

Assessment of Anxiety and Depression among Dental Practitioners-An Exploratory Cross-sectional Study

MONIKA PRASAD¹, BASAVA RAJ PATTHI², ASHISH SINGLA³, RITU GUPTA⁴, JISHNU KRISHNA KUMAR⁵, IRFAN ALI⁶, KULDEEP DHAMA⁷, LAV KUMAR NIRAJ⁸

ABSTRACT

Introduction: Dentists face a great deal of professional stress, in the dental school as well as in clinical practice. Their personal, as well as professional lives, get affected negatively by the stress and poor mental health.

Aim: To assess the prevalence of anxiety and depression among dentists practicing in Ghaziabad city of Uttar Pradesh, India.

Materials and Methods: A cross-sectional study was carried out among 242 registered dentists in Ghaziabad city. Data regarding demographic, work-related characteristic, lifestyle and self-reported physical and mental status was collected. Mental status was measured through prevalidated questionnaire Zung Self-Rating Anxiety Scale (SAS) and the Zung Self-Rating Depression Scale (SDS). Data were analysed using Statistical Package for Social Sciences (SPSS) 16.0 (SPSS Inc., Chicago, IL, USA) and descriptive statistics and Pearson Chi-square test were used ($p < 0.05$).

Results: Of the 242 dentists, only one dentist did not respond to the questionnaire thus generating the response rate of 99.5%. The prevalence of anxiety and depression among dentist was found to be 44.4% and 36.9% respectively. Almost all sociodemographic (except gender), work-related characteristics (except frequency of conflicts and working hours per week), lifestyle were significantly associated with anxiety symptoms ($p < 0.05$) and demographic characteristics like marital status, years of experience, lifestyle, income per month, additional source of income were significantly also associated with depression ($p < 0.05$).

Conclusion: Dentists are prone to stress which leads to further anxiety and depression. Stress coping strategies should be included in dental education curriculum to tackle these forms of tensions which indirectly improves their professional abilities and personal life.

Keywords: Lifestyle, Mental health, Prevalence

INTRODUCTION

Dentists experience innumerable sources of tension when they finish their course. Dentists who enter into clinical practice encounter many workplace, capital and practice difficulties for which they often are not prepared. These difficulties in a dentist life's influence their health in a holistic way that is both physically and mentally which consequently leads to burnout, anxiety, and depression. Dentists' personal and professional relationship, as well as his health and well being, gets negatively affected by these [1-4].

Anxiety and depression are the most familiar mental disorders that affect worker population as well as affect their productivity. These issues will certainly have adverse effects on patients' health as well as the development of healthcare system [5-8]. Dealing with these issues and its related risk factors will definitely lessen these disorders among working population which results in better efficiency [9].

Depression is a major factor in the burden of disease worldwide which affects people belonging to all communities globally. We verbalize about each and every type of ailments, but this is probably one of the deadliest mental disorders. There is shame and disgrace attached to talking about depression. According to World Health Organization, the prevalence of depression has increased by more than 18% between 2005 and 2015 [10-12].

Depression and anxiety are customary disabling diseases which is the reason of distress in people from all walks of life. These are common but grave diseases which cannot be ignored. Many people affected with these diseases never look for treatment though they can get better with the treatment. Medications, psychotherapies and other methods can remarkably treat people with depression as well as anxiety [13].

Many studies have reported that both anxiety and depressive disorders are encountered regularly among dentists [14-16].

Therefore, this study was carried out with the aim to assess the anxiety and depression present among dentists of Ghaziabad city.

MATERIALS AND METHODS

A cross-sectional questionnaire based study was conducted among 242 registered dentists practicing in Ghaziabad city from May 2016 to July 2016. Ethical clearance was taken from the Institutional Review Board, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India and all the participants provided the written informed consent prior to the study after making them understand the intention of the study. The participants voluntarily participated in the study and confidentiality of the data was maintained.

