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Dental Anxiety Assessment among Rural Patients visiting Satellite Clinic at Panchkula District, Haryana, India

Abstract

Aim: Dental anxiety is a common problem both for dental practitioners and the patients visiting dental clinics. It afflicts a significant proportion of people of all ages and often results in poor oral health. The aim of the study was to assess the level of dental anxiety among rural patients visiting satellite dental clinic at Panchkula District, Haryana. **Materials and Method**: A cross-sectional questionnaire study was conducted among 216 patients visiting a satellite dental clinic of a dental college at Panchkula District, Haryana. A brief, pretested, closed-ended questionnaire i.e. Modified Dental Anxiety Scale (MDAS) was used to assess the level of anxiety. It consisted of five questions and individual scores were summed together to produce a total score ranging from 1 to 5. Logistic Regression was applied based on the cut off points into not anxious and highly anxious. The statistical analysis was done using SPSS version 17.0 software. **Results**: The results revealed that females were more apprehensive as compared to males (Odds ratio-11.55). Males in the lower age group were found to be fairly anxious and only slight anxiety was observed in higher age groups. Dental anxiety shows an inverse relationship with an increasing age. Furthermore, dental anxiety decreases as the level of education increases. Age factor was also seen to be significantly associated with dental anxiety. **Conclusion**: It is recommended that dental education and health care services should be promoted to overcome the fear/ anxiety factor among the patients.

Key Words

Dental anxiety; rural patients; satellite clinic; modified corah dental anxiety scale

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INTRODUCTION

In general, anxiety may be expressed as a vague, unpleasant feeling accompanied by the premonition that something undesirable is about to happen. It is a reaction to an unknown danger.[1] Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive, and behavioral components. Physical effects of anxiety include heart palpitations, fatigue, nausea, chest pain, shortness of breath, headaches, and inhibitions of digestive system functions. Emotional effects may include feelings of dread, trouble in concentration, feeling tense, irritability, restlessness as well as bad dreams.[2] Dental anxiety is defined as a patient's response to stress that is specific to dental situation. It is ranked as the fourth among common fears and ninth among intense fears.[3] It is a common problem both for the dental practitioners and the patients and affects a significant proportion of people of all ages and often results in poor oral health by poor co-operation, irregular dental attendance and complete avoidance of dental treatment.[4-7] According to Todd and Walker (1980),[8] nearly, 43% of people reported that they avoided going to a dentist unless they experience trouble with their teeth. Dental anxiety can be

Table 1: Distribution of Study Subjects according to Gender, Age Groups and Educational Qualifications

		N	Percentage
Gender	Male	132	61.1%
	Female	84	38.9%
Age Groups	21-30 years	96	44.4%
	31-40 years	56	25.9%
	41-50 years	47	21.8%
	51 or more	17	7.9%
Educational qualification	Did not finish high school	92	42.6%
	Finish high school	69	31.9%
	Graduate or post graduate	55	25.5%
Total		216	100%

Table 2: Distribution of Study Subjects according to Levels of Dental Anxiety

		Mild Anxiety (5-9)	Moderate Anxiety (10-15)	High Anxiety (16-18)	Severe Anxiety (19-25)
Gender	Male	24 (18.2%)	96 (72.8%)	5 (3.8%)	7 (5.2%)
	Female	0 (0.0%)	31(36.9%)	36 (42.8%)	17 (20.3%)
Age Groups	21-30 yrs	4 (4.2%)	61 (63.5%)	11 (11.5%)	20 (20.8%)
	31-40 yrs	10 (17.8%)	30 (53.6%)	12 (21.4%)	4 (7.2%)
	41-50 yrs	5 (12.8%)	24 (61.5%)	10 (25.7%)	0 (0.0%)
	51 yrs or more	5 (20.0%)	12 (48.0%)	8 (32.0%)	0 (0.0%)
Educational qualification	Did not finish high school	5 (5.4%)	46 (50.0%)	26 (28.3%)	15 (16.3%)
	Finish high school	8 (11.6%)	40 (57.9%)	12 (17.4%)	9 (13.1%)
	Graduate or post graduate	11 (20.0%)	41 (74.5%)	3 (5.5%)	0 (0.0%)
Total		24 (11.1%)	127 (58.8%)	41 (18.9%)	24 (11.1%)

Figures in parenthesis are in percentage

Table 3: Distribution of Study Subjects according to cut off point

		<19 (Not anxious)	≥19 (Highly anxious)
Gender	Male	125 (94.7%)	7 (5.3%)
	Female	67 (79.8%)	17 (20.2%)
Age Groups	21-30 yrs	76 (79.2%)	20 (20.8%)
	31-40 yrs	52 (92.8%)	4 (7.2%)
	41-50 yrs	47 (100%)	0 (0.0%)
	51 yrs or more	17 (100%)	0(0.0%)
Educational Qualification	Did not finish high school	77 (83.7%)	15(16.3%)
	Finish high school	60 (86.9%)	9(13.1%)
	Graduate or post graduate	55 (100%)	0(0.0%)
	Total	192(88.8%)	24 (11.2%)

