



## Original Research Article

# Dental Anxiety Reduction in A Young Population: Risk Indicators Running Title- Evaluation of DA Among Children

### Article History:

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#### How to cite this article:

R. Hemalatha, *et al.* Dental Anxiety Reduction in A Young Population: Risk Indicators Running Title- Evaluation of DA Among Children. *Eur J Clin Pharm.* 2025;7(1). 3927-3931.

**Received:** 12-10-2025

**Revised:** 05-11-2025

**Accepted:** 20-11-2025

**Published:** 30-12-2025

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**Abstract:** **Background:** Dental anxiety is commonly seen in young children. It is often associated with parental and peer influence and other associated factors. **Aim:** To assess the prevalence of dental anxiety and to evaluate the risk indicators. **Study Design:** The study design was cross-sectional in nature. The participants were 110 in number. They belonged to the school age group. They participated by completing a structured questionnaire. **Results:** The prevalence of dental anxiety was 7 % in the 0-4 year age group, 14.4 % in the 5-9 year age group and 12.3 % in the 10-14 year age group. Inter and intra-examiner reproducibility was assessed with the help of kappa statistics.  $K=0.87$  for inter and 0.95 for intra examiner reproducibility was found. **Statistical Analysis:** Analysis was computed using Chi-square test and Multivariate logistic regression analysis. The prevalence and severity of dental anxiety was analyzed. Logistic regression analysis revealed that increasing age and peer pressure were associated with dental anxiety. **Conclusion:** The findings indicate that the prevalence of dental anxiety increases with age progressively. Parental and peer influence play a significant role in the development of dental anxiety.

**Keywords:** Children, dental anxiety, prevalence, associated factors and knowledge.

## INTRODUCTION

Dental fear is a response to a known danger, anxiety is a response to an unknown danger. The global prevalence is 6-13 %. It has a multi-factorial etiology.<sup>1</sup> DFA is a term that describes all sorts of fears and anxieties related to dentistry. The clinic ambience, environment, support staff along with parental and peer pressure serve as contributing factor for dental anxiety.<sup>2,3</sup>

Literature reveals that the prevalence of dental anxiety is 12.6 % in Russia, 13.5 % in France, 12.5 % in Canada and 30 % in China. Dental fear and anxiety can lead poor oral health, due to non utilization of the services.<sup>4</sup>

Several associated factors contribute towards the

etiology of dental anxiety. Since dental fear and anxiety are mostly subjective in nature, it can easily succumb to peer pressure and influence. Children are subjected to the development of imaginary fears that add up to the stressful scenario. A pediatric dentist has a major role to play in such a situation, to intervene at the right time and motivate and mould them to come out of dental anxiety. Thus he can pave the way to stride towards an anxiety free future society.<sup>5,6</sup>

The present study was aimed to evaluate the prevalence of dental anxiety and to identify the contributing factors for dental anxiety.

## METHODOLOGY

Target population were children who visited the dental office. Study design was cross-sectional in

nature.

## Subjects

### Sample size calculation

Based on the previous Indian studies, the prevalence of dental anxiety varied between 20-50%.By keeping an error margin of + or – 5 % and a confidence interval of 95%, the sample size was calculated .Thereby 110 children were recruited by simple randomization method.

### Inclusion criteria

Children within school age groups were included.

### Exclusion criteria

Children with major debilitating disorders and physically challenged children were excluded from the study.

### Sampling Technique

#### Multi stage sampling technique

#### Data collection

Patient demographics along with dental anxiety status was recorded by way of personal interview through

customized structured questionnaire.

### Data Recording

Clinical examination was done by a single examiner in the OP premises. Inter and intra-examiner reproducibility was assessed with the help of kappa statistics. K=0.87 for inter and 0.95 for intra examiner reproducibility was found.

### Statistical Analysis

Data were analyzed using SPSS version 20.(IBM, India). Chi-square test was used to compare the qualitative data, to find out the statistical significance. Strength of association was also computed. The level of significance was set at  $P < 0.05$ .

For independent association with outcome multivariate logistic regression was used.

Variables that showed only significant associations were included in logistic regression models (Stata Corp, Chicago. USA) was used to assess the independent effect of these co-variables on the prevalence of dental anxiety.

## RESULTS

Total number of children who were recruited were 110, which had a break up of 60 males and 50 females.

### Results based on the gender distribution pattern

**Table 1 in our study** depicted the gender wise distribution pattern of children. The number of males with dental anxiety were more than females. The percentage was also higher in males-54.5

**Table 1: Depicted the gender wise distribution pattern of children**

| Gender wise distribution | Number of children with DA | Percentages |
|--------------------------|----------------------------|-------------|
| Males                    | 60                         | 54.5 %      |
| Females                  | 50                         | 45.4 %      |

### Results based on the age distribution pattern

**Table 2 in our study** depicted the age- wise distribution pattern of children. There were more number of children in the 10-14 age group.

