

Behavior Assessment of Children in the Dental Settings - A Cross Sectional Study

Dr. Ruksana Sheik,
Undergraduate Student,
Saveetha Dental College & Hospital,
Saveetha Institute of Medical and Technical Sciences, Chennai

Dr. Geo Mani,
Senior Lecturer,
Department of Pedodontics and Preventive dentistry,
Saveetha Dental College & Hospital,
Saveetha Institute of Medical and Technical Sciences, Chennai

Abstract

Introduction - Behavior guidance is a process where practitioners help patients identify appropriate and inappropriate behavior, learn problem solving strategies, and develop impulse control, empathy, and self-esteem. Evaluation of the child's co operative potential is essential for treatment planning. Assessing the child's behaviour, past experiences and current emotional state allows the practitioner to provide a successful dental treatment. The main objective of the study is to assess the ability of the children to cooperate with the doctors in the dental settings using behaviour rating scales.

Materials and Methods- Behaviour assessment of the children was done in department of pediatrics, Saveetha dental college to assess the behavior of 50 children during their dental visits. The study was done for the children between the age group of 6 to 15 years who had undergone dental treatment.

Results- Assessment of the behavior of the children helps the dentist to formulate the required treatment plan for the children and carry out the treatment procedures successfully. The children in this study showed a more positive behaviour in the subsequent dental visits.

Conclusion- Management of the children in the dental settings is a challenging task for the dentists. However this can be overcome by assessing the behaviour of the children. This helps the dentist to execute required treatment for the children. The children showed a more positive behavior in the subsequent dental visits. This can be achieved by behaviour management techniques like tell-show-do technique.

Keywords: behaviour, assessment, Frankl, dental settings, children

Introduction

Assessment of the children based on their behavior is one of the most important skills for a pediatric dentist. (1)

Many behavior rating scales are available to assess and evaluate the behavior of a child on different dental visits. Frankl et al classified the children behavior into four groups depending upon the child's attitude and cooperation or lack of cooperation during dental treatment. (2) This classification is known as the Frankl behavior rating scale, which is one of the most reliable tools developed for behavior rating of children in dental settings.

The child's behavior on a dental visit can be influenced by different factors like the age, parental behavior, parental anxiety, past medical and dental history, type of the dental settings, behavior management and procedural techniques followed by the dentist. (3) Behavioural dentistry is an interdisciplinary science. Its objective is to help a dental practitioner gain an understanding of the interpersonal social force that influences the patient's behaviour. There is a correlation between the dental anxiety and behaviour. For this reason it is important for the dentists to be able to evaluate behaviour in order to identify these patients who need special care in regard to their anxiety. (4)

Fear onset in young children might be related to different contexts, being the dental setting one of them. (5) In this case, dental fear frequently influences patients' behavior, delaying treatment and also producing unsatisfactory technical results. Fearful patients postpone dental treatment until it becomes extremely necessary. Dental treatment avoidance may be the result of certain aversive painful childhood experiences (6). Though there are many dental and non-dental reports of the relationship between fear and pain, the literature is still not clear about the distinction between psychological and physiological factors that may influence the patient's behavior during dental routines, as the procedure of dental injection. Factors such as fear are clearly capable of influencing the patient response to painful or other stimuli applied after administration of local anesthetics. Such factors may contribute to inadequate anesthesia. Moreover, the relationship between the variables may be reciprocal: fear leading to inadequate anesthesia and being treated with inadequate anesthesia serves to increase fear. (7)

Managing behavior and anxiety so that a child can become a cooperative dental patient is critical to the success of treatment. Although traditional behavior management techniques can be successful, the attitudes of the parents and some dental professionals toward these techniques are changing. For example, immobilization in a papoose board, although effective, has also been shown to be unacceptable among a majority of parents. (8,9)

