

# Use of dental anxiety questionnaire and clinical approaches: A National survey among pediatric dentists in India

G. S. Prathima, K. Gayathri, G. Kayalvizhi, A. Sanguida

Department of Paedodontics and Preventive Dentistry, Indira Gandhi Institute of Dental Sciences, Mahatma Gandhi Medical College and Research Institute, Pillaiyarkuppam, Puducherry, Tamil Nadu, India

## Keywords

Clinical approaches, dental anxiety, dental fear, pain assessment

## Correspondence

K. Gayathri, Department of Paedodontics and Preventive Dentistry, Indira Gandhi Institute of Dental Sciences, Mahatma Gandhi Medical College and Research Institute, Pillaiyarkuppam, Pondy, Cuddalore Road, Puducherry, Tamil Nadu, India.  
Phone: +91-8301073527.  
E-mail: gads86@gmail.com

Received 15 April 2017;

Accepted 22 May 2017

doi: 10.15713/ins.jcri.164

## Abstract

**Background:** The intensity and nature of dental anxiety varies between individuals. Dental anxiety has been documented as a cause of grave health issues in children and if continued till their adolescence, will lead to unsettling behavior while treatment. Hence, it is essential to recognize a dentally anxious child at the earliest using dental anxiety assessment indices. Hence, the study was planned to evaluate the use of dental anxiety assessment questionnaire and clinical approaches among pediatric dentist in their clinical practice in India.

**Aims and Objectives:** To evaluate the use of dental anxiety assessment questionnaire and the clinical approaches used among pediatric dentists in India.

**Materials and Methods:** Questionnaires were mailed to pediatric dentist, who are members of Indian Society of Pediatric and Preventive Dentistry, of which 227 members have responded. Information collected from each practitioner was analyzed to assess the use of these anxiety assessment questionnaire and their clinical approaches. Data were statistically analyzed using statistical package Epi Info.

**Results:** Of the 227 participants, 54.6% were males, and 45.4% were females. The most frequently used technique was non-pharmacological behavior management technique (95.1%). Around 45% of them used dental anxiety assessment indices in their practice and most commonly used scale was Frankl behavior rating scale (51.8%).

**Conclusion:** Results conclude that 44.5% of pedodontist used dental anxiety questionnaires in their clinical practice.

## Introduction

Odontophobia/dental fear is a “unique phobia with special psychosomatic components that impact on the dental health of the odontophobia persons.”<sup>[1]</sup> The incidence of dental fear and dental anxiety seems to be consistent throughout the world. Dental fear is defined as specific anxiety which is the predisposition for a negative experience in the dental surgery.<sup>[2]</sup>

It has been related to the previous painful dental experience, parental dental fear, age, and gender. Some studies have shown that there is no correlation between dental fear and carries.<sup>[3]</sup>

The aftermath of dental fear and anxiety is multifaceted, which not only leads to the avoidance of dental appointments

but also erratic behavioral changes in them which ultimately tends to worsen the oral health.<sup>[4]</sup>

There are a variety of dental anxiety assessment indices that can be used to assess the anxiety level in children such as Venham picture test and dental anxiety scale.

With the alarming rise in the number of dentally anxious children and its negative impact on children, their treatment becomes a hectic job for pediatric dentist, and so the assessment of anxiety level is mandatory before the commencement of the treatment. Studies on use of anxiety questionnaire among pediatric dentists of the UK population. In contrast to which my study is aimed to assess the use of dental anxiety assessment questionnaire and the clinical approaches associated among pediatric dentists in India.

## Methodology

A pilot study was conducted to validate the questionnaire on a sample size of 50 before the commencement of the study. Following the validation, a sample size of 217 was calculated using the formula:

$$N = \frac{z(\alpha/2)^2 \times p(1-p)}{(0.05)^2}$$

Where  $\alpha = 0.05$

$Z = 1.96$

$d = 0.05$  (allowable error of 5%)

$p = 0.17$  (17% used child dental anxiety assessment questionnaires).

Considering the 17% use of dental anxiety assessment in children  $P$  value is found to be 0.17.

