



## RESEARCH ARTICLE

### ASSESSMENT OF ANTICIPATORY MATERNAL ANXIETY AND ITS EFFECT ON CHILD'S BEHAVIOR IN A DENTAL SETTING WITH AND WITHOUT THE USE OF PRE APPOINTMENT BEHAVIOR MODIFICATION

**Dr. Siya Dukle, Dr. Alok Patel and \*Dr. Sanket Kunte**

Department of Pedodontics and Preventive Dentistry, Bharati Vidyapeeth Deemed University,  
Dental College and Hospital Pune, India

#### ARTICLE INFO

##### Article History:

Received 18<sup>th</sup> December, 2016  
Received in revised form  
10<sup>th</sup> January, 2017  
Accepted 04<sup>th</sup> February, 2017  
Published online 31<sup>st</sup> March, 2017

##### Key words:

Maternal, Anxiety,  
Child behaviour,  
Pre-appointment modification.

#### ABSTRACT

The aim of this study was to assess the levels of dental fear and state anxiety in the mothers of pediatric dental patients and whether providing preparatory information regarding treatment would have a significant impact on the anticipatory anxiety. Forty children and their mothers visiting the pediatric dental clinic were participants of the study, and were randomly allocated into two groups. One group was provided with preparatory information regarding the child's treatment. Using dental fear survey and state trait anxiety inventory - state, fear and anxiety levels in the mothers were measured respectively, before and after reading the preparatory information. In Experimental Group, the mother's dental fear and anxiety levels showed a significant reduction as compared to the control group. This study confirms the existence of a significant relationship between maternal fear and anxiety, and child behaviour in the dental office. Involving the parents through communication, and engendering a cooperative spirit will assure reduced stress in treating our pediatric patients.

*Copyright©2017, Dr. Siya Dukle et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

**Citation:** Dr. Siya Dukle, Dr. Alok Patel and Dr. Sanket Kunte, 2017. "Assessment of anticipatory maternal anxiety and its effect on child's behavior in a dental setting with and without the use of pre appointment behavior modification", *International Journal of Current Research*, 9, (03), 47424-47427.

## INTRODUCTION

Managing the behaviour of pediatric patients has been the focus of many studies, however paying attention to the parents may be just as important to achieve our treatment goals. Parental attitudes and emotions can adversely affect the tone of the appointment and negatively influence the child's perception of the event. (Parenting the parents of Pediatric Patients, 2006) Fear and anxiety are recurring feelings and a cause of concern in pediatric dental treatment, since emotions influence children's behaviour and play an important role in pain perception. (Marsac and Funk, 2008; Kuscü and Akyuz, 2008) While anxiety is a systemic response to an imminent danger reflected in a combination of biochemical alterations and is influenced by memory, personal history and social context (Corah, 1969), Fear represents a normal emotional reaction to specific external stimuli considered threatening to one's existence. (Klinberg, 2008) Anxiety in a child develops with the existence of anxious people around them. Dental behaviour of children is under the influence of parent's attitudes and their high level of anxiety exert a negative influence on the children. While discussing the role of family's influence on children, Lechner considered maternal anxiety as the primary factor

influencing child behaviour. (Lechner, 1975) It is inherent in many investigations that, the anxiety of the mother is transferred to her child creating heightened anxiety levels in their minds causing dental fear for their first dental visit and hence hampering cooperation during treatment. Thus to establish a good relationship of trust with the pediatric dental patient and their mothers, dentists need to recognize behaviour that indicates anxiety, and approaches need to be aimed at alleviating these. Questionnaires or scales constitute the most common means of assessing dental anxiety. (Tambelini and Gorayeb, 2003) One way to alleviate parental fears and possibly help them to prepare for a visit to the dentist is to provide them with prior information regarding what the first visit to the dentist will entail and treatment strategies in brief, (Chadwick, 2002) thus bracing the child for the same. Hence the aim of this study is to assess the levels of dental fear and state anxiety in the mothers of pediatric patients and whether providing preparatory information regarding treatment would have a significant impact on the anticipatory anxiety.

