ORIGINAL ARTICLE

DENTAL ANXIETY AMONG CHILDREN OF AGE BETWEEN 5 TO 10 YEARS VISITING A TEACHING DENTAL HOSPITAL IN ISLAMABAD, PAKISTAN

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Background: The assessment of dental anxiety among children will aid in dealing with management issues related to dental treatment. There is no study available from Pakistan on dental anxiety in children. The aim of this study was to assess the prevalence of dental anxiety in children attending a teaching dental hospital in Islamabad, Pakistan. **Methods:** A cross-sectional study was conducted on 252 children aged between 5–10 years attending a dental clinic in a dental hospital in Islamabad, Pakistan. Dental anxiety was assessed by using the Faces Version of the Modified Child Dental Anxiety Scale. This scale uses faces as pictograms to indicate the levels of dental anxiety making it easier for children to answer the questionnaire. **Results:** A total of 252 children were observed for assessment of dental anxiety having mean age of 7.88±1.55 years with 123 (48.8%) males and 129 (51.2%) females. Out of these children 150 (59.5%) had previously visited a dentist and 102 (40.5%) had no experience with a dentist before; 38% (95/252) of children had moderate and severe dental anxiety. Dental anxiety decreased significantly with age (p=0.0003). The difference in anxiety levels was not statistically significant between males and females and in different socio-economic status. **Conclusion:** This study has highlighted dental anxiety as a potential public health concern regarding children in Pakistan. Assessment of dental anxiety is a useful way to identify anxious dental patients.

Keywords: Dental Anxiety, Oral Health, Modified Child Dental Anxiety Scale

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INTRODUCTION

Dental fear in children has been recognized in many countries as a public health problem.[1] Fear and anxiety are very much related and are often used interchangeably in the literature.[2] Anxiety from dental treatment is a commonly encountered problem in dental practice that adversely affects the diagnosis and treatment as well. Dental anxiety refers to a state of worry that something unpleasant is going to happen in relation to dental treatment and it is coupled with a sense of losing control.[3]

This anxiety may become more pronounced in relation either to clearly discernible situations or objects (e.g. drilling, injections) or to the dental situation in general.[3] Patients with dental anxiety tend to delay their visit to a dentist possibly affecting the prognosis of their treatment. Eventually it affects the oral health status and the dentist–patient relationship, leading to misdiagnosis and delay in treatment.[4] Dental anxiety not only leads to avoidance behavior but it also affects daily life: one report has shown that it causes sleep disturbance, negative thoughts and feelings of low self-esteem and confidence.[5]

The intensity of the anxiety is proportionate with the dental affections. It was reported in a study that poor periodontal hygiene, tooth caries and tooth loss were more common in highly anxious patients when compared to patients with lower levels of dental anxiety.[6] Dental anxiety and allied fear-related behaviours are some of the most difficult aspects of child patient management.[7] The onset of dental anxiety is thought to start off in childhood[8], peak in early adulthood[9], and starts to decline with age[10]. Dental fear prevalence in children and adolescents has been assessed as between 3% and 21% in northern Europe, and as more frequent among girls.[11]

There is lack of information on the prevalence of dental anxiety and the impact on oral health in developing countries.[12] In Pakistan a study was carried out in university students which shows that around 23% of the adult population has high dental anxiety.[13] There are very few such studies available from Pakistan. To the best of our knowledge, there has never been a study conducted on child dental anxiety in Pakistan. Although it is desirable to study child dental anxiety in the population but because of feasibility issues our study was limited only to the patients visiting the hospital.

The aim of this study was to assess the prevalence of dental anxiety in children aged 5–10 years attending a teaching dental hospital in Islamabad, Pakistan using Faces Version of the Modified Child Dental Anxiety Scale (MCDASf). This scale uses faces as pictograms to indicate the levels of dental anxiety making it easier for children to answer the questionnaire regarding their perceived anxiety levels.