**Table 2: Depicted the age wise distribution pattern of children**

| Age ranges | Children with DA | Percentage |
|------------|------------------|------------|
| 0-4        | 35               | 0.31       |
| 5-9        | 35               | 0.31       |
| 10-14      | 40               | 0.36       |

### Results based on the logistic regression risk indicators

**Table 3 in our study** depicted showed the logistic regression risk indicators. The variables –y axis chosen were age with odds ratio, standard error, P-value and confidence interval. The variables- X axis chosen were parents, peers, modeling, educational posters, relatives and friends.

**Table 3: Depicted the logistic regression risk indicators**

| Age     | Odds ratio | Standard error | P value | Confidence interval | Range      |
|---------|------------|----------------|---------|---------------------|------------|
| Parents | 1.97,      | 0.68           | 0.05    | 95 %                | 1.36-2.62. |

|                     |      |      |        |      |            |
|---------------------|------|------|--------|------|------------|
| Peers               | 0.79 | 0.19 | 0.36   | 95 % | 0.99-3.89  |
| Modeling            | 6.41 | 1.87 | 0.0001 | 95 % | 3.61-11.38 |
| Educational posters | 0.79 | 0.19 | 0.36   | 95 % | 0.48-1.29  |
| Relatives           | 0.85 | 0.13 | 0.33   | 95 % | 0.62-1.17  |
| Friends             | 2.54 | 1.37 | 0.08   | 95 % | 0.87-7.35  |

Inter and intra-examiner reproducibility was assessed with the help of kappa statistics. K=0.87 for inter and 0.95 for intra examiner reproducibility was found.

## DISCUSSION

The present study was undertaken in the Department of Pediatric Dentistry, with the aim to find out the prevalence of dental anxiety among school aged children. Total number of children who were recruited were 110, which had a break up of males and females.

**Table 1 in our study** depicted the gender wise distribution pattern of children

This is in accordance with similar studies done by Scarpelli AC<sup>6-12</sup> et al based on

Psychometric properties of the Brazilian version of the early childhood oral health impact scale.

**Table 2 in our study** showed the depicted the age-wise distribution pattern of children. This is in accordance with similar studies done by Dailey YM et al<sup>13-17</sup> based on The use of dental anxiety questionnaires: a survey of a group of UK dental practitioners.

**Table 3 in our study** depicted showed the logistic regression risk indicators across the variables of parents, peers, modeling, educational posters, relatives and friends. This is in accordance with similar studies done by Corah NL<sup>18-24</sup> et al based Development of an interval scale of anxiety response.

Logistic regression is used to obtain odds ratio in the presence of more than one explanatory variable. The response variable is binomial. Each variable has an impact on the odds ratio. It analyzes the relationship of a dependent variable over an independent variable. Regression is the assumption of linearity between dependent variable over an independent variable. This is in accordance with similar studies done by Agras .S et al<sup>25-29</sup> based on the prevalence of dental fear and avoidance.

Clinical examination was done by a single examiner in the OP premises. Inter and intra-examiner reproducibility was assessed with the help of kappa statistics. K=0.87 for inter and 0.95 for intra examiner reproducibility was found. This is in accordance with similar studies done by Armfield JM et al<sup>30, 31</sup>

Parents play an important part in their child's dental

anxiety as the child imbibes their emotions directly. Due to the incorporation of imaginary fears the children's behavior patterns are enhanced and reinforced towards positive or negative side. Peers, friends and relatives have a crucial role to play, since they have the same cognitive growth.

Modeling adds support, since it is a live demonstration. When they witness another child undergoing the same treatment in the same dental scenario, they are convinced the right way, to develop a right attitude towards dental treatment.

Educational posters add support by way of witnessing the pictures of dental procedures being performed, thus harnessing the child's emotional state of mind and perspectives.

Hence our study revealed that children's behavior can be modified towards betterment and utmost positivity with such approaches.

## Limitations

Since the age ranges and sample sizes were small the findings could not be generalized

## CONCLUSION

The present study concludes that identifying the barriers of dental anxiety will help in reducing dental anxiety in children.

## Clinical Implications

Similar studies such as this with more multivariate factor analysis will help us to explore and evaluate further more on this aspect in order to inculcate more positive behavioral attitudes.

**Ethical Clearance:** This study was a short project. Hence IEC could not be obtained, ethical issues were appropriately addressed as follows

1. Anonymity of subjects was ensured.
2. No pressure was exerted on the subjects to participate in the study and participation was completely voluntary.
3. Confidentiality of data was ensured. It was saved in password protected systems which had access only to investigators.

**DECLARATION OF INTERESTS:** The authors declare no conflicts of interest.

**FUNDING:** No funding was acquired for this study

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