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ASSESSMENT OF CHILDREN'S ANXIETY IN DENTAL CLINICS BY THREE DIFFERENT TECHNIQUES

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ABSTRACT

This study was conducted to assess dental anxiety of children in dental clinics, using different techniques.

This study was conducted among one hundred children of 6 to 12 years old (males and females). They were examined in the Pediatric Dental Clinics, Faculty of Dentistry, Mansoura University. Tooth restoration under local ansthesia, was carried out for each child, and anxiety was measured by using Venham 6 point index. After tooth restoration Simple direct questionnaire was used for assessment of dental anxiety. Each child was given a set of color pencils and instructed to draw a person in dental clinic and children drawings were scored using Child drawing: Hospital (CD:H) scale.

The majority of children's drawing scores were in the anxiety level of low stress (70%), then average stress (28%) and in very low stress (2%). Through simple direct questionnaire the majority of children showed a positive perception to dental treatment. There was no significant difference between males and females in assessment of anxiety in all scales except, questionnaire in group A and Venham 6 point index in group B, which showed significant differences. According to age there was no significant difference

between the two age groups in males and females. Dental treatment did not always present a psychologically traumatic experience.

Keywords: Dental; Anxiety; Child Drawing: Hospital

INTRODUCTION

The prospect of dental treatment causes many young patients to be anxious and/or afraid [1]. For a child, a visit to a dental clinic involves contact with unfamiliar people and many potentially stress evoking components such as attire worn by clinicians, having to lie down, strange sounds and tastes discomfort and pain [2, 3].

Many measurement techniques have been used to examine the condition of children during dental procedures, including behavioral ratings, psychometric scales, and physiological measures [4]. Currently, there is a growing interest in the use of art as a means of facilitating communication with children [5]. Several authors have suggested that an appropriate way to collect information about children's perceptions and experiences is by means of projective self-report techniques such as drawings [6]. In the light of current evidences, this study was undertaken to use three different techniques for assessment of children's anxiety during treatment in dental clinics.

SUBJECTS

This study was conducted among one hundred Children of 6 to 12 years old (males and females) visiting the Pediatric Dental Clinics of Faculty of Dentistry, Mansoura University. Children was assigned into two equal groups according to age; group A children (6-<9) years old, and group B children (9-12) years old. Each group was subdivided into two equal subgroups according to gender (males and females) see figure1.

METHOD

This study was approved by the Mansoura University ethical committee of research. Prior to any visit, parents signed informed consents for their children to be included in the study. Local anesthesia and tooth restoration were carried out according to standard techniques. Child's behavior during therapeutic session was observed. His or her anxiety level was scored according to Venham 6-point Index. The way of reaching to an overall score of anxiety in a dental setting, simply consisted of summing the ratings for the child on the different measurement

occasions as oral examination, injection, treatment procedure and during departure.

After dental treatment, each child was asked to answer a set of questions (adopted from the study by Klein [7]. These questions were:

Do you remember the procedures of treatment you received?

Did it hurt?

Could you tell me something about the dentist and draw me a picture?

The dental treatment perceptions were rated positive, neutral or negative, on the basis of questions 2 and 3 in all children. These questions were considered to be most important in the evaluation of the child's perception about the dental treatment. Question1 was only supportive question.

RATINGS OF QUESTIONS 2 AND 3

Question No. 2: Did it hurt?

- Positive: Little or no pain
- Neutral: No opinion.
- Negative: Complain of marked pain

Question No. 3: Could you tell me something about the dentist?

- Positive: The dentist and / or the dental situation liked by the subject. When other characteristics of the dentist, such as kind, nice, gentle, handsome, were also described, the categorization will be further supported
- Neutral: No opinion was given for good or bad
- Negative: The situation or the dentist will be described as definitely bad

Each child was given a blank sheet of paper and a box of twelve basic color pencils. The sheets of paper were placed directly in front of the subjects at an angle and allow the child to choose the direction of the paper alone. The box of color pencils were opened exposing all of the available colors. The child was instructed: 'please draw a picture of a person in a dental clinic, I will take your picture when you finished'. There were no instructions from anyone.

Children not eager to draw were excluded. Children’s Parents were with children during their drawings. However, the parents were informed about the objective of the study and were instructed not to influence the children to respond one way or the other. The child was observed to be sure that he was able to attend to the task. If the child asked any question, these questions were responded to either with the original Instructions or

with clarifications that did not influence the child to respond one way or the other. The children were not prompted to add parts or colors to the drawings. No time limit was given. The paper sheet and the color pencils were collected, when the child indicated verbally or by gesture that his or her drawing is finished. The drawing was labeled on the back side of the paper with the patient's number and the date of the test.

