

## Evaluation of Parental Acceptance of Different Behavior Management Techniques in Pediatric Dentistry, Zahedan, Iran

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### Abstract

**Background:** Parents play an imperative role in building up their child's attitude towards dentistry. Among the several behavior management techniques, some are more accepted by parents; while, some others are condemned. This study aimed to evaluate the parents' acceptance of various behavior management techniques in pediatric dentistry.

**Materials and Methods:** This descriptive-analytical study was conducted on 70 Iranian parents who sought dental treatment for their <12-year-old children. This study was performed in the Department of Pediatric Dentistry of Zahedan Dental School, Iran, in 2017. The parents completed a questionnaire about their child's age, sex, and birth rank, as well as their number of children and parental education. They were explained about the method, advantages and disadvantages of different behavior management techniques. Then, they were asked to rate their acceptance of each approach on a visual analogue scale scoring from 0 (strongly disagree) to 10 (strongly agree). Kruskal-Wallis and Mann-Whitney tests were used to analyze the data through SPSS software version 21.0.

**Results:** The tell-show-do technique was the most commonly accepted method among parents ( $6.3\pm 2.47$ ), followed by the voice control ( $5.62\pm 1.82$ ), general anesthesia ( $4.52\pm 2.17$ ), modeling ( $3.68\pm 1.60$ ), and sedation ( $3.92\pm 1.13$ ), respectively. The physical restrain ( $2.47\pm 1.34$ ), and hand-over-mouth ( $2.14\pm 0.87$ ) were least welcome by parents. Moreover, the parents' mean score of acceptance of different behavior management techniques was significantly based on their child's age; nonetheless, it was not significantly different with respect to their child's sex and birth rank, total number of children in the family, and parental education.

**Conclusion:** Based on the present findings, tell-show-do and hand-over-mouth were respectively the most and the least commonly accepted techniques among the studied Iranian parents.

**Key Words:** Behavior management technique, Pediatric dentistry, Parental attitude.

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## 1- INTRODUCTION

Establishment of a good communication between the dental team and pediatric patients highly depends on behavior management techniques. Effective communication eliminates the child's urgent need of dental treatment and improves the community health in the long term (1). Pedodontists' mastery of the behavior management techniques helps them to perform safe and efficient dental treatment and nurturing a positive dental attitude in the child (2, 3). In addition to the child's cooperation and the clinician's skill, parents also greatly contribute to the children's behavior management and provides them with the skills needed to cope with the stress and dental anxiety (4).

A wide variety of behavior management techniques are used by dental practitioners, which are generally categorized as basic and advanced behavior guidance. Basic techniques include tell-show-do, nonverbal behavior guidance, positive reinforcement, distraction, voice control, positive pre-visit imagery, direct observation, memory restructuring and nitrous oxide. Advanced techniques include protective stabilization, sedation, and general anesthesia. There are also alternative techniques such as escape (let the children take a break), desensitization (exposure to fear-invoking stimuli in a progressive manner, beginning with the least disturbing) and deferred treatment (where the clinician postpones the treatment until the patient's cooperation improves), (5). Not all parents welcome all these techniques easily. In a study by Desai et al. (6) tell-show-do, positive reinforcement, and live modeling were the most accepted techniques without statistically significant difference between the three techniques in all age groups. The least accepted techniques were hand-over-mouth technique and voice control technique. A study by Alkandari et al. (7) in Kuwait reported that two thirds of parents accepted using nitrous oxide

sedation for their children during dental treatment. Boka et al. (8) surveyed 229 Greek parents' attitude towards different behavior management techniques. They found no relationship between the parents' acceptance of behavior management techniques and the child's age and sex, the parents' age and education level, and parents' previous negative dental experience. However, tell-show-do and nitrous oxide techniques were most accepted by parents.

Castro et al. (9) compared the parents of children with disabilities and healthy children's parents. They concluded that distraction, tell-show-do and positive reinforcement techniques were most welcome in both groups. Similarly, Peretz et al. (10) reported that positive reinforcement and tell-show-do were the most commonly accepted methods while sedation was least accepted among the parents. Jafarzadeh et al. (11) reported that the tell-show-do technique had the highest acceptability but hand-over-mouth and use of passive restraint devices had the lowest acceptance. In the study by Jahanimoghadam et al. (12) tell-show-do and hand-over-mouth techniques achieved the highest and lowest mean scores of parental acceptance, respectively.

The choice and acceptability of technique directly depends on the societal norms of specific cultures. Lower economic and social status may lead parents to resort to aggressive treatment methods so that the child's dental treatment can be done at a lower cost. Based on the available data, Sistan and Baluchestan are among the provinces with the highest rate of poverty in Iran (13). Behavior guidance technique such as restriction method may also be more acceptable to these parents than those in other communities. Based on our knowledge, no study has ever