## MATERIALS AND METHODS

This study was carried out at the Department of Pedodontics and Preventive Dentistry, Bharati Vidyapeeth Deemed University Dental College and Hospital, Pune. It received approval from the Institutional Ethics Committee, BV DU

\*Corresponding author: Dr. Sanket Kunte,  
Department of Pedodontics and Preventive Dentistry, Bharati Vidyapeeth  
Deemed University, Dental College and Hospital Pune, India.

DC&H, Pune. (Ref: Project No. Pedo. VIII-3/2015-16) Patients, aged 6-10 years, who were visiting the Department of Pedodontics and Preventive Dentistry, for the first time were invited to be a part of this study. To participate, children needed to be accompanied by their mothers for the dental visit. Patients with any underlying medical condition/swelling, and highly unco-operative children were ruled out from the study. Parents who agreed to participate signed a statement of informed consent.

### Scales and Preparatory Information brochure

Dental Fear Survey is comprised of 20 items measured on a Five point Likert scale (1=not at all afraid; 5=very much afraid). Total scores range from 20 to 100, with higher scores indicating greater dental fear. (Hiroyuki Karibe *et al.*, 2014) State Trait Anxiety Inventory - State, is made up of two scales, each with 20 items, the scores of which range from 1-4 points. This scale assesses how an individual is feeling at the moment. (Roberto Andreatini *et al.*, 2013) Frankl Behavior rating Scale is a four point scale, with a criteria for scoring as follows.

Rating 1 – Definitely Negative – Refusal of treatment, crying forcefully, fearful or any overt evidence of extreme negativism.

Rating 2 – Negative– Reluctant to accept treatment, some evidence of negative attitude but not pronounced.

Rating 3 – Positive– Acceptance of treatment, at times cautious, willingness to comply with the dentist, at times with reservation but patiently follows cooperatively.

Rating 4 – Definitely positive. Good rapport with the dentist. Interested in the dental procedures, laughing and enjoying the situation. (Bankole *et al.*, 2004)

A Brochure was prepared, describing the treatment modalities being carried out in our department. The language used in the same, to describe the procedures was easy to comprehend by a layman and the pictorial representations aided in a better understanding. The Brochure was developed in two languages, English and the local language (Marathi). (Fig. 1)

### Methodology

40 children and their mothers fulfilling the inclusion criteria were randomly selected. The mothers were requested to fill out the Dental Fear Survey and State Trait Anxiety Inventory-State Scale while they were seated in the waiting room of Department of Pedodontics and Preventive Dentistry. (Fig. 2) Meanwhile, the operator made an assessment of the behaviour exhibited by the child while he was seated with his mother. Random allocation of these 40 children and their mothers into two groups of 20 each was done. Group A (Control Group), consisted of mothers who were explained orally the treatment procedures that would be carried out for her child after a routine checkup was done. Group B (Experimental Group), consisted of mothers who along with an oral explanation of the treatment procedures for her child, after the routine checkup, was provided with a brochure. This brochure was explained to the mother, pictorial representations clarified (Fig. 3) and was instructed to take home the same, understand and explain it to her child thereafter. The children and their mothers were analyzed again on the day of the first treatment appointment (second visit). In both Group A and Group B, the operator made an assessment of the behaviour exhibited by the child,

while the mothers again filled out the Dental Fear Survey and State Trait Anxiety Inventory-State Scale, before any treatment procedure was carried out for their child.

### Statistical Analysis

The data obtained on the questionnaires and Scales were compiled, analyzed and tabulated statistically.

Comparison of the readings on the first and second visit was done with a Paired t-test, while comparison of readings of both the groups was done with an Unpaired t-test.

The level of significance was set to 5% ( $p < 0.05$ ).



Fig. 1. Brochure developed in two languages, English and local language Marathi



Fig. 2. Mothers were requested to fill out the questionnaires

**Table 1. Comparison of findings (pre and post) among Experimental group and control group using unpaired t test**

Variable		Experimental Mean (SD)	Control Mean (SD)	Mean difference	t value	P value
Dental fear	Pre	29.25 (4.9)	28.90 (5.9)	0.350	0.202	0.841
survey	Post	23.75 (5.0)	27.50 (5.3)	-3.750	2.290	<b>0.028*</b>
Anxiety	Pre	105.35 (8.4)	103.10 (7.1)	2.250	0.916	0.365
survey	Post	97.15 (8.3)	102.05 (6.8)	-4.900	2.046	<b>0.048*</b>
Child	Pre	1.65 (0.5)	1.85 (0.4)	-0.200	1.463	0.152
behaviour	Post	2.30 (0.5)	1.80 (0.4)	0.500	3.583	<b>&lt;0.001**</b>