The questionnaire was pretested on 26 dentists who were not included in the main study and comprised 10% of the study sample for reliability. Reliability of the questionnaire was assessed using test-retest and internal consistency of the questionnaire was ascertained by Cronbach's-Alpha (α).

Investigator distributed the questionnaire to each dentist at their clinic and explained the study design and purpose to all the dentists who consented to participate in the study. Dentists were requested to complete the questionnaire within one week and were reminded once before the stipulated time.

The questionnaire consisted of four parts: sociodemographic information, lifestyles, work-related characteristics, and self-reported health status.

1. Sociodemographic information included gender, age, education level, and marital status, an additional source of income, the reason for choosing this profession, years of experience.
2. Lifestyle: Components like sleeping time, physical exercise, and smoking status were included.

Variable	Dentists
Total	241
Age mean(SD)	33.30 ± 6.34
Gender	
Male	160 (66.4)
Female	81 (33.6)
Educational Level	
BDS	144 (59.7)
MDS	97 (40.3)
Reason for choosing dentistry	
Chance	142 (58.9)
Choice	99 (41.1)
Type of practitioner	
Full time	132 (54.8)
Part time	109 (45.2)
Marital Status	
Married	119 (49.4)
Single	122 (50.6)
±If married, partner	
Working	47 (39.5)
Not working	72 (60.5)
Income/month	
0-30,000	6 (2.5)
30,001-60,000	103 (42.7)
60,001-80,000	130 (54)
>80,000	02 (0.8)
Additional source of income	
Present	137 (56.8)
Absent	104 (43.1)
Years of practicing	
0-5yrs	119 (49.3)
5-10yrs	65 (27.0)
10-15yrs	25 (10.4)
>15 years	32 (13.3)
Frequency of conflicts and violence in work place	
None	175 (72.6)
Sometimes	66 (27.4)
Often	0 (0)
Working hours /week	
18-24	0 (0)
25-36	230 (95.4)
37-48	11 (4.6)
>48	0 (0)
Sleeping time (hours)	
≥8	80 (33.2)
6-8	129 (53.5)
≤5	32 (13.3)
Physical exercise	
Yes	179 (74.3)
No	62 (25.7)
Smoking	
Yes	102 (42.3)
No	139 (57.7)
Self reported physical health status	
Very Good	131 (54.4)
Good	94 (39.0)

Fair	5 (2.1)
Bad	11 (4.6)
Very bad	0 (0)

[Table/Fig-1]: Categorization of dentists according to sociodemographic characteristics, work-related characteristics, lifestyles and self-perceived physical health status.

3. Work-related characteristics: It included the number of hours worked per week, sleeping hours per day, the number of times of doctor-patient conflicts, income per month and an average number of patients per day.
4. Self-reported health status had two components: Self-perceived physical health and mental health.

Self-perceived physical health was calculated using a single 5-point Likert scale varying from “very bad” to “very good”. It was given coding ranging from 1 to 5. Mental health condition was assessed by SAS and SDS [17,18]. There were 20 items in each scale in a multiple choice format. It was given a score in order of increased severity from 1 (where very seldom the anxiety/depression symptoms are present) to 4 (where anxiety/depression symptoms are present most of the time). The total score was considered to be an original score which was then multiplied by 1.25 to get the standard score with higher scores reflecting the severity of the illness.

A score of 45 and above was considered to have anxiety symptoms. A score of 50 and above was considered to have depression [17,18].

STATISTICAL ANALYSIS

The collected data were analysed using statistical package for social sciences (SPSS) 18.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics and Pearson’s Chi-square test was applied.

RESULTS

The questionnaire-based study was carried out among the 242 dentists regarding depression and anxiety among the dentists. Reliability measured through test-retest showed measured kappa (k) of 0.82 and weighted kappa (k) of 0.88. Internal consistency measured through Cronbach's-Alpha (α) was found to be α= 0.74. Among 242 dentists, only one dentist did not complete the questionnaire, generating the response rate of 99.5%. The study sample comprised of 160 (66.4 %) males and 81 (33.6%) females.

