Dental Anxiety Levels in Relation to Number of Appointments Among Orthodontic Patients in Pediatrics Clinics

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ABSTRACT **Background:** *This study was to determine the level of anxiety among orthodontic patients in relation to appointments, gender and age as anxiety among dental patients is commonly problematic.* **Methods:** *This cross-sectional study was performed in the department of paedtricts dentistry and private dental clinics. The Modified Corah Dental Anxiety Scale (MDAS) was applied for evaluating the levels of dental phobia. The questionnaire consists of five questions on anxiety levels. Each question scores a maximum of five points, and the total scores ranged from 4 and 20. Student's t test and ANOVA were used to identify the differences between genders and age respectively. The significance level was set at ≤ 0.05.* **Results:** *A total of 152 patients receiving orthodontic therapy were taken into the study. The age of patients was ranging 10 to 15 years of which 73 were boys and 79 were girls. It was observed that most of the participants were with low level of anxiety followed by moderate level. Overall anxiety scores were decreasing from the first appointment of the patient (1st appointment) to 3rd appointment. The mean scores of anxiety were also decreasing as the age advances.* **Conclusion:** *The study showed a comparatively low level of anxiety among the patients and furthermore the level was declining with the number of appointments.*

INTRODUCTION

Dentistry has profited from major progress in technologies and materials. Similarly, at the equivalent time, awareness of public regarding dental health has enhanced. In spite of these achievements, anxiety in relation to dental setting is a problem faced by many patients all around the world and a major challenge in the provision of dental care.[1]

Dental fear is frequent, and can create hindrances, for the patient as well as dentist. Anxiety does not only avoid dental care, but also it results in negative feelings towards dental care.[2] The beginning of dental anxiety occurs in childhood and declines with advancing age. Its level varies according to different dental treatments.[3]

Orthodontic treatment also raises anxiety levels among the patients. During this care, patients commonly face a number of practical complaints and discomfort and also they feel anxious about their look.[4]

Almost, every orthodontic procedure like separator placement, application of orthopedic forces and deboning leads to pain among patients. Pain is categorized as mild and normally short lasting. However, some patients experience severe form of pain especially during mastication.[5]

It is very well established in the previous surveys that dental treatment is associated with different aspects of anxiety levels in patients. Generally it is assumed that dental fear is related to the stimuli of injections.[6,7] But very few studies have been conducted in relation to dental anxiety among patients receiving orthodontic treatment.[8,9] Therefore, the present study is assessed to evaluate the anxiety level among orthodontic patients.

METHODS

The study group consisted of 152 patients including 73 - boys and 79 – girls. The sample was obtained by approaching orthodontic patients in paediatric department and other private clinics where orthodontic procedure are going on. The number of patients who agreed to participate in the study and undergoing orthodontic treatment were included. The age group of the participants was from 10 to 15 years with a mean age of 13.04±3.745 years.

Questionnaire:

The Modified Corah Dental Anxiety Scale (MDAS)[10] was applied to calculate the levels of dental anxiety. The questionnaire consists of five questions that composed of the information of certain dental procedures that causes anxiety, (i) as your feeling while going to your dentist for treatment tomorrow, (ii) how would you feel while sitting in the dentist's waiting room, (iii) if you have to get separators, (iv) if you have to get brackets, (v) if you have to get appliances. The study subjects rated each item on five-point scale that ranges from not anxious level to severe anxiety. Each question scores a maximum of five points, and the total scores ranged from 4 and 20.

After adding all the responses, final assessment of anxiety level is given as: Score less than 4 is no anxiety, 4 - 8 is low anxiety, 9 - 12 is moderate anxiety, 13 - 14 is high anxiety, and 15 -20 is severe anxiety.[11,12] This scale is con-

sidered to be valid, easy to use and reliable, thus used to assess the levels of dental anxiety in present study.

Data Analysis: Statistical Package for the Social Sciences, version 16.0, SPSS Inc., Chicago, IL, USA) was used. Student's t test and ANOVA were used to identify the differences between genders and age respectively. The Pearson's correlation coefficient was also applied and for all statistical analysis, the significance level was set at ≤ 0.05.

RESULTS

The present study was conducted among a sample of 152 patients receiving orthodontic therapy. The age of patients was ranging 10 to 15 years of which 73 were boys and 79 were girls. It was observed that most of the participants were with low level of anxiety followed by moderate level. Overall anxiety scores were decreasing from the first appointment of the patient (1st appointment) to 3rd appointment as illustrated in Graph 1.

The mean scores of dental anxiety level during first appointment were 7.70±2.959, in second appointment (7.09±2.939) and in third visit (6.22±3.038). All of the age groups showed significant differences in different stages of appointment (p< 0.05). It was further analyzed that the mean scores of anxiety was decreasing with advancing age at every sitting (Table 1).

