Original Article

Prevalence of Depression among Students of a Dental Tertiary Care Center in Kerala

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Abstract

Introduction: According to the World Health Organization, more than 300 million people were estimated to suffer from depression in 2017. Many studies have observed that medical personnel have a higher level of depression, but studies among dentists are scarce. Early diagnosis will help in controlling the morbidity and mortality due to depression. Hence, this study was undertaken to estimate the prevalence of depression among students of Government Dental College (GDC), Thiruvananthapuram, the capital city of the state of Kerala, India. **Materials and Methods:** A cross-sectional study was conducted at GDC, Thiruvananthapuram, for a period of 3 months from September to December 2017, using the Patient Health Questionnaire-9 (PHQ-9) and a pro forma comprising 37 questions. Students having PHQ scores >9 were considered to have depression. The questionnaire was administered on 364 students comprising undergraduate students, paradental students, house surgeons, and postgraduates. Separate sessions were arranged for each group and four reminders were given. **Results:** The prevalence of depression was estimated as 26.9% (95% confidence interval: 22.4–31.8). Being married, having high and average level of course satisfaction, and having close friends were found to act as independent protective factors, whereas female gender and breakups in relationships were found to be independent risk factors. **Conclusion:** It is high time we provide supportive programs and implement preventive measures to help professional students, especially those who are at higher risk of mental ill-health. Further studies need to be conducted to explore the academic reasons for depression.

Keywords: Dental students, depression, Kerala, prevalence

Introduction

Mental conditions account for 12.3% of disability-adjusted life years and 31% of all years lived with disability at all ages.[1] According to the latest estimates from the WHO, >300 million people are now living with depression, an increase of >18% between 2005 and 2015.[2]

Many medical students having been toppers in their school get a shock, finding themselves in the bottom of the class in medical college. Long study hours, inadequate sleep, and standing for hours learning the clinical skills may lead to social isolation, mental fatigue, and depression.[3] The global prevalence of depression among medical students was found to be 28%.[4]

Dentists encounter numerous sources of professional stress, beginning in dental school. This stress can have a negative impact on their personal and professional lives. Recognizing depression at an early stage is critical for reducing suicidal deaths and deliberate self-harm. There exist little reliable data that portray depression among dentists.[5,6] Hence, this study aims to estimate the prevalence of depression among students of Government Dental College, Thiruvananthapuram (GDCT) in Kerala, India.

Materials and Methods

This cross-sectional study was conducted at GDCT for a period of 3 months. The sample size was calculated as 223 using the formula for prevalence studies, with 95% confidence level and 5% absolute precision, taking P as 16.7, the proportion of

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dental students suffering from depression in a previous study done in the United States.[6]

For the want of this study being beneficial to all students, we conducted a census type of study, involving undergraduates, dental auxiliary students (dental hygienist [DH] students, dental mechanic students, and dental operating room assistant [DORA]), house surgeons (HSs), and postgraduate students (PGs), giving a total of 364 respondents. Those students who have not given written informed consent and failed to respond even after four repeated reminders were excluded from the study.

Data were collected using a validated tool – the Patient Health Questionnaire-9 (PHQ-9) using criteria from the Diagnostic and Statistical Manual of Mental disorder IV. PHQ-9 has an average sensitivity of 0.77 and specificity of 0.94 that suggests good validity in populations who are generally not depressed.[7] A structured pretested pro forma comprising 37 questions was used to determine the factors associated with depression.

Self-administered questionnaire in the English language was given to the study participants. Students who were absent on the specific day of data collection of their batch were provided an additional session on a later date.

Clearance was obtained from the Institutional Ethics Committee, GDCT. Those students screened positive for depression were personally contacted and advised expert care from the Department of Psychiatry, Government Medical College, Thiruvananthapuram.

Data were entered in Microsoft Excel and were analyzed using SPSS (Statistical Package for the Social Sciences) trial version 18 (IBM).

Results

Those students with a PHQ-9 score of 10 or above were considered positive for depression. The overall prevalence of depression was estimated as 26.9% (95% confidence interval of 22.4–31.8) [Figure 1].

The mean age of the study participants was 22.62 years (3.29). Fifteen (20.8%) of 72 males and 83 (28.4%) of 292 females were screened positive for depression.

