Validation of a facial image scale to assess child dental anxiety – Observational Cross Sectional Study.

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ABSTRACT:

To examine the validity of a scale that uses faces as an indicator of children's dental anxiety. Children aged 5-12 years, who visited the pediatric dentistry department for the first time and whose parents / guardians agreed to take part were included in the study. Anxiety of children was measured using facial image scale while they were waiting for treatment in the waiting room and during the treatment and post-operative. The findings suggest that FIS is a valid means of assessing child dental anxiety status in a clinical context.

Keywords: Dental anxiety, facial image scale, behavior evaluation.

INTRODUCTION:

Child dental anxiety still possess a significant problem for the practice of dentistry,[2]. It has been recognized as a problem in patient management for many years,[2]. Furthermore, the effects of this anxiety have been shown to persist into adulthood, which can often lead to dental avoidance and the subsequent deterioration of oral health. It is important that dentists are able to assess dental anxiety in child patients as early as possible so that they may identify patients who are in special need with regards to their fear,[2].

There are many different assessment methods available, however, the ideal measure should be valid, allow for limited cognitive and linguistic skills, and be easy to administer and score in a clinical context,[1,2]. Venham Picture Test [VPT] is one f the few picture scales available that covers all these criteria, and has been used in a number of studies to assess anxiety before treatment,[2].

The Facial Image Scale[FIS] is a state measure of children's dental anxiety and comprises a row of five faces ranging from very happy to very unhappy[shows ranging from 1-5; 5 indicating highest anxiety].Validation study have shown that it is a suitable measure for assessing state child dental anxiety even in very young children,[2].

The present facial image scale has a fixed number of faces [not a continuous line] for the children to choose from, thus making it easier to score in a clinical situation, and easier for very young children to understand,[1,2].

MATERIALS AND METHODS:

A observational cross – sectional study was carried out to assess the child dental anxiety in 5-12 years of children visited in pediatric dentistry department, were interviewed along with their parents/ guardians to take part in the study of investigating how their children would emotionally feel at the dentist,[3]. A total of 80 subjects aged 5- 12 years who visited in pediatric dentistry department for the first time and whose parents/ guardians agreed to take part, were included in the study. Anxiety was assessed in three dental approach, different moments [before, during treatment (filling and extraction), and after treatment], factors that could influence the behavior of the child were minimized, each child was attended individually, and no information exchange occurred,[3].

SCALES:

To detect the child dental anxiety using Facial Image Scale [FIS] and Venham Picture Test [VPT],[2]. Anxiety of the children was measured using facial image scale while they were waiting for treatment in the waiting room , and during the treatment (filling and extraction) and after the treatment,[1,2].

The facial image scale comprises a row of five faces ranging from very happy to very unhappy,[2]. The children were asked to point at which face they felt most like at that moment. The scale scored by giving a value of one to the most positive affect face and five to the most negative affect face,[2].

The Venham Picture Test comprises eight cards , with two figures on each card , with two figures on each card, one ‘anxious’ figure and one ‘ non anxious’ figure,[2]. The children were asked to point at the figure they felt most like at that moment. All cards were shown in their numbered order. If the child pointed at the ‘anxious figure’ a score of one was recorded, if the child pointed at the ‘ non anxious’ figure a score zero was recorded,[2]. The number of times the ‘anxious’ figure was choosen was totaled to give a final score,[2].

RESULTS:

Mean age of the participants was 8.7 years. There was 38 boys[mean age 47.5%] and 42 girls[mean age 52.5%].

TABLE: 1

Scores (FIS scale) of Dental anxiety	pre operative		Post operative	
	Number of patients	% of patients	Number of patients	% of patients
Score 1	61	76.3	57	71.2
Score 2	10	12.5	23	28.8
Score 3	4	5	0	0
Score 4	5	6.2	0	0
Total	80	100	80	100

Table: 1: Pre-operatively score 3 = 5% , and post-operatively score 3= 0% , pre-operative score 4 = 6.2 % and post-operative score= 0%, it clearly shows that childrens are highly anxious at pre-operatively when compared to post-operative score.

Fig 1: Bar diagram representation depicting the scores of Facial Image scale (Pre -operative and post operative)

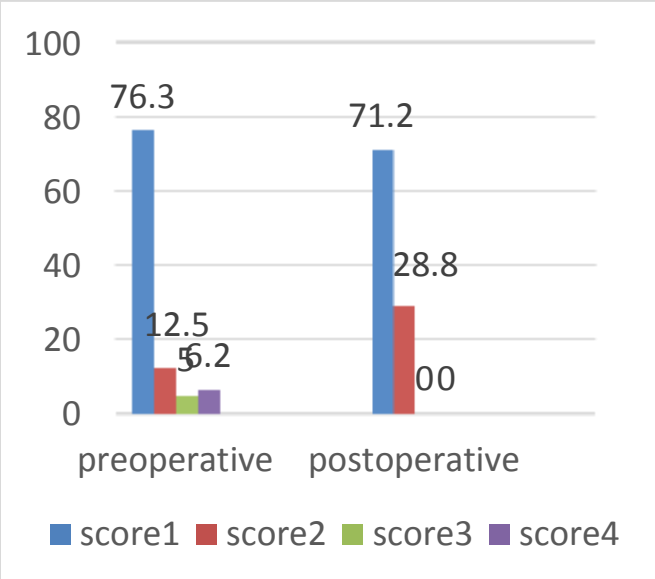

Figure 1: Pre –operatively score 4 = 6.2%, and post-operatively score 4 = 0% Here , from the diagram it clearly shows the significant reduction of score 4, 3 at post operative when compared to pre operative scores.