Assessment of the child behavior in the dental setting has been attempted by numerous investigators and has resulted in several clinical research tools for measuring child behavior, most of which were developed to assess a specific treatment procedure or condition. Some investigators used physiologic measures but these have not been subsequently correlated with the observed behavior. (10, 11)

Dental anxiety and fear of dental treatment have been recognized as a source of serious problems in patient management for many years. Moreover, dental anxiety can also lead to the avoidance of seeking needed dental care. In order to investigate the causes and consequences of dental anxiety, many measurement techniques have been proposed. Some examples are drawings, observation of real behavior, ratings of dentists, and verbal cognitive self-reports.(12) The child's emotional and behavioral response in the dental chair is a matter of serious concern to both the practitioners and researchers in the pedodontic field. A youngster's response to dental treatment may greatly facilitate or impede the course and quality of treatment provided. Even more significantly, the reactions of young children may presage emerging perceptions of and attitudes toward dental care which affect their later propensity to follow preventive routines and to accept restorative care. It is therefore appropriate that clinicians and researchers are intensifying their efforts to understand and optimize the young child's response to dental treatment. (13) Pedodontic researchers are exhibiting a growing interest in evaluating techniques for managing the young child's negative behavior and reducing adverse emotional responses to treatment. (14)

The advantage of the rating scales include the ease of administration and conceptualization. (15)The rater uses the trait as an organizing concept which allows him or her to select the relevant cues and also to superimpose a dimension on the subject's behavior. Therefore, the overall impression afforded by a rating can bring out a quality or unity to the child's behaviour. In assigning ratings, the rater is able to take account of the individual response styles in behavior and to consider infrequent but significant behaviors. Therefore, the rating represents a high degree of abstraction from the basic observational process. In assessing the usefulness of a rating technique, several features are important together with reliability, validity and measurement properties. Reliability reflects the extent to which a scale is consistent and repeatable in assessing a trait. A highly reliable scale will provide similar results when used to assess the same sample of behavior at different times or by different raters (inter observer agreement). Validity also reflects the degree to which a scale actually measures what it purports to measure. A valid scale therefore is one that accurately and specifically measures the unique trait it was designed to measure. Measurement properties refer to the nature of scale categories and the relationships among scale points. (16)

Frankl's Behaviour rating scale (FBRS)

Frankl's Behaviour Rating Scale, developed in 1962, is one of the most widely used behaviour evaluation scales in pediatric dental research and in daily clinical practice. It classifies child behaviour into four groups according to the child's attitude and cooperation or lack of cooperation during dental treatment. (17)It consists of four behaviour categories ranging from definitely positive to definitely negative which are assigned by the treating clinician and can be applied at various stages during treatment. It is considered as one of the most reliable tools developed for behaviour rating of children in dental setting. (18)

Materials and Method

The study was conducted in the Department of Pedodontics, saveetha dental college to assess the behavior of children during their dental visits. The study was done for the children between the age group of 6 to 15 years who had undergone dental treatment. A total of 50 children were included in the study. The treatment rendered varied from oral prophylaxis to restorative pulp therapy and extractions. None of the children had specific problems with anxiety or non cooperation.

Selection Criteria

The children was assessed for their behaviour by operator for two dental visits to the department of pedodontics for dental treatment were included for the study. Children were divided in two groups based on their ages. Group I (primary school) comprised of 25 children between the age group of 6 and 10 years. Group II (middle school) comprised of 25 children between the age group of 11 and 15 years. During each visit (two visits), child had undergone assessment of behavior, i.e. pre treatment and post-treatment. Behavior was recorded: (i) Before start of treatment (pretreatment) at the play therapy room, (ii) post-treatment before relieving the patient from the department.

Frankl's behavior rating scale was used to assess the behaviour of the children

Definitely negative: Refusal of treatment, crying forcefully, fearful, or any other overt evidence of extreme negativity during the treatment.

Negative: Reluctant to accept treatment, uncooperative, some evidence of negative attitude but not pronounced.