MATERIAL AND METHODS

This hospital-based cross-sectional study was conducted on patients visiting Islamic International Dental Hospital, Islamabad. A questionnaire-based cross-sectional survey was conducted among patients attending Islamic International Dental Hospital (a teaching dental hospital) in Islamabad, Pakistan. Ethical approval for this study was granted by the institutional Ethical Committee

The participants of the study were all healthy communicative children between 5 and 10 years of age who visited the hospital accompanied by their parents/guardians. Participation in the study was voluntary and only those subjects were included who gave informed consent and were able to answer the questions. Patients with mental disabilities, those who were not able to provide complete answers to questions and those who were not accompanied by their parents/guardians were not included in the study.

The questionnaire used was the Faces version of the Modified Child Dental Anxiety Scale (MCDASf)[14], based on Corah's Dental Anxiety Scale. The MCDASf is a validated scale to measure dental anxiety in children.[15,16] It consisted of socio-demographic data and Corah's eight item index. A question whether subjects have visited a dentist before or not was also added in the questionnaire by the researchers.

The MCDASf consists of eight multiple choice items dealing with patients reactions to specific dental situations. A five-point Likert scale is used to assess dental anxiety with scores ranging from 'relaxed/not worried'[1] to 'very worried'[5]. These five points on Likert scale are reflected by smiley face expression pictures in order to make it more comprehensible for children. Total scores on the MCDASf range from 5 (little or no dental anxiety) to 40 (severe dental anxiety). Dental anxiety was categorized into 'mild', 'moderate' and 'severe' depending on the MCDASf score. MCDASf score 17–24 is 'mild'; 25–30 is 'moderate'; >30 is 'severe'.

A total of 252 consecutively selected participants were included in the study out of the patients who visited the dental hospital during the three month time. The sample size was calculated by using WHO sample size calculator with required Precision level of 5%, confidence level of 95% and an estimated prevalence of dental anxiety in children 20.6%.

Data were entered and analysed by using SPSS-19. Descriptive statistics were used to calculate mean and standard deviation for quantitative variables and frequencies with percentages for categorical variables. Independent sample *t*-test and one way ANOVA was used to see the difference in dental anxiety score with respect to different demographic characteristics of the children in the study.

RESULTS

A total of 252 patients were included. The mean age of the participants was 7.88 years with a standard deviation of 1.55 years. Most belonged to the age range 9–10 years (41.6%) followed by 7–8 years of age (34.9%) and 23.4% were in the age range 5–6 years. There were 123 (48.8%) males and 129 (51.2%) females. 150 (59.5%) had previously visited a dentist and 102 (40.5%) had no experience with a dentist before.

The frequency of overall moderate and severe dental anxiety was 38% (95% CI: 32–44%) (Score>25). In children with dental anxiety 86 (34%: 95% CI: 28–40%) had moderate anxiety score of 25–30 and only 9 (4%: 95% CI: 2.8–5.2%) children had severe anxiety (Score>30). The mean dental anxiety score in this study was noted to be 22.57±4.91. The difference in anxiety levels was not statistically significant (p=0.501) between male and female children (Table-1). As the age increases the dental anxiety score decreases significantly (p=0.0003) from 24.34 in age group 5–6 years to 22.94 in age group 7–8 years and 21.27 in age group 9–10 years.

The dental anxiety was not significantly different in children who had visited a dentist before and who did not (p=0.347). The socioeconomic status of the families the children belonged to, had no significant (p=0.769) effect on dental anxiety of the children. About 63.1% participants showed severe anxiety when asked how they would feel if their tooth had to be taken out followed by filling (19.8%) and local anaesthesia (7.5%).