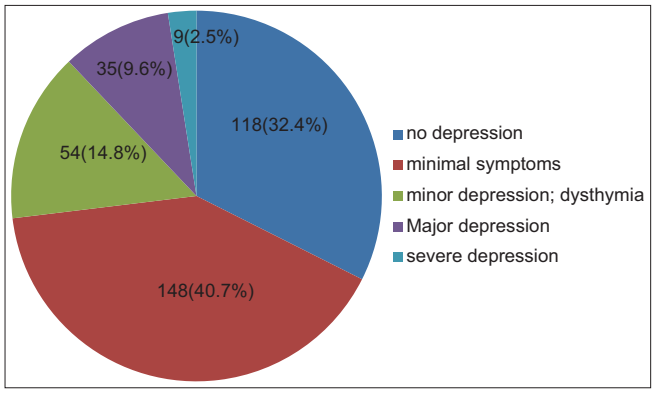

Figure 1: Figure depicting the prevalence of depression

The study participants included 48 first-year students, 43 second-year students, 51 third-year students, 41 HSs, and 65 PGs. Among paradental course students, there were 26 DH students, 8 DORA students, and 11 dental mechanic students. Ten first-year students, 25 second-year students, and 8 and 21 students from the third and final years were screened positive for depression. Twelve HSs, 16 PGs, 3 DH, and 3 DORA were also screened positive for depression. Of the 63 students who had residential schooling, that is, a history of studying in boarding schools, 23 had depression and 4 had severe depression.

Chi-square test was done to find the association between depression and various sociodemographic characteristics [Tables 1 and 2]. Binary logistic regression was used to determine the independent factors associated with depression [Table 3]. Females and those who had breakups in the relationship were found to be more likely to have depression. Marital status, high or average level of satisfaction in dentistry, and having close friends act as protective factors.

Discussion

Numerous studies all over the world have shown that psychological morbidity is increasing among medical students.[8-10] Dentistry is a mix of knowledge, skill, and perseverance. Hence, dentistry requires a lot of skillful talents, overloaded with facts. This may have unintended negative consequences with respect to students' mental and physical health. To the best of our knowledge, this study is the first of its kind in Kerala in estimating the prevalence of depression among dental students. Hence, we decided to conduct this depression screening for its early detection and to take appropriate measures to ensure the mental health of dental professionals.

The revalence of depression in our study was 26.9%. A systematic review to estimate the prevalence of depression among university students found it to be 33%.[3] This sheds light on the fact that the prevalence of depression is reasonably high everywhere, and our figure is not much different.

In our study, minor depression and dysthymia account for 14.8%, major depression for 9.8% and severe depression for 2.5%. Depression was more among final and second years as compared to the first and third years. Among all the years of BDS curriculum, final year may be more stressful with postings in seven departments and practical sessions. While reaching the second year, they are exposed to a strong professional environment and the going gets tough along with the work burden. Third year as is often called, the Honeymoon period of BDS is a bit relaxing with only 3 subjects to study, may have reduced the depression among these students. The first-year students are interested in exploring their new life and are yet to understand dentistry which might have given a low value among them. This shows that the year of study plays an important role in increasing depression among students, with probable attributions from the academic and nonacademic factors.

Table 1: Association of various sociodemographic characteristics of the study respondents with depression

Variable	Depression, *n* (%)	No depression	*P*	OR	95% CI	
					Lower limit	Upper limit
Gender						
Male**	15 (15.3)	57 (21.4)	0.193	1.509	0.809	2.814
Female*	83 (84.7)	209 (78.6)				
Hostler						
Yes*	68 (69.4)	180 (67.7)	0.755	1.083	0.656	1.786
No**	30 (30.6)	86 (32.4)				
Religion						
Hindu*	59 (60.2)	150 (56.4)	0.514	1.169	0.729	1.876
Christian**	14 (14.3)	45 (16.9)				
Muslim**	25 (25.5)	71 (26.7)				
TOF						
Nuclear*	89 (29.3)	9 (15)	0.048*	2.346	1.108	4.968
Nonnuclear**	215 (70.3)	51 (85)				
Marital status						
Married*	8 (8.2)	45 (16.9)	0.036*	0.437	0.198	0.963
Unmarried**	90 (91.8)	221 (83.1)				

*P<0.05 statistically significant, **Reference category. TOF: Type of family, BO: Birth order, OR: Odds ratio, CI: Confidence interval

Most of our respondents (77%) had opted for a BDS seat as they were not able to get an MBBS seat. This might be one of the reasons for depression among dental students. They may develop passion toward the subject in the later stage but the thought of not getting MBBS may haunt a few.

Among 41 HSs, 13 had depression. The high competition in the PG entrance examinations and the highly unpredictable future of dentistry might have contributed to depression. Among 65 PGs, 16 had depression and 28 had shown minimal symptoms of depression. Stress during postgraduation period is inevitable, and many of them find it difficult to balance personal and professional life.

