Evaluation of Triggering Associates of Dental Anxiety and Fear

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Abstract

Background Dental anxiety and fear complement each other in the literature. Children often associate dentistry with pain. The position of the dental chair makes them feel nervous and claustrophobic. They feel anxious due to lack of control of the situation. **Materials and Methods** Study design was cross-sectional in nature. A reliable and valid self administered questionnaire was used.It was conducted on 120 children, in Chennai city. A set of five close-ended questions pertaining to dental anxiety and fear was designed in a sequential and logical order. The responses were recorded as Likert based responses. **Results** 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. The prevalence in boys was 50.4 % and in girls it was 71.2 %. The triggering factors contributed largely to dental anxiety and fear. **Conclusion** The present study concludes that identifying the barriers of dental anxiety will help in reducing dental anxiety in children.

Keywords : Dental anxiety, fear, associated factors, treatment, prevalence.

INTRODUCTION

Dental anxiety and fear complement each other in the literature. [1] Children often associate dentistry with pain. The position of the dental chair makes them feel nervous and claustrophobic. They feel anxious due to lack of control of the situation. [2,3]

Questionnaires are research instruments that consists of a set of questions to collect information from a respondent. They were developed in 1838 by Statistical Society of London. Data collected can be quantitative or qualitative. Quantitative questionnaires validate or test previously generated hypothesis. Qualitative questionnaires collect exploratory data. They are useful to collect demographic information, personal opinions, facts or attitudes from respondents. They provide uniform design and standardization, since all the respondents are subjected to the same questions. [4,5,6]

Literature reveals that a study conducted on dental patients by way of Inventories showed that the inventory not only measured the extent of dental fears but also diagnosed the anxiety causing stimuli and differentiated between fear and phobia. [7]

The present study aimed to assess the prevalence of dental anxiety and fear along with the triggering factors at the dental office.

METHODOLOGY

Study Design

Study design was cross-sectional in nature. A study was conducted among children. The study followed the guidelines by Helsinki Declaration1975, revised 2003. After explaining the purpose and details of the study informed consent and assent was obtained from parents and children Target population were children who visited the dental office.

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 120 children were recruited by simple randomization method.

Inclusion criteria

Children within 14 years 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 questionnaires.

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-varieties on the prevalence of dental anxiety

Results

Total number of children who were recruited were 120, which had a break up of 60 (50 %) males and 60 (50 %) females. Chi-square test was used. It compares observed with expected results. The purpose is to determine if the difference is due to chance or due to a relationship between the variables.

Table 1 in our study depicted the gender wise distribution pattern of children with dental anxiety. Both males and females were recruited for the study purpose by simple randomization method. The distribution pattern was equal among both the genders. The age groups included for the study purpose were between 0-14 years

Table 1 : Depicted the gender wise distribution pattern of children

Gender wise distribution	Number of children with DA	Percentages
Males	60	50 %
Females	60	50 %

Table 2 in our study depicted the age category maximum number of participants were in the 0-4, 5-9 year and 10-14 year old children. In children with dental anxiety, there were 20 each in all the three categories.

Age wise distribution	Number of children with DA
0-4	20
5-9	20
10-14	20

Age wise distribution	Number of children with DA
0-4	20
5-9	20
10-14	20

Table 3 in our study depicted the triggering factors score distribution and the maximum score was obtained by the low category.

Table 3 : Triggering factors score distribution

Score	Number of children	Percentage
Very low	28	0.23
Low	32	0.26
Moderate	30	0.25
High	30	0.25
Total	120	100

DISCUSSION

The present study was aimed to estimate the prevalence of dental anxiety and fear along with the contributing triggering factors. **Our** study depicted the gender wise distribution pattern of children with dental anxiety. This is in accordance with similar studies done by McMullan M et al [8-11] based on patient-health professional relationship. Another study evaluated the dental anxiety and fear in patients who were admitted to the faculty of dentistry. The study incorporated the fact that dental anxiety and fear make dental operation and treatment difficult. It also caused delay or absence in the dental appointments..

A survey is a research method used for collecting data from a pre-defined group of respondents to gain insights on various topics of interests. It can be a mix of open and close ended questions, dichotomous with a yes or no options, multiple choices, scaler questions like mild, moderate or severe, pictorial and face- face interview questions. It offers features to design, distribute and analyze the responses. Surveys collect information from a group of respondents.

