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Relationship between dental students' personality type and their 7- to 9-year-old patients' dental fear at Shahid Beheshti Dental School, Tehran, Iran

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Objectives Children's dental fear is a major issue in avoidance of dental visits, which exacerbates dental health problems and is associated with multiple factors. The dentist's behavior is one of the influential factors in dental fear. This study aimed to evaluate the relationship between dentistry students' personality type and children's dental fear.
Methods This descriptive, analytical, cross-sectional study was performed on 30 dentistry students and 34 children in the pediatric ward of Shahid Beheshti Dental School, Tehran, Iran. The children's age was in the range of 7-9 years. To evaluate the students' personality type, Bortner questionnaire was used, and to investigate children's dental fear, the Dental Subscale of the Children's Fear Survey Schedule (CFSS-DS) was employed. The children completed the questionnaire twice, once before and once after treatment with the assistance of their parents. Fisher's exact test ($P<0.05$), independent t-test ($P<0.05$), and ANCOVA ($P<0.05$) tests were performed for statistical analysis.
Results According to the students' responses to the Bortner questionnaire, they were divided into two groups: 18 students with type A personality and 12 students with type B personality. The children were also divided into two groups. Twenty-two children were treated by dentists with type A personality (group A), and twelve children were treated by dentists with type B personality (group B). Changes in the mean CFSS-DS score following dental treatment were +2.09±7.7 and -2.17±4.95 in group A and group B, respectively. The mean change in the CFSS score of children in group A was higher than that of children in group B, although the difference was not significant ($P=0.096$).
Conclusion The personality type of dentistry students does not significantly affect children's dental fear.
Keywords Dental fear; Children; Type A Personality; Type B Personality

Introduction

Dental fear is a major cause of deterioration in oral health of children and a major challenge for dental professionals in pediatric dentistry. [1] According to previous research, the prevalence of dental fear was estimated to be 15-28% in a population of Iranian children. [2] Dental fear can result in the postponement or avoidance of dental care, besides further oral and dental health problems, such as pain, abscess, loss of primary and permanent teeth, and occlusal disruption. [3, 4] Moreover, children with dental fear do not cooperate well during dental examinations or treatment sessions, which can lead to delayed treatment and have other consequences. [1] Compromised oral and dental health negatively affects the daily activities and general health of children. [3, 5]

Dental fear in childhood may last through adulthood. Therefore, fear management in childhood is an important step toward improving oral and dental health and subsequently general health over time. [3] Based on previous studies, dental fear depends on a person's direct and indirect experiences. [6, 7] Direct experiences are derived from a child's own observations and are related to one's dental history. Indirect experiences are derived from other people's information and knowledge. [3, 5] Direct experiences are the most common factors contributing to dental fear, as most people claim that their fear is rooted in a painful or traumatic dental appointment; however, a painful or traumatic history alone cannot explain dental fear. [8]

The dentist's behavior plays a major role in this phenomenon. Appointments with dentists who are careless and unfriendly toward their patients and their opinions, cause fear in these patients, even in simple painless treatment procedures. On the other hand, the prevalence of dental fear is lower in patients treated by dentists with caring and attentive behavior. Evidence shows that building a friendly relationship with patients is an intricate and important aspect of pediatric dentistry and is essential for a successful treatment. [9, 10]

The dentist-patient relationship is based on different factors, which are generally classified into child- and dentist-related factors. [11] A child's cognitive abilities, emotional responses, age-specific behaviors, communication skills, and psychological maturity are among the most important child-related factors. Dentist-related factors include the dentist's attire, office design, and personality. [11, 12] Personality is defined as a combination of characteristics or qualities that form one's distinctive character. [13, 14] In most situations, the dentists' personality type can be a suitable indicator of their behavior toward

patients, which in turn influences a child's direct experience of dental visits and plays an important role in dental fear. [15]

Two cardiologists, Meyer Friedman and R.H. Rosenman, defined type A and type B personalities in the late 1950's. [16, 17] Individuals with type A personality are described as outgoing, ambitious, competitive, impatient, anxious, and concerned with time management. They feel that time is pressing, due to which they always feel nervous; they are also reckless and do not compromise enough. [18] They are often high achievers and constantly in a hurry owing to their high energy levels. They are known to work a lot and dislike postponing or wasting time. On the other hand, individuals with type B personality are flexible, even-tempered, patient, less stressed, and adaptable to change. [18, 19] According to a study by Veselica-Catipovic in 2003, aggression and distrust are more common in individuals with type A personality compared to those with type B personality. [19]

