Relationship between children and parental dental anxiety: A Cross-Sectional Study

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ABSTRACT:

Background: Parental dental anxiety (DA) is an essential factor that influences children seeking dental treatment and oral health. Therefore, it is important to know how parental dental anxiety affects the dental anxiety of their children.

Aim of study: Evaluate the relationship between children and parental dental anxiety.

Methods: Two hundred children aged 5-8 years and their parents were selected randomly from the Pediatric Dental Clinic at Mansoura University to participate in this study. Dental anxiety for children and their parents was evaluated by the Arabic version of the Corah Dental Anxiety Scale (CDAS). Data were collected, tabulated, and analyzed using Chi-square and Spearman rank tests.

Results: The CDAS scores were determined and calculated for each child and their parent. 59% of childrenparents reported a severe level of dental anxiety. The association of between children and parental dental anxiety was statistically significant. The correlation of the DA among children and their parents was 0.50 (p < 0.01).

Conclusion: Parental dental anxiety significantly influences the child's dental anxiety.

Keywords: Dental anxiety; Parental anxiety; Arabic; Corah; Pilot study

I. INTRODUCTION

Dental anxiety (DA) is a state of apprehension often accompanied by a sense of losing control, linked to a feeling that something dreadful is going to happen during dental treatment. [1] It presents a significant obstacle in the field of pediatric dentistry, as it has substantial implications for the child, dental team, and dental services. [2]

Dental anxiety is a universal phenomenon that impacts individuals across various age groups and nations. [3] It usually occurs in childhood or adolescence [4], and if left untreated, it tends to have a chronic and unremitting course, persisting into adulthood. [5] Also, it is a multifaceted condition, influenced by various factors, with parental anxiety being one potential contributor to its development in children. [6]

Children of parents with anxiety disorders may have a heightened risk of developing anxiety, which is potentially influenced by genetic or environmental factors. [7,8] In 1987, Tuner et al. found that the chances of anxiety disorders were more than seven times higher in children with parents who had anxiety disorders compared to those with parents without psychiatric issues. [9]

Genetics can play a role in the development of dental anxiety in children, and those with a family history of anxiety disorders face a higher risk of developing anxiety themselves. [10] Research has shown that genetic factors contribute to approximately 30-40% of the risk associated with developing anxiety disorders. [11]

Other possible mechanisms related to the influence of parental DA on children's anxiety include environmental factors through learned behavior. [12,13] When dealing with unfamiliar stress, children areoften influenced by parents' advice and guidance. [13] Parents who have had negative dental experiences as a patient may transmit their DA to the child, potentially influencing the child's attitude and response to dental care negatively. [14] Given these considerations, it is essential to carefully assess parental anxiety before their child undergoes any intervention or treatment. [15]

While reviewing the literature on dental anxiety, it became clear that background research on parental anxiety as a contributing factor to children's anxiety had been conducted in various nations. To our knowledge, limited research has been undertaken to evaluate parental anxiety and its risk of childhood anxiety symptoms among young children in Egypt. For this reason, this study aimed to investigate the relationship between children's and parental dental anxiety.

II.   MATERIALS AND METHODS

This cross-sectional study was carried out at the Pediatric Dental Clinic, at the Mansoura University. Ethical approval was obtained from the Research Ethics Committee, Faculty of Dentistry, Mansoura University. Code NO. (A0104023PP).

After obtaining informed written consent from the parents, approving the participation of one of them and their child, 200 children of both genders and their parents were included in this study. The inclusion criteria specified that children aged 5-8 years without learning disabilities were eligible to participate.

For the sample size calculation, the power analysis was performed using G power software by correlation coefficient test. The significance level was set at 0.05 (Type I error), with a total power of 88%. The effect size was determined to be 0.22, based on the correlation between the children and parental DA as reported by Šimunović et al. (2022). [15] the total sample size required was 200.

Children's and parental dental anxiety were assessed using the Arabic version of the CDAS questionnaire. The questions were read aloud to the children, taking their ages into account, and they were asked to provide their answers. However, children answered the questionnaire separately from their parents to avoid interference. A 5-point rating system is used in this questionnaire to assess participants' answers in four different scenarios. (Figure A1) All children and parents will be divided into three categories based on their questionnaire responses: CDAS (4-8) had mild anxiety, CDAS (9-12) had moderate anxiety, and CDAS (13-20) had severe anxiety. [15]

The CDAS was translated into the Arabic language and tested for validity and reliability.