Substituting the value the sample size formula is:

$$N = \frac{z(\alpha/2)^2 \times p(1-p)}{(0.05)^2}$$

$$\frac{(1.96)^2 \times 0.17 \times 0.83}{0.0025}$$

$$= 217$$

Institutional review board and Institutional ethical clearance approval were obtained before the study. Following the sample size calculation, questionnaires were made in Google form and were send via electronic mail to all the members of Indian Society of Pedodontics and Preventive Dentistry. Data were collected and statistically analyzed using statistical package Epi Info. The study was conducted over a period of 6 months. All pedodontist who are the members of Indian Society of Pedodontics and Preventive Dentistry were included in the study. General dental practitioner and another specialty dental practitioner were excluded from the study.

The questionnaire included six different question areas mainly:

1. Gender of the practitioner
2. Year of qualification
3. The type of practice in which their dentally anxious child patients were treated
4. The dental anxiety management techniques used by them
5. Percentage of dentally anxious child patients treated each week
6. Use of six specified dental anxiety assessment indices for child patients.

## Statistical analysis

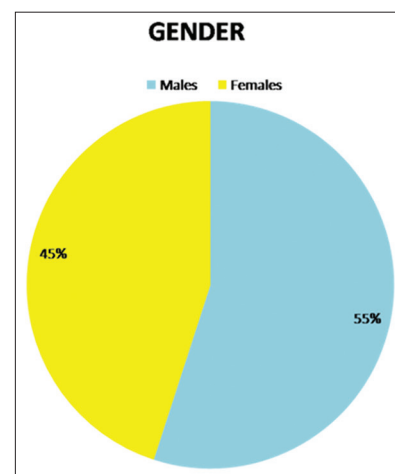
- To analyze the questionnaire study, data's were collected and statistically analyzed using statistical package Epi Info.

## Results

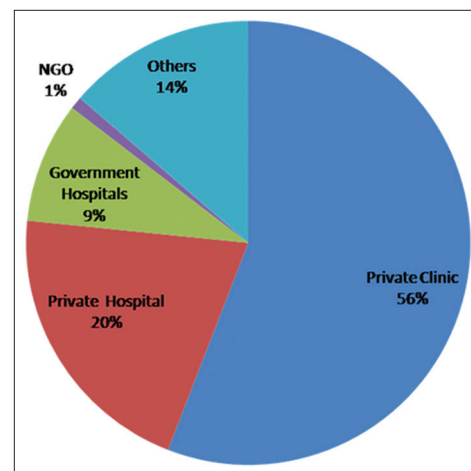
The questionnaires were sent to members of Indian Society of Pedodontics and Preventive Dentistry of which 227 members have responded back. Of the participants, 54.6% were males, and 45.4% were females [Figure 1]. A higher percentage of practitioner followed private clinic practice of 55.9% followed by 20.7% in private hospital practice, 13.7% in dental colleges, 8.8% in government hospital and around 0.9% NGO [Figure 2].

Frequency of use dental anxiety assessment indices in their practice was low (101), whereas only 45% of them used these indices in their practice settings [Figure 3]. The most commonly used common clinical approaches was non-pharmacological behavior management technique (95.1%) by the practitioner followed by relative analgesia and oral sedation by 2.2% and general anesthesia 0.4% [Figure 4].

The most of the pediatric dentists used Frankl behavior rating scale (1.8%). A 5-point Likert scale was used to assess it wherein,



**Figure 1:** Percentage distribution of males and females participated in the study



**Figure 2:** Percentage distribution on the type of practice by pedodontist

5-point Likert type scale was used to record the dental anxiety assessment.

