

Like Parent, like Child – True on a Pedodontist’s Chair As Well

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Type of Publication: Original Research Paper.

Conflicts of Interest: Nil

Abstract

Anxiety refers to multiple mental and physiological phenomena, including a person's conscious state of worry over a future unwanted event, or fear of an actual situation. Anxiety that is associated with the thought of visiting the dentist for preventive care and over dental procedures is referred to as dental anxiety. It has been cited as the fifth-most common cause of anxiety by Agras et al(1969). It has been seen that parents' dental fear and anxiety (DFA) might exert an influence on their children's DFA through modeling and information. Hence the aim of our present study is to evaluate the influence of the anxiety levels of the parents on the children's anxiety levels. **MATERIALS AND METHODS:** 43 children aged 6–12 years, were randomly selected from the out-patient department (OPD) based on the inclusion and exclusion criteria. The study spanned over a period of 48 days. Parental dental anxiety was assessed using the revised Norman Corah's dental anxiety scale (DAS-R) and their vital signs during the 1st visit were recorded. Child's

anxiety level was measured using children fear survey schedule dental subscale (CFSS-DS) and the vital signs during the 1st visit were recorded. **RESULTS:** The Distribution of mean CFSS-DS anxiety score of the child vs. anxiety level of parents was statistically significant. Distribution of mean CFSS-DS anxiety score of child vs. the accompanying parent (whether mother or father) was statistically significant with children accompanied with their mothers being more anxious than those accompanied with their fathers. Positive correlation was found between B.P. (systolic), B.P. (diastolic), respiratory rate in cycles per minute and pulse rate in beats per minute of the child vs. the CFSS-DS (anxiety score) of the child; but this correlation was statistically significant only in case of respiratory rate and pulse rate of the child. A positive and a statistically significant correlation between the Diastolic blood pressure, respiratory rate and the pulse rate of the accompanying parent with their anxiety levels was found. **Conclusion:** The anxiety level of the parents accompanying a child in the dental clinic has an influence

on the anxiety of the child; thereby, identifying the anxiety levels of parents accompanying their children can help the pedodontist in designing the behaviour management strategies for the child as well as the parent accordingly.

Pulse rate and respiratory rate can act as an indicator of stress and anxiety, which can be assessed for both the child and the parents, prior to the start of the treatment and accordingly, anxiety levels can be assessed that can aid in planning the behaviour management strategies.

Keywords: Dental Anxiety, Child, parents, mother, father, Vital signs.

Aim of Our Present Study

To evaluate the influence of the anxiety levels of the parents on the children's anxiety levels during their 1st dental visit.

Materials and Methods

43 children aged 6–13 years, were randomly selected from the out-patient department (OPD) of the department of Pedodontics and Preventive dentistry, Guru Nanak Institute of Dental Sciences and Research, Panihati, Kolkata.

Inclusion Criteria

- Children of both the sexes (males and females) between 6 and 13 years of age
- Children who are attending the dental clinic for the first time
- Children attending dental clinic with either of the parent and the parent is medically fit.

Exclusion Criteria

- The children with known congenital anomaly, and/or systemic disorders
- Children with a history of prolonged illness
- Children whose parents gave history of any cardiovascular disorder
- Children who had previous dental experiences
- Children who are not accompanied with their parents

- Children and parents who were not willing to participate in the study.

Methodology

- The study spanned over a period of 48 days.
- Informed consent was taken from all the parents of the selected children.
- The selected subjects were made familiar with the Dr. Morepan Pulse and BP Monitor and the digital thermometer.

Parental dental anxiety was assessed using the Norman Corah's dental anxiety scale (DAS-R) (the scoring is done from 4 - 20 based on the responses of the parents to the Norman Corah's Questionnaire and based on this scoring the anxiety is classified into; scores 4 - 8 : mild anxiety level; scores 9 - 12 = moderate anxiety; scores 13 - 14 = high anxiety; scores 15 - 20 = severe anxiety level) [17] and by measuring their vital signs (Pulse, systolic and diastolic blood pressure, body temperature, respiratory rate) during the 1st visit. The child's anxiety level was measured using children fear survey schedule-dental subscale (CFSS-DS) (CFSS-DS consists of 15 items related to different aspects of dental treatment which are scored as follows: Not afraid = 1; a little afraid = 2; fairly afraid = 3; quite afraid = 4; and very afraid = 5. Total scores thus ranges from 15 to 75; with score 75 indicating maximal fear and children with CFSS-DS ≥ 38 are defined as dentally anxious) [18] and their vital signs were recorded during the 1st visit.