SCORING OF THE DRAWINGS

The scoring method of this study was evolved from the Child drawing: Hospital (CD:H) Rating Scale and the CD:H score sheet. Rater was directed to read the CD:H manual[6]. According to the manual, the scoring of drawing was divided into three parts;

Part A, contains 14 items: position, action, length, width, and size of person; eyes and facial expressions; color predominance; numbers of colors used; use of the paper; placement on the paper; stroke quality; inclusion and size of dental equipment; and developmental level. Each item was scored on a scale of (1–10), with 1 indicating the lowest level of anxiety and 10 the highest. Part B, consists of eight items indicated to be indices for high anxiety and not necessary to be present in all drawings. The omission, exaggeration, and de-emphasis of a body part receive five points. Distortion, omission of two or more body parts (e.g., one hand and one foot are missing), transparency, mixed profile, and shading receive 10 points. If each of these items was not present, a score of 0 was recorded. Part C is a gestalt rating that calls for an overall response by the scorer to the child's anxiety as expressed in the picture on a (1–10) scale using the specific identifiers provided. A score of 1 indicated coping or low anxiety and a score of 10 indicated disturbance or high anxiety. The total score was determined by adding the totals of parts A, B and C. Level of anxiety based on the total score obtained from the CD:H score sheet were as follows [8]: ≤43: very low stress, 44–83: low stress, 84–129: average stress, 130–167: above average; and 168 and over: very high stress. Details for scoring each item described were found in CD: H manual.

STATISTICAL ANALYSIS

Data of this study were tabulated and analyzed using the computer program SPSS version 17.0. Children drawings were scored by tow expert raters and needed some judgment. Inter rater

reproducibility was assessed by selection of 30 drawings and rated after three weeks also (r = 78, r = 84).

RESULTS

Child Drawing Hospital: The majority of children's drawing scores were in the anxiety level of low stress (70%), then average stress (28%) and in very low stress (2%). Figure2 shows some of children's drawings.

Regarding gender mean of scores were (table 1) in group A (75±17) for males and (80±13) for females, in group B males had a score of (72±18) and females (73±13). There was no significant difference between males and females in group A; (*P*=0.2) and group B; (*P*=0.8). Through Venham 6-point index of anxiety males had a score of (0.78±.36) and females (1.05±.38) of group B with significant difference; (P=0.01), while in group A score was (1.04±37) for males and (1.16±47) for females there was no significant difference; (p=0.3). Questionnaire analysis in table1 revealed that, the majority of children had a positive perception through their answers, in group A question2 (72%) for males and (56%) for females, question3 (76%) for males and (36%) for females also in group B question2 positive perception was (84%) in males and (64%) in females and question3 had (80%) for males and (60%) for females. There was a significant difference between males and females through questionnaire in group A, for Question 3; (P=0.01) while in Question 2; there was no significant difference; (p=0.07). In group B there was no significant difference, question 2; (p=0.17) and question 3; (p=0.2

As shown in table 2, regarding males' and females' drawings through CD:H, there was no significant difference between the two age groups for males; (*P=0.6*) and for females; (P=0.07). Through venham 6 point index anxiety scale, there was a significant difference between males of the two age groups; (P=0.015) no significant difference in females; (p=0.36). For questionnaire by comparing the perceptions of males and females, there was no significant difference between group A and group B, for males in question 2; (P=0.4) and question 3; (p=0.9) while for females in question 2; (P=0.15) and in question 3; (P=0.2).