- Gender of the practioner
  - Male
  - female
- Year of qualification :
- Type of practice:
  - private clinic
  - private hospital
  - government hospital
  - NGO
  - Others .....
- Anxiety management techniques:
  - Non pharmacological Behavioral management
  - Relative analgesia
  - Intravenous sedation
  - oral sedation
  - general anesthesia
  - hypnosis
  - others
- Total number of children’s coming each week ... ..
- Number of dentally anxious children coming each week ... ..
- Dental anxiety assessment indices used (may select more than 1 )
 

YES , if yes	<input type="checkbox"/>	NO			
• Visual analogue scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not at all ,	<input type="checkbox"/> rarely,	<input type="checkbox"/> sometimes,	<input type="checkbox"/> often ,	<input type="checkbox"/> always	
• Venham picture scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not at all ,	<input type="checkbox"/> rarely ,	<input type="checkbox"/> sometimes ,	<input type="checkbox"/> often ,	<input type="checkbox"/> always	
• Frankl scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not at all ,	<input type="checkbox"/> rarely,	<input type="checkbox"/> sometimes,	<input type="checkbox"/> often ,	<input type="checkbox"/> always	
• Children dental fear picture test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not at all ,	<input type="checkbox"/> rarely,	<input type="checkbox"/> sometimes,	<input type="checkbox"/> often ,	<input type="checkbox"/> always	
• Corah’s dental anxiety scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not at all ,	<input type="checkbox"/> rarely,	<input type="checkbox"/> sometimes,	<input type="checkbox"/> often ,	<input type="checkbox"/> always	
• others					

Validated questionnaire format used in this study.

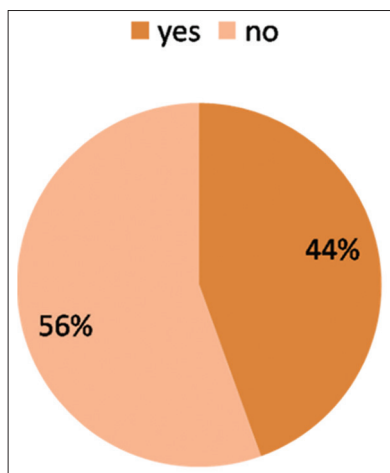


Figure 3: Percentage use of dental anxiety assessment indices by pedodontist

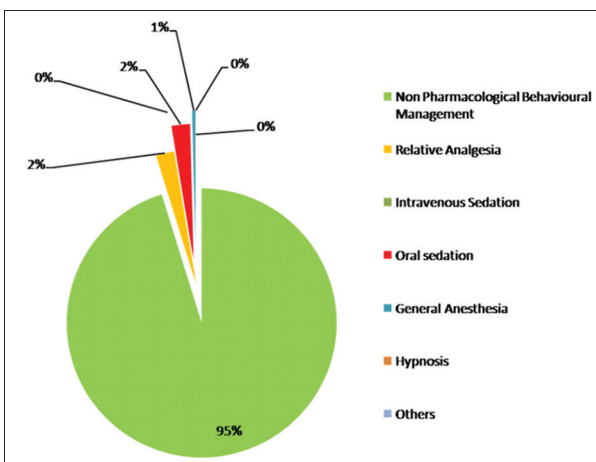


Figure 4: Percentage use of different anxiety management techniques

- <25% stands for not at all using scale
- 25% stands for partly using the scale
- 50% stands for sometimes
- 75% stands for often
- 100% stands for always.

Following the Likert scale rule, study shows that only 1.8% population used Frankl scale always. 15.2% of them used it often, 51.8% of them used this sometimes only 25.9% of participants used Frankl scale partly, and 5.4% never use that at all [Figure 5]. Percentile use of children dental fear picture test following the 5-point Likert scale shows that no one use this scale always and 12.5% of them use it sometimes. 30% use it partly and 57.5% never use this scale at all.

Percentile use of Venham picture scale following the 5-point Likert scale shows that no one use this scale always and 10.5% of them use it sometimes. 24.2% use it partly and 65.3% never use this scale at all.

## Discussion

Despite the huge improvement in the field of dental science and dental care, discontinuation of dental visits still remains a problem. The main reason for dental avoidance is dental fear. Dental fear is not an unusual condition. Children with high dental fear may delay dental visits or cancel appointments. When there is deterioration of the dental condition, both negative self-evaluation and cognitive perceptions of dental visits are affected. Due to the importance of dental fear, several instruments have been developed to study behavior and attitudes toward dental care which includes facial image scale, children's fear survey schedule-dental subscale, and dental fear survey. Oliveira *et al.* found an association between childhood dental experiences and dental fear among dental, psychology and mathematics undergraduates in Brazil and they concluded that higher level of dental fear was noted in undergraduate students who had suffered negative dental experience in childhood.<sup>[5]</sup> Similarly, Raj *et al.* evaluated dental fear in children during dental visit using children's fear survey schedule-dental subscale.<sup>[6]</sup> His study concluded that dental fear decrease as age increases. Higher incidences of "extreme anxiety" were attributed to injections and drilling sounds. Similar study on CFSS-DS conducted by Bajric *et al.* ensured its reliability and validity in children of Bosnia and Herzegovina also proved that it can be used as a psychometric