Questionnaires or Inventories are designed as structured formats, in order to capture the right information specific to the situation. This aspect helps the dentist to identify the key concepts or areas of concern, that need to be focused upon. The Pediatric Dentist has an additional role to play by identifying such children at an early age. Such kind of emotions ultimately lead to avoidance of dental care and mal adaptive behavior. [4,5,6] Hence they need to be measured to estimate the prevalence. Questionnaires collect information from a single respondent.

Our study depicted the age category maximum number of participants were in the 0-4, 5-9 year and 10-14 year old children. This is in accordance with similar studies done by Jadad AR et al [12-17] based on the psychometric properties . Another study evaluated the strategies to manage patients with dental anxiety and phobia. It was a literature review. Dental anxiety and phobia result in avoidance of dental care. It is one among the commonly encountered problems.

Another study was cross-sectional in nature. It was conducted among 342 patients. Dental anxiety levels were measured using MDAS and STAI scales. Student T-Test, one-way ANOVA , Tukey's post-hoc tests and Pearson's correlation tests were used for analysis .Results revealed that dental anxiety existed in 42.1%. Highly statistically significant dental anxiety scores have been detected. Thus the study concluded that, evaluations directed to the factors that would increase dental anxiety, may prevent possible complications and risks involved.

Another study assessed the dental anxiety triggers at Riyadh Elm University Clinics- Saudi Arabia. It was a cross sectional observational study done on 200 patients. Anxiety is seen as an emotional state, that precedes an interaction with a fearful object or situation. The study purpose was to identify the prevalence of anxiety. The questionnaire was compared with Corah's Scale. Chi- square test was employed. The study concluded that more than half the population suffered from anxiety, thereby the treatment plan needs to be modified accordingly.

Formulating, evidence based therapies is essential, or else they would be considered as a source of stress. In such situations, subjective evaluation by interviews and self reporting on fear and anxiety scales. Objective assessments go by way of recording blood pressure, pulse rate, pulse oximetry and finger temperature .Broadly they can be managed by psychotherapeutic and pharmacological interventions along with cognitive behavior therapy.

Another narrative review suggested that dental anxiety was closely related to fight- flight response. Archeological findings suggest that humans have been knowledgeable since pre-historic times. Egyptian and Greek physicians used plants to provide some form of therapy for a mind-body approach, which was suggestive of using sedative drugs for the purpose.

Another study evaluated the association between dental anxiety, fear and behavior among children during their dental visit. Dental fear and anxiety serves as a significant problem in management. The study was done among 209 children. Anxiety levels were assessed using FIS, DAS and CFSS-DS. It was compared with FBRS. Maximum patients showed positive behavior-(81.8 %) The study concluded by reporting the fact, that assessment of triggering factors can reduce the dental anxiety levels, by incorporating alternative treatment modalities.

Another study compared the effectiveness of mobile app and the tell-show-do technique in the management of dental anxiety and fear. It was a randomized controlled trial done on 50 children. The study concluded that educating a child prior to a dental procedure by way of a smart phone app can reduce fear in children.

Our study depicted the triggering factors score distribution and the maximum score was obtained by low category. This is in accordance with similar studies done by Scarpelli AC et al [18-22] based on children's use of dental services: influence of maternal dental anxiety, attendance pattern, and perception of children's quality of life. Another study evaluated the validity of the index of fear and anxiety in patients with severe dental anxiety. Dental anxiety is a common condition with severe consequences for oral health. The aim was to evaluate the self report scale. Spearmann's correlation was used and the study concluded that the agreement between them was low, thereby the modules needed further development.

Inter-examiner reproducibility in statistics is the reliability or the degree of agreement among independent observers who rate, code or assess a phenomenon. Inter-examiner reproducibility is the score of the consistency in ratings given by the same person across multiple instances.

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. Our study revealed the following scores. K=0.87 for inter and 0.95 for intra examiner reproducibility was found .

Hence or 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. Questionnaires are complacent, straight forward, specific, point blank and accurate. The low level benefits include non or no responses and no return rate. Key concerns are the measurement errors. They can be either random or systematic. Random

errors are due to unintended mistakes and systematic are due to systematic reaction of the respondents to the scale used to formulate the question.

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.

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Conflicts of Interest : Nil.

Author contribution

RH and SN conceived the ideas; RH and KV collected and analyzed the data; RH and SN led the writing.

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