The prevalence of dental fear is found to be high among children (12.2%). [20] This phenomenon affects children's health-related quality oasting effects on children's oral and dental health. Numerous studies have reported that children's previous dental experiences affect their dental fear. [21-23] The dentist's behavior and attitude can have persistent effects on children and influence their oral and dental health. The inability of a dentist to form a proper relationship with a child may lead to postponed appointments, which can in turn initiate or intensify the child's oral and dental health problems. [24]

Dentistry students in their final year of training were selected as the target population of the present study, since they would enter dental practice in the near future and potentially influence children's dental fear. This study aimed to investigate the relationship between the dentistry students' personality type at Shahid Beheshti Dental School (Tehran, Iran) and dental fear of children treated by them.

Methods and Materials

This cross-sectional, descriptive, analytical study was performed on 34 children, presenting to Shahid Beheshti Dental School (Tehran, Iran), as well as dental students treating these children for over 18 months. The participants were informed about the objectives of the study and included in the study after obtaining verbal consent and written approval from their parents. The children were selected based on the following criteria: age range of 7-9 years; being healthy; having no disability or psychological disorder; and non-use of medications. Students who were unable to cooperate were excluded from the study. The selected participants were dentistry students, fulfilling the requirements for their 11th semester.

To assess children's dental fear, the Dental Subscale of the Children's Fear Survey Schedule (CFSS-DS) was used. According to earlier research, CFSS-DS, which is a well-known instrument for assessing dental fear in children, has acceptable validity and reliability. [25] To evaluate changes in the mean CFSS-DS score, the questionnaire was carefully administered twice, once before treatment and once right after the end of treatment. The parents were asked to complete the questionnaire under the researcher's supervision.

Generally, CFSS-DS is the most well-known, reliable, and valid instrument used to examine dental fear in children. [25] The first part of this questionnaire includes the child's general characteristics (age, sex, birth order, and dental history). The CFSS-DS consists of 15 items related to different aspects of dental treatment. Each question has five responses, ranging from "no fear at all" (score 1) to "a lot of fear" (score 5). The total score is the sum of all 15 responses, ranging from 15 to 75; scores above 38 represent dental fear. [22, 26, 27] The reliability and validity of this questionnaire in Persian language have been previously approved by Ghasempour et al. [28]

A total of 30 dental students, including 17 male and 13 female students, participated in this study. The study objectives were described to them, and after obtaining their consent, they were included in the study. The students were selected via purposeful sampling, and in terms of general health, they were healthy, without any disabilities, psychologic disorders, or use of anti-anxiety medications.

The self-administered, 14-item Bortner questionnaire was used to assess the students' personality type. Each item of this questionnaire consists of bipolar pairs of descriptors, rated between two extremes (scale, 0-10), selected by the respondent. The respondent's score ranges from 0 to 140. Score 70 is considered the cutoff score to differentiate type A from type B personality. [29] The reliability and validity of this questionnaire have been previously approved in Persian language. [30, 31]

Number (%) and mean (SD) were calculated for qualitative and quantitative variables, respectively. To compare the sex ratio among children who were treated by students with type A (group A) and type B (group B) personalities, Fisher's exact test was used, and to compare the mean age of children between the two groups, independent t-test was performed. Before the onset of treatment, the CFSS scores and changes in these scores (pre-post treatment scores) were compared between the two groups using independent t-test. Considering small differences in the mean CFSS scores between the two groups at baseline (pretreatment), the scores were compared after treatment between the two groups by adjusting for the pretreatment scores by ANCOVA test. All statistical analyses were performed using SPSS version 21.

This study was approved by the Ethics Committee of Shahid Beheshti School of Dentistry (ethical ID: IR.SBMU.DRC.REC.1398.176).

Results

Among students participating in this study, 18 (60%) had type A personality, and 12 (40%) had type B personality. Among 34 children included in this study, 22 (64.7%) were treated by students with type A personality and 12 (35.3%) children were treated by students with type B personality. Of 22 children treated by students with type A personality (group A), 68.2% were male, and 31.8% were female. Also, of 12 children treated by students with type B personality (group B), six were male and six were female; however, the difference was not significant between the two groups (P=0.46) (Table 1). Additionally, the mean age of children treated by students with type A and type B personalities was 8.0±0.62 and 8.17±0.58 years, respectively, and the total mean age of the students was 8.06±0.6 years.