\* Significant

\*\* Highly Significant

**Fig.3. Brochures were explained to the mothers and allowed to carry home and thereafter explain to their children**

## RESULTS

A significant decrease was seen in the dental fear levels of the mothers of the experimental group as compared to the control group, in the pre and post readings. (Table 1) as  $p < 0.028$ . Similarly, a significant decrease was seen in the state trait anxiety inventory-state anxiety levels of the mothers of the experimental group as compared to the control group, in the pre and post readings. (Table 1) as  $p < 0.048$ . A highly significant improvement in the child behaviour was noticed in the experimental group as compared to the control group, in the pre and post reading. (Table 1) as  $p < 0.001$ .

## DISCUSSION

Dental anxiety, a state of unpleasantness with associated fear of danger from within or a learned process of one's own environment is a common hindrance in the dental treatment. Approximately, 6-15% people worldwide suffer from high dental fear. Different pathways of acquiring fear have been described by Rachman through his proposed three pathway model of acquiring fear, directly via direct conditioning or indirectly through modelling or negative information. (Rachman, 1977) Dental anxiety has multifactorial origin with

the major causes being illiteracy, lack of dental awareness, irregular dental attendance, maternal anxiety and socioeconomic status. (Dr Parajeeta Dikshit *et al.*, 2013) Markus *et al* in a meta analysis demonstrated a significant relationship between parental and child dental anxiety. Parental anxiety has perhaps received the most attention within the literature as an important external factor that may influence the child's anxiety and behaviour within the dental setting. (Markus Themessl-Huber *et al.*, 2010) However mother's attitudes towards dentistry are strongly related to the oral status of their children. (Bankole *et al.*, 2002) Women's health and level of health knowledge affect the health of their own child and families. She is an important figure in the family and usually considered as the cornerstone of her family. Even though everyone in the family can affect the behavior of a child, the mothers influence is usually the most important as she is primary caretaker of the child and plays important role in helping the child to develop expected behavior patterns. (Rachna Raj and Vikas Vaibhav, 2012) Bankole *et al* reported that levels of dental anxiety in children and their mothers appeared to predict their behaviour in oral care settings. (Bankole *et al.*, 2002) An assessment of parents fear prior to child's dental treatment may help the clinician in modifying behavior management strategies. Whenever parental anxiety is high, efforts to reduce the parents' level of anxiety may also benefit the child.

Providing parents with information about their child's dental treatment has been found to be an effective intervention in reducing the pre-operative anxiety of the parents. (Jenny Porritt *et al.*, 2012) The American Academy of Pediatric Dentistry suggested in its guideline on behavior guidance for pediatric dental patients that educating the parent before the child's first dental visit is very important. Discussing the entire dental procedure before the child's first treatment may be helpful to reduce parental anxiety. (American Academy of Pediatric Dentistry Clinical Affairs Committee, 2012) Hence in the present study, a significant decrease was seen in the dental fear levels and the state trait anxiety inventory-state anxiety levels of the mothers of the experimental group, who were provided a brochure, which mentioned in detail about the treatment modalities for her child, and the same was explained to her, as compared to the control group, in the pre and post readings (Fig.4). This proves that educating the mother, by providing her detailed information in simple layman terms and pictorial representations about her child's treatment beforehand, helps alleviate her fear levels considerably. The control group also showed a slight decrease in the dental fear levels and the state trait anxiety inventory-state anxiety levels of the mothers in the pre and post readings, as a verbal explanation of the treatment needed by their children was given on the day of the check up by the dentist. A highly significant improvement in the child behaviour was noticed in the experimental group as compared to the control group, in the pre and post readings, as the



mothers from the experimental group exhibited lower levels of dental fear and anxiety after they were provided with pre appointment information regarding the treatment modalities, hence being in a better position to prepare their children for the forthcoming dental treatment. A previous study found that children whose mothers exhibited a moderate or high level of dental anxiety were more likely to have untreated dental caries in comparison to children whose mothers had a low degree of dental anxiety. (Goettems *et al.*, 2012) Thus good dental health education, regular dental visits, excellent rapport between the patient and dentist, and most importantly effective communication with the parents of pediatric patients, may contribute to the alleviation of their dental anxiety, and enhancing the treatment experience with children.