In the first appointment, girls found with higher level of anxiety, i.e. 8.06±3.130 compared to boys (7.33±2.743), similarly in 2nd time girls showed mean score of 7.53±3.076 and boys (6.64±2.739) and in the third time of appointment, mean of girls was 6.60±3.213 and boys was 5.83±2.816 (Table 2).

The Pearson's correlation coefficient showed a positive correlation of Modified Corah Dental Anxiety Scale (MDAS) with duration of appointments among all the patients as mentioned in Table 3.

DISCUSSION

The Modified Dental Anxiety Scale is assumed to be suitable, consistent, available, and therefore, it was used for assessment.[13] The present data revealed that most of the respondents had low level of anxiety that follows moderate level. This was in contrast with the data of other studies in which a comparatively greater percentage of participants had showed dental anxiety.[14,15]

Furthermore, students in Saudi Arabia also mentioned high anxiety level, it could be due to lack of dental health education among them which ultimately ends with poor attitude, or it may sometimes lead to fear of pain, and past shocking dental treatment experiences.[13,16]

The results of present findings also showed that dental phobia of patients significantly declined with their age. It could be due to more awareness among the older patients as compared to younger ones. Kirova et al, also found that, 25-26 year olds patients tend to experience more dental anxiety than older people.[11]

The study also reported that dental fear was less at the 2nd appointment and lesser at 3rd appointment. It could be due to the fact that as treatment starts, one gets familiar with the dental clinic's environment. Patients also obtain information at every visit and they also recognize the procedures. These findings were similar to the results of Sergl

et al. (1998) who also stated that well informed patients likely to explain less anxiety scores.[17] Similarly a study by Sari et al mentioned that dental anxiety was higher at the commencement of treatment with the fear of orthodontics and it subsided with time.[18]

The results showed that the level of dental anxiety was superior among females compared to their counterparts. It could be due to the fact that males are more emotionally stable. These findings agree with the previous studies that explain higher level of dental fear among females.[16,19] However, Economou found no difference according to genders.[20] This was in accordance with Bos et al, study in which mentioned that gender did not affect the attitude toward orthodontic procedure.[21] On the other hand, some authors reported that gender difference associates with the common outlook toward orthodontic treatment.[22,23]

Conclusion

The study revealed a comparatively low level of anxiety among the patients. Dental phobia increases with the advancing age and it subsides with the number of appointments. Its occurrence was mostly observed among girls.

Table 1: Dental anxiety levels according to appointment's schedule among different age groups

Appointments	Age group (in years)	No	Mean	SD	F	Sig.
1st appointment	10-11	42	9.00	3.342	6.187	.003
	12-13	56	7.39	2.781		
	14-15	54	7.02	2.522		
	Total	152	7.70	2.959		
2nd appointment	10-11	42	8.52	3.270	7.579	.001
	12-13	56	6.66	2.560		
	14-15	54	6.43	2.696		
	Total	152	7.09	2.939		
3rd appointment	10-11	42	7.57	3.156	6.163	.003
	12-13	56	5.72	2.874		
	14-15	54	5.68	2.831		
	Total	152	6.22	3.038		

Table 2: Dental anxiety levels according to appointment's schedule among boys and girls

Appointments	Sex	No	Mean	SD	F-value	Sig.
1st appointment	Girls	79	8.06	3.130	6.185	.014
	Boys	73	7.33	2.743		
2nd appointment	Girls	79	7.53	3.076	10.753	.001
	Boys	73	6.64	2.739		
3rd appointment	Girls	79	6.60	3.213	9.230	.003
	Boys	73	5.83	2.816		

Table 3: Dental anxiety levels according to different appointment's schedule

	1st appointment	2nd appointment	3rd appointment
Pearson Correlation	1	.756(**)	.692(**)
Sig. (2-tailed)		.000	.000
No	152	152	152

Graph 1: Showing frequency of dental anxiety levels
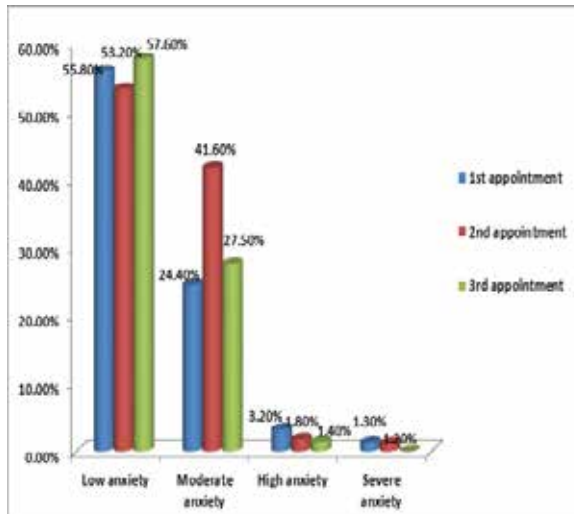
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