Pre-operative score 2 =12.5 % and post-operative score= 28.8%.

Pre-operative score 3= 5 %, and post-operative score 3 =0 %

(Score 4, 3 = very anxious, fairly anxious respectively,)

The data analysis of scores of Facial Image Scale of During dental procedure-

FILLING (F) AND EXTRACTION (E):

TABLE: 2

Scores	Filling(F)		Extraction(E)	
	No. of patients	% of patients	No. of patients	% of patients
Score1	17	35.5	7	21.9
Score2	16	33.3	6	18.8
Score3	12	25	11	34.3
Score4	3	6.2	8	25
Total	48	100	32	100

Table 2 : It clearly shows majority of the children showed highly anxious at extraction procedure(p value 0.4> 0.05) when compared with restorative procedure(p value 0.2>0.05).

Filling score 3 = 25%, and extraction score 3 = 34.3%.

Filling score 4 = 6.2 % , and extraction score 4= 25%.

Grand Total: 48 (FILLING) + 32(EXTRACTION) = 80(n)

Score 1 - Not anxious

Score 2 – Slightly anxious

Score 3 - Fairly anxious

Score 4 - Highly anxious

Fig 2: Bar Diagram representation depicting the Facial Image scale during the dental procedure: (Filling and Extraction)

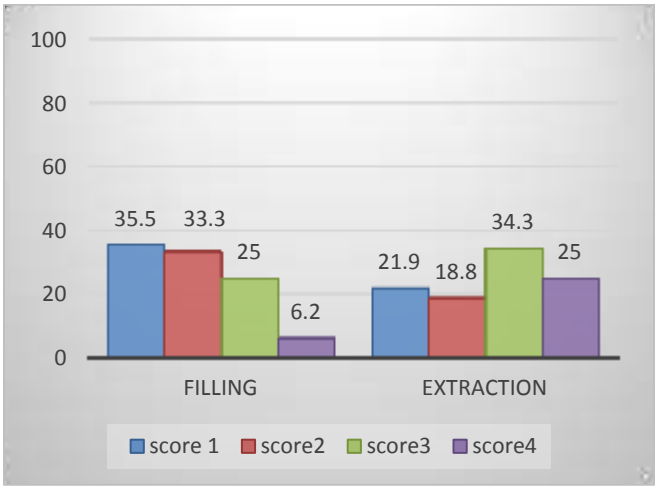

Figure 2: There is a significant difference on score 4 (very anxious)when compared with Filling and Extraction procedures since filling remains little easy when compared to extraction procedures among children.

Filling score 3 = 25 % , and extraction score 3 = 34.3%.

Filling score 4 = 6.2 % , and extraction score 4 = 25 %.

Also, Analysis of Variance was performed to investigate the effects of age on FIS scores of filling and extraction procedures respectively. For this purpose, the age groups was transformed into a grouping variable,(5 -7 years, 8-10 years, 11 years and above). Neither the main effects of age with both filling (p value = 0.2>0.05) and extraction procedures (p value=0.4>0.05) were significant. Therefore findings show that significant number of children are anxious in dental context.

DISCUSSION:

Anxiety is the major reason for children's " escape" from dental treatment,[1]. Dental anxiety has shown to increase the pain perception of the pediatric patient, irrespective of the anesthetic device used. Conversely, uncomfortable dental treatments can also result in increased dental anxiety,[1,2].

The FIS is a valid measure of dental anxiety of young children in the clinical context,[1]. As the purpose of the present study, was conducted on children aged 5-12 years with an objective to find anxiety in children, the FIS performed were before, during[filling and extraction] and after the treatment.

The FIS gives immediate 'state' feedback to the clinician in the dental waiting room and could allow the clinician to design appropriate treatment plans for their child patient,[2].

The FIS is quick and easy to administer in the dental waiting room. It took a very short time [less than 1 min] to administer and the score is simply a reflection of the face choosen ,[1].

In this study, table 1, it was found that pre-operatively the percentage of children who choose either face four (or) five on the facial image scale was [6.2%], however in the previous studies the children in the waiting room are not-anxious,[1,2]. This supports the evidence that the majority of the children are at pre-operative score when compared with post-operative score (0%). The findings of the present study table.2, it was found that the anxiety levels of children in restorative procedures (6.2%), similarly, in the previous studies there is no significant difference was found in the anxiety levels of children treated using restorative and periodontal procedures and wound healing appeared to occur normally[7]. In this study, a significant percentage of children are anxious at extraction procedures [25%] when compared with restorative procedures.

CONCLUSION:

The findings of this work indicate that the FIS is a valid measure of dental anxiety for employment with young children in the clinical context,[1]. Results shows a small but significant number of children are anxious at before the treatment when compared with after the procedures,[1]. Clinical implications of this work are that practitioners, dental nurses or receptionists could administer the FIS when the patient arrives for treatment and inform the dental team of any anxiety the child may be suffering,[1,2,3,11]. It may be worth considering administering the FIS at

different points throughout the dental sessions,[1]. In this study, the FIS is performed during the treatment [filling and extraction], and the results show a significant number of children are anxious in extraction procedures when compared with restorative procedures. An accurate assessment of dental anxiety is necessary; not only to determine its prevalence, but also to overcome the problems related to individual diagnosis and treatment,[1,2].

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