



To Assess the Fear & Anxiety among Patients Attending the OPD of a Dental College in Bangalore City

N. Vanishree¹, Swati Patnaik^{1*}, N. Naveen¹, Deepa Bullapa¹, P. Guru Suhas¹ and C. Bharath¹

¹Bangalore Institute of Dental Sciences and PG Research Centre, 5/3, Hosur Main Road, Lakkasandra, Bangalore -29, India.

Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JSRR/2016/22209

Editor(s):

(1) Viroj Wiwanitkit, Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

Reviewers:

- (1) Maen Mahfouz, Arab American University of Jenin, Palestine.
- (2) Anonymous, University Malaya, Malaysia.
- (3) Neha Sisodia, Dr. Ram Manohar Lohia Hospital, New Delhi, India.
- (4) Navroop Kaur Bajwa, Punjab Civil Medical Services, India.

Complete Peer review History: <http://sciencedomain.org/review-history/14114>

Original Research Article

Received 23rd September 2015
Accepted 18th December 2015
Published 11th April 2016

ABSTRACT

Background: Anxiety and fear towards dental treatment are common problems frequently experienced by patients world-wide. Despite the advances in technology and increased oral health awareness significant percentage of people suffer from dental anxiety.

Aim: To determine dental anxiety and fear levels of patients attending the out-patient department (OPD) of a dental college in Bangalore city.

Study Design: Cross-sectional questionnaire survey.

Materials and Methods: Dental fear and dental Anxiety among the study subjects were assessed using Dental Fear Survey (DFS) and Modified Dental Anxiety Scale (MDAS) respectively. Statistical analysis was done using chi-square, ANOVA and Pearson's correlation. A total of 356 study participants were present, out of which 220(61.7%) were males and 136(38.3%) were females.

Results: It was found that females were more anxious and afraid. A total of 0.8% of the study participants were severely anxious and 8.7% of the study participants were severely afraid of

*Corresponding author: Email: swatiptnk88@gmail.com

dentists and dental hospitals. When age, gender, fear and anxiety were correlated, it was found that as the age increases, fear and anxiety decrease ($p < 0.05$).

Conclusion: Study participants were mainly afraid or anxious about getting their teeth extracted or scaled. This fear and anxiety could be reduced by keeping their personal choices in mind.

Keywords: Anxiety; dentist; dental fear.

1. INTRODUCTION

Anxiety is a diffuse, unpleasant, vague sense of apprehension. It is often a response to an imprecise or unknown threat. Fear is an emotional response to known or definite threat. Fear can cause anxiety or vice versa [1]. Anxiety and fear towards dental treatment are common problems frequently experienced by patients world-wide. Despite the advances in technology and increased oral health awareness significant percentage of people suffer from dental anxiety. Dental anxiety is ranked fourth among common fears and ninth among the intense fears [2].

People with high dental fear have poor oral health and often suffer from significant social and psychological impacts associated with their oral state which may precipitate variety of anxiety disorders, mood disorders, personality disorders and behavioral disorders [2]. The fear ranges from mild apprehension to object fear which prevents any dental procedures from being successfully completed [3].

Dental anxiety is based on several factors like family and social environment, general fearfulness, pain and traumatic, unpleasant experiences. These patients are characterized by their frequent postponement of appointments and when in dental clinic they sit on the edge of the chair, keep fighting, pacing, show repetitious limb movement have startled reaction to noise [2].

Prevalence of dental anxiety has been studied among various populations and cultures study results from developed countries have shown that the fearful dental patients avoid dental treatment seek emergency dental care, postpone their dental visit have poor oral health related quality of life and more number of missing and decayed teeth [1]. Patient perceptions of behaviours and attitudes of dentists can affect dental anxiety and could influence his or her decision to access dental care.

Dental anxiety is a common problem both for dental practitioners and the people and afflicts a significant proportion of people of all ages from different social classes and often results in poor

oral health by complete avoidance of dental treatment, irregular dental attendance or poor cooperation. Oral diseases are chief public health concerns, and their prevalence could be boosted by dental anxiety. In addition, dental anxiety might influence patient-dentist relationship, obscure proper diagnosis of the genuine dental problem, and result in deterioration of patients' personal oral health [3].

Despite various challenges arising from patients' dental anxiety, we have only limited knowledge about what causes this significant problem in the dental profession. While dentists employ a number of different techniques to allay dental anxiety, many unanswered questions remain about patient preferences, including personality and appearance of the practitioner as well as attributes of the dental surgery, particularly those of patients most anxious about their visit. Awareness of the causes of dental anxiety and management strategies to help alleviate this problem could have a substantial impact on an anxious dental patient [4].