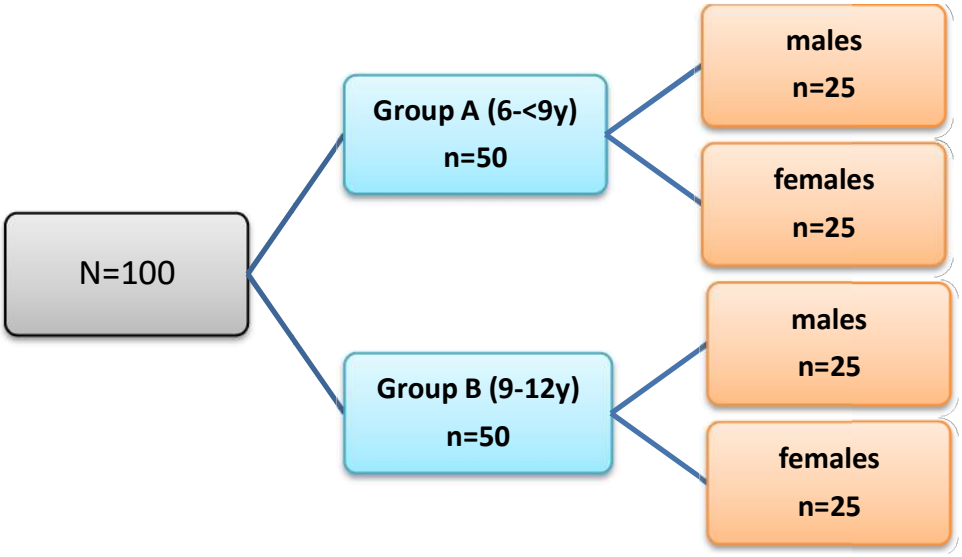

Figure 1: Schematic representation of children's grouping

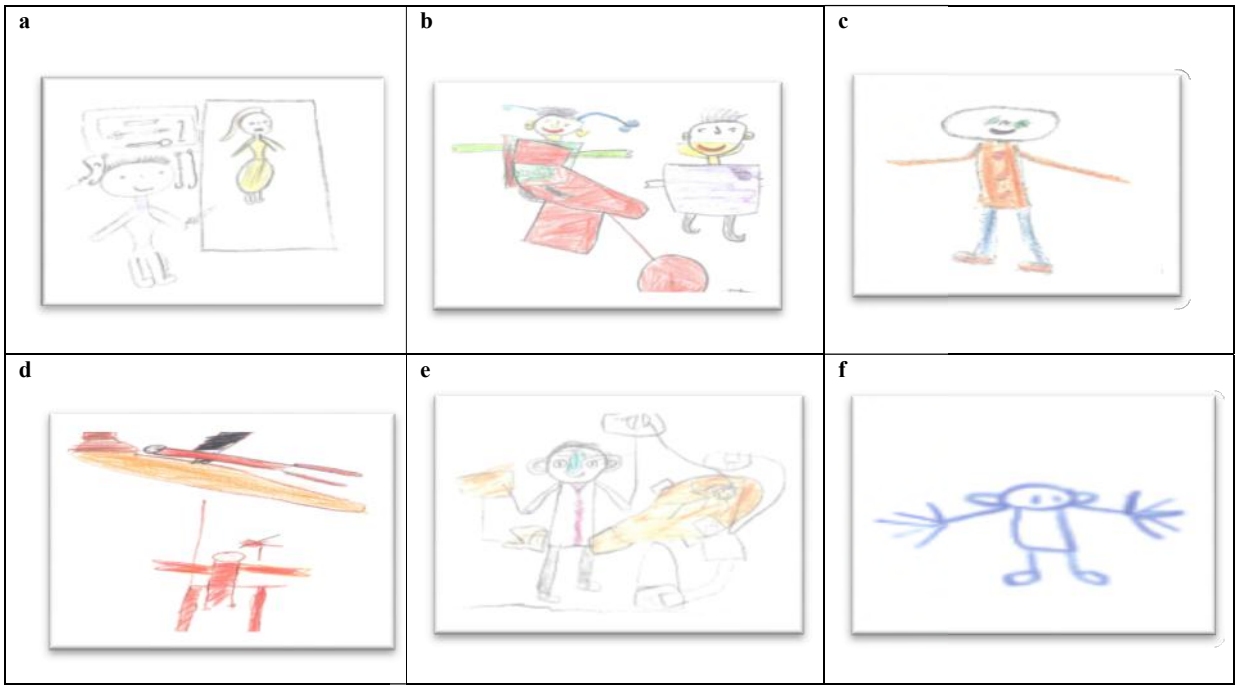

Figure 2: Samples of children's drawings: (a) a drawing of a 10-year-old female scared from dental equepment. (b) a drawing of a 7-year-old female shows herslf laughing on the dental chair but with using the red colour as the prominent colour. (c) a drawing of an 11-year-old male without hair but with nice facial expression. (d) a drawing of a 10-year-old male showing himself tall, thin and lying on the dental chair and a small dentist with promenent red color. (e) a drawing of 8-year-old male showing himself as a tiny stick figure on the dental chair and the dentist working with his both hands. (f) a drawing of a 6-year-old male with slight anxiety standing with both hands forward and using the blue color for drawing.