Figure 1: Armamentarium to check the vital signs



Figure 2: Filling of the DAS-R AND CFSS-DS anxiety Scales



Figure 3: Recording the vital signs of accompanying parent



Figure 4: Recording the vital signs of child

The collected data was analysed statistically. The statistical software SPSS version 20 was used for the analysis. An alpha level of 5% was taken, i.e. if any p value is less than 0.05 it has been considered as significant.

Results and Discussion

Table 1: Distribution of age

Age	Frequency	Percent
6	6	14.0%
7	6	14.0%
8	6	14.0%
9	7	16.3%
10	6	14.0%
11	5	11.6%
12	4	9.3%
13	3	7.0%
Total	43	100.0%

6(14.0%) patients in the study were 6 years of age, 6(14.0%) patients were 7 years of age, 6(14.0%) patients were 8 years of age, 7(16.3%) patients were 9 years of age, 6(14.0%) patients were 10 years of age, 5(11.6%) patients were 11 years of age, 4(9.3%) patients were 12 years of age and 3(7.0%) patients were 13 years of age.

Graph 1: Distribution of age

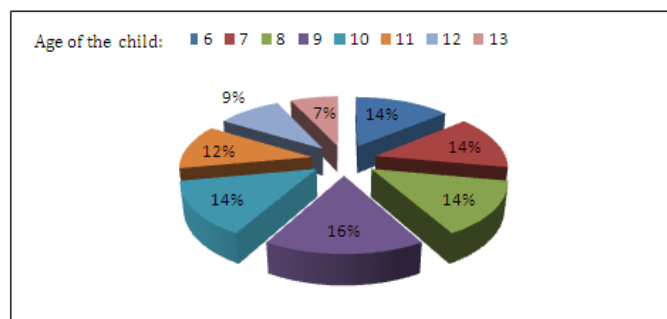


Table II: Distribution of gender

Gender	Frequency	Percent
Female	23	53.5%
Male	20	46.5%
Total	43	100.0%

23(53.5%) subjects in the study were females and 20(46.5%) subjects were males.

Graph 2: Distribution of gender

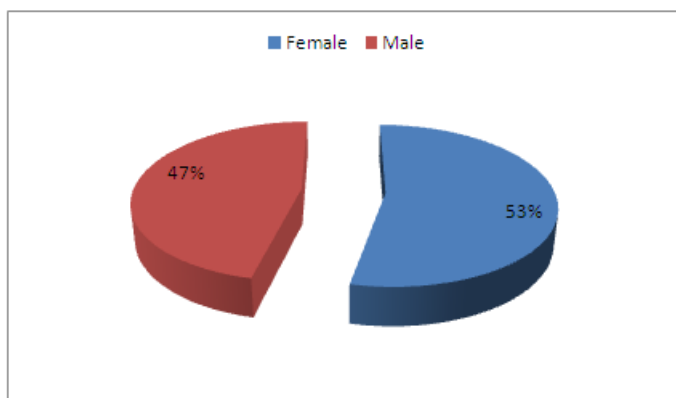


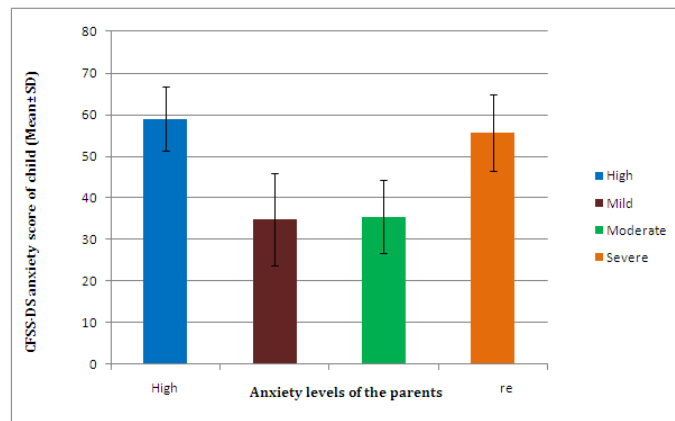
Table 3: Distribution of mean CFSS-DS anxiety score (of child) vs. anxiety level parents

	Parent's anxiety level	Number	Mean	SD	Minimum	Maximum	Median	p-value
CFSS-DS anxiety score	High	12	59.0000	7.6989	45.0000	70.0000	60.5000	<0.0001
	Mild	16	34.8125	11.1309	16.0000	56.0000	33.0000	
	Moderate	11	35.4545	8.7905	20.0000	51.0000	39.0000	
	Severe	4	55.7500	9.1788	46.0000	68.0000	54.5000	

By applying the ANOVA test to the data, we found that in high anxiety level of parents, the mean CFSS-DS anxiety score (mean±s.d.) of the child was 59.0000 ± 7.6989. In mild anxiety level of parents, the mean CFSS-DS anxiety score (mean±s.d.) of the child was 34.8125 ± 11.1309. In moderate anxiety level of parents, the mean CFSS-DS anxiety score (mean±s.d.) of the child was 35.4545 ± 8.7905. In severe anxiety level of parents, the mean CFSS-

DS anxiety score (mean±s.d.) of the child was 55.7500 ± 9.1788.