Hence the present study aimed to determine dental anxiety and fear levels of patients attending OPD of a dental college in Bangalore city.

2. MATERIALS AND METHODS

The present study was a descriptive, cross-sectional questionnaire survey. The purpose of the study was explained to the patients in the out-patient department and only those who satisfied the inclusion & exclusion criteria were given the questionnaire.

2.1 Inclusion Criteria

1. Study subjects were belonging to the age group of 15-65 years.
2. All the study subjects who gave informed consent to participate in the study.

2.2 Exclusion Criteria

1. Subjects who were undergoing Psychiatric therapy.

2. Subjects who were suffering from generalized anxiety disorders

The investigator distributed the questionnaire to the patients & collected the filled questionnaire immediately. Based on the previous literature a sample size of 400 was derived [2,3]. A total of 400 questionnaires were distributed out of which 356 completed questionnaires were considered for the study. The study was conducted from May 1st 2014- July 31st 2014, for a duration of 3 months. The study proposal was submitted for approval and clearance was obtained from the ethical review board of Bangalore Institute of Dental Sciences and hospital & post graduate research Centre. Verbal informed consent was obtained from the patients by disclosing that the data collected was for research purpose. Patients, who agreed to participate in the survey were assured of confidentiality.

2.2.1 Proforma used in the study

The proforma consisted of closed ended questions and was divided into four parts

- Section 1: Demographic details
- Section 2: Qs 1-5 were used to assess anxiety (MDAS)
- Section 3: Qs 1- 20 were used to assess fear (DFS)
- Section 4: Qs 21- 32 to obtain information of patients comfort and discomfort.

A self-structured questionnaire was used to obtain data regarding demographic data such as name, age, gender, educational background, history regarding previous Dental visit, duration since the last visit to dentist. Dental fear among the study subjects was assessed using Dental Fear Survey (DFS) given by Kleninknecht RA, Klepac R.K & Alexander L.D in the year 1973 [5]. Dental Anxiety among the study subjects was assessed Modified Dental Anxiety Scale (MDAS) given by Humphris GM, Morrison T and Lindsey SJE in the year 1995 [6,7,8]. Initially 20 questions were designed to assess the comfort and the discomfort of the patient in a clinical setting. Twenty-five subject experts marked 11 questions to be essential which was then retained in the questionnaire.

The content validity was assessed by a panel of subject experts. The purpose was to depict those items with a high degree of agreement among experts. The panel of experts recommended modifying the wording of the questions and

addition of options in others. The validity and reliability had been checked. Cronbach's alpha value for the questionnaire was found to be 0.8 which indicated a good reliability.

2.3 Data Analysis

The data analysis was done using the statistical software SPSS version 19. Univariate and Bivariate frequency tables were generated. For selected variables associations were studied between gender and parameters using Chi square test. ANOVA was used to assess age and parameters. Pearson's correlation was done to check any relation between the parameters. Any value less than or equal to 0.05 was considered to be statistically significant.

3. RESULTS

When the data was analyzed, 61.8% participants were females, 38.2% were males. The mean age for males was found to be 36.5 yrs and 36.1 yrs for females. A 100% prevalence rate of fear in a dental set up was found in this study. When anxiety and fear were assessed among age, it was found that the study participants were afraid of seeing the needle (p=0.00) and of hearing the drill sound (p=0.35).

Table 1. Distribution of study participants according to anxiety levels in a dental setup

Levels of anxiety	Percentage
Mild(0-10)	58
Moderate(11-20)	41.2
Severe(21-30)	0.8

Table 2. Distribution of study participants according to fear levels in a dental setup

Levels of fear	Percentage
Mild(0-30)	42.1
Moderate(31-60)	49.2
Severe(61-90)	8.7

When 356 study participants were asked, the reason for being afraid of dental visits, 45.7% of study participants said that they were afraid of getting hurt, 11.8% study participants said that they felt the situation to be out of their control, 10.6% study participants were afraid due to unpleasant stories about dental experience, 11.1% study participants themselves had a negative experience, 6.3% study participants were afraid due to a negative medical

experience, 1.3% study participants were afraid of choking or gagging on the dental chair and 4.3% study participants were afraid due to other reasons (Table 7).

4. DISCUSSION

The present study aimed to assess anxiety and fear levels in the study population using MDAS and dental fear survey. Fear could be looked at either as 'subjective', that which includes emotional and cognitive aspects or as 'objective' that includes behavioral or physiological aspects. Dental fear is considered to be stimulated by a real, instantly present, particular stimulus (e.g. Needles, drilling), however in the case of anxiety, the basis of the threat is uncertain, ambiguous,

or not instantly present. Despite the technological advances made in modern dentistry, anxiety about dental treatment and fear of pain associated with it remain prevalent. All the study participants were anxious or afraid of various factors associated to dentistry. This was consistent with other studies which show high prevalence rates [2,3,5,9].