Total no. of dentists N (%)	241(100)	
Depressed N (%)	Mild depressed [Scoring -50-59] N (%)	53 (22)
	Moderate depressed [Scoring- 60-69] N (%)	36 (14.9)
	Severe Depressed [Scoring- 70 and above] N (%)	0 (0)
	Total depressed N (%)	89 (36.9)
	Normal N (%)	152 (63.1)
	Mean SDS (Mean ± SD)	44.18±12.35
Anxiety N (%)	Minimum to Moderate Anxiety [Scoring-45-59] N (%)	88(36.5)
	Marked to Severe Anxiety [Scoring- 60-74] N (%)	19 (7.9)
	Most extreme anxiety [Scoring- 75 and above] N (%)	0 (0)
	Total anxious N (%)	107 (44.4)
	Normal N (%)	134 (55.6)
	Mean SAS (Mean ± SD)	42.94±9.69
Dentists who were both anxious and depressed N (%)	67 (27.8)	

[Table/Fig-2]: Prevalence of depression and anxiety among dentists.

The study's participants had a mean age (SD) of 33.30±6.34 years. Demographic characteristics such as the reason for choosing dentistry, the level of qualification, type of practicing, marital status, if the married partner is working or not, income per month, an additional source of income, years of practicing, the frequency of conflicts at the workplace, working hours per week, sleeping hours

Variable	Depressive Symptoms		p-value	Anxiety Symptoms		p-value
	Present N (%)	Absent N (%)		Present N (%)	Absent N (%)	
Gender						
Male	53 (33.1)	107 (66.9)	0.08 (NS)	65 (40.6)	95 (59.4)	0.09 (NS)
Female	36 (44.4)	45 (55.6)		42 (51.9)	39 (48.1)	
Educational Level						
BDS	47 (32.6)	97 (67.4)	0.09 (NS)	54 (37.5)	90 (62.5)	0.009 (NS)
MDS	42 (43.2)	55 (56.7)		53 (54.6)	44 (45.4)	
Reason for choosing dentistry						
Choice	43 (43.4)	56 (56.6)	0.08 (NS)	58 (58.6)	41 (41.4)	0.001 (S)
Chance	46 (32.4)	96 (67.6)		49 (34.5)	93 (65.5)	
Type of practitioner						
Full Time	46 (34.8)	86 (65.2)	0.46 (NS)	51 (38.6)	81 (61.4)	0.04 (S)
Part Time	43 (39.4)	66 (60.6)		56 (51.4)	53 (48.6)	
Marital Status						
Married	51 (42.9)	68 (57.1)	0.02 (S)	67 (56.3)	52 (43.7)	0.001 (S)
Single	38 (31.1)	84 (68.9)		40 (32.8)	82 (67.2)	
±If married, partner						
Working	21 (44.7)	26 (55.3)	0.74 (NS)	40 (85.1)	7 (14.9)	0.001 (S)
Not Working	30 (41.7)	42 (58.3)		27 (37.5)	45 (62.5)	
Income/month						
0-30,000	6 (100)	0 (0)	0.001 (S)	5 (83.3)	1 (0.7)	0.01 (S)
30,001-60,000	66 (64.1)	37 (35.9)		52 (50.5)	51 (49.5)	
60,001-80,000	17 (13.1)	113 (86.9)		48 (36.9)	82 (63.1)	
>80,000	0 (0)	2 (100)		2 (100)	0 (0)	
Additional source of income						
Present	21 (15.3)	116 (84.7)	0.001 (S)	41 (29.9)	96 (70.1)	0.001 (S)
Absent	68 (65.4)	36 (34.6)		66 (63.5)	38 (36.5)	
Years of Practicing						
0-5yrs	47 (39.5)	72 (60.5)	0.001 (S)	55 (46.2)	64 (53.8)	0.001 (S)
5-10yrs	26 (40.0)	39 (60.0)		30 (46.1)	35 (53.9)	
10-15yrs	15 (60.0)	10 (40)		20 (80.0)	5 (20.0)	
>15 years	1 (3.1)	31 (96.9)		2 (6.2)	30 (93.8)	
Frequency of conflicts and violence in work place						
None	72 (41.1)	103 (58.9)	0.02 (S)	76 (43.4)	99 (56.6)	0.62 (NS)
Sometimes	17 (25.8)	49 (74.2)		31 (47)	35 (53)	
Average Number of patients/day						
1-3 patients	66 (68.1%)	31 (31.9%)	0.001(S)	72 (74.2%)	25 (25.8%)	0.001 (S)
4-6 patients	19 (14.4%)	113 (85.6%)		31 (23.5%)	101 (76.5%)	
>7 patients	4 (33.3%)	8 (66.7%)		4 (33.3%)	8 (66.7%)	
Working hours/week						
18-24	0	0 (0)	0.002(S)	0 (0)	0 (0)	0.053 (NS)
25-36	80 (34.8)	150 (65.2)		99 (43)	131 (57)	
37-48	9 (81.8)	02 (18.2)		8 (72.7)	3 (27.3)	
>48	0	0 (0)		0 (0)	0 (0)	