Table 1. Characteristics of children treated by dentists according to the dentist's personality type

	Sex n (%)		Age Mean (SD)
	Male	Female	
Type A	15 (68.2%)	7 (31.8%)	8.00 (0.62)
Type B	6 (50.0%)	6 (50.0%)	8.17 (0.58)
P-value	0.46		0.45

According to the CFSS-DS score classification, with a cutoff point of 38 indicating the presence of dental fear, only 2 (5.8%) patients before treatment and 3 (8.7%) patients after treatment obtained scores above 38. Before and after treatment, the mean scores of CFSS-DS were 22.41 and 24.50 in children who were treated by students with type A personality and 27.58 and 25.42 in children treated by students with type B personality, respectively. Moreover, the mean change in the CFSS-DS score after treatment (versus pretreatment) was +2.09±7.76 in children treated by students with type A personality and -2.17±4.95 in children treated by students with type B personality (Table 2).

Table 2. The Dental Subscale of the Children's Fear Survey Schedule (CFSS) scores of the studied groups

	CFFS-DS score		
	Before	After	Change
Type A	22.41 (4.26)	24.50 (7.28)	2.09 (7.76)
Type B	27.58 (8.89)	25.42(9.49)	-2.17 (4.95)

Considering CFSS score differences before and after treatment, an increase in the average CFSS score of children treated by dentists with type A personality (group A) and a decrease in the score of children treated by dentists with type B personality (group B) was observed, though the mean difference was not significant between the groups (P=0.096). Before treatment, the mean CFSS score was scarcely higher in group B compared to group A; however, the difference was not significant (P=0.078). By adjusting for small differences in the CFSS scores of the two groups at baseline, the mean post-treatment CFSS scores were compared by ANCOVA test. The adjusted mean scores were 25.05 and 22.35 in group A and group B after treatment, respectively. Although group A had a higher mean score, the difference was not significant (P=0.094).

Discussion

In pediatric dentistry, besides delivery of effective services as the main goal, management of dental fear is essential. Therefore, identification of factors affecting children's dental fear is extremely helpful for the dentists. The present study aimed to investigate the relationship between the personality type of dentistry students and children's dental fear. The age range of children was 7-9 years, and the CFSS-DS was used to assess dental fear. Besides, the Bortner questionnaire was employed to examine the students' personality type.

The present findings showed that the majority of the participants were male (61.8% male vs. 38.2% female). This finding is in line with the results of studies by Javadinejad et al. [2], Salem et al. [4], and Dahlander et al. [21], which showed that the frequency of dental visits was much higher in boys than girls. According to the CFSS-DS results before and after treatment and the classification of CFSS-DS scores (scores higher than 38 indicating dental fear), 5.8% of children before treatment and 8.7% of children after treatment obtained scores above 38, and on average, 7.25% of them experienced dental fear. As shown in a study by Dahlander, which is consistent with the present findings, dental fear was reported in 6% of children at the age of seven years and in 8% of children at the age of nine years (7% on average). [21]

The mean CFSS-DS score was 22.41 and 24.50 before and after treatment in children treated by students with type A personality and 27.58 and 25.42 before and after treatment in children treated by students with type B personality, respectively. The mean total score of children was 24.23 before treatment and 24.82 after treatment. In a study by Ghandaharimotlagh et al., the children's mean score of CFSS-DS was 45.6±10.5, which could be attributed to differences in the age group of children in that study (3-8 years) and the current research (7-9 years). [26] Additionally, based on a study by Dahlander et al. [21] on children in the age group of 7-9 years, the mean CFSS-DS score was 22.9±6.9 in children at the age of seven years and 25.4±8.7 at the age of nine years, which is consistent with the current findings.

According to the results of the present study pertaining to the mean scores of CFSS-DS in children treated by dentists

with two personality types, the mean changes in the CFSS-DS scores were +2.09 and -2.17 in children treated by dentists with type A and type B personalities, respectively. These changes could be related to differences in the characteristics of type A and type B personalities when facing stressful situations. The present results confirmed the findings of a study by Bob et al. [32], suggesting that stressful situations can have adverse effects on the students' performance.

It should be noted that this study coincided with the COVID-19 pandemic, which prevented recruiting a larger sample size and might explain why the current results were statistically non-significant.

Conclusion

The results of the present study indicated that the personality type of dentistry students treating pediatric patients did not significantly affect the patients' dental fear.

Conflict of Interest

No Conflict of Interest Declared ■

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