Prevalence of Dental Anxiety among Patients Visiting a Dental Institution in Telangana, South India

SATYANARAYANA DANTALA*[1], ROSHANI M CHAWLA[2]

A B S T R A C T

BACKGROUND: Anxiety and fear are common problems frequently experienced by patients during undergoing dental procedures across the globe.

AIM: The present study aimed to assess the prevalence of dental anxiety among the patients attending the Out Patient Department (OPD) of a Dental Institution in Telangana, South India

MATERIALS & METHOD: A sample of 300 adults (Females =149, Males = 151) with age ranging from 15 years to 60 years were enrolled in the study. Data was collected by using the Modified Dental Anxiety Scale (MDAS). Chi Square test and ANOVA was used to find significant comparisons between the different variables assessed in the study (age, gender, educational qualification, income, previous dental visits, previous dental experience and postponement of visit). Futher, Spearman's Correlation was used to analyse these variables with the mean anxiety scores of the patients.

RESULTS: The prevalence of anxiety among patients in was found to be 3.6%. Reportedly the level of anxiety was found more in females than in males. It was revealed that while age depicted an inverse relationship, postponement of the dental treatment had a direct effect on dental anxiety.

CONCLUSION: Various dental procedures such as drilling the tooth for restorative procedures, injection techniques for various anaesthetic procedures are the most common reasons which cause dental anxiety to patients. Younger adolescents and patients who belong to lower socioeconomic groups were more anxious. Efforts need to be directed towards alleviation of this anxiety to provide quality dental care to one and all.

KEYWORDS: Dental Anxiety, Modified Dental Anxiety Scale, Dental Health, Dental Procedures, Negative Dental Experience

INTRODUCTION

Anxiety and fear are problems which commonly experienced by patients undergoing dental procedures across the globe. Despite increasing standards of dental materials and advanced technology, it has brought only little or a negligible change in the percentage of dental anxiety suffered by patients.[1] Anxiety can be categorized as psychological and physiological which further is classified into behavioural, emotional, somatic and cognitive components.[2]

Dental anxiety is a common problem for dental practitioners as well as the public. It affects all ages in different social classes which can lead to poor oral health by little or no cooperation, irregularities in availing dental treatment and complete avoidance from any dental treatment. Several factors like family and social environment, overall fearfulness, pain and traumatic factors, an unpleasant experience(s) in the dental clinic, patient behaviour and dental attitude also influence dental anxiety of a patient.[3] Several authors have also documented that anxious patients were the ones who mostly avoided or postponed their dental visit.[4-7]

Factors responsible for anxiety vary from person to person and hence, it becomes crucial to identify dentally anxious patients for their successful management and satisfactory treatment. Patients with dental anxiety can be usually characterised by their frequent postponement of appointments and upon visiting the dental office, they usually sit on the edge of the dental chair, tend to keep fidgeting, show pacing movements with or without repetitious limb movement, are startled to noise, display generalised muscle tension which can be termed as "white knuckle syndrome" and exhibit eye fixation which is termed as a "deer in headlights" appearance.[8] Similarly in children, dental anxiety leads to reduced dental visits which can lead to the use of sedatives and hypnotics.[9-12]

The present study was aimed to assess the prevalence of dental anxiety among patients visiting the Out Patient Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad, Telangana, India.

MATERIALS & METHOD

The present study was cross sectional conducted in Out

Patient Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad, Telangana, India. The study was conducted to assess the level of dental anxiety by using the Modified Dental Anxiety Questionnaire (MDAS) which was translated and back-translated into Hindi for better comprehension and understanding of the patients who belonged to rural areas. The study was conducted from 1st September 2018 to 31st October, 2018. A total of 300 patients who gave informed consent and were aged between 15 to 60 years were enrolled in the study. Patients who were uncooperative, edentulous and those who did not give consent were excluded from the study.

Data was collected through the Modified Dental Anxiety Scale (MDAS) adapted from Corah NL.[13] The MDAS is commonly used scale for screening and diagnosis of patients who suffer with dental anxiety and it was developed primarily from the Corah Dental Anxiety Scale (CDAS). Demographic details of the patients which included patients age, gender, educational qualification, occupation, current income and any favourable/unfavourable past dental experience(s) prior to administration of the questionnaire. The questionnaire was pre-tested and pre-validated through a pilot study and its Cronbachs' Alpha value was found to be 0.83. An ethical clearance was duly obtained from the ethical committee of Dental Institution.

The data collected was tabulated and analysed using SPSS 21.0 The Chi- square test was used find significant differences between patients having a bad and/or good previous dental experience while ANOVA was used to compare the significance the level of dental anxiety between different age groups. Spearman's correlation was further used to find correlation between the variables assessed in the study with their mean anxiety scores.