Sleeping time (hours)			0.001 (S)			0.001 (S)
≥8	4 (5)	76 (95)		4 (5)	76 (95)	
6-8	62 (48.1)	67 (51.9)		86 (66.7)	43 (33.3)	
≤5	23 (71.8)	09 (28.1)	17 (53.1)	15 (46.9)		
Physical Exercise			0.001 (S)			0.001 (S)
Yes	50 (27.9)	129 (72.1)		52 (29.1)	127 (70.9)	
No	39 (62.9)	23 (37.1)	55 (88.7)	07 (11.3)		
Smoking			0.001 (S)			0.001 (S)
Yes	67 (65.7)	35 (34.3)		75 (73.5)	27 (26.5)	
No	22 (15.8)	117 (84.2)	32 (23)	107 (77)		
Self reported physical health			0.001 (S)			0.001 (S)
Very Good	16 (12.2)	115 (87.8)		19 (14.5)	112 (85.5)	
Good	62 (65.9)	32 (34.1)		72 (76.6)	22 (23.4)	
Fair	0 (0)	5 (100)		5 (100)	0 (0)	
Bad	11 (100)	0 (0)		11 (100)	0 (0)	
Very Bad	0 (0)	0 (0)	0 (0)	0 (0)		

[Table/Fig-3]: Prevalence of depressive and anxiety symptoms among dentists according to sociodemographic characteristics, work-related characteristics, lifestyles and self-perceived physical health status. S-Significant (p<0.05) NS-Non significant (p>0.05) Pearson's Chi-square test applied

per day, physical exercise, smoking and self-reported physical health status are summarized in [Table/Fig-1].

[Table/Fig-2] shows the prevalence of dentists who were depressed and having anxiety symptoms and the dentists who were both depressed and anxious.

[Table/Fig-3] shows the dentists who were depressed and anxious and those who were not with respect to the sociodemographic, work related characteristic, lifestyle and self-reported physical health status and among 241 dentists, 89 (36.9%) were depressed. The mean score (SD) of SDS was 44.18±12.35. The mean score (SD) of SAS was 42.94±9.69 and the prevalence of anxiety was 44.4% among dentists. Poor self-reported physical health, less violence exposure at work, lack of regular physical exercise, more working hours per week, less income per month, lack of additional source of income, less sleeping time, more smoking were associated significantly with depressive symptoms. In addition, married persons were significantly associated with depressive symptom (p< 0.05). Almost all sociodemographic, work-related characteristics, lifestyle (except gender, frequency of conflicts and working hours per week) were significantly associated with anxiety symptoms (p< 0.05).