Positive: Acceptance of treatment, willingness to comply with the dentist, at times with reservation, but patient follows the dentist's directions cooperatively.

Definitely positive: Good understanding with the dentist, involved in the dental treatment and laughing and enjoying during the treatment.

All children included in the study were exposed to an interaction with the operator in the play therapy room/reception area and then exposed to tell-show-do measure/technique which was used on the dental chair.

Exclusion criteria

Children below the age group of 6 years and above the age group of 15 years were excluded.

Inclusion criteria

Children who came for 2 appointments were included in the study.

For statistical analysis, numerical value was assigned to Frankl's behaviour rating scale (Definitely negative-0, negative – 1, positive – 2, definitely positive – 3)

Results

N=25	Age 06 - 10 years			
	Visit 1		Visit 2	
	Pre Treatment	Post Treatment	Pre Treatment	Post Treatment
(- -) 0	8(32%)	0	1(4%)	0
(-) 1	12 (48%)	11(44%)	10(40%)	7(28%)
(+) 2	5(20%)	14(56%)	14(56%)	12(48%)
(+ +) 3	0	0	0	6(24%)

Fig 1: Behaviour assessment for primary school children

N=25	Age 11 - 15 years			
	Visit 1		Visit 2	
	Pre Treatment	Post Treatment	Pre Treatment	Post Treatment
(- -) 0	5(20%)	0	0	0
(-) 1	11 (44%)	7(28%)	7(28%)	1(4%)
(+) 2	9(36%)	13(52%)	15(60%)	13(52%)
(+ +) 3	0	5(20%)	3(12%)	11(44%)