RESULTS

The present study had a total of 300 patients who participated in the study, out of which 149 were females and 151 were males. The age of the participants ranged from 15 to 60 years divided into three age groups with a majority (68.3%) of the patients being 15-30 years old (Table 1). Analysis using one-way ANOVA showed a significant difference between the three age groups in relation to their mean total anxiety scores (p=0.03) which showed a decreasing trend as age of the patients increased. No significant differences were seen upon analysing the educational status, income and dental

visits to the dentist with the anxiety scores of the patient. However, most patients who had visited the dentist before showed a "good" previous dental experience, which was significant (p=.001) as compared to those who had a "bad" previous dental experience (Table 1.)

Figure 1 highlights the mean dental anxiety scores of the study patients. The questionnaire contained 5 questions based on a 5 point likert scale ranging from "Not Anxious" to "Extremely anxious". The range of the scores lied from 5 to 25 and according to the Corah NL, the cut-off point was set as 19, above which indicated a highly dentally anxious patient, possibly dentally phobic.[13,14] Dental anxiety was observed in only 11(3.60%) of the study patients, which was less as compared to the rest of the study patients.
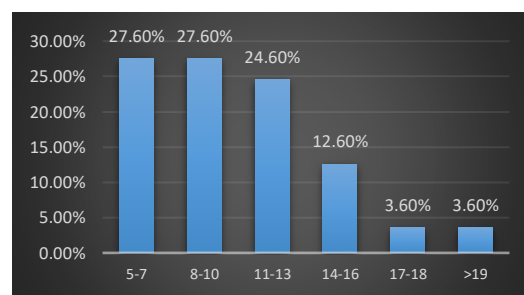

Figure 1. Dental Anxiety Scores of the Study Patients

Table 2. Depicts responses of 82.6% of the patients who were willing to postpone their dental visit due to dental anxiety. The Chi Square and one way ANOVA analysis showed a significant difference in the mean anxiety score between patients with respect to their postponement of dental visit (p= 0.001).

Correlation between the variables assessed and the dental anxiety scores of the patients is depicted in Table 3. The analysis highlighted that Spearman's correlation showed a significant correlation between the mean anxiety score when compared with gender and postponement of dental visit. In contrast, age and income showed a significant negative correlation with anxiety score. The r values again emphasised the results achieved above that while age depicts an inverse relationship, postponement of the dental treatment has a direct effect on dental anxiety.

DISCUSSION

The present study, aimed to assess the prevalence of dental anxiety among patients visiting the Out Patient

VARIABLE	NUMBER OF SAMPLES	PERCENTAGE	STATISTICAL ANALYSIS OF ANXIETY SCORES
1. Age			
15-30 years	205	68.3	ANOVA
31-50 years	68	22.7	F 3.430
>51 years	27	9.0	P=0.03*
2. Gender			
Male	151	50.3	ANOVA
Female	149	49.7	F 1.441, p>0.05
3. Educational Qualification			
Intermediate	112	37.3	ANOVA
Undergraduate	158	52.6	F 1.441
Post graduate	17	5.6	p>0.05
Uneducated	13	4.1	
4. Income			
≤10000	116	38.6	ANOVA
11,000-15000	16	5.3	F 1.560
16000 -20000	10	3.3	p>0.05
>20000	22	7.3	
Nil	136	45.3	
5. Have you ever visited a Dentist before			
Yes	198	66.0	Chi Square
No	102	34.0	p>0.05
6. Previous dental visit experience			
Good	183	92.3	Chi Square
Bad	15	7.6	P=0.001*

Table 1. Demographic Details of Patients with Statistical Analysis of Anxiety Scores

Department (OPD) of Panineeya Institute of Dental Sciences, Hyderabad showed a low level of dental anxiety among dental patients (3.60%). However, a high percentage of patients (82.6%) would like to postpone their dental visit due to dental anxiety. The present study used the Modified Dental Anxiety Scale (MADS), which has been used different languages, and the Cronbach alpha values found to be 0.91 in the Turkish version[15], 0.88 in the Spanish version[16], 0.90 in Greek version[17], 0.78 in an Indian version[18] coincide with our value of 0.83 respectively, making the questionnaire itself as a reliable means to assess dental anxiety in patients.

Based on factors affecting dental anxiety and beliefs in an Indian population, Acharya et al. 18 found out that the score of level of anxiety was higher in less educated patients than in educated patients and, the patients who had an unpleasant experience during dental treatment showed a higher level of anxiety & more negative beliefs, which was in agreement to our results. Similar findings were shown by Malvania et al[19], but, in

contrast, Pavi et al.[20] and Stole et al.[21] showed contradictory results to our findings.