In this study majority of the patients had mild anxiety and moderate fear which was in contrast to a study done by Brady et al. [10] where study subjects had high level of anxiety. Anxiety level among the study subjects could be attributed to lack of dental health education which in turn might end with poor compliance and attitude, or it might be linked to personality

Table 3. Distribution of study participants according to their anxiety

Question	Gender	Not anxious	Little anxious	Somewhat anxious	Much anxious	Very much anxious	Total	P- value
		N(%)	N(%)	N(%)	N(%)	N(%)		
1	Male	132(60)	55(25)	22(10)	9(4.1)	2(0.9)	220(100)	0.02
	Female	55(40.4)	50(36.8)	17(12.5)	13(9.6)	1(0.7)	136(100)	
2	Male	122(55.5)	62(28.2)	19(8.6)	9(7.7)	0	220(100)	0.68
	Female	64(47.1)	41(30.1)	19(14)	7(5.1)	5(3.7)	136(100)	
3	Male	107(48.6)	55(25)	31(14.4)	23(10.5)	4(1.8)	220(100)	0.04
	Female	41(30.1)	46(33.8)	25(18.4)	19(14)	5(3.7)	136(100)	
4	Male	127(57.7)	48(21.8)	30(13.6)	14(6.4)	1(0.5)	220(100)	0.017
	Female	58(42.6)	43(31.6)	21(15.4)	10(7.4)	4(2.9)	136(100)	
5	Male	81(36.8)	47(21.4)	54(24.5)	22(10)	16(7.3)	220(100)	0.000
	Female	33(24.3)	21(15.4)	33(24.3)	28(20.6)	21(15.4)	136(100)	

Table 4. Distribution of study participants based on their frequency of being afraid while getting work done

Questions	Gender	Never	Once or twice	A few times	Often	Every time	Total	P- value
		N(%)	N(%)	N(%)	N(%)	N(%)		
1	Male	132(60)	30(13.6)	49(22.3)	7(3.2)	2(0.9)	220(100)	0.781
	Female	84(61.8)	20(14.7)	24(17.6)	7(5.1)	2(0.7)	136(100)	
2	Male	134(60.9)	40(18.2)	33(15)	13(5.9)	0	220(100)	0.546
	Female	93(68.4)	17(12.5)	15(11)	11(7)	1(0.7)	136(100)	
3	Male	134(60.9)	46(20.9)	31(14.1)	7(3.2)	2(0.9)	220(100)	0.123
	Female	69(50.7)	37(27.2)	24(17.6)	3(2.2)	3(2.2)	136(100)	
4	Male	124(56.4)	38(17.3)	42(19.3)	11(5)	5(2.3)	220(100)	0.454
	Female	75(55.1)	31(22.8)	24(17.6)	6(4.4)	0	136(100)	
5	Male	144(65.5)	19(8.6)	41(18.6)	15(6.8)	1(0.5)	220(100)	0.546
	Female	89(65.4)	22(16.2)	21(15.4)	4(2.9)	0	136(100)	
6	Male	149(67.7)	30(13.6)	32(14.5)	9(4.1)	0	220(100)	0.245
	Female	83(61)	23(16.9)	24(17.6)	39(2.2)	3(2.2)	136(100)	
7	Male	125(56.8)	28(12.7)	55(25)	12(5.5)	0	220(100)	0.212
	Female	72(52.9)	38(27.9)	18(13.2)	8(5.9)	0	136(100)	

Table 5. Distribution of study participants based on how afraid were they in a dental setting

