

Factors Affecting Dental Fear and Anxiety in Children: A Cross Sectional Study in Tunisia North Africa

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Abstract :

Introduction : Anxiety among patients , during dental treatment , remains one of the biggest challenges faced by dentists , considering that it impedes the achievement of clinical procedures . this situation may lead patients to stop their treatment and thus complicates their oral health condition .

Materials and methods : A cross sectional study was conducted in the department of pediatric dentistry in Tunis from august to september 2017 on a simple of 360 couples (mother / child) . the child's and mother's level of anxiety were evaluated according to various parameters using 2 fear assessment venham picture test for children and Corah dental anxiety scale for mothers .

Results : 33.9% of children were anxious. a significant relationship between the child's anxiety and the child's age ($p=0.01$) and gender ($p=0.031$) was found , on the other hand 57.1% of mothers who feel that their children are afraid of the dentist are anxious.

Conclusions : During children's dental care , anxiety has always been one of the biggest obstacles encountered by specialits in pediatric dentistry . it is important to care about this symptom to develop a good psychological approach with the young patients

Keywords : child , Corah dental anxiety scale , mother , pediatric dentistry , psychological care , venham picture test

I. Introduction

Dental fear in children has been recognized in many countries as a public health problem.(1) the child's anxiety and fear greatly influence the diagnosis and treatment of oral diseases several studies show that an anxious child does not take care of his oral hygiene(2) The intensity of the anxiety is proportionate with the dental affections. It was reported in a study that poor periodontal hygiene, tooth caries and tooth loss were more common in highly anxious patients when compared to patients with lower levels of dental anxiety(3). the prevalence of dental anxiety in underdeveloped countries, particularly in northern africa and the middle east, has been little studied especially in pediatric population 31.5% suffered from dental anxiety in lebenon in adult population ; 11.4% in Bahrain (4) it is however very important to become familiar with the patient's anxiety, especially the child's, before the oral treatment in order to insist on a psychological approach or simply to create links especially as each individual is different.

The purpose of this study is to know the prevalence of anxiety in children aged 5 to 10 years in Tunisia through a sample of the department of pediatric dentistry and prevention in Tunis and to know the factors that can influence this anxiety through the child himself or through his mother.

II. Materials and Methods

This cross sectional study was conducted in the department of pediatric dentistry in Tunis from august to september 2017 .

Sample size : 360 couples of mother and child who consult at the pediatric dentistry service la Rabta, Tunis our sample is divided into 2 groups : 180 mothers, children who come to the department for the first time and the second group represents 180 mothers, children who are currently being treated in the department.

Children were classified according to: age /former or new patient /gender /having previous dental visits /reason of visits tooth decay or dental extraction As for mothers the chosen categories were age/ mothers level of education / monthly family income/ The mother personal experience at the dentist/ mother perception of her child anxiety The guaranteed minimum wage (GMW) in Tunisia in 468 dinars so we have classified the monthly family income to below the GMW , 2 times the GMW and above 2 times the GMW.

Setting sample :

the Inclusion criteria were generally :

- The child must be accompanied by his/her mother.
- The child must be between 5 and 10 years old.
- The child must be in good general condition: adequate mental, physical and psychological state.
- The child is treated by the same dentist (interns, residents or assistants in Pediatric Dentistry).

And the non inclusion criteria were :

- Child with a major medical problem, mental deficiency.
- Child accompanied by a family member other than the mother

Fear Assessment

The Venham Picture Test (VPT) assesses children's emotional reactions when they choose the drawing of a human figure that best identifies them at that moment.(5) The modified VPT (figure 1) was chosen for this study as a picture scale for small children that measures anxiety status and is administered before the start of treatment. the modified Venham Picture Test consists of eight cards that were in accordance with the ethnicity and corresponding gender of the interviewed child. Each card has two figures, an “anxious” figure and a “not anxious” figure. The figure that, in each pair, revealed the negative feeling was assigned one point in the assessment. The sum of the scores of all pairs of figures can vary from zero to eight, with zero representing anxiety-free, one to three - low anxiety level, four to six - intermediate anxiety level and seven and eight - high anxiety level.(6) in our study the intermediate and high levels were grouped to with anxiety.