VARIABLE	NUMBER OF SAMPLES	PERCENTAGE	STATISTICAL ANALYSIS
1. I would like to postpone my dental visit			
No	52	17.3	ANOVA, Chi Square
Yes	248	82.6	p=0.001

Table 2. Patients Willing to Postpone Their Dental Visit Due to Anxiety

Moore et al.[4] conducted a study on the prevalence and characteristics of dental anxiety in Danish adults, and found out that the high dental anxiety was associated with income, occupation and education, which was in agreement to our findings. Similar findings were also found in the study done by Armfield et al.[22] Consecutively, in agreement to our results, Santosh Kumar et al.[23] tried to find associations between influence of dental anxiety on oral health related quality

Variables	Spearman's Correlation	p value
Gender and mean total score	0.93	0.03*
Age and mean total score	-0.143	0.001*
Education and mean total score	0.044	0.33
Income per month and mean total score	-0.130	0.004*
Postponement of dental visit and mean total score	0.193	0.000*

Table 3. Correlation Between Variables Assessed in the Study and Their Mean Anxiety Scores

of life, and it was revealed that females had poor influence of anxiety on oral health related quality of life than in males, with prevalence of anxiety being more among females as compared to males, which was also supported by Morse et al.[24]

In agreement to our results, Udoye et al.[25] attempted to assess anxiety among patients undergoing various dental treatments in a Nigerian teaching hospital , and found out that the dental anxiety scale decreased with an increase in age, and similar findings were shown by Schwarz and Birn[26], Neverlien et al.[27], Locker and Lindell[28], Stabholtz and Peretz.[29]

While our results revealed that dental anxiety was a potential factor for postponement of dental procedure, similar findings were also documented by Skaret et al.[30] and Hagglin et al.[31]

The main limitations of this study could be, but not limited to recall bias, social desirability bais and interviewers' bias. Also, since cross sectional studies document data that was recorded only at one point of time, longitudinal studies are expected to bring out the real nature of changing attitudes regarding dental anxiety in patients. However, our study with its limitations provides a true assessment of dental anxiety faced by the patients visiting a dental college in Hyderabad, Telangana, India.

CONCLUSION
The present study concluded that prevalence of dental anxiety were less in the patients who visited the Out Patient Department (OPD) in Dental Institute. It was also found out that the level of anxiety had an inverse relationship with increased age.

It is advised that efforts be directed by the dental college and practitioners alike, to alleviate such anxiety of the patients by providing a healthy and an interactive environment along with proper education and motivation of such patients so that every dental visit encourages the patient to seek further dental care when required without any anxiety or fear regarding the dental procedure in the patients' mind.

REFERENCES
1. Kvale B, Berg E, Raadal M. The ability of Corah's Dental Anxiety Scale and Spielberger's State Inventory to distinguish between fearful and regular Norwegian dental patients. Acta Odontologica Scandinavica 201; 56: 105-9.
2. Bhalla A, Singh SB, Sujata H, Singh A, Choudhary A. Self-Assessment of Dental Anxiety in Patients Visiting Comprehensive Rural Health Service Project. J Depress Anxiety 2013; 2: 137-41.
3. Locker D, Shapiro D, Liddell A (1996) Negative dental experiences and their relationship to dental anxiety. Community Dent Health 1996; 13: 86-92.
4. Moore R, Brodsgaard I. Dentists' perceived stress and its relation to perceptions about anxious patients. Community Dent Oral Epidemiol 2001; 29: 73–80.
5. Dailey YM, Humphris GM. Reducing patients' state anxiety in general dental practice: a randomized controlled trial. J Dent Res 2002; 81(5): 319-22.
6. McGrath C, Bedi R. The association between dental anxiety and oral health-related quality of life in Britain Community Dent Oral Epidemiol 2004; 32(1): 67-72.
7. Milgrom P, Weinstein P, Rubin J. Assessing patients' fears. Dentistry 1986; 86: 14-7.
8. Gift HC, Atchison KA. Oral health, health, and health- related quality of life. Medical Care 1995; 33: 57-77.
9. Enkling N, Marwinski G, Johren P. Dental anxiety in a representative sample of residents of a large German city. Clin Oral Investig 2006; 10(1): 84-91.
10. Stouthard ME, Hoogstraten J. Prevalence of dental anxiety in the Netherlands. Community Dent Oral Epidemiol 1990; 18(3): 139-42.
11. Locker D, Shapiro D, Liddell A. Overlap between dental anxiety and blood-injury fears: psychological characteristics and response to dental treatment. Behaviour Research and Therapy 1997; 35: 583-90.
12. Seeman K, Molin C. Psychopathology, feelings of confinement and helplessness in the dental chair, and relationship to the dentist in patients with disproportionate dental anxiety (DDA). Community Dent Oral Epidemiol 1999; 27(3): 19-24.