Table-1: Dental Anxiety Score by demographic characteristics

Characteristic	n	Mean DAS*	SD	*p*-value
Gender of Patients				
Male	123	22.36	4.58	0.501
Female	129	22.78	5.21	
Age of Patients				
5–6	59	24.34	3.93	0.0003 **
7–8	88	22.94	4.72	
9–10	105	21.27	5.22	
Previous Dental Visits				
Yes	150	22.33	5.00	0.347
No	102	22.92	4.77	
Socioeconomic Status				
Poor	31	22.06	4.92	0.769
Middle	157	22.56	5.17	
High	64	22.84	4.24	

*Mean DAS=Mean Dental anxiety score, **Significant at 5% level of significance

DISCUSSION

Dental fear remains a grave issue for patients and dental clinicians in spite of established pain management and advanced dental techniques.[2] Dental anxiety may be an overwhelming factor that may lead to irregular dental turnout behaviour or even avoidance

of care, that eventually leads to poor oral health.[17,18] Various parameters have been devised to estimate the dental anxiety which include the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS), Venham Picture Test (VPT), the Short Dental Fear Question (SDFQ), the Facial Image Scale and the Faces version of the Modified Child Dental Anxiety Scale (MCDASf). We preferred the Faces version of the Modified Child Dental Anxiety Scale (MCDASf) because it was easier for children to comprehend the facial pictorial expressions and select the appropriate levels.

We found the prevalence of moderate and severe dental anxiety to be 38% on the basis of dental anxiety score in children. No local study has ever been done on the topic so we had to compare the results with other populations where the estimates of childhood dental fear vary from 3 to 43% (2). It is considerably higher than the prevalence of dental anxiety found in a study on similar population in the neighbouring country India (6.3%) and 3–6 years old children in Iran (22%) in which different assessment tools were used[19,20] than our study. When compared with the developed countries, the dental anxiety in our children was higher than reported from Taiwan (20.6%)[21], Denmark (5.7%)[22], Sweden (6.7%)[23] and Netherlands (6%)[24]. These variations may be explained by different assessment tools used in these studies as well as socio-cultural and geographical differences, low education level and lack of oral health awareness in children and their parents in our study population.

The participants showed severe dental anxiety with invasive dental procedures like tooth extraction, filling and local anesthesia. This also corresponds to findings from other studies from UK[25] and Turkey.[26] Our study showed a decrease in dental anxiety scores with the increase in age, also shown in a study from Taiwan[21] and Turkey.[26] This decrease may be statistically significant but it is hard to say that it is clinically significant also as the size of the difference in dental anxiety scores is very small among the different age groups. The level of anxiety was not significantly different in patients with prior exposure to dental treatment which does not correspond to the study done by Nicolas *et al.*[27] There was no statistically significant association between dental anxiety with gender and socio-economic status in our study like other studies[26,28] whereas few studies found girls to be more dentally anxious than boys.[20,29]

It is important to recognize the limitations of this study. Due to inadequate resources it was possible to carry out the study only in children coming to the hospital for treatment and not in children of the general population. Therefore it is not advisable to extrapolate the results from this study over the entire Pakistani population. In hospital based studies we may for instance miss those whose anxiety level is so high that they do not seek treatment or those who cannot afford to access health care. On the other hand dental anxiety in patients visiting hospital may be higher than in the general population as they may be suffering from acute pain and know that the treatment is unavoidable.

However there is a lack of studies that assess dental anxiety in Pakistan and to our best knowledge this is the only study that has focused on dental anxiety in young children in Pakistan.

CONCLUSIONS

This hospital based study highlights dental anxiety as a potential public health concern regarding children in Pakistan as we found out that dental anxiety is very high in Pakistani children as compared to other countries. Assessment of dental anxiety is a useful way for dental practitioners to identify anxious dental patients and will aid in better management of such patients. Public oral health awareness programmes and campaigns may be useful in reducing dental anxiety in Pakistan. It is also suggested that population based studies may be conducted in Pakistan to get a more representative picture of dental anxiety in the population. Further research is also required to explore the likely causes of dental anxiety in the country.

AUTHOR'S CONTRIBUTION

GHR, A, UB: conceived and designed the study. GHR, FSM: carried out literature research, developed the methodology, designed the data collection tool, collected the data and performed analysis and drafted the manuscript, GHR, UB: reviewed and revised the manuscript, UB: approved the final manuscript.

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