

# Prevalence of symptoms of depression among the dental undergraduates, Karachi, Pakistan

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## Abstract

**Aim:** The purpose of this research is to measure the prevalence of the symptoms of depression in undergraduate dental students.

**Materials and Methods:** This cross-sectional study was conducted in September and October 2017 among the dental graduates. A total of 154 students participated in the research. The participants were surveyed through a self-administered questionnaire that included the validated center for epidemiological studies-depression scale as the assessment tool and questions about demographic characteristics.

**Results:** The prevalence of depression was 60.4% in dental graduates. The prevalence of depression was higher in female (62.4%) dental undergraduates than males (57.4%). Overall, First-year students had a higher prevalence of depression than other class years.

**Conclusion:** The high prevalence of depression among dental students highlights the significance of providing support and assistance programs along with the implementation of preventive measures. These measures will help particularly those who have a higher degree of susceptible elevated levels of these psychological conditions.

**Clinical Significance:** The prevalence of depression was higher in dental students with higher prevalence in female particularly the first-year students. Year of study and gender were the risk factors for depression in students. Counseling sessions of depression for susceptible students should conduct yearly basis to manage the symptoms promptly.

## Introduction

Depression is categorized by anhedonia, low-energy level, worthlessness, insomnia, disturbed appetite, and cognitive problems. It could be chronic or recurrent as its effects and impairs individuals function at work by weakening the individual abilities to understand and respond in difficult situations.<sup>[1]</sup> The symptoms of depression start at an early stage and either remain persistent or increase at the alarming state depending on the exposure to the environment as well as the potential capacity throughout the life of an individual.<sup>[2]</sup> Worldwide, there are more than 350 million people who bear symptoms of depression.<sup>[3]</sup> However, it is more prevalent among medical students compared to the general population, the prevalence of depression ranged from 2.9% to 38.2% of medical students; however, the female students predominantly undergraduates who are in their initial medical studies have more susceptibility.<sup>[4]</sup>

Dentistry in medical schools and colleges is recognized in providing the most stressful environment which often exerts a

negative impact on the academic performance as well as on the psychological well-being of the students.<sup>[5,6]</sup> Education is not only providing the knowledge or building the skills but also to develop a better version of the students and transforming them into excellent and market compatible individuals. Moreover, education also exploits individual abilities both in personal and professional life. Perhaps, depression among dental students is due to less attention paid toward developing them for social challenges, and the pessimistic environment is created for them.<sup>[7]</sup> Consistent examination process for student evaluation in the dental program and insufficient time for leisure leads to depression among the students.<sup>[8]</sup>

Abolshamat *et al.* surveyed the medical and dental students in Jeddah, Saudi Arabia, and it was found out that 64.7% students had symptoms of depression.<sup>[9]</sup> Basudan *et al.* had found a prevalence of 55.9 % of depression among the undergraduate dental students in Riyadh, Saudi Arabia.<sup>[10]</sup> Mancevska *et al.* did the survey among the dental students in The Republic of Macedonia and found out the highest mean

Beck depression inventory score in first-year students (mean  $12 \pm$  standard deviation [SD] 7.8), while the lowest score was detected among the fourth-year students (mean  $7.6 \pm$  SD 4.5).<sup>[11]</sup> Khan *et al.* conducted a survey among the medical and dental undergraduates in Karachi, Pakistan, and the results showed that the 10% students had moderate-to-very severe score classified under depression, anxiety, and stress scale.<sup>[12]</sup>

The aim of this research was to measure the prevalence of depression in dental students using the center for epidemiological studies-depression (CES-D) questionnaire and also to find out the difference of prevalence among both genders.

## Methodology

This cross-sectional study was conducted among the dental undergraduates who are studying in Baqai dental college, Karachi, Pakistan, during September 2017 to October 2017. All undergraduate students who were present on the day of the survey were considered eligible to participate. A total of 154 students were participating and completed the research questionnaire. A total of 154 students took part in the survey and completed the research questionnaire.

The questionnaire was mainly consisted of two parts, the first part of the questionnaire was comprised questions related to gender, marital status, year of education, any scholarship, death in family, i.e., in last three months, difficulty in thinking clearly, bone pain, a history of frequent bone fractures, muscle weakness, unexplained fatigue, and any chronic pain. The second part of the questionnaire contained questions from the self-reported depression scale obtained from the CES-D developed by Radloff.<sup>[13]</sup> The CES-D contains 20 which were comprised seven domains of depression symptoms and rate how often over the past week an individual experienced symptoms associated with depression such as sadness, loss of interest, loss of appetite, lack of sleep, difficulty in thinking, worthlessness, fatigue, agitation, and suicidal ideation.<sup>[14]</sup>

Response options range from 0 to 3 for each question (0 = rarely or not at all, 1 = some or little of a time, 2 = occasionally or a moderate amount of time, and 3 = nearly every day for 2 weeks or 5–7 days). The score ranges from 0 to 60, with higher scores indicating greater depression symptoms. Score 15 and below was accepted as no to mild level of depressive, scores of 16–23 were considered to be moderate depressive symptoms, and a score above 24 was considered as severe depressive symptoms.<sup>[15]</sup>

The questionnaire was developed in English. Class representatives from each dental year of study were contacted for data collection. One of the authors explained the research objective briefly and the second author distributed the hard copies of the questionnaires to the students. Verbal consent was taken verbally before the research, and participation was voluntary. Students present at the day of research were included in the research, and filled questionnaires were collected on the same day. College Research and Ethical Committee approved the study in July 2017 and gave the research clearance to proceed with the research.

