

Assesment of Dental Anxiety level among students of Oxford group of Institutions in Bangalore City: A questionnaire study

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ABSTRACT:

OBJECTIVE: This study was designed to investigate the subjective ratings of dental anxiety levels among students of Oxford Institutions in Bangalore. In addition, the present study aimed to explore the sources of dental anxiety and the impact of gender on the perceived dental anxiety and the correlation between field of study and dental anxiety level.

MATERIAL AND METHODS: The Modified Corah Dental Anxiety Scale was used to measure dental anxiety among the study population. Four hundred subjects were recruited into the study from Oxford Institution students from the faculties of Dental, Engineering, Pharmacy, Physiotherapy, Nursing, Secondary School, Hotel Management, and B.Ed College.

RESULTS: It was found that dental students had the lowest anxiety scores than other group students.

Key words: Dental anxiety, dental anxiety scale, dental treatment

INTRODUCTION

Dental anxiety is a complex fear with a number of components involving personality or psychological traits as well as conditioning experiences and vicarious learning. It is an important component of distress to patients in the dental operatory. Not only the dental treatment itself but even the anticipation of such treatment can give rise to fear and anxiety. Anxious patients are considered among the most stressful situations a dentist might face.^{4,7} Anxiety and fear of pain are often reported as causes of irregular dental attendance, delay in seeking dental care or even avoidance of dental care and may lead to deterioration of oral and dental health.^{1,3} Moreover, dentists find phobic patients difficult to manage, thus, affecting the effective provision of dental care to such patients.^{2,5} The assessment of dental fear is an extremely useful tool to dentists to customize behavioral management techniques for their patients.¹⁰

The prevalence of dental anxiety has been reported to range from 5 to 20% in various countries (Ter-Horst and Wit, 1993). Several studies have demonstrated that dental anxiety in children was significantly associated with parental anxiety (Wigen et al., 2009) and it has been found that women tend to report more dental fear than men (Ter-Horst and Wit, 1993) and younger people being more dentally fearful than older individuals (Ter-Horst and Wit, 1993; Rowe, 2005). A longitudinal analysis revealed that dental fear, like many other general and specific phobias, declines with age. People tend to report being more fearful of more invasive procedures, such as tooth extractions and oral surgery treatment (Wong and Lytle, 1991).¹⁰ Taani (2002) showed that the levels of dental anxiety were higher among Jordanian public school children than those from the private schools. There is a difference in anxiety levels among students according to their field of study. Students not related to the dental or any other medical field show more anxiety due to lack of health education.⁹

Many scales were developed in order to assess dental anxiety. Corah Dental Anxiety Scale was proven to be popular among dental researchers.⁶ Humphris, Morrison and Lindsay (1995) provided a modified scale from the original Corah Dental Anxiety Scale. The Modified Dental Anxiety Scale was shown to be more comprehensive, highly valid and reliable, with a simpler and more consistent answering system.⁸

The present study was designed to investigate the subjective ratings of dental anxiety levels among dental, engineering, pharmacy, physiotherapy, nursing, hotel management, education (B.Ed) and secondary school students at the Oxford institutions in Bangalore. The Modified Dental Anxiety Scale was used in this study. In addition, the present study aimed to explore the sources of dental anxiety and the influence of gender on the perceived dental anxiety.

OBJECTIVES OF THE STUDY

1. To assess the dental anxiety level among students of Oxford institutions in Bangalore.

2. To know whether field of study has any correlation with dental anxiety level.

MATERIALS AND METHODS

SOURCE OF DATA

Four hundred subjects were recruited into the study from Oxford institutions in Bangalore. The subjects included in this study were those who have had visited dentist at least once in their life. Students without any history of previous visit to dentist were excluded from the study.

Anxiety related to dental treatment was assessed by means of Corah's Dental Anxiety Scale (DAS). However, the modified version of DAS was used where an extra item has been included referring to the respondent's feelings toward local anesthetic injection with special reference to the site of the injection, because the pain experienced with local anesthetic injections varies according to its location in the mouth.⁴ Moreover, a simplified 5-point scale answering scheme was devised ranging from not anxious to extremely anxious.

The modified dental anxiety scale (MDAS) contains 5 multiple-choice items including the followings:

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 anesthetic injection in your gum, how would you feel?

The scores for each of the 5 item responses were summed up to give an estimated value of dental anxiety.