Fig 2: Behaviour assessment for middle school children

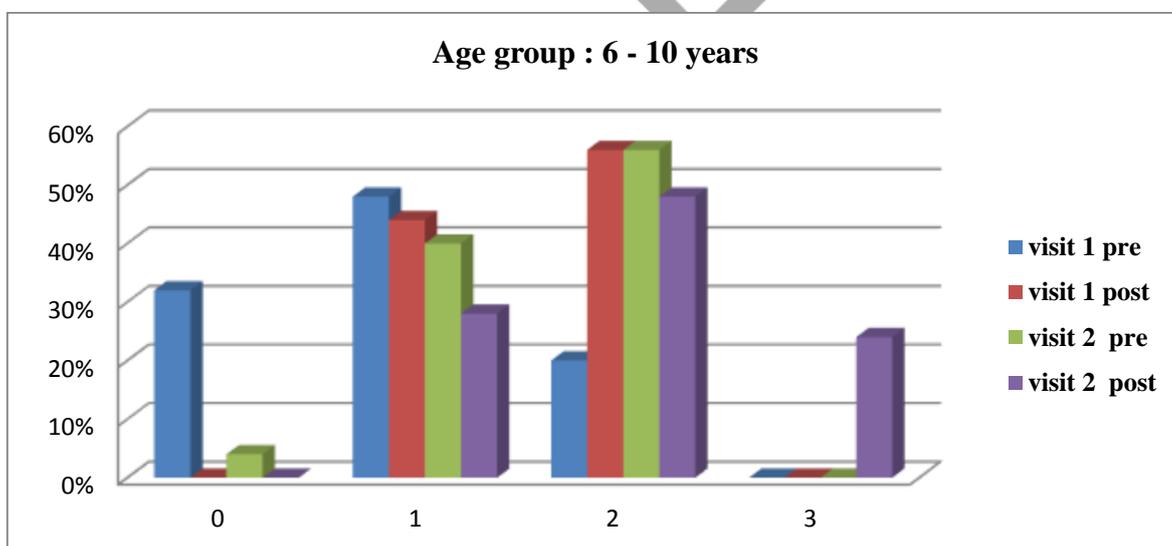


Fig 3: age group 6-10 years

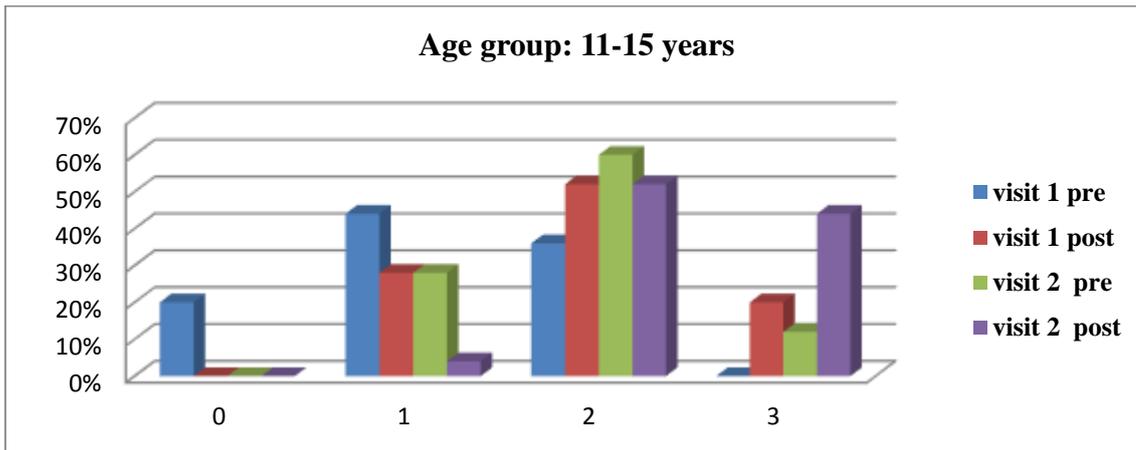


Fig 4: Age group 11-15 years

In our study in group I (primary school), 8 (32%) of the children were definitely negative on Frankl’s behavior rating scale before the treatment and by the end of first visit, 0% of children showed definitely negative behavior. By the 2nd visit, before the treatment 1 (4%) of the children showed definitely negative behavior and by the end of 2nd visit, there was no children who showed a definitely negative behavior.

12 (48%) of the children were graded as negative on Frankl’s behavior rating scale before the treatment and by the end of first visit, 11(44%) of children showed negative behavior. By the 2nd visit, before the treatment 10 (40%) of the children showed negative behavior and by the end of 2nd visit, 7 (28%) of children showed a negative behavior.

5 (20%) of the children were graded as positive on Frankl’s behavior rating scale before the treatment and by the end of first visit, 14(56%) of children showed positive behavior. By the 2nd visit, before the treatment 14 (56%) of the children showed positive behavior and by the end of 2nd visit, 12 (48%) of children showed a positive behavior.

There were no children who were graded as definitely positive before and after the treatment during the first visit. In the second visit, no children were graded as definitely positive before the treatment but after the treatment, 6 (24%) of the children were graded as definitely positive.

In our study in group II (middle school), 5 (20%) of the children were definitely negative on Frankl’s behavior rating scale before the treatment and by the end of first visit, 0% of children showed definitely negative behavior. In the 2nd visit, there were no children showing definitely negative behavior before and after the treatment.

11 (44%) of the children were graded as negative on Frankl’s behavior rating scale before the treatment and by the end of first visit, 7(28%) of children showed negative behavior. In the 2nd visit, before the treatment 7 (28%) of the children showed negative behavior and by the end of 2nd visit, 1 (4%) of children showed a negative behavior.

9 (36%) of the children were graded as positive on Frankl’s behavior rating scale before the treatment and by the end of first visit, 13(52%) of children showed positive behavior. By the 2nd visit, before the treatment 15 (60%) of the children showed positive behavior and by the end of 2nd visit, 13 (52%) of children showed a positive behavior.

There were no children who were graded as definitely positive before the treatment in the first visit but after the treatment 5 (20%) of the children showed a definitely positive behavior. In the second visit, 3 (12%) children were graded as definitely positive before the treatment but after the treatment, 11 (44%) of the children were graded as definitely positive.