Questions	Gender	Not at all	A little	Some what	Much	Very much	Total	P- value
		N(%)	N(%)	N(%)	N(%)	N(%)	N(%)	
8	Male	123(55.9)	46(20.9)	38(17.3)	12(5.5)	1(0.5)	220(100)	0.24
	Female	80(58.8)	35(25.7)	40(10.3)	7(5.1)	0	136(100)	
9	Male	120(54.5)	50(22.7)	40(18.2)	6(2.7)	4(1.8)	220(100)	0.10
	Female	80(58.5)	24(17.6)	16(11.8)	8(5.9)	8(5.9)	136(100)	
10	Male	118(53.6)	46(20.9)	44(20)	10(4.5)	2(0.9)	220(100)	0.97
	Female	78(57.4)	40(29.4)	9(6.6)	8(5.9)	1(0.7)	136(100)	
11	Male	147(66.8)	30(13.6)	23(10.5)	20(9.1)	0	220(100)	0.97
	Female	86(63.2)	17(12.5)	18(12.5)	11(8.1)	5(3.7)	136(100)	
12	Male	133(60.4)	36(16.4)	33(15)	14(6.4)	4(1.8)	220(100)	0.46
	Female	83(61)	20(14.7)	17(12.5)	16(11.8)	0	136(100)	
13	Male	155(65.9)	21(9.5)	31(14.1)	23(10.5)	0	220(100)	0.80
	Female	73(53.7)	27(19.9)	21(15.4)	15(11)	0	136(100)	
14	Male	121(55)	30(13.6)	23(10.5)	33(15)	15(5.9)	220(100)	0.00
	Female	50(36.8)	27(19.9)	15(11)	21(15.4)	23(16.9)	136(100)	
15	Male	118(53.6)	30(13.6)	43(19.5)	23(10.5)	6(2.7)	220(100)	0.00
	Female	63(46.3)	15(11)	11(8.1)	20(14.7)	27(19.9)	136(100)	
16	Male	141(64.1)	20(9.1)	35(15.9)	23(10.4)	1(0.5)	220(100)	0.13
	Female	80(58.8)	37(27.2)	10(7.4)	8(5.9)	1(0.7)	136(100)	
17	Male	137(62.3)	36(16.4)	34(15.5)	12(5.5)	1(0.5)	220(100)	0.15
	Female	87(64)	14(10.3)	18(13.2)	10(7.4)	7(5.1)	136(100)	
18	Male	102(46.4)	26(11.8)	31(14.1)	23(10.5)	38(17.2)	220(100)	0.03
	Female	63(46.3)	19(13.3)	20(11.7)	21(15.4)	14(10.3)	136(100)	
19	Male	130(59.1)	50(22.7)	20(9.1)	11(5)	9(4.1)	220(100)	0.10
	Female	88(64.7)	13(9.6)	18(13.2)	12(8.8)	5(3.7)	136(100)	
20	Male	123(55.9)	46(20.9)	38(17.3)	12(5.5)	1(0.5)	220(100)	0.24
	Female	80(58.8)	35(25.7)	40(10.3)	7(5.1)	0	136(100)	

characteristics, fear of pain, past traumatic dental experiences in childhood, and dentally anxious family members or peers. Anxiety, would make it more difficult to handle patients and thus increase the levels of dental profession-related stress.

Table 6. Correlation between age, gender, anxiety and fear

	Age	Gender	Anxiety	Fear
Age	1	-	-	-
Gender	-.070	1	-	-
Anxiety	-.112*	.197**	1	-
Fear	-.067	.051	.753**	1

*. Correlation is significant at the 0.05 level (2-tailed)
 **. Correlation is significant at the 0.01 level (2-tailed)

In the present study females were found to be more anxious and afraid when compared with males, which is consistent with a study done by Shagrein et al. [7] This could be attributed to the fact that males are more emotionally stable than

females [5]. Study participants were found to be anxious of making an appointment, getting restoration, scaling done and were highly anxious of needles. The anxiety reduced with age. The finding is similar to Shagrein et al. [9] who concluded that needle phobia is age related.

Females were more afraid, which disagreed with a study done by Kumar et al. [3] who found that older age people were more afraid and this could be related to past negative experiences. In this study, the participants were afraid of the needle being injected in them, were afraid of seeing the drill in the anticipation of getting their teeth filled.

In this study, participants were not bothered or disturbed by the hospital environment while in the study done by Brady et al. [10] participants were anxious of the office smell, noise and smell of restorative material [10]. In a study done by Shreshtha et al. [11] eugenol provoked fear like response in patients. This could be attributed to unfamiliar or unpleasant smell.

Table 7. Distribution of study participants based on their response on comfort and discomfort questions

Questions	Frequency (%)	Most answered option
How do you feel about dental visit	253(66)	1 (look forward to the visit)
Reason for being afraid of visiting the dentist	182(51.1)	1 (afraid of getting hurt)
Delay in appointment	162(45.5)	3 (no change)
Do you dislike the use of cotton rolls	195(54.8)	1 (not at all)
Would a change in the treatment posture, make you feel better	133(37.4)	1 (not at all)
Would you feel better if the dentist explains you about the dental treatment on the chair	144(40.4)	5 (very much)
Would you feel better, if the dentist explains to you about dental instruments	129(36.2)	5 (very much)
Would you feel less apprehensive, if the dentist talks to you about post treatment care and routine	108(30.3)	5 (very much)
Would you feel better if the dentist gives his/her number for further contact	127(31.9)	5 (very much)
Young dentist or old dentist	219(61.5)	1 (young dentist)
Female dentist or male dentist	224(62.9)	1 (female dentist)
Friendly dentist or aloof dentist	324(91)	1 (friendly dentist)
Talkative dentist or silent dentist	287(80.6)	1 (talkative dentist)
English speaking or native language speaking	194(54.5)	1 (English speaking)
Would the presence of an accompanying person in the dental office alleviate fear and anxiety	136(38.2)	1 (not at all)
Does watching a dental procedure increase your fear	172(48.3)	1 (not at all)