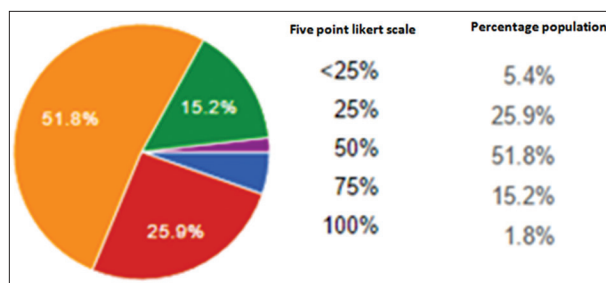


Figure 5: Percentage use of Frankl scale

instrument to assess dental fear in children.<sup>[7]</sup> Aartman *et al.* also proved that dental subscale of the children's fear survey schedule can be used to assess dental anxiety in children.<sup>[8]</sup> Carter *et al.* in his article on pathways of fear and anxiety in dentistry said that fear and anxiety hinders the provision of routine dental treatment on a daily basis for most dental practices.<sup>[9]</sup> Similarly, Buchanan *et al.* did validation of a facial image scale to assess child dental anxiety status in a clinical context.<sup>[10]</sup> There are a variety of self-reported dental anxiety assessments available. These anxiety scales have been used in our questionnaire study to assess the anxiety in children.

Even though dental anxiety questionnaires have considerable potential in the routine assessment of patients in the dental practice, no study on the use of those indices in the daily dental practice have been noted. Several studies that investigated behavioral strategies for reducing patient stress during dental procedures indicated that effective anxiety-reducing treatments were used. Many pre- and post-treatment anxiety levels have been used to test various anxiety management techniques. Specialized dental anxiety clinics in the Netherlands do employ the routine use of dental anxiety assessment questionnaires, and they refer dentally anxious patients into their treatment programs.<sup>[11]</sup>

A pilot study on a sample size of 50 was conducted to validate the questionnaire before the commencement of the study. Following this, the sample size calculation was done, and a sample size of 217 was found.

In accordance with the study, the response we got cannot be extrapolated to wider population as the responses were not received from all participants. Of the questionnaire send, 227 responded, out of which 55% of them were males.

Type of practice followed by most of them was private clinic practices with 55.9% and 91.5% of them followed clinical approaches which were non-pharmacological behavioral management techniques.

The results highlight the fact that the use of dental anxiety assessment questionnaire among pedodontists who responded to the questionnaire was low which was similar to the study by Dialely *et al.* The most commonly used common clinical approaches was non-pharmacological behavior management technique (95.1%) followed by relative analgesia and oral sedation by 2.2% and general anesthesia 0.4%.

Other studies also prove that commonly followed technique is behavioral management. In contrast to our study, questionnaire study on UK dentists shows that relative analgesia and sedation is next highly used technique followed by hypnosis.

The type of non-pharmacological behavioral management technique followed was not a part of the questionnaire. The increased use of non-pharmacological behavioral management technique by the majority of the population could be attributed to the fact that it is by far the cost-effective and easy method to manage the behavior of children in the large population. IN a developing country like India, most parents cannot afford to go for costly procedures such as conscious sedation and general anesthesia.

In contrast to the study by Dialely *et al.*, Frankls behavioral rating scale was the frequently used scale with a percentage

of 1.8. Surprisingly, the percentage on the usage of indices was very low in Indian population which could be attributed to the fact that primary dentition is most neglected and child is brought to the clinic during emergency condition where immediate treatment is needed. Carlesen *et al.* found that even though no effect on disruptiveness or pain experience was noted, pre-treatment inquiries of children concerning both anxiety and pain appear to reduce anxiety about dentistry.<sup>[12]</sup> Hence, it is a must that anxiety indices should be taken before the procedures so that a productive treatment is provided for the child.

