identify and address these issues early on to provide the necessary support and treatment to dental professionals. Research suggests that interventions such as counseling, stress management, and depression-based stress reduction can be effective in reducing the symptoms of depression, anxiety, and stress among dental professionals. Overall, it is crucial to prioritize the mental health and well-being of dental professionals to ensure that they can provide optimal care to their patients.

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