In this study, a significant percentage of anxious patients feared “feeling out of control” and “a negative experience” about their dental visit. In this study irrespective of anxiety and fear, respondents had a preference for a dentist that was older, talkative and native English speaking which was in disagreement with a study done by Brady et al. [10] Study participants were asked about their comfort when cotton roll was used, 54.8% were not at all comfortable with it. When study participants were asked about their opinion on change of treatment posture 37.4% were not at all comfortable with it. Study participants were very comfortable with the idea of explanation about the treatment procedure, instruments, pre and post-operative care. They welcomed the idea of being given the dentists contact information for further contact.

In this study irrespective of anxiety, respondents had a preference for a dentist that was young, talkative and native English speaking. Approximately 61.5% of anxious patients had a preference for a young dentist, preferably female. This is in contrast to Brady et al. [10] study in which the anxious patients preferred an older male dentist and 54.5% of study participants preferred an English speaking dentist to a local

language speaking dentist. When study participants were asked if an accompanying person would alleviate their fear, 38.2% said their fear will not reduce at all. On being asked about watching a dental procedure, 48.3% study participants said that watching a dental procedure did not increase their fear. In a study in Ireland 20% of the study participants were 16-24 and 35-44 year old adults reported that they felt worried (or worse) while waiting for their turn in the dental chair.

It was found that age, anxiety and fear, are inversely correlated, which means if the age increase, anxiety decreases. This is in contrast to a study done by Kumar et al. [3] and is in accordance with Shreshtha et al. [11]. This could be attributed to previous dental procedures.

This study had a few shortcomings. There was no distinction between patients who were waiting for an operative procedure to those waiting for a check-up or consultation. It is likely that those taking an appointment for a surgical procedure would be more anxious. Oral diseases are important public health concerns, and their prevalence is increased by dental anxiety, and affects quality of life.

5. CONCLUSION

A total of 356 study participants were present, out of which majority were males. Anxiety and fear was found to be present among all the study participants but only a small portion was found to be significantly anxious or afraid. It was also seen that anxiety increased with age. This study recommends dentists to be interactive with their patients and explain about the treatment procedures, instruments, and post treatment care to make them calm and comfortable

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Available:<http://www.merriam-webster.com/dictionary/fear>
2. Appukuttan DP, Tadeballi A, Cholan PK. Prevalence of dental anxiety among patients attending Dental Educational Institution in Chennai, India. *Oral Health Dental Management*. 2013;12(5):1.
3. Anand Kumar V, et al. Dental fear- A cross-sectional study among various age groups of South Indian population. *Journal of Scientific Research & Reports*. 2013; 2(2):711-718.
4. Brosky ME, Keefer OA, Hodges JS, Pesun IJ, Cook G. Patient perceptions of professionalism in dentistry. *J Dent Educ*. 2003;67:909-15.
5. Kleninknecht RA, Klepac RK, Alexander LD. Origins and characteristics of fear of dentistry. *Journal of the American Dental Association*. 2013;86:842.
6. Trilby Coolidge, et al. 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.
7. Humphris GM, Dyer TA, Robinson PG. The modified dental anxiety scale: UK general public population norms in 2008 with further psychometrics and effects of age. *BMC Oral Health*. 2009;9:20.
8. Corah NL, Gale EN, Illig SJ. Assessment of a dental anxiety scale. *J Am Dent Assoc*. 1978;97:816-819.
9. Mohd G Sghaireen, et al. Anxiety due to dental treatment and procedures among university students and its correlation with their gender and field of study. *International Journal of Dentistry*; 2013.
10. Brady P, Dickinson C, Wheaton H. Dental anxiety prevalence and surgery environment factors: A questionnaire-based survey of attenders in Ireland. *SAAD Digest*. 2012;28:13-22.
11. Shrestha A, Rimal J, Rao A, Sequeira PS, Doshi D. Dental anxiety among patients visiting a teaching dental hospital in Mangalore. *India J Nepal Dent Assoc*. 2009;10.

© 2016 N. Vanishree et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/14114>