DISCUSSION

Depression and anxiety occur in the person of all gender, age, and background. In addition to human suffering, depression affects families and communities and is associated with substantial work impairment, lost work days and reduced productivity. These mental disorders can be reliably diagnosed and treated in primary care [19].

In this study, we sought to determine the prevalence of depression and anxiety among the dentists and the relationship of sociodemographic features, work-related characteristics, lifestyle variables with depression and anxiety in dentists. The mean standard SDS score among our study participants was 44.18±12.35 which was similar to the mean score of 46.08±11.10 reported by a study conducted by Gong Y et al., that applied SDS to analyse depression symptoms among physicians [4]. The prevalence of depressive symptoms in our study was 36.9% which is similar to the study conducted by Abbas MA et al., among nursing staff which was 25% [9] and higher when compared with the study conducted by Mathias S et al., among dentists (9%) [20] and lower compared to the study conducted by Alkhazrajy LA et al., among medical and administrative staffs (70.25%) [19]. With respect to anxiety

symptoms, the prevalence among dentists in our study (44.4%) was similar to that reported in a study conducted by Abbas MA et al., among nursing staffs (47%) [9] and higher when compared with the study conducted by Gong Y et al in China among physicians (25.67%) [4]. This may be due to the poor psychological health of dentists participating in our study. Tension exerted in the beginning years of practice come from the blended outcome of the number of patients to be examined in a day, a monetary condition in general, the fear of legal dispute and making mistakes, and the opinion that patients can be too tiresome.

Females in our study were more depressed (44.4%) when compared to males (33.1%), while no significant association was found for anxiety which may be due to social and environmental factors that precipitate depression but there was no significant association between gender and depression and anxiety among dentists which is similar to the study conducted by Alkhazrajy LA et al., [19].

The present study revealed that there was a significant association of monthly income and an additional source of income with the depression and anxiety which is contradictory to the study conducted by Alkhazrajy LA et al., Based on our study results, it was found that socioeconomic factors such as the level of salary, an additional source of income and marital status may be predictors of psychological symptoms which may lead to anxiety and depression [19].

Lifestyle framework, such as physical exercise, smoking, and sleeping, were important possible factors for developing anxiety or depression symptoms. Our study revealed that there was a significant association between physical exercise, sleeping time and smoking and anxiety and depressive symptoms which are similar to the findings found in the study conducted by Gong Y et al., in China. Physical fitness offers a greater energy reserve, allowing people to become more energetic and more efficient. In addition, exercise helps develop greater self-esteem, self-control and self-discipline [4].

Pressure such as the inability to fulfill personal expectations, observing more number of patients quickly for financial reasons to meet the demands of family are all stress-producing situations. Hence, there is a requirement of reassessment of one's own perspective and belief in the light of whether they can be achieved in reality or not.

LIMITATION

This study has a few limitations that must be accepted. As this is a cross-sectional study, the causality between anxiety or depressive symptoms and their related risk factors cannot be established. Future longitudinal studies should be conducted to confirm the conclusions of our study. Furthermore, the study was conducted among dentist working in a large city, so the findings need to be confirmed in other areas (e.g., rural areas).

Recommendations

1. The focus of dental students and practicing dentists should be towards stress management. The dental educational curriculum should be revised to include the ways to manage the stress and

communication skills.

2. Assessment of one's own attitudes and expectations should be done to determine if they are feasible, achievable or rational and should be encouraged to develop a healthier lifestyle to tackle anxiety and depressive symptoms, which will improve their professional performance and health outcomes.

CONCLUSION

Dentists often assume dentistry as a field of stress. The sources of tension arise from the work environment (for example, workplace, financial and practice management difficulties) as well as the finances in this occupation. Moreover, the habits of physicians (including physical activity, smoking, and sleep habits) were shown to significantly affect the risk of anxiety and depressive symptoms. Some stress (dealing with less or increased number of patients, monetary conditions) is deep rooted in dental practice, which requires dentist's ability or strategies to deal with this type of stress.