The questionnaire was distributed to the Dental, Engineering, Pharmacy, Physiotherapy,

Nursing, Hotel management, Education (B.Ed) and Secondary school students at the Oxford Institutions, Bangalore. 50 students from each institution selected for this study. Students were personally approached in the classrooms at the end of their class. The students were informed about the study and all the points in the questionnaire were explained and clarified.

Descriptive statistics were obtained and the means, standard deviation frequency distribution were calculated. Group comparisons were analyzed using Kruskal-Wallis test. The level of significance was set at 0.05. We compared the P-Value with the level of significance. If $P < 0.05$, we rejected the null hypothesis and accept the alternate hypothesis. If $P > 0.05$, we accept the null hypothesis. If there is a significant difference, we carry out multiple comparisons using Mann-Whitney test. Furthermore, as a total score of 15 or more almost indicates highly anxious patient, the frequencies of subjects with a score of 15 or more in the 3 student groups were also reported.

DISCUSSION

Out of the four hundred questionnaires distributed, all were returned. The total number of the participants in the current study was therefore 400. Out of this 188 males and 212 females. The distribution of the participants according to gender and field of study is presented in Table 1.

Table 2 presents total dental anxiety scores in various colleges. According to this, B.Ed students scored high and Dental students scored least. Health-related behavior depends on oral health knowledge. Students not related to the dental field receive little dental health education and their curricula lack such courses. On the other hand, dental field-related students do have the chance to formulate new and better ideas and understanding of the dental health care and thus will have the chance to develop a better dental behavior. For the above mentioned reason, the dental treatment will still be considered mysterious and stressful for the nondental students while the dental students will

feel better during the dental treatment. This could partly explain the relatively higher scores of dental anxiety among the nondental students compared to their dental peers. Although dental students are leading stressful courses and profession they are yet still exposed to better dental health education and knowledge and thus develop favorable dental behavior. Presence of suitable dental health education and knowledge seems to be capable, to some extent, of overruling the effect of stress and personality factors on dental anxiety among dental students.

The number of subjects who had a total score of 15 or more is shown in table 3. This indicates severe anxiety. Students of B.Ed College were found to be the most frequent among those who scored 15 or above. Women are relatively more anxious than men (Table 3). Female students were found to have higher levels of dental anxiety in all groups. This finding might be explained on the basis that women have higher levels of neuroticism than men and that anxiety is positively associated with neuroticism.¹⁰

Table 4(a&b) presents standard deviations and mean of individual items with the result of Kruskal-Wallis test. The difference in mean response was found to be statistically significant among the groups for Q1 ($P < 0.005$), Q2 ($P < 0.001$), Q3 ($P < 0.001$) and Q4 ($P < 0.001$). The difference in mean response for Q5 among the groups was not statistically significant ($P > 0.05$).

Out of the several anxiety scale items, the highest anxiety score (3.28) was given for go to dentist tomorrow (Item 1) and was scored by the nursing students. The next most anxiety producing item again go to the dentist tomorrow (3.08) which was scored by the B.Ed students. Least anxiety scored by dental students.

Senior secondary school students also show less anxiety than others. Engineering and Pharmacy students scored almost same dental anxiety scores. Dental students were significantly less anxious about scaling and polishing of teeth and about tooth drilling than other groups. However, there were no

statistically significant differences between other group's students in relation to these items. The mean total scores for the MDAS showed that severe dental anxiety was mostly associated with go to dentist tomorrow. Anxiety scores in an order of Q1, Q5, Q3, Q4, Q2 respectively. Second most anxiety scored for local anesthetic injection. Tooth drilling fear scored third anxiety score. Most respondents said they would feel relaxed while waiting in the dentist's office. Similarly, respondents were less anxious about scaling and polishing.

According to Table 5, the difference in mean response was found to be statistically significant among the groups of all the questions asked. The difference in mean response for Q5 among the groups was not statistically significant ($P > 0.05$).

Many people feel anxious about visiting the dentist. Forty-five percent of respondents in the 1988 Adult Dental Health Survey (Todd and Lader, 1991) said that fear was a major barrier to the receipt of routine dental care. The 1998 Adult Dental Health Survey (Kelly et al, 1998) found that 64% of respondents were nervous of some form of dental treatment, and 49% were anxious of simply going to the dentist. This fear can then lead to avoidance of dental treatment (Mellor, 1992), dental neglect (Hakeberg, 1993), and reduced general quality of life (Locker, 2003; Mehstedt et al, 2004; McGrath and Bedi, 2004). Eventually dental neglect can lead to pain, when many patients seek treatment.