Descriptive statistics (mean, standard deviation, percentage, and frequencies.) were calculated to assess the percentage and levels of depression in the study participants. Chi-square test was performed to observe the difference in depression symptoms among different categorical variables.  $P < 0.05$  was used for statistical significance, and the statistical analysis was performed using the Statistical Package for Social Sciences software version 20.

## Results

A total of 154 dental graduates filled the questionnaire. The mean age of the students was 21.10; SD was 1.931. There were 61 (39.6%) male students and 93 (60.4%) female students. There were 119 (77.3%) national students and 35 (22.7%) international students. There were 51, 44, 12, and 47 students from the first-year, second-year, third-year, and fourth-year, respectively. There were 47 students who got a scholarship, 18 students had a history of death in their family. A total of 20 students had difficulty in thinking clearly, 34 students had complained of bone pain, 38 students had muscle weakness, and 41 students had unexplained fatigue, whereas 14 students said they had chronic pain. These independent factors were not significantly associated with the symptoms of depression.

The number of students with a CES-D score  $>15$  and having depressive symptoms of moderate-to-severe were 93 (60.4 %) presented in Table 1. The prevalence of depressive symptoms was higher in female students 58 (62.4%). There was no significant difference in depressive symptoms among the gender category [Table 2]. The prevalence of depression was not dependent on a year of education and was higher in first year students presented in [Table 3].

## Discussion

The data was collected from private dental college to investigate the presence of depression among the undergraduate dental students and difference of depression between male and female students. The current study revealed the 60.4% of the students both male and female students have the moderate-to-severe depression.

These levels were higher than the study conducted by Naz *et al.* among medical students in Lahore where the overall prevalence of depression was 10%, whereas the prevalence of depression was 20% and 10% in female and male students, respectively.<sup>[16]</sup> Another study which was conducted in India showed that more than half of the respondents, i.e. 51.3% were

**Table 1:** Prevalence of symptoms of depression among the dental students

Level of Depression	n (%)
No to mild depressive symptomatology	61 (39.6)
Moderate depressive symptomatology	51 (33.1)
Severe depressive symptomatology	42 (27.3)

**Table 2:** Symptoms of depression among the male and female students

Gender	symptomatology (%)			Total score (%)	P value
	No to mild depressive	Moderate depressive	Severe depressive		
Male	26 (42.6)	20 (39.2)	15 (35.7)	61 (39.6)	NS
Female	35 (57.4)	31 (60.8)	27 (64.3)	93 (60.4)	

NS: Non-significant

**Table 3:** Symptoms of depression symptoms among students in their level of education

Year of education	symptomatology (%)			Total score	P value
	No to mild depressive	Moderate depressive	Severe depressive		
1 <sup>st</sup> year	16 (26.2)	18 (35.3)	17 (40.5)	51 (33.1)	NS
2 <sup>nd</sup> year	19 (31.1)	16 (31.4)	9 (21.4)	44 (28.6)	
3 <sup>rd</sup> year	3 (4.9)	4 (7.8)	5 (11.9)	12 (7.8)	
4 <sup>th</sup> year	23 (37.7)	13 (25.5)	11 (26.2)	47 (30.5)	

NS: Non-significant

affected by depression and the results of depression between the genders was parallel to this research where frequency of females reported higher depression prevalence as compared to their male counterparts. The results of this study revealed that female students were significantly more distressed and depressed as compare to male students. These results were concurrent with the studies which indicated that female students were more prone to depression.<sup>[17,18]</sup> Female students tend to spend more time in academics than males to get a higher position in their class and show less involvement in the exercise.<sup>[19]</sup> The prevalence of depression appears higher in first-year students (33.1%). This could be due to a transition from high school to a new learning environment, tough schedule in the first-year, whereas other year students probably use more appropriate coping methods to deal with depression. Second-year students were less prone to depression, and it was due to less respondent or fewer number of study participants that overestimates the depression prevalence. The prevalence of depression was 51% in final-year students. Other studies reported the lower prevalence of depression among the final-year students.<sup>[20]</sup> Students were more concentrating to fulfill the clinical requirement of the degree that mostly happened in their final years, therefore, feel more depressed. Meta-analysis showed that the prevalence of depression among the students in their years of dental education tenure was not significantly different.<sup>[21]</sup> Psychological illness can lead to unconstructive outcomes as well as impairment inability to work professionally, deterioration in relationships, and other health issues. Abdallah and Gabr conducted a study in Egyptian public university among medical students in which males were found more prone to depression than females (53.9% vs. 46.1%),<sup>[22]</sup> and the prevalence of depression level was higher from the students studying in other programs courses.<sup>[23]</sup>

Everyday life stress as well as medical education pressure increases the vulnerability of the medical students, and therefore, attributes in the high prevalence of psychological illnesses among students.<sup>[24]</sup> Statistics reported by the World Health Organization showed that depression will be the second leading

cause of disability by the year 2020.<sup>[25]</sup>

Students with symptoms of depression occurred from the college studies should be identify in its early stages that help in making the condition less severe by arranging sessions and programs that can help the students to deal the daily life undergoing pain and distress.<sup>[26]</sup> Depressed students in the current study complained about feeling lonely, had crying spells, felt depressed, restlessness, and felt fearful and sad. Student's lifestyle pattern effected by such disorders influenced the daily sleep, entertainment, and regular physical activities.<sup>[27]</sup>

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. Student's 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>[28]</sup>

## Conclusion

Depression of prevalence was reported higher in private dental students. First year students had the highest depression symptoms as compared to the students of other years of education. Gender and the year of education were not associated with depressive symptoms. The high prevalence of depression among dental students highlights the significance of providing support and assistance programs along with the implementation of preventive measures. These measures will help particularly those who have a higher degree of susceptible elevated levels of these psychological conditions.

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