REFERENCES

- [1] George JM, Milone CL, Block MJ, Hollister WG. Stress management for the dental team. Philadelphia: Lea & Febiger; 1986:03-20.
- [2] Wallace JE. Mental health and stigma in the medical profession. *Health*. 2012;16(1):03-18.
- [3] Arnetz BB. Psychosocial challenges facing physicians of today. *Soc Sci Med*. 2001;52:203-13.
- [4] Gong Y, Han T, Chen W, Dib HH, Yang G, Zhuang R, et al. Prevalence of anxiety and depressive symptoms and related risk factors among physicians in China: a cross-sectional study. *PLoS one*. 2014;9(7):e103242.
- [5] Tsai YC, Liu CH. Factors and symptoms associated with work stress and health-promoting lifestyles among hospital staff: a pilot study in Taiwan. *BMC Health Serv Res*. 2012;12:199.
- [6] Ahmed LY. Implications of shift work for junior doctors. *Brit Med J*. 2007;334:777.
- [7] Landrigan CP, Rothschild JM, Cronin JW, Kaushal R, Burdick E, Katz JT, et al. Effect of reducing interns' work hours on serious medical errors in intensive care units. *N Engl J Med*. 2004;351:1838-48.
- [8] Lockley SW, Cronin JW, Evans EE, Cade BE, Lee CJ, Landrigan CP, et al. Effect of reducing interns' weekly work hours on sleep and attentional failures. *N Engl J Med*. 2004;351:1829-37.
- [9] Abbas MA, Abu Zaid LZ, Hussaein M, Bakheet KH, Alhamdan NA. Anxiety and depression among nursing staff at King Fahad Medical City, Kingdom of Saudi Arabia. *J Am Sci*. 2012;8(10):778-94.
- [10] Depression—A Global crisis [Internet]. [cited 2017 Mar 21]. Available from: http://www.who.int/mental_health/management/depression/wfmh_paper_depression_wmhd_2012.pdf
- [11] World Health Organization. Depression [Internet]. WHO. [cited 2017 Mar 23]. Available from: <http://www.who.int/mediacentre/factsheets/fs369/en/>
- [12] World Health Organization. Mental Health [Internet]. WHO. [cited 2017 Mar 23]. Available from: http://www.who.int/mental_health/en/
- [13] Alshuler LL, Hendrich V, Cohen LS. Course of mood and anxiety disorders during pregnancy and the postpartum period. *J Clin Psychiatry*. 1998;59:29.
- [14] Gale EN. Stress in dentistry. *N Y State Dent J*. 1998;64(8):30-34.
- [15] Moller AT, Spangenberg JJ. Stress and coping amongst South African dentists in private practice. *J Dent Assoc S Afr*. 1996;51:347-57.
- [16] Lang-Runtz H. Stress in dentistry: it can kill you. *J Can Dent Assn*. 1984;50:539-41.
- [17] Zung WW. A self-rating depression scale. *Arch Gen Psychiatry*. 1965;12:63-70.
- [18] Zung WW. A rating instrument for anxiety disorders. *Psychosom*. 1971;12(6):371-79.
- [19] Alkhazrajy LA, Sabah S, Hassan SM. Prevalence of depressive symptoms among primary health care providers in Baghdad. *Int J Health Psychol Res*. 2014;2(2):01-20.
- [20] Mathias S, Koerber A, Fadavi S, Punwani I. Specialty and sex as predictors of depression in dentists. *J Am Dent Assoc*. 2005;136(10):1388-95.

PARTICULARS OF CONTRIBUTORS:

1. Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
2. Professor and Head, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
3. Reader, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
4. Senior Lecturer, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
5. Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
6. Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
7. Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.
8. Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Monika Prasad,
Tutor, Department of Public Health Dentistry, Divya Jyoti College of Dental Sciences and Research,
Ajit Mahal, Niwari Road, Modinagar-201204, Uttar Pradesh, India.
E-mail: monika31p@gmail.com

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