Translation and Questions adaptation:

This process was performed based on the following steps: [16]

1. Forward translation: The scale was translated from original English to Arabic by two independent native Arabic-speaking translators. The two translators are dentists fluent in English and knowledgeable about dental terminology.
2. Synthesis of the translated version: The first author and the two translators reviewed the two translated versions and developed an agreed synthetic Arabic version of the CDAS.
3. Backward translation: The synthetic Arabic version of the CDAS was translated back into English by two other fluent independent translators. The two translators were unfamiliar with the original English version. As a result, two back-translated versions were produced.
4. Test of the prefinal version: 20 participants were asked about the difficulties in understanding the items, and any modifications were done accordingly. The modification was to use the Egyptian dialect to simplify the questionnaire.
5. The final Arabic version was produced. (Figure A2)

Content Validity:

A group of jurors (experts) assessed validity, and those experts were dental professionals. The experts were asked independently to evaluate each item (clarity and relevance) on a three-point ordinal scale. Both the item (I-CVI) and scale (S-CVI) levels of the content validity index (CVI) were determined. [16]

Content validity of the I-CVI ranged from 0.85 to 1.0 for both relevance and clarity. On the other hand, the e-CVI ranged for relevance and clarity from 0.75 to 1.0. However, the S-CVI scale CVI was 0.89 for both relevance and clarity.

Reliability:

Reliability was measured using internal consistency. [16] The final Arabic version of the CDAS was tested on a pilot group of parents (n=20) during two assessments. The second assessment was two weeks after the first one. The CDAS scale's overall Cronbach's α for internal consistency was 0.92.

Statistical analysis:

The data were statistically analyzed by the Statistical Package of Social Science (SPSS) program for Windows (Standard version 26). The association was evaluated by the Chi-square test. The correlation coefficient was evaluated by the using of Spearman rank test. The significance level was set at the probability value of 0.05.

III.   RESULTS

The study involved 200 youngsters and their parents. Demographic data are shown in table (1). The average age of the children was 6.45 ± 1.164 years, ranging from 5 to 8 years. The

gender distribution of the children as the percentage of males was 46%, while the percentage of females was 54%. The parents who participated in the questionnaire were 16% fathers and 84% mothers.

Table (1): Demographic data

Demographic Data	Participants (n=200)
Age Of Children (Y) Mean ±Sd Min- Max	6.45± 1.164 **(5-8)**
Gender Of Children Male Female	**92(46%)** **108(54%)**
Gender Of Parents Father Mother	32(16%) **168(84%)**

Table (2) shows the association of DA among parents and children, the results were statistically significant (p-value <0.05). Out of 35 parents with mild dental anxiety, there were 16 children with mild dental anxiety and the remaining 19 children had moderate and severe dental anxiety. Out of 71 parents with moderate dental anxiety, there were 43 children matched with their parents regarding moderate dental anxiety and the remaining 28 children had mild and severe dental anxiety. Out of 94 parents with severe dental anxiety, there were 82 children matched with their parents regarding severe dental anxiety and the remaining 12 children had mild and moderate dental anxiety.

Table (2): association between parental dental anxiety and their children dental anxiety

		Parents			Total	X^2	P value
		Mild	Moderate	Sever			
Children	Mild	16 (45.7%)	7 (9.8%)	4 (4.2%)	27 (13.5%)	5.7	0.05*
	Moderate	4 (11.4%)	43 (60.5%)	8 (8.5%)	55 (27.5%)		
	Severe	15 (42.8%)	21 (29.6%)	82 (87.2%)	118 (59%)		
Total		35 (100%)	71 (100%)	94 (100%)	200		

X^2: Chi square test, *significant p ≤ 0.05

Table (3) shows that the correlation of dental anxiety among children and parents by using CDAS was statistically significant (p value<0.001).However, it was 0.50, which is considered as a moderate positive correlation.

Table (3): Correlation of children and parental dental anxiety

Children	Parents	
	r_s	P value
	0.509**	< 0.001

**.The   correlationissignificantatthe0.01level(2-tailed)

IV. DISCUSSION

Due to the influence of parents on the development of personal traits, parents' dental anxiety is among the most significant factors influencing a child's DA and attitude. Therefore, parents' attitudes towards dental treatment might reflect positively or negatively on their child's behavior in dental clinics. Consequently, it is essential to assess parental DA before initiating interventions and treatments for their children. [15] The present study evaluated the relationship between children and parental dental anxiety.

All children were selected from the Pediatric Dental Clinic at Mansoura University to ensure the homogeneity of the sample in cultural and sociodemographic factors. The age of children selected in this study was in the range of 5-8 years old since this age exhibits more disruptive behavior and dental anxiety, but at the same children in this age group have the cognitive ability to self-report their anxiety. [17,18]

The Corah Dental Anxiety Scale was initially designed to measure dental anxiety in adults, but it can be used with children. Also, it was found to be simple, valid, and reliable. [15,19-21] In the present study, this scale was translated into the Arabic language before the fieldwork to ensure the understandability of disabling conditions in the Arabic culture. [22] This translated version provided acceptable validity and reliability.

According to CDAS results, this study indicated that children experience high levels of severe anxiety (59%). Less percentage was observed via Wu and Gao. (2018) [23], who recorded that only 33.1% of kids have DA. They discovered that children with siblings reported DFA more frequently (37.0% vs. 24.1%; p = 0.034) and had a higher Children Fear Survey Schedule-Dental Subscale (CFSS-DS) score (29.9 vs. 27.4; p = 0.025) than their counterparts. They also concluded that children's DA was not related toparents' dental anxiety or parenting styles (p > 0.05).