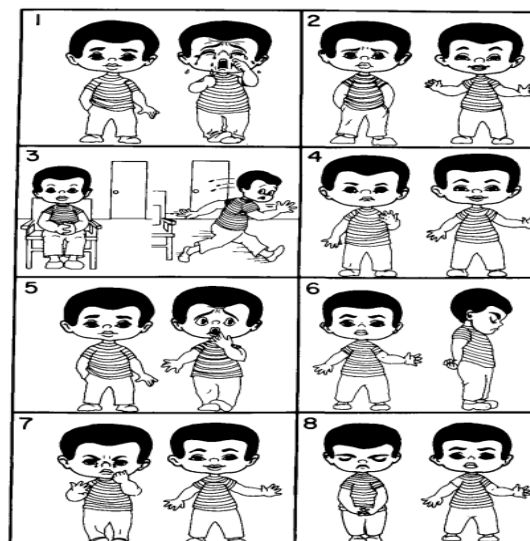


Fig. 2. Final eight item picture test.

94 CHILD'S SELF-REPORT ANXIETY MEASURE
Venham and Gaulin-Kremer

Figure 1 : Childs self reported anxiety measure(7)

Corah dental anxiety scale :

To evaluate mother dental anxiety we use Corah dental anxiety which is a reliable and useful tool for assessing patient distress during dental treatment.

It consists of four questions, multiple choice, to be completed by the patient. (8) In the present study, the Corah scale was applied to mothers, with questions about dental situations, to investigate their anxiety about dental care. The Corah scale has four questions, well defined, about different dental situations. In our study, the wording as well as the content of these questions was modified slightly:

"If you had to go to the dentist tomorrow, how would you feel? ";

"When you are in the waiting room, waiting to be called by the dentist, how do you feel? ";

"When you are in the dental chair, waiting for the dentist to prepare his or her instruments to begin work, how do you feel?"

"You are in the dental chair, ready for treatment (scaling, cavity care, extraction...) and watching the dentist get his or her instrument to begin the procedure, how do you feel?"

For each question, there are five response options, and each response has a score ranging from 1 to 5. The answers along with their scores are: "1-relaxed," "2-a little uncomfortable," "3-tensioned," "4-excited," and "5-so anxious that sometimes I start to sweat or feel like I'm going to pass out."

The total score ranges from 4 to 20. The number obtained from the Corah scale, tells us about the mother's level of anxiety and the results will be interpreted as follows:

Mothers' responses total score equal to 4 have no degree of anxiety, 5-8 are considered mildly anxious, 9-12 moderately anxious but have specific stressors that should be discussed and managed, 13-14 very anxious, 15-20 severely anxious (or phobic):

To facilitate data analysis, we will classify the mothers according to their degree of anxiety as follows: Mothers with a score below 9: low anxiety Mothers with a score between 9 and 20: with anxiety (moderate, high, severe (phobia)).

Data Entry and Statistical Analysis

The data obtained from the questionnaire were entered into Excel in the form of a table. This data entry allowed the elaboration of the database to be analyzed.

The statistical analysis was done with the help of IBM SPSS Statistics 20 (Statistical Package for the Social Sciences) which is a statistical calculation and analysis software.

The exploitation of the data allowed us to obtain tables of statistical results.

Ethics

The questionnaire was only started after the parents had been contacted and given permission, after having explained the framework of the survey and its objectives, and without the presence of the children to avoid any influence.

III. Results

According to the results of our study, and according to the modified VPT, 26.1% of the children were low anxiety and 33.9% were anxious.

Distribution of the child's anxiety levels according to the different parameters

Table 1. Distribution of the child's anxiety levels according to his different characteristics (cross table)

	No anxiety		Low anxiety		With anxiety		Total		P value
	n (144)	% (40)	n (94)	% (26.1)	n (122)	% (33.9)	n (360)	% (100)	
Former or new patient									0.01
First consultation	56	31.1%	43	23.9%	81	45%	180	100%	
Treatment in progress	88	48.9%	51	28.3%	41	22.8%	180	100%	

Age									0.01
[5-6[	13	43.3%	2	6.7%	15	50%	30	100%	
[6-7[	6	22.2%	12	44.4%	9	33.3%	27	100%	
[7-8[	26	43.3%	12	20%	22	36.7%	60	100%	
[8-9[	35	44.3%	18	22.8%	26	32.9%	79	100%	
[9-10[	64	39%	50	30.5%	50	30.5%	164	100%	
gender									0.031
Masculine	63	33.3%	58	30.7%	68	36%	189	100%	
Feminine	81	47.4%	36	21%	54	31.6%	171	100%	
Previous visit to the dentist									0.047
No	15	23.1%	22	33.8%	28	43.1%	65	100%	
Yes	129	43.7%	72	24.4%	94	31.9%	295	100%	
Reason: tooth decay									0.657
No	40	37.7%	25	23.6%	41	38.7%	106	100%	
Yes	104	40.9%	69	27.2%	81	31.9%	254	100%	
Child who had extractions									0.058
No	53	36.1%	36	24.5%	58	39.4%	147	100%	
Yes	91	42.7%	58	27.2%	64	30.1%	213	100%	

According to the results, previous dental care (caries care or dental extractions) has no impact on the child's anxiety ($p>0.05$). On the other hand, there is a significant relationship between the child's anxiety and the child's age ($p=0.01$) and gender ($p=0.031$).