13. Corah NL. Development of a dental anxiety scale. Journal of Dental Research. 1969; 48: 596. Acta Psychiatrica Scandinavica 1976; 54: 81-91.

14. Humphris GM, Morrison T, Lindsay SJ. The Modified Dental Anxiety Scale: validation and United Kingdom norms. Community Dental Health 1995; 12: 143-50.

15. Tunc EP, Firat D, Onur OD, Sar V. Reliability and validity of the Modified Dental Anxiety Scale (MDAS) in a Turkish population. Community Dent and Oral Epidemiol 2005; 33: 357-62.

16. Coolidge T, Hillstead MB, Farjo N, Weinstein P, Coldwell SE. Additional psychometric data for the Spanish Modified Dental Anxiety Scale, and psychometric data for a Spanish version of the Revised Dental Beliefs Survey. BMC Oral Health 2010; 10: 12.

17. Coolidge T, Arapostathis KN, Emmanouil D, Dabarakis N, Patrikiou A, Economides A, Kotsanos N. Psychometric properties of Greek versions of the Modified Corah Dental Anxiety Scale (MDAS) and the Dental Fear Survey (DFS). BMC Oral Health 2008; 8: 29.

18. Acharya S. Factors affecting dental anxiety and beliefs in an Indian population. Journal of Oral Rehabilitation 2008; 35: 259-67.

19. Yuan S, Freeman R, Lahti S, Lloyd-Williams F, Humphris G. Some psychometric properties of the Chinese version of the Modified Dental Anxiety Scale with cross validation. Health and Quality of Life Outcomes 2008; 6: 22.

20. Pavi E, Kay EJ, Stephen KW. The effect of social and personal factors on the utilisation of dental services in Glasgow, Scotland. Community Dental Health 1995; 12: 208-15.

21. Stole AC, Holst D, Schuller AA. Decreasing numbers of young adults seeking dental care on yearly basis. A reason for concern? Nor Tannlegeforen Tid 1999; 109: 392-5.

22. Armfield JM, Stewart JF, Spencer AJ. The vicious cycle of dental fear: exploring the interplay between oral health, service utilization and dental fear. BMC Oral Health 2007; 7: 1.

23. Santhosh Kumar, Paridhi Bhargav, Ankit Patel, Manisha Bhati, Goutham Balasubramanyam et al. Does dental anxiety influence oral health- related quality of life? Observations from a cross-sectional study among adults in Udaipur district. India. Journal of Oral Science 2009; 51: 245-54.

24. Morse Z. Dental Anxiety is very high in the republic of Kiribanti South pacific studies 2007; 28(1): 23-30.

25. Udoye CI, Oginni AO, Oginni FO. Dental Anxiety among Patients Undergoing Various Dental Treatments in a Nigerian Teaching Hospital. J Contemp Dent Pract 2005; (6)2: 91-8.

26. Schwarz E, Birn H. Dental Anxiety in Danish & Chinese adults – A cross sectional perspective Soc. Sci. Med 1995; 41: 123-30.

27. Neverlien P. Assessment of Single item dental anxiety question . Acta Odontol Scand 1990; 48: 365-69.

28. Locker D, Lindell A. Correlates of Dental Anxiety among Older Adults. J Dent Res 1991; 70: 198-203.

29. Stabholtz A, Peretz B. Dental Anxiety among Patients Prior to Different Dental Treatments Int. Dent J 1999; 49: 90-4.

30. Skaret E, Raadal M, Berg E, Kvale G. Dental anxiety and dental avoidance among 12 to 18 year olds in Norway. European Journal of Oral Sciences 1999; 107: 422-8.

31. Hägglin C, Hakeberg M, Ahlqwist M, Sullivan M, Berggren U. Factors associated with dental anxiety and attendance in middle-aged and elderly women. Community Dent and Oral Epidemiology 2000; 28:451-60.

AUTHOR AFFILIATIONS:
1. Senior Lecturer, Department of Public Health Dentistry, Panineeya Institute of Dental Sciences, Hyderabad, Telangana, India. (Corresponding Author)
2. Senior Lecturer and Incharge, Department of Public Health Dentistry, Vidarbha Youth Welfare Society's Dental College, Amravati.

Contact corresponding author at: satya.gullu[at]gmail(dot)com