Discussion

In this study behaviour of 50 children was assessed during two consecutive dental appointments. The children were divided into two groups based on their age. Behavior was assessed before and after the dental treatment. The children were also exposed to Tell-show- do technique during the treatment.

In group I (primary school), 8 (32%) of the children were definitely negative on Frankl’s behavior rating scale before the treatment and by the end of first visit, 0% of children showed definitely negative behavior which indicates a better response in behaviour after the treatment. By the 2nd visit, before the treatment 1 (4%) of the children showed definitely negative behavior and by the end of 2nd visit, there was no children who showed a definitely negative behavior which indicates a better response after the treatment.

Before the treatment, 12 (48%) of students showed a negative behaviour in the first visit and 10 (40%) of students showed a negative behavior in the second visit, this indicates the lack of cooperation by the children before the start of the treatment.

5 (20%) of the children were graded as positive on Frankl's behavior rating scale before the treatment and by the end of first visit, 9 more children showed a positive behavior which indicates an improvement in their behavior. By the 2nd visit, before the treatment 14 (56%) of the children showed positive behavior and by the end of 2nd visit, only 12 (48%) of children showed a positive behavior indicating the lack of attention and cooperation of the children.

In group I, there was no children showing a definitely positive behavior before and after the treatment. However at the end of second visit, 6 (24%) of children showed a definitely positive behaviour which is appreciable.

A very less percentage of children did not cooperate for the dental treatment in the second visit which indicates lack of comprehension and understanding received by the child. Tell-show-do technique and simple counseling can have a great impact on the young children.

In our study, children showed improvement in their behavior after the treatment and also showed a significant increase in the cooperation level in the second visit. Corkey and Freeman have reported that dental anxiety begins to decrease by 6 to 7 years, with most children being able to cope with dental situations at that age. (19) Holst and Crossner, (20) and Klingberg et al (21) have also established that dental anxiety was more pronounced in younger children (4-6 years) as compared to older children (9-11 years).

Howitt and Stricker also concluded in their study that the child's arousal level was reduced as he gained experience in the dental situation. (22) Venham and Cipes have also shown that the behavior of the children improves in subsequent dental visits. (23) The improvement during subsequent visits also suggests that the experience gained by the child during preceding visits helped the child to identify the nonthreatening aspects of the visits and to deal with stressful dental procedures.

In Group II, the children are grown up and expected to show increased cooperation in their behaviour. The children usually show a matured and a uniform behaviour and the willingness to cooperate during the treatment.

In our study in group II (middle school), 5 (20%) of the children were definitely negative on Frankl's behavior rating scale before the treatment and by the end of first visit, 0% of children showed definitely negative behavior. In the 2nd visit, there were no children showing definitely negative behavior before and after the treatment. This showed a decrease in the definitely negative behaviour of the children in the subsequent visit.

Also there was a significant decrease in the negative behaviour of the children before and after the treatment in the first and second visits.

9 (36%) of the children were graded as positive on Frankl's behavior rating scale before the treatment and by the end of first visit, 4 more children showed positive behavior. By the 2nd visit, before the treatment 15 (60%) of the children showed positive behavior and by the end of 2nd visit, there was a marginal decrease in the percentage of children showing a positive behavior. The probable reason for the uncooperative behaviour could be due to pain at the time of treatment. Also at the end of the 2nd visit, more number of students showed a definitely positive behaviour.

Tell-show-do method is considered the technique with which dentists and parents are most comfortable for reducing a child's anxiety. (24,25) In our study tell-show-do technique was effective in reducing child's fear and anxiety as most of the children in our study showed a cooperative behavior at the end of the second visit.

Conclusion

Management of children in the dental settings is a challenging task for the dentists. However this can be overcome by assessing the behaviour of the children. This helps the dentist to execute required treatment for the children. The children showed a more positive behavior in the subsequent dental visits. This can be achieved by behaviour management techniques like tell-show-do technique.

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