

# Assessment of the effect of parental presence in dental operatory on the anxiety and behavior of children

## Original Article

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## Abstract

### Introduction:

Parents play an important role in the management of a child patient during dental visit. There is a debate on parental presence in the dentistry operation room. This study aimed to assess the effect of parental presence on the anxiety and behavior of the children.

### Materials and methods:

This study was conducted on ninety five 4-7-year-old children. The parents were asked to complete Strength and Difficulties Questionnaire (SDQ) to pre-assess the child's mental health status and behavioral pattern. Children were treated in two sessions: with the presence of parents (A) and without parents (B). The highest heart rate during injection and drilling was recorded using a finger pulse oxymeter and child's behavior was assessed based on Frankl Index by pedodontist.

### Results:

According to SDQ questionnaire, 80% of children had no behavioral disorders, 12.6% were border line and 7.4% had behavioral disorders. The changes of heart rate and Frankl Index in children without behavioral disorders and border line was significant but in children with behavioral disorders was not significant. Children who had their parents outside the operatory exhibited higher heart rate and less cooperation than those whose parents were present. Wilcoxon test was performed for the statistical analysis.

### Conclusion:

The results of this study suggest that the presence of the parent in the operatory reduces anxiety and enhances the cooperation level of children.

### Key words:

•Dentistry •Parents •Child •Anxiety

## Introduction

Behavior management is one of the major differences between the treatment of children and adults. Accordingly, various techniques have been introduced and among them the less aggressive ones are more acceptable to both children and their parents (1). Parental presence/absence or PPA, proposed in the late 1980s, is assumed as a version of “escape and reward” technique (2).

In this approach the parent’s presence is a reward and positive reinforcement to the child’s improved cooperation (3). Nowadays, both parents and dentists are more willing to keep the parents inside the operatory (2). Also, the presence of at least one of the parents to increase the feeling of security is advocated by psychiatric researchers (1). Permitting them to be a part of the process has some advantages such as: enhancing cooperation of young children in an unfamiliar situation and possibility of using the technique “parent in and out” as a training to gain a more positive behavior. Furthermore, dentists have less fear of litigation and parents are more satisfied when they remain with their children. However, parental disruptive behavior or fear projection, especially on a young child first visit, are disadvantages (4). As child-parent interactions are influenced by a behavior of the dentist, the American Academy of Pediatric Dentistry (AAPD) guidelines leaves PPA to the choice of the clinician (5).

As parental presence during medical and dental procedures is a controversial issue according to literatures, it seems important to conduct a clinical study on the impact of parental presence on child behavior and perception in regard to dental visit.

## Materials and Methods

This case-control clinical trial study was approved by the ethics committee of Gilan University, consisted of 95 children aged 4-7 years attended Guilan’s Faculty of Dentistry over a 7month period. The selection criteria included: 1) Healthy children (ASA 1) without any systemic and developmental diseases, 2) 4-7 year old children requiring two consecutive similar treatment sessions, 3) The absence of dental pain or emergency problem, 4) Child could be managed by non-pharmacological techniques, 5)

No previous dental treatment experience and 6) Parental written consent was signed after they were completely informed of the purpose and procedure of the study.

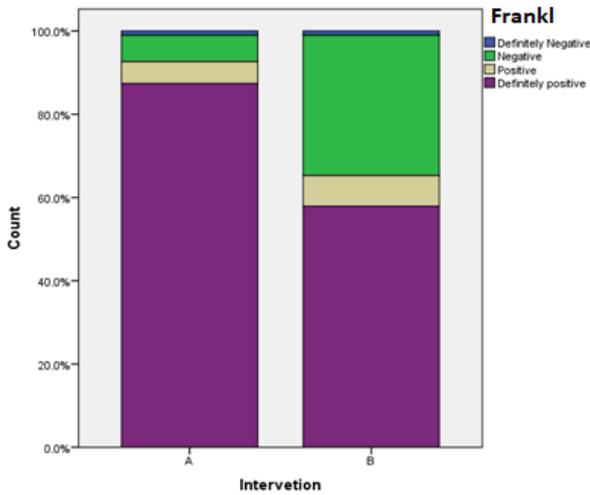
After examination and prescribing radiography, children were treated in two sessions with a week interval by applying Tell-show-do technique to induce a positive attitude: with the presence of parents (A) and without parents (B). The parents were asked to complete Persian translated form of strength and difficulties Questionnaire (SDQ) in a waiting room. This questionnaire is used to pre-assess the child’s mental health status and behavioral pattern and consists of 25 questions and the child’s total scale ranged from 0 to 50 that the scale more than 13 indicates behavioral disorders (6).

Treatments were similar for all children including mandibular block injection and pulpotomy of a primary molar tooth. The presence of parents at first or second session (AB/BA) was randomly determined as Random block. During treatment, the parents were allowed to talk to their child with no intervention in behavior management. The highest heart rate during injection and drilling was recorded using a finger pulse oxymeter as physiological parameter and child’s behavior was assessed based on Frankl Index (7) by pedodontist. This scale divides behavior into four categories ranging from, Definitely negative(score 1) to Definitely positive(score 4).