The prevalence of depression among females is 28.4% and that of males is 20.8%. The high prevalence of depression among females is evident in similar studies in Ethiopia, West Bengal, and the US.[6,11-13] Our study has shown that breakups and marital status were significantly associated with depression. The way the society looks at unmarried women after 25 might have contributed to depression, as depression is seen more among unmarried women in our study.

Our study has shown a near significant association between residential schooling and depression in bivariable analysis but not in multivariable analysis. Various studies have proven that higher rates of conduct disorder, anxiety, attention deficit, and depression are seen in children who had residential schooling, and there exist greater at-risk factors in this group.[14-16]

Our study has shown that the level of satisfaction in dentistry and depression show a statistically significant association. Studies in various health-care settings have shown that the severity of psychological distress is negatively associated with job satisfaction.[17]

Those students who had breakups in their relationships were found to have more depression than others in our study. Various studies have shown that women have high rejection sensitivity and were more depressed when they experienced a breakup. Breakup distress scale scores reported that sudden and unexpected breakups have made them feel rejected and betrayed and were not willing to start a new relationship.[18]

Various documents have shed light on the fact that having a friend to whom one can disclose everything can reduce depression to a great extent.[19,20] The most commonly cited advantage of having a close friend was social support including emotional support, giving them an opportunity to offload the burden associated with depression.[19]

Conclusion

This study brings forth the considerable prevalence of depression among dental students. As exposure to stress and other risk factors of depression are increasing, the chance of an increase in the prevalence of depression will be more in the coming years. As a first step in depression control, dental schools should set up counseling cells, student helplines, accessible round the clock through phone calls, chats or mobile applications that may help those needy students undergoing emotional turmoil due to breakups, or other mental stress. An induction assessment should be performed in the first year of study itself to identify those students with a low level of satisfaction in obtaining the BDS seat and they should be provided adequate care. Activities promoting healthy friendships should be encouraged, and efforts should be undertaken to incorporate such activities in the curriculum itself.

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Table 2: Association of personal and educational characteristics with depression using Chi-square test

Variable	Depression, *n* (%)	No depression, *n* (%)	*P*	OR	95% CI	
					Lower limit	Upper limit
Belief in god						
Believer*	86 (87.8)	244 (91.7)	0.204	0.617	0.291	1.307
Nonbeliever	6 (6.1)	15 (5.6)				
Confused	6 (6.1)	7 (2.7)				
Diet						
Vegetarian*	2 (2)	14 (5.3)	0.183	0.375	0.084	1.681
Eggetarian	5 (5.1)	9 (3.4)				
Nonvegetarian	91 (95.8)	243 (31.4)				
Tobacco						
Yes*	0 (0)	3 (1.1)	0.291`	1.373	1.289	1.462
No	91 (92.9)	260 (97.7)				
Used to now quit	7 (7.1)	3 (1.1)				
Alcohol						
Yes*	2 (2)	8 (3)	0.617	0.672	0.140	3.220
No	94 (95.9)	253 (95.1)				
Used to now quit	2 (2)	5 (1.9)				
Narcotics						
Yes*	2 (2)	1 (0.4)	0.119	5.521	0.495	61.578
No	96 (98)	265 (99.6)				
Participation in sports						
Yes*	24 (25.5)	93 (35)	0.058	0.603	0.357	1.020
No	74 (75.5)	173 (65)				
Close friends						
Yes*	67 (68.4)	221 (83.1)	0.002*	0.440	0.258	0.750
No	31 (31.6)	45 (16.9)				
Breakups						
Yes*	24 (24.5)	37 (18.1)	0.017*	2.007	1.128	3.573
No	74 (75.5)	229 (36.9)				
Use of social networks						
Yes*	81 (82.7)	220 (82.7)	0.990	0.996	0.540	1.837
No	17 (17.3)	46 (17.3)				
Residential schooling						
Yes*	23 (23.5)	40 (15)	0.059	1.733	0.974	3.081
No	75 (76.5)	226 (85)				
Level of satisfaction						
High or average*	81 (82.6)	248 (93.9)	0.001*	0.307	0.149	0.636
Others	17 (17.3)	16 (6.1)				

*Significance. OR: Odds ratio, CI: Confidence interval

Table 3: The determinants of depression: Binary logistic regression

Determinants	*P*	Adjusted OR (*B*)	95% CI	
			Lower limit	Upper limit
Gender	0.007*	2.558	1.287	5.086
Marital status	0.012*	0.344	0.149	0.795
Close friends	0.001*	0.380	0.214	0.675
Breakups	0.003*	2.597	1.389	4.858
Level of satisfaction	0.000*	0.233	0.106	0.512

*Significance.Cox and snell R^2=0.10. OR: Odds ratio, CI: Confidence interval

Conflicts of interest

There are no conflicts of interest.

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