Table 1: Results of CD: H, Venham 6 point index and questionnaire in groups (A and B) (regarding gender)

			Group A (6-<9 years)			Group B (9-12 years)		
			Males	Females	P	Males	Females	P
Mean age (years)			7.0 ±.9	7.0±.8		9.9±1.1	10.1±1.0	
Child Drawing: Hospital (mean ± SD)			75±17	80±13	0.2	72±18	73±13	0.8
Venham 6 point index (mean ± SD)			1.04±.37	1.16±.47	0.3	0.78±.36	1.05±.38	0.01
Questionnaire analysis	Q2	Negative No (%)	1 (4.0%)	7 (28.0%)	0.07	0 (0%)	2 (8.0%)	0.17
		Neutral No (%)	6 (24.0%)	4 (16.0%)		4 (16.0%)	7 (28.0%)	
		Positive No (%)	18 (72.0%)	14 (56.0%)		21 (84.0%)	16 (64.0%)	
	Q3	Negative No (%)	1 (4.0%)	5 (20.0%)	0.01	1 (4.0%)	3 (12.0%)	0.2
		Neutral No (%)	5 (20.0%)	11 (44.0%)		4 (16.0%)	7 (28.0%)	
		Positive No (%)	19 (76.0%)	9 (36.0%)		20 (80.0%)	15 (60.0%)	

SD: standard deviation Q2: question 2 Q3: question3 No. : Number %: percentage P: probability P significance when<0.05

Table 2: Comparisons between the two age groups (males and females)

			Males			Females		
			Group A(6-<9 y)	Group B(9-12 y)	P	Group A(6-<9y)	Group B(9-12y)	P
Child Drawing: Hospital(mean ± SD)			75±17	72±18	0.6	80±13	73±13	0.07
Venham 6 point index (mean ± SD)			1.04±.37	0.78±.36	0.015	1.16±.47	1.05±.38	0.36
Questionnaire analysis	Q2	Negative No (%)	1 (4.0%)	0 (0%)	0.4	7 (28.0%)	2(8.0%)	0.15
		Neutral No (%)	6 (24.0%)	4 (16.0%)		4 (16.0%)	7(28.0%)	
		Positive No (%)	18 (72.0%)	21 (84.0%)		14 (56.0%)	16(64.0%)	
	Q3	Negative No (%)	1 (4.0%)	1(4.0%)	0.9	5 (20.0%)	3(12.0%)	0.2
		Neutral No (%)	5 (20.0%)	4 (16.0%)		11 (44.0%)	7(28.0%)	
		Positive No (%)	19 (76.0%)	20 (80.0%)		9 (36.0%)	15(60.0%)	

SD: standard deviation Q2: question 2 Q3: question3 No. : Number %: percentage P: probability P significance when<0.05

DISCUSSION

Regarding Pediatric Dental Clinics anxious patients manifest their anxiety in different ways [9]. For this reason, many measures have been used in this study to assess the level of dental anxiety suffered by children when they undergo dental treatment. The age group selected for this study was children 6-12 years old this is because children's ability of drawing depends on their age, i.e. on their developmental stage [10]. By the age of 6 years, children have definite ideas about how an object should appear [11]. The quality and the content of human figure drawings (HFD) change vary little after the age of 12 years [12].

The present study indicated that, through CD:H scale no significant difference exists in the anxiety reported between males and females in both age groups. However, different studies [13] indicated that, in general, girls are more fearful than boys. This study explained some behavioral, psychological and cognitive parameters in children's drawings; for instance, children's facial expressions, crying, depiction of

defensive behaviors, exaggerating dental equipment such as syringes and writing words explaining their comforts and discomforts. Therefore, children's drawings in dental settings can be used to gather a wide range of information [14].

In group (A) by Questionnaire and in group (B) through Venham 6 point index scale, results showed a significant difference between males and females with females had more anxiety than males. This result was in agreement with result of Brukiene et al [15]. It is very difficult for researchers to obtain directly the viewpoints of young patients. Also by behavior rating scales the dentist's own personal opinions and views could affect scoring.

According to results of this study, there was no significant association between age and dental anxiety through CD:H, Venham 6 point index and questionnaire, except Venham 6 point index in males. This result accords with study of Campos et al [16] who reported that, age as other characteristics like gender are not good predictors of dental anxiety. The lack of association between the child's age and dental anxiety was not surprising because participating children were relatively close in age.

An important finding from the direct questionnaire used in this study was that the majority of participants had a positive perception of the dental treatment situation. This finding was in accordance with the findings of Oppenheim and Frankl [17]. In contrast, Klein [7] reported a much higher percentage for negative experience in his sample of children (3-6 years). This result could be due to the age used in this study (6-12 years old).

Dental anxiety in children remains inadequately and poorly managed, which leads to unnecessary suffering in the pediatric population [18-20]. Reporting of anxiety should become a part of daily history taking before any dental procedure in children.

CONCLUSION

Children in dental clinics did not always show high levels of anxiety. Anxiety of children in dental clinics was not significantly affected either by gender or age.

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