## Results

The patients were 47 boys and 48 girls with the mean age of  $5.6 \pm 0.97$ .

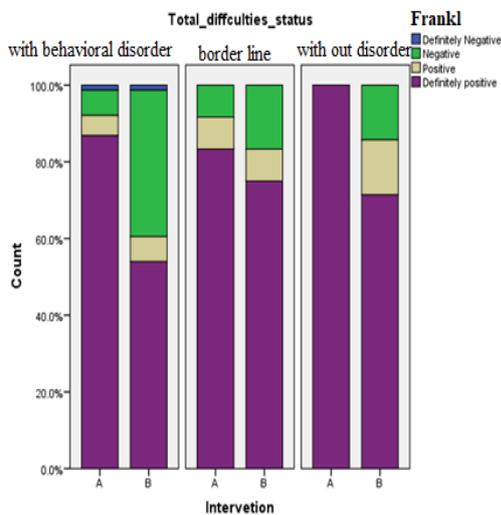
47 (49.5%) patients were treated first with the presence of parents (A) and then without them (B). 48 patients were conversely treated (BA). Cooperation level of children according to Frankl Index was better in group A compared to group B. Frequency of cooperation level of children with the presence of parents (A) and without them (B) according to Frankl Index has been shown in Graph 1.



Graph 1. Frequency of cooperation level of children in group A and B according to Frankl Index

It was found that 47.4% of the children with definitely positive behavior in the first visit (A) showed negative behavior in the second visit (B). About 71.4% of children with negative behavior in the first visit (B) showed definitely positive behavior in the second visit (A).

The changes of Frankl Index in both group AB ( $p < 0.0001$ ) and BA ( $p=0.036$ ) were significant. According to SDQ questionnaire, 80% of children had no behavioral disorders, 12.6% were border line and 7.4% had behavioral disorders. Frequency of cooperation level of children with regard to level of behavioral disorders in the presence of parents (A) and without them (B) according to Frankl Index has been shown in Graph2. Cooperation level of children was better in group A compared to group B.



Graph 2. Frequency of cooperation level of children in group A and B according to Frankl Index with regard to level of behavioral disorders.

Based on Wilcoxon test, changes of Frankl index in children without behavioral disorders ( $p<0.0001$ ) and border line ( $p=0.023$ ) was statistically significant but in children with behavioral disorders ( $p=0.157$ ) was not significant. Average heart rate of children with the presence of parents (Group A) was significantly lower than children without parents (B) during injection and drilling ( $P= 0.0001$ ) Table 1.

Table 1.Average heart rate during injection and drilling in group A and B.

Group	Heart rate Mean(SD)	P-value
A-injection	111.64(16.52)	0.0001
B-injection	121.03(16.01)	
A-drilling	108.08(13.31)	0.0001
B-drilling	116.76(11.39)	

The changes of heart rate during injection in children without behavioral disorders ( $p<0.0001$ ) and border line ( $p=0.01$ ) was significant but in children with behavioral disorders was not significant ( $p=0.110$ ).

Also the changes of heart rate during drilling in children without behavioral disorders ( $p<0.0001$ ) and border line ( $p=0.049$ ) was significant but in children with behavioral disorders was not significant ( $p=0.648$ ).

## Discussion

Opinions vary among educators, clinicians, and researchers on the effect of parental presence/absence in the dental operatory room during treatment of the child patient (8). This study evaluated anxiety and cooperation level of 4-7 year old children in the presence/absence of parents. As these children have less ability to demonstrate their feelings, we used physiological (heart rate) and behavioral indexes (Frankl Index) for evaluating anxiety and cooperation levels. Results of this study showed that the presence of the parent in the operatory room reduced heart rate and enhanced the cooperation level of children.

According to studies investigating on the topic, some authors reported no significant difference in children's behavior with/without parental presence (1,2 ,8,9,10,11) Even in some studies, Marzo et al (12) and Cox IC et al (5) revealed

better results in the group of children whose parents were absent which could be related to other factors influencing the behavior of the child such as child's coping ability, personality characteristics, mother's anxiety and behavior management approach of the dentist, so that they can have good dental experience even when their parents are absent. Other studies demonstrated a positive impact of the parent's presence (3,4). Pani SC et al. suggested that "the presence of the parents in the operatory reduces the physiological manifestations of anxiety in their first restorative dental visit (13)."

Piira et al suggested to include the parents during painful medical procedures in their systematic review although they concluded that parental presence may not have a clear, direct influence on child distress and behavior (14). Kisby LE et al in an update advocate the parental presence which may improve patient cooperation, reduce parental stress and improve dental outcomes(15). Studies have used heart rate, oxygen saturation, blood pressure, and body temperature for assessment of anxiety. We used only the heart rate in this study based on the fact that placement of several recording devices on a child can result in an increased anxiety (13).

As separation anxiety plays a major role in very young children below 4 years of age and are not mature enough to understand full verbal communication, we choosed the age of 4–7 (16). Guthrie(17) advocated the parental presence during dental treatment of children 3 years or younger.

## Conclusion

Considering our obtained results, parent's presence in the dentistry operation room has good impact on the anxiety and behavioral level of children.

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