Assessing the level of patient anxiety before commencing the dental treatment may offer invaluable insight into the probable patient attitudes and behavior towards the dental treatment. This information will be further utilized in developing the best strategies to manage patient anxiety. Dental health care providers should receive training in the management of dental anxiety.

Dental pain, anxiety and fear are important factors that prevent patients from seeking dental care. Screening of patient's previous dental experiences and histories for more information should be considered so that the dentist may take

additional precautions to improve the doctor-patient relationship and thus, the treatment results. The importance of dental health education cannot be overemphasized in the reduction and control of dental anxiety. Pre-university as well as non-dental university curricula should include dental health education in order to help reduction of dental anxiety among the population.

TABLE 1: Characteristics of study population

College	Male		Female		Total
	n	%	n	%	
Dental	10	5%	40	19%	50
Pharmacy	31	16%	19	9%	50
Engineering	33	18%	17	8%	50
Physiotherapy	23	12%	27	13%	50
Nursing	3	2%	47	22%	50
Hotel Management	43	23%	7	3%	50
Senior secondary	27	14%	23	11%	50
B.Ed college	18	10%	32	15%	50
Total	188	100%	212	100%	400

TABLE 2 : Total DAS in various colleges

FIELD OF STUDY	TOTAL DAS
Dental college	424
College of Pharmacy	659
Engineering college	662
Physiotherapy college	702
Nursing college	717
College of hotel management	636
Senior secondary school	613
B.Ed college	720

TABLE 3: Number of the subjects scoring 15 or more on the MDAS according to gender

FIELD OF STUDY	MALE	FEMALE	TOTAL
Dental college	0	2	2
Pharmacy college	10	7	17
Engineering college	14	3	17
Physiotherapy	8	12	20
Nursing	1	20	21
Hotel management	11	5	16
Senior secondary	8	7	15
B.Ed college	9	18	27

TABLE 4a: Individual item and Standard deviation according to the field of study

Questionnaire item	Dental	Pharmacy	Engi- neering	Physio- therapy	Nursing	Hotel management	Senior secondary	B.Ed
1.	0.72	1.32	1.49	1.30	1.07	1.31	1.29	1.21
2.	0.30	1.07	1.09	1.05	0.86	0.93	1.11	0.98
3.	0.67	1.00	1.08	0.94	0.82	0.95	1.01	0.97
4.	0.30	1.09	1.02	0.95	1.03	1.02	1.08	0.95
5.	0.76	1.13	1.33	1.01	1.01	0.99	1.09	1.22

TABLE 4b Mean of dental anxiety score of the individual item

Questionnaire item	Dental	Pharmacy	Engi- neering	Physio- therapy	Nursing	Hotel management	Senior secondary	B.Ed	P- Value
1.	2.34	2.94	2.98	2.84	3.28	2.72	2.74	3.08	0.021
2.	1.10	2.26	2.20	2.44	2.44	2.22	2.16	2.98	<0.001
3.	1.40	2.68	2.82	2.76	2.68	2.72	2.48	3.00	<0.001
4.	1.10	2.52	2.34	3.00	2.80	2.34	2.26	2.42	<0.001
5.	2.60	2.78	2.90	3.00	3.00	2.74	2.62	2.90	0.263

Table 5: Comparison of scores between Dental students and non dental students:

No.	DENTAL Mean(SD)	NON DENTAL Mean(SD)	P-VALUE
Q1	2.34(0.72)	2.94(1.29)	0.001
Q2	1.10(0.30)	2.39(1.04)	<0.001
Q3	1.40(0.67)	2.73(0.97)	<0.001
Q4	1.10(0.30)	2.53(1.05)	<0.001
Q5	2.60(0.76)	2.85(1.11)	0.121

CONCLUSION

It was concluded that dental students had the lowest anxiety scores than other group students. All other group students were very anxious about dental treatments. Women demonstrated higher dental anxiety scores than men. Suitable standards of dental health knowledge and education could overcome the negative effects of personality and reduce dental anxiety.

Although the current study utilized the modified anxiety scale and investigated the levels of dental anxiety among Oxford institution students from different fields of study and the sample size was representative and large, further studies are required to investigate the effect of various correlates on dental anxiety.

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