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The relationship between dental fear and cooperation of children during dental treatments with their parents' general health

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Abstract

Objective: Dental fear is a common phenomenon in children and parents can have a key role in the development of child's dental anxiety. There is moderate evidence to support the relationship between the parental general health and children's dental fear. The aim of this study was to investigate the relationship between dental fear and cooperation of children during dental treatment with the general health of parents.

Methods: This cross-sectional descriptive study was done on 130 children aged 6 to 12 at the Department of Pediatric Dentistry, Guilan University of Medical Sciences from May to September 2020.The personality traits and general health of parents were assessed by using the General Health Questionnaire (GHQ-28). The Frankl's behavior rating scale and Children's Fear Survey Schedule Dental Subscale (CFSS-DS) were used to respectively assess the degree of cooperation during dental practices and children's dental fear. Statistical approaches included T-test, Chi-square and Pearson Linear correlation. A significant level of differences was taken as $P<0.05$.

Results: 69.3 % of children behaved positively and definitely positively during dental treatment. 56 boys and 74 girls with mean age of 9.13 ±2.02 years participated in this study. There was a significant correlation between the children's age with dental fear and cooperation level (P<0.001). There was no significant difference in dental fear score (P=0.63) and cooperation level (P=0.99) between boys and girls. There was not statistically significant relationship between the general health of the parents and the level of children's cooperation and dental fear during dental treatment (P>0.001).

Conclusion: There was not relationship between parent's general health with children's dental fear and cooperation.

Keywords: Fear; Behavior; Health; Dentistry.

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Introduction

Dental fear and anxiety (DFA) in children is a major issue affecting their oral health and behavior management and prevent children from cooperating well during dental treatment [1, 2].

Dental fear is a common problem that develops mostly in childhood and affects people of all ages [3].

Children with DFA often try all means to miss or postpone dental treatment, resulting in deterioration of their oral status which is not only distressing for the child and family but is also associated with poor oral health and an increased demand to more complex interventions [3,4]. Thus, the frequency of dental pain and unpleasant dental experiences is greater among uncooperative children with DFA in comparison to cooperative children [5].

To offer better dental care, the prevalence and causes of dental fear and anxiety should not be overlooked in clinical practice, especially in children. Strategies for the evaluation, prevention and control of dental fear should be implemented to

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allow better treatment for children and adolescents [2].

The etiology of dental fear in children is multifactorial and has been related to age, gender, personality, increased general fears, past dental experiences, parental dental fear, ethnicity and culture, socioeconomic status and dental office environment [6]. It is better to have information about the influence of parental general health on children's behavior in clinical situations. Parents can provide an environment for children's psychosocial growth which could shape the children's behaviors. They can transmit feelings of fear and anxiety to their children [1].

Many children are likely to internalize their parents' values, attitudes through modeling and parents with DFA may transfer their fearful feelings to their children, causing a negative impact on their cooperation [3]. There is not enough evidence to support the relationship between parental and child DFA [5]. This study investigated the association between dental fear and cooperation of children during dental treatment with the general health of parents.

Material and Methods

Ethical Aspects

This cross-sectional descriptive study was approved by Guilan University of Medical Sciences (IR.GUMS.REC.1399.080) in 2020/5/27.

Sample

This study was done on 130 children aged 6-12, seeking dental treatment at the Department of Pediatric Dentistry, Guilan University of Medical Sciences from May to September 2020. Children with severe systemic diseases, physical or psychological disabilities were excluded.

Questionnaire

A single researcher (pedodontist) explained the objectives and procedures to the parents. Parents, who agreed to participate, signed a statement of informed consent and filled out General Health Questionnaire (GHQ) which assessed theirs' general health and personality traits [7].

The same dentist interviewed with the parents and filled out the questionnaire. The parents have time enough to answer the questions. This questionnaire comprises of 28 questions, each with a four-point likret scale (0-1-2-3) for responses "not at all", "no more than usual", "rathermore than usual" and "much more than usual".

This questionnaire includes four subscales: ***Social signs, Anxiety and insomnia, Social dysfunction*** and ***Depression***. Each subscale includes seven questions and the score ranges from 0-21. General health of parents with 0-9 score are defined optimal, 10-15 is considered marginal and 16-21 is defined as damaged health [7].