## Conclusion

Every parent brings with them a new perspective of opinions and behaviours depending on their cultural influences and personal history. Thus involving the parent through communication and engendering a cooperative spirit will assure reduced stress when treating our pediatric patients as well as will help in guiding the child through a positive dental experience.

## REFERENCES

- American Academy of Pediatric Dentistry Clinical Affairs Committee. Guideline on behavior guidance for the pediatric dental patient. *Pediatr Dent*, 2012; 34(suppl):170-82.
- Bankole OO, Aderinokun GA, Denloye OO, Jeboda SO. 2002. Maternal and child's anxiety: effect on child's behaviour at dental appointments and treatment. *Afr J Med Sci.*, 31:349-52
- Bankole, O.O., O.O. Denloye, G.A. Aderinokun, 2004. The effect of mothers' past dental experience on the behaviour of some nigerian children during dental treatment. *African Journal of Biomedical Research*, Vol. 7, 13 -118
- Chadwick B. 2002. Non-pharmacological behavior management clinical guidelines, (Online). The British Society of Pediatric Dentistry
- Corah NL. 1969. Development of a dental anxiety scale. *J Dent Res.*, 48:596.
- Dr Parajeeta Dikshit, Dr Senchhema Limbu, Ms Kreepa Bhattarai, 2013. Evaluation of Dental Anxiety in Parents Accompanying their Children for Dental Treatment *Orthodontic Journal of Nepal*, Vol. 3, No. 1, June.
- Goettems ML, Ardenghi TM, Romano AR, Demarco FF, Torriani DD. 2012. Influence of maternal dental anxiety on the child's dental caries experience. *Caries Res.*, 46:3-8.
- Hiroyuki Karibe, Kyoko Aoyagi-Naka, Arisa Koda, 2014. Maternal Anxiety and Child Fear during Dental Procedures : A Preliminary Study, *Journal of Dentistry for Children* - 81:2
- Jenny Porritt, Zoe Marshman & Helen D. Rodd, 2012. Understanding children's dental anxiety and psychological approaches to its reduction, *Int J Paed Dent*, 22:397-405
- Klinberg G, 2008. Dental anxiety and behaviour management problems in paediatric dentistry--a review of background factors and diagnostics, *Eur Arch Paediatr Dent*, 9 Suppl 1:11-5.
- Kuscu OO. and Akyuz S. 2008. Is it the injection device or the anxiety experienced that causes pain during dental local anaesthesia? *Int J Paediatr Dent*, 18:139-45.
- Lechner V, 1975, The influence of the family. In: Wright GZ, ed. Behavior Management in Dentistry for children, Philadelphia, PA: W.B. Saunders Co.,:73-87.
- Markus Themessl-Huber, Ruth Freeman, Gerry Humphris, Steve Macgillivray and Nathalie Terzi, 2010. Empirical evidence of the relationship between parental and child dental fear: a structured review and meta-analysis, *International Journal of Paediatric Dentistry*, 20: 83-101
- Marsac ML. and Funk JB, 2008. Relationships among psychological functioning, dental anxiety, pain perception, and coping in children and adolescents. *J Dent Child*, 75:243-51.
- Parenting the parents of Pediatric Patients, Compendium – November, 2006; 27(11):630-634
- Rachman S. 1977. The conditioning theory of fear acquisition: a critical examination. *Behav Res Ther.*, 15: 375-87.
- Rachna Raj and Vikas Vaibhav, 2012. Maternal Factors and Child Oral Health *International Journal of Health Sciences & Research* (www.ijhsr.org) Vol.2; Issue: 8; November.
- Roberto Andreatini, Cristiane Meira Assuno, Jose Vitor Nogara Borges de Menezes, Estela Maris Losso' 2013. The relationship between dental anxiety in children, adolescents and their parents at dental environment, *Journal of Indian Society of Pedodontics and Preventive Dentistry*, Vol. 31, No. 3, July-September, pp. 175-179
- Tambelini MM. and Gorayeb R. 2003. Dental fear scales to children and adolescents - a review of literature, *Paidéia*; 26:157-61.

\*\*\*\*\*