Based on our knowledge, this study was from a few studies in Egypt examining the relationship of dental anxiety between children and their parents. The present study's findings underscore a significant association between anxiety levels in children and their parents. Specifically, this study found that children tend to share similar anxiety levels with their parents. Moreover, this study's analysis revealed a positive correlation between children's and parental DA, and this was statistically significant. These results confirm the influential role of parental anxiety on their children's anxiety levels; as the DA of parents increases, so do those of their children, and conversely. These findings underscore the importance of addressing parental DA in reducing children's dental anxiety.

The current study's results found that a correlation coefficient was 0.5, which came in coordination with Kroniņa et al. (2017) [24], who concluded that parental DA strongly correlates with children's DA. In addition, in agreement with Šimunović et al. (2022) [15], who expanded the scope by assessing the correlation in six European countries. Their Spearman rank correlation results revealed a significant overall correlation of 0.4, intensified to 0.48 when focused on primary and secondary school children. The current study findings mirror the closest resemblance to Slovenia's correlation of 0.52 among the six studied countries.

The present study's result was in contrast with the study by Wu et al. (2018) [23], which showed that parental dental anxiety did not affect the children's DA. The possible reason for this conflict could be due to the selection of different age groups, as they chose children aged 9-13 years, and parental dental anxiety could not directly influence a child's dental anxiety when the child reaches adolescence.

In further accordance with the present study's results, as well as further confirmation of the explanation of the effect of age groups, Uzel et al. (2022) [25] detected that the maternal dental anxiety level strongly affected the anxiety level of the children in the group of 7-8 years (p=0.01), while no significant was found in a group of 11-12 years (p>0.05).

Parental anxiety is not the sole determinant of dental anxiety in children. Dental anxiety is a multifactorial phenomenon influenced by various other factors beyond parental anxiety, and that is why the results of this study demonstrated a moderate positive correlation.

The first limitation of the study was that Some children (mainly those five years of age) faced difficulties in answering CDAS. The second limitation was the low number of fathers who accompany their children to the dental clinic. Therefore, the results of the current study may not reflect the impact of fathers' dental anxiety on their children's dental anxiety.

This study recommended further investigation into the specific influence of both maternal and paternal DA on their children's dental anxiety by increasing the participation of fathers.

V. CONCLUSION

Since there is a significant positive correlation between children and parental dental anxiety, educating parents about DA before their child goes to the dentist reduces parental anxiety, which, in turn, can help children feel less anxious and have a more positive experience.

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Appendix:

Name _____ Date _____

Corah's Dental Questionnaire

1. If you had to go to the dentist tomorrow for a check-up, how would you feel about it?

   a. I would look forward to it as a reasonably enjoyable experience.
   b. I wouldn't care one way or the other.
   c. I would be a little uneasy about it.
   d. I would be afraid that it would be unpleasant and painful.
   e. I would be very frightened of what the dentist would do.

2. When you are waiting in the dentist's office for your turn in the chair, how do you feel?

   a. Relaxed.
   b. A little uneasy.
   c. Tense.
   d. Anxious.
   e. So anxious that I sometimes break out in a sweat or almost feel physically sick.

3. When you are in the dentist's chair waiting while the dentist gets the drill ready to begin working on your teeth, how do you feel?

   a. Relaxed.
   b. A little uneasy.
   c. Tense.
   d. Anxious.
   e. So anxious that I sometimes break out in a sweat or almost feel physically sick.

4. Imagine you are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist or hygienist is getting out the instruments which will be used to scrape your teeth around the gums, how do you feel?

   a. Relaxed.
   b. A little uneasy.
   c. Tense.
   d. Anxious.
   e. So anxious that I sometimes break out in a sweat or almost feel physically sick.

- Scoring the Dental Anxiety Scale, (DAS-R) (this information is not printed on the form that patients see)

a =1, b = 2, c = 3, d = 4, e = 5 Total possible = 20

Fig. (A1): Corah's Dental Anxiety Scale

الاسم   التاريخ

<u>استبيان كوراه</u>

1. قبل حضورك مبارح لعيادة الاسنان كنت حاسس بإيه؟

أ. مبسوط

ب. مش مهتم عادي

ج. كنت قلقان شويه

د. كنت خايف

هـ. كنت خايف جدا ومش عايز اجي

2. كنت حاسس بإيه لما كنت تستنى دورك برا؟

أ. مبسوط

ب. عادي

ج. قلقان شوية

د. كنت خايف

هـ. كنت خايف جدا

3. حاسس بإيه لما قعدت عالكرسي؟

أ. مبسوط

ب. عادي

ج. قلقان شويه

د. كنت خايف

هـ. كنت خايف جدا

4. حاسس بإيه وانت شايفني بحضر أدوات الكشف والحفر؟

أ. مبسوط

ب. عادي

ج. قلقان شويه

د. خايف

هـ. خايف جدا

Fig. (A2): Arabic Version of CDAS