Graph 3: Distribution of mean CFSS-DS anxiety score vs. anxiety level parents was statistically significant (p<0.0001).



The assessment of the dental anxiety displayed by a child plays an important role in the child's dental as well as the overall health. The etiology of child dental fear is considered multifactorial and different pathways through which a child acquires the dental fear have been described thereby, pediatric dentists should take into consideration this multifactorial etiology of anxiety. As parents' perception about the dental treatment can have an influence on the child, an assessment of parents fear and anxiety prior to the the initiation of the child's dental treatment may be very helpful for the the clinician in designing the behavior management strategies accordingly[19].

Our study, showed a positive correlation between parental anxiety level and the anxiety scores of their children which is in coherence with the results of the meta-analysis by Themessl-Huber et al.[2010][20]. According to the study by Tickle et al.[21], he found that children with anxious parents are more likely to report anxiety, which is in line with our findings in the study. Lee et al., [2008]; Lara et al., [2012] also reported that parental anxiety is an important external factor that may influence the child's

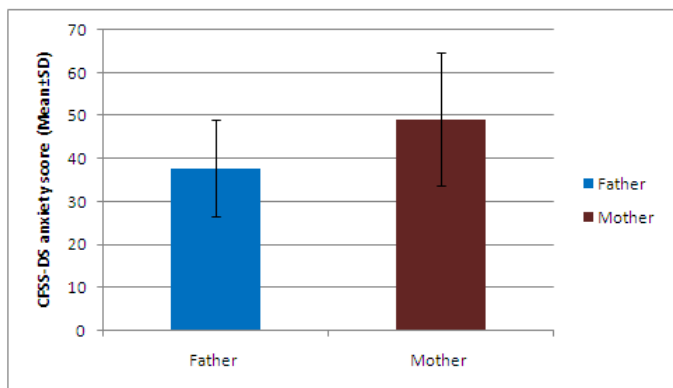
anxiety and behavior in the dental clinic[22,23]; while the study by Vasiliki Boka et al. reports a contradictory result wherein they found no correlation between parents' and their children's dental anxiety, psychological functioning and behavior[24].

Table 4: Distribution of mean CFSS-DS anxiety score of the child vs. the accompanying parent

	Accompanying parent	Number	Mean	SD	Minimum	Maximum	Median	p-value
CFSS-DS anxiety score	Father	21	37.9048	11.1889	20.0000	56.0000	39.0000	0.0095
	Mother	22	49.1818	15.5338	16.0000	70.0000	51.0000	

Applying the unpaired 't' test to the data we found that, for the child accompanied by father, the mean CFSS-DS anxiety score (mean±s.d.) of the child was 37.9048 ± 11.1889 while, the child accompanied by mother, the mean CFSS-DS anxiety score (mean±s.d.) of the child was 49.1818 ± 15.5338. Distribution of mean CFSS-DS anxiety score vs. accompanying parent was statistically significant (p=0.0095).

Graph 4: Distribution of mean CFSSDS anxiety score of child vs. accompanying parent



We found that mothers accompanying the child represented high levels of dental anxiety as compared to the fathers accompanying the child, which influenced the anxiety scores of the child as well with higher anxiety scores in children accompanied by mothers as compared with those accompanied by fathers. Ripa et al.[25] has depicted that mothers with high levels of dental anxiety exert negative influence on their children while Folayan et

al.[26] reported significantly high level of dental anxiety among mothers as compared to fathers. Both these findings support the findings of our study

Table 5: Correlation of B.P.(systolic) of child, B.P.(diastolic)of child, respiratory rate in cycles per minute child, pulse in beats per minute of child, body temperature in Fahrenheit of child vs. CFSS-DS(anxiety score)

		CFSS-DS(ANXIETY SCORE)	Remarks
B.P.(SYSTOLIC) of child	Pearson Correlation Coefficient (r)	.190	Positive correlation
	p-value	.223	Not significant
	Number	43	
B.P.(DIASTOLIC)of child	Pearson Correlation Coefficient (r)	.035	Positive correlation
	p-value	.826	Not significant
	Number	43	
Respiratory rate in cycles per minute child	Pearson Correlation Coefficient (r)	.646**	Positive correlation
	p-value	<0.0001	Significant
	Number	43	
Pulse rate in beats per minute of child	Pearson Correlation Coefficient (r)	.823**	Positive correlation
	p-value	<0.0001	Significant
	Number	43	
Body temperature in Fahrenheit of child	Pearson Correlation Coefficient (r)	-.391**	Negative correlation
	p-value	.009	Significant
	Number	43	