Fear and Cooperation Evaluation

Fear and cooperation level of all children was evaluated in the first appointment during dental treatment by the same examiner (pedodontist). The Children's Fear Survey Schedule Dental Subscale (CFSS-DS) with good reliability and validity, developed by Cuthbert and Melamed in 1982 was used to evaluate the children's dental fear.

CFSS-DS consists of 15 items about different aspects of the dental situation. For each item, the response ranges 1–5, from "not afraid at all" to "very much afraid". The total score ranges from 15 to 75. Children with a total CFSS-DS score below 32 are defined as non-fearful; 32–39 is considered moderate fearful and >39 is defined as fearful [8].

Degree of cooperation of children during dental practices was assessed using Frankl's behavior rating scale (Definitely negative-1, negative-2, positive-3, definitely positive-4).

Definitely negative*:* Refusal of treatment, crying forcefully, fearful, or any other overt evidence of extreme negativism. ***Negative****:* Reluctant to accept treatment, uncooperative, some evidence of negative attitude but not pronounced (sullen, withdrawn).

Positive: Acceptance of treatment, at times cautious, willingness to comply with the dentist, at times with reservation, but patient follows the dentist's directions cooperatively.

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Definitely positive: Good rapport with the dentist, interested in the dental procedures, laughing and enjoying [9].

Statistical analysis

The data obtained on the questionnaires were analyzed with the aid of the Statistical Package for the Social Sciences (SPSS®, Version24.0, Chicago,IL, USA). Comparing the dental fear and cooperation level of children among girls and boys was done using T-test.

Pearson correlation was used for evaluating the correlation between the children's age with dental fear. The relationship between the general health of the parents and the children's dental fear and cooperation was determined using the Chi-square. Results with P <0.05 were considered statistically significant.

Results

130 children, 56 boys and 74 girls, 6-12 years of age (average 9.13 ±2.02 years) participated in this study. 50.8% (66) of parents were male and 49.2 %(64) were female with 22-58 year old (average 39.24 ±5.56 years).

According to CFSS-DS, 68.5 % of the children were considered non-fearful, 12.3% were moderate and 19.2 % were fearful. There was no significant difference in dental fear score between boys and girls (T-test, P=0.63).

Table 1. Frequency distribution of parental general health by four subscales

Variables	Score	N (%)
Social signs	**0-9**	13(10)
	10-15	75(57.7)
	16-21	42(32.3)
Anxiety and insomnia	**0-9**	17(13.1)
	10-15	57(43.8)
	16-21	56(43.1)
Social dysfunction	**0-9**	9(6.9)
	10-15	89(48.5)
	16-21	32(24.6)
Depression	**0-9**	4(3.1)
	10-15	38(29.2)
	16-21	88(67.7)

Cooperation of 20.8%, 48.5%, 28.5% and 2.2 % of children were definitely positive, positive, negative and definitely negative respectively, according to Frankl's behavior rating scale. There was no significant difference in cooperation level between boys and girls (T-test, P=0.99)

There was a significant correlation between the children's age with dental fear (Pearson correlation, P<0.001), so that the dental fear decrease with increasing age. The personality traits and general health of parents, assessed by General Health Questionnaire (GHQ-28) has been shown in Table 1.

There was not statistically significant relationship between the general health of the parents and the children's dental fear according to CFSS-DS (Chi-square, P>0.05) Table 2. There was not a significant association between the parental general health and the cooperation level of children during dental practices according to Frankl's behavior rating scale (Chi-square, P>0.05) Table 3.

Discussion

This study explored the relationship between children's dental fear and level of cooperation during dental practices with parental general

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health. In contrast to the assumption of many people, the results showed that parental general health is not associated with children's dental fear and cooperation.

Dental fear is more complex than can be explained by a single contributing factor and dentists must consider this issue to gain a better understanding of pediatric patients and their parents [2, 10]. There was no difference in dental fear and anxiety between genders which is in agreement with study by Kyritsi MA et al [11] in a population of Greek children in Athens and study by Raj S et al [8] in India, although some studies [12-14] reported that dental fear was seen more frequently in girls than boys.

This difference can be related to different culture, social beliefs and biological origin [11]. In the present study, the dental fear of children decreased with increasing age which can be related to losing the fear of the unknown with maturation of children. Some studies [15-17] reported that fear scores increased with age, likely due to the unpleasant past experiences and greater number of invasive treatments.