≥19 indicates highly anxious patients

Table 4: Odds Ratio and Logistic Regression among the gender and different age groups based on the cut off points

	B	S.E.	Wald test	df	p-value	Exp(B)
Gender (F/M)	2.447	.681	12.910	1	.000	11.553
AGE(21-30) years			3.984	3	.263	
31-40 years	-1.269	.636	3.984	1	.046	.281
41-50 years	-19.274	5436.127	.000	1	.997	.000
51 or more years	-19.927	9238.530	.000	1	.998	.000
Constant	-3.143	.593	28.131	1	.000	.043

B is Regression Cofficient; SE is Standard error; df is degree of freedom; Exp(B) is Odds ratio

observed in any age but onset is usually seen in childhood, peak period in early adulthood, and decline with increasing age.[9] Earlier investigations[10-12] found that dental anxiety has been attributed to many factors: Traumatic or Painful experiences in childhood, learned attitudes toward dental services (vicarious learning), blood injury fears, personality characteristics, coping styles (vigilant, avoidant and emotionally focussed) and attitude of auxiliaries and dentists. Various scales have been composed to measure many aspects of dental anxiety such as Corah's dental anxiety scale (CDAS), Modified dental anxiety scale (MDAS), Stouthard's dental anxiety inventory short form (DAI-S), and dental fear survey (DFS). Modified dental anxiety scale is more useful in clinical setting for screening and diagnosing patients with dental anxiety[13]. It was shown to be more comprehensive, highly valid and reliable, with a simpler and more consistent answering system. The Modified Dental Anxiety Scale will be, therefore, used to measure dental anxiety in the current study. Although numerous studies have been done on dental anxiety among the general population visiting dental clinics. There is a lack of data regarding the levels of Dental anxiety among the rural population. Hence, for better understanding, management and development of treatment strategies for these patients, the present study was undertaken to assess the levels of dental anxiety among rural patients visiting satellite clinic at Panchkula District, Haryana, India.

MATERIALS AND METHODS

A cross-sectional study was conducted to assess the level of dental anxiety among 216 rural patients visiting satellite clinic for the first time at Panchkula District, Haryana. The satellite clinic, a part of public health dentistry department, opened within a radius of 20 kms, with an objective to promote dental awareness and good oral hygiene among rural population as teeth and gum problems are serious issues in these areas. Prior to the commencement of the study, Ethical clearance was obtained from the ethical and review board of Swami Devi Dyal Hospital and Dental College. Informed verbal and written consent was also obtained from the study subjects. Patients who refused to give informed consent and those who were undergoing psychiatric therapy or were suffering from generalized anxiety disorders were excluded. Those subjects who were under pain were also excluded from the study. A self administered closed-ended questionnaire i.e. MODIFIED DENTAL ANXIETY SCALE[13] (MDAS) was used to assess the level of dental anxiety. It consisted of 5 multiple choice items which include following questions:

1= If you went to your dentist for treatment tomorrow, how would you feel?

2= If you were sitting in the waiting room, how would you feel?

3= If you were about to have a tooth drilled, how would you feel?

4= If you were about to have your teeth scaled and polished, how would you feel?

5= If you were about to have a local anaesthetic injection in your gum, how would you feel?

Each question has 5 scores ranging from 'not anxious' to 'extremely anxious' in an ascending order ranging from 1 to 5. Each question carries a maximum score of 5 with a total possible maximum score of 25 and a minimum score of 5 for the entire scale. The final score was analysed as 5-9 mild anxiety, 10-15 moderate anxiety, 16-18 high anxiety and 19- 25 severe anxiety (phobia). Socio-demographic profile regarding age, gender, educational qualification and previous visit to a dentist were recorded on a separate questionnaire. Questionnaire was translated into hindi language for the convincing and better understanding of the patients. A pilot study of the questionnaire was carried out on 30 patients who visited dental care unit, first time, for dental treatment. Problems encountered during this period were noted and appropriate modifications were made taking into account the comments and suggestion received by the responder as a whole. The reliability of the questionnaire was analysed using Cronbach's alpha which was found to be acceptable (0.84). The data was thoroughly checked and errors were corrected before the data analysis. For each of the parameters in the questionnaire, the percentages, means and standard deviation were calculated. $P<0.05$ was considered to be statistically significant. Logistic Regression was applied. Variables were dichotomised into two types, based on the cut off points into not anxious and highly anxious. All analysis were done using the statistical package of social sciences 17.0 software (SPSS Inc., Chicago IL).