- Positive correlation was found between B.P. (systolic), B.P. (diastolic), respiratory rate in cycles per minute and pulse rate in beats per minute of the child vs. CFSS-DS (anxiety score) of the child; but this correlation was statistically significant only in case of respiratory rate and pulse rate of the child.
- Negative correlation was found between body temperature in Fahrenheit of child vs. CFSS-DS (anxiety score) and it was statistically significant .

In the study by McCarthy, Laufer, Myers and Messer they found that pulse rate and blood pressure acted as a reliable indicator of stress and anxiety[27-30]. But in a study done by Howard and Katcher, they denounced heart rate as an indicator of stress [31].Beck and Weaver in their study showed that the anticipation of high stress dental appointment did not affect blood pressure, but altered the pulse rate [32]. However, our study showed that pulse rate and respiratory rate of children increased with increase in the anxiety levels and this alteration was statistically

significant while a positive correlation between the systolic and diastolic blood pressure of the child with the anxiety levels of the child was not statistically significant.

Table 6: Correlation of B.P.(systolic) of parent, B.P.(diastolic)of parent, respiratory rate in cycles per minute of parent, pulse rate in beats per minute of parent, body temperature in Fahrenheit of parent vs. anxiety level parents

Variables		SBP	DBP	RR	Pulse rate	Temperature
Mild(16)	Mean	120.1	70.6	14.8	79.2	98
	SD	10.6	6.8	2.1	11.1	0.7
Moderate(11)	Mean	116.5	70.7	15.2	84.9	98.3
	SD	9.7	8.8	1.6	8.9	0.7
Severe(4)	Mean	119	67.5	22	110.5	98.1
	SD	12.9	8.6	1.6	3.4	0.9
High(12)	Mean	125.3	72	18.5	87.8	98.3
	SD	11.7	6.3	2.5	15.3	0.5
p-value		0.2	0.0000	0.0000	0.0000	0.5

By applying the ANOVA test of significance to our data, we found a positive and a statistically significant correlation between the Diastolic blood pressure, respiratory rate and the pulse rate of the accompanying parent with their anxiety levels. An increase in the anxiety levels led to the increase in the values of these parameters; while the systolic blood pressure and the body temperature were not statistically correlated with the anxiety levels.

Table 7: Comparison of B.P.(systolic) , B.P.(diastolic), respiratory rate in cycles per minute, pulse in beats per minute, body temperature in Fahrenheit of the accompanying parent (mother vs father)

Variables		SBP	DBP	RR	Pulse rate	Temperature
Father(21)	Mean	118.76	72	15.42	84.09	98.01
	SD	11.72	7.09	2.76	12.02	0.79
Mother(22)	Mean	122.27	69.54	17.81	87.81	98.40
	SD	10.42	7.35	3.01	16.09	0.56
P value		0.3	0.2	0.008	0.3	0.05

By applying the unpaired T test to our data, we found that there was a statistically significant difference between the respiratory rates of mothers accompanying the child and the respiratory rates of the accompanying fathers, with a higher respiratory rate in the mothers than the fathers. We could see an increased pulse rate in the accompanying

mothers as compared to the accompanying fathers, but this increase in the pulse rate wasn't statistically significant. This finding again stresses, that the accompanying mothers are more anxious than the accompanying fathers of the child to the dental clinic, which further influences the dental anxiety of the child.

Conclusion

The anxiety level of the parents accompanying a child in the dental clinic has an influence on the anxiety of the child; thereby, identifying the anxiety levels of parents accompanying their children can help the pedodontist in designing the behaviour management strategies for the child as well as the parent accordingly. **Pulse rate and respiratory rate** can act as an indicator of stress and anxiety, which can be assessed for both the child and the parents, prior to the start of the treatment and accordingly, anxiety levels can be assessed and the behavior management strategies can be planned accordingly for the child as well as the accompanying parents. Pedodontists need to add an important chapter in their minds; the chapter on 'BEHAVIOUR MANAGEMENT OF THE PARENTS' ALONGWITH THE 'BEHAVIOUR MANAGEMENT OF THE CHILD'; thus, highlighting onto the PEDODONTIC TREATMENT TRIANGLE; thereby having a holistic approach towards A FEARLESS PEDIATRIC DENTISTRY!

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