Table 2. Frequency distribution of parental general health by children's dental fear

Variables	Score	Non-fearful N (%)	Moderate fearful N (%)	Fearful N (%)	*P- value
Social signs	0-9	8(61.6)	2(15.4)	3(23)	0.78
	10-15	54(72)	7(9.3)	14(18.7)	
	16-21	27(64.3)	7(16.7)	8(19)	
Anxiety and insomnia	0-9	9(53)	3(17.6)	5(29.4)	0.61
	10-15	42(73.4)	6(7.8)	9(15.8)	
	16-21	38(67.8)	7(12.5)	11(19.8)	
Social dysfunction	0-9	8(88.8)	1(11.2)	0(0)	0.46
	10-15	62(70)	10(11.2)	17(18.8)	
	16-21	19(60)	5(15.6)	18(24.4)	
Depression	0-9	4(100)	0(0)	0(0)	0.74
	10-15	25(65.7)	5(13.1)	8(21.2)	
	16-21	60(68.1)	11(12.5)	17(19.4)	

*P-value was based on Chi Square ($p<0.05$)

Similar to this study, in a study by Wu L and Gao X in Hong Kong, children's DFA was not associated with parents' DFA or parenting styles. Parents' and child's DFA were measured by using the Corah Dental Anxiety Scale (CDAS) and Children Fear Survey Schedule Dental Subscale (CFSS–DS) respectively [1].

Raadal M et al examined 5-11 year old US urban children from low-income families. Dental fear of children was evaluated by CFSS-DS questionnaire and behavioral problems and personality traits were evaluated by parent report on the Child Behavior Checklist (CBCL).

There was not relationship between dental anxiety and personality traits in this population [18]. Salem et al examined the relationship between dental fear and concomitant factors in children aged 3-6.

Results showed that general anxiety of Iranian parents had no effect on the child's dental anxiety, which is in the favor of conditioning theory which emphasizes more on personal experiences rather than parental influence [12, 14, 19].

It is often thought that parental dental fear is associated with children's dental fear. Such association was supported by a study conducted in the Madrid

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(Spain) by Lara A et al which used CFSS-DS questionnaire for evaluating the dental fear of schoolchildren and their parents. It was shown that family member's levels of dental fear are significantly correlated with children's dental fear [20].

Findings of this study suggest that the influence of parents on the development of children's dental fear is not as straightforward as previously suspected. As dental fear in children may lead to a disruptive behavior and postpone the dental treatment, it is imperative to identify the possible negative factors and make necessary efforts to prepare children for dental visits.

This study was done on children in Iran and the results cannot be directly generalized to all other populations, although some useful information can be drawn especially for populations with similar cultures [1]. The age range of 6 to 12 years old may be a limitation of this study, once younger or older children may have other results.

Table 3. Frequency distribution of parental general health by cooperation level of children

Variables	Score	Definitely negative N(%)	Negative N(%)	Positive N(%)	Definitely positive N(%)	*P- value
Social signs	0-9	0 (0)	7(54)	5(38.4)	1(7.6)	0.21
	10-15	1(1.3)	21(28)	39(52.1)	14(18.6)	
	16-21	2(4)	9(21.5)	19(45.2)	12(29.3)	
Anxiety and insomnia	0-9	0(0)	7(41.1)	7(41.1)	3(17.8)	0.12
	10-15	0(0)	20(35)	28(50)	9(15)	
	16-21	3(5.3)	10(18.8)	28(52.8)	15(23.1)	
Social dysfunction	0-9	0(0)	3(33.3)	5(55.5)	1(11.2)	0.87
	10-15	3(3)	26(30)	42(47.1)	18(19.9)	
	16-21	0(0)	8(25)	16(50)	8(25)	
Depression	0-9	0(0)	1(25)	3(75)	0(0)	0.26
	10-15	1(2)	13(34.2)	21(55.2)	3(8.6)	
	16-21	2(2)	23(26.1)	39(44.7)	24(27.2)	

*P-value was based on Chi Square ($p<0.05$)

Conclusion

There was not relationship between parent's general health and personality traits with children's dental fear and their level of cooperation during dental practices. There was no significant difference in cooperation level between the genders and the dental fear decreased with increasing age.

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Conflicts of interest

The authors deny any conflicts of interest in regards to the current study.

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