Dialey *et al.* conducted a survey on the use of dental anxiety questionnaires a group of UK dental practitioners and he concluded that the use of dental anxiety assessment questionnaires was low among them.<sup>[13]</sup> In comparison to this study, our study was conducted in a population of pediatric dentists of India. Results have concluded that the use of dental anxiety assessment questionnaires was low among pediatric dentists and the commonly used clinical approaches were non-pharmacological behavior management techniques with Frankl behavior rating scale being the most common indices being used.

## Conclusion

Results have concluded that the use of dental anxiety questionnaires among the participated pedodontists was low. Further studies need to be conducted on the larger sample size for a more accurate result.

## Acknowledgment

This research was supported by Department of Pedodontics and Preventive Dentistry, Indira Gandhi Institute of Dental Sciences, in 2015. We would like to address our sincere thanks to the members of Indian Society of Pedodontics and Preventive Dentistry who have participated in this study for their cooperation and support.

## References

1. Moore R, Birn H. Phenomenon of dental fear. *Tandlaegebladet* 1990;94:34-41.

2. Ingman KA, Ollendick TH, Akande A. Cross-cultural aspects of fears in African children and adolescents. *Behav Res Ther* 1999;37:337-45.
3. Vignehsa H, Chellappah NK, Milgrom P, Going R, Teo CS. A clinical evaluation of high-and low-fear children in Singapore. *ASDC J Dent Child* 1990;57:224-8.
4. Aartman IH, de Jongh A, Makkes PC, Hoogstraten J. Dental anxiety reduction and dental attendance after treatment in a dental fear clinic: A follow-up study. *Community Dent Oral Epidemiol* 2000;28:435-42.
5. Oliveira MA, Bendo CB, Ferreira MC, Paiva SM, Vale MP, Serra-Negra JM. Association between childhood dental experiences and dental fear among dental, psychology and mathematics undergraduates in Brazil. *Int J Environ Res Public Health* 2012;9:4676-87.
6. Raj S, Agarwal M, Aradhya K, Konde S, Nagakishore V. Evaluation of dental fear in children during dental visit using children's fear survey schedule-dental subscale. *Int J Clin Pediatr Dent* 2013;6:12-5.
7. Bajric E, Kobašlija S, Juric H. Reliability and validity of Dental Subscale of the Children's Fear Survey Schedule (CFSS-DS) in children in Bosnia and Herzegovina. *Bosn J Basic Med Sci* 2011;11:214-8.
8. Aartman IH, van Everdingen T, Hoogstraten J, Schuurs AH. Self-report measurements of dental anxiety and fear in children: A critical assessment. *ASDC J Dent Child* 1998;65:252-8, 229-30.
9. Carter AE, Carter G, Boschen M, AlShwaimi E, George R. Pathways of fear and anxiety in dentistry: A review. *World J Clin Cases* 2014;2:642-53.
10. Buchanan H, Niven N. Validation of a facial image scale to assess child dental anxiety. *Int J Paediatr Dent* 2002;12:47-52.
11. Wright FA, Giebartowski JE, McMurray NE. A national survey of dentists' management of children with anxiety or behaviour problems. *Aust Dent J* 1991;36:378-83.
12. Carlsen A, Humphris GM, Lee GT, Birch RH. The effect of pre-treatment enquiries on child patient's post-treatment ratings of pain and anxiety. *Br J Med Psychol* 1986;59:97-9.
13. Dailey YM, Humphris GM, Lennon MA. The use of dental anxiety questionnaires: A survey of a group of UK dental practitioners. *Br Dent J* 2001;190:450-3.

**How to cite this article:** Prathima GS, Gayathri K, Kayalvizhi G, Sanguida A. Use of dental anxiety questionnaire and clinical approaches: A national survey among pediatric dentists in India. *J Adv Clin Res Insights* 2017;4:79-83.

This work is licensed under a Creative Commons Attribution 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/> © Prathima GS, Gayathri K, Kayalvizhi G, Sanguida A. 2017