The results also showed that the previous visit to the dentist and the fact that the child is in the process of treatment or consulting for the first time in this service, influenced the anxiety of the child ($p<0,05$).

Distribution of the mother's anxiety levels according to the different parameters

According to the statistical analysis, we can notice that the anxiety of the mother has no relation with her age ($p=0,113$). On the other hand, this anxiety depends on her level of education, her socio-economic level, her personal experience, her perception of her child's anxiety

Table 2.:Distribution of the mother's anxiety levels according to her different characteristics (cross table)

	Low anxiety		With anxiety		Total		p-value	
	(194)	%(53.9)	(166)	%(46.1)	N (360)	%(100)		
Age							0.113	
[20-31[	14	43.8%	18	56.2%	32	100%		
[32-41[	116	34.3%	106	65.7%	222	100%		
[42-51[	64	37.6%	42	62.4%	106	100%		

Mother's level of education							0.01
Elementary	92	50%	92	50%	184	100%	
High school	73	54.1%	62	45.9%	135	100%	
Third level	29	70.7%	12	29.3%	41	100%	
Monthly family income							0.048
<GMW	26	40%	39	60%	65	100%	
[GMW-2GMW] dt	142	56.6%	109	43.4%	251	100%	
>2GMW	26	59.1%	18	40.9%	44	100%	
The mother's personal experience at the dentist							0.00
Bad	18	21.1%	67	78.8%	85	100%	
Good	176	64%	99	36%	275	100%	
Mother's perception of her child's anxiety							0.035
No	113	66.1%	58	33.9%	171	100%	
Yes	81	42.9%	108	57.1%	189	100%	

The results of our study showed that 53.9% of the mothers who participated in this study have low anxiety and 46.1% are anxious.

Anxiety scores are higher among mothers with low levels of education (primary school) and low monthly income. The present study showed that there is a significant relationship between the mother's perception of her child's anxiety and her own anxiety about dental care. In fact, 57.1% of mothers who feel that their children are afraid of the dentist are anxious.

IV. Discussion

This study explored anxiety in children and factors that may be associated with it. The main finding of this study was a prevalence of severe anxiety of 33.9% in young patients. No local study has ever been done on the topic, so we had to compare the results with other populations where the estimates of childhood dental fear vary from 3 to 43% (9). It is considerably higher than the prevalence of dental anxiety found in a study on a similar population in the neighbouring country India (6.3%) and 3–6 years old children in Iran (22%) in which different assessment tools were used (19,20) than our study. When compared with the developed countries, the dental anxiety in our children was higher than reported from Taiwan (20.6%) (10), Denmark (5.7%) (11), Sweden (6.7%) (12) and Netherlands (6%) (13). The results also showed a significant relationship between the child's anxiety and his or her age. Indeed, as age increases, severe anxiety decreases, also shown in a study in Taiwan (14, 15). The results showed that boys are more anxious than girls, which is different from other studies where girls were the most anxious or there was no difference at all (16–19) according to our study; children who consult for the first time are more anxious than those who are in treatment progress; the results of other studies are controversial on this subject. In some studies, patients without dental anxiety are reported to have significantly more filled surfaces compared to the ones with anxiety, while in other studies no relationship between dental anxiety and the number of fillings in different children age groups was found (20–22).

this could be explained by the fact that these studies were conducted on adolescents and that this study was conducted on children under 10 years old. A review indicated that the relationship between parental and child's dental fear was obvious in children under 8 years old. (15) It is for this reason that the anxiety of mothers was investigated in fact 57.1% of mothers said their children were anxious. This is a factor that could explain the child's anxiety. The level of anxiety increases with low monthly income and low level of education (4, 23) anxiety of the children was assessed only before the beginning of the treatment; it would have been preferable to assess it before, during and after the treatment. Our study was conducted at a single institution; a multi-center study might have more meaningful results. Dental anxiety in children is a public health problem that should be taken into account by the dentist from the first consultation. Further research should be carried out on this problem in North Africa and the Middle East to highlight the importance of this characteristic which should perhaps become a symptom on its own right.

V. Conclusion

Dental anxiety is a consequence of several factors including the anxiety of the mother especially before the age of 8. It is therefore important to make mothers aware of this from the first consultation, in addition to reassuring the child and developing a good psychological approach.

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