RESULTS

In the present study, a total of 216 subjects participated, out of which 132 (61.1%) were males and 84 (38.9%) were females. The age of the study

subjects ranged from 21-58 years. Most of the subjects amongst the four age groups were in the 21-30 years age group (44.4%) followed by 31-40 years age group (25.9%) and least were in the above 55 years age group (7.9%). Most of the study subjects 92 (42.6%) possessed Intermediate level of qualification (Table 1). Table 2 depicts the level of dental anxiety among study subjects. Females were more apprehensive than males. Higher level of severe anxiety was seen among females whereas higher level of mild anxiety was seen among males. Based on age groups, higher level of severe anxiety was seen among age group of 21-30 years whereas high level of mild anxiety was seen among age group of 31-40 years. Based on educational qualification higher level of severe anxiety was seen among those who did not appear for high school whereas higher level of mild anxiety was seen among graduates and post graduates. Table 3 depicts the study subjects according to cut off point. Among the study population, 24 (11.2%) subjects had scores 19 or above indicating highly anxious. Based on gender, 17 (20.2%) females were found to be highly anxious whereas among males only 7 (5.3%) were highly anxious. Table 4 depicts the level of anxiety among the gender and different age groups by applying logistic regression based on the cut off points. Dental anxiety was seen to be significantly higher in females than males ($p<0.005$). Age factor was also seen to be significantly associated with dental anxiety. The anxiety level of younger age group (22-30 years) was significantly higher than the other age groups.

DISCUSSION

Despite the technological advances made in modern dentistry, Anxiety about dental treatment and the fear of pain associated with dentistry, remains widespread globally and is considered as a major barrier to dental treatment. The impact that dental anxiety can have on an individual's life is broad and dynamic, leading to the avoidance of dental care and unwanted effects, such as sleep disorders, low self-esteem, and psychological problems. Gatchel *et al*.,[14] indicated that 70% of patients visiting the dentist exhibit the feelings of apprehension and 15% avoid dental visits due to their anxiety. Overall prevalence of dental anxiety in the present study was high (88.9%), but severe anxiety was low (11.1%). This was consistent with the other studies[27,28] which found a considerably higher percentage of subjects with dental anxiety. MDAS was employed in the present study as it has good psychometric properties, is relatively quick to complete and scoring is easy. This scale is simple to complete, reliable, and valid for evaluating Dental anxiety. It has been used in both adults and children, showing a high internal consistency and test- retest reliability. The results of the present study showed that females had higher levels of dental anxiety than males which is consistent with the studies done by Tunc *et al*.,[16] Coolidge *et al*.,[17] and Shrestha *et al*.[18] Medical and psychological research on human responses to pain stimuli has generally found that women report higher levels of anxiety and exhibit lower tolerance to pain at given stimulus intensities. Women are more likely to self-report, whereas men may not express their fears as openly as women.[19] Furthermore, our findings conflicted with the findings done by Santosh Kumar *et al*.,[15] which reports higher prevalence of anxiety among males and their younger counterparts. It was also observed that females had a more negative perception of their dentist's communicative skills than their male counterparts. This may be due to the fact that India has a strong patriarchal society where women's emancipation and freedom of expression still have some way to go. It has been found that dental anxiety shows an inverse relationship with increasing age which is consistent with the previous studies.[28-30] Liddell and Locker[20] suggested that the age dependent decline in dental anxiety might be due to the general decline in anxiety with ageing and greater exposure to other diseases and their treatment. Studies have reported that most of the fears and phobias decline with increasing age, which could be attributed to age dependent cerebral deterioration, habituation and adaptive behaviour towards these types of situations.[21] It has been found that dental anxiety decreases as the level of education increases. Acharya has also reported that the anxiety showed a declining trend with increasing levels of education. It was observed that females and students showed the highest levels of dental anxiety. Lack of dental health education might result in patients' fear and anxiety which in turn might end with poor patient compliance and attitudes. This will make it more difficult to manipulate patients and yield difficult patients and thus increase the levels of dental profession related stress.[31,32] The limitations of this study include cross-sectional design, small sample size and use of self- administered questionnaires which could be biased as there are probability that the individuals over or under estimate their responses. This study

did not consider the other factors that may influence anxiety such as personality features, occupation and socio-economic factors, implying the need for further considerations on the causes of anxiety.

CONCLUSION

It can be concluded from the present study that the individuals with dental fear represent a particularly difficult population to treat and presents special challenges to dental staff in terms of management of care. The subjects were mostly anxious about tooth drilling and local anaesthetic injection. The control of dental anxiety might be aided via good dental health education; regular dental visits, good patient-dentist relationship and suitable communication with the patient. Dental health care providers should receive training in the management of dental anxiety. Therefore, prior to the dental treatment, patient's anxiety and fear levels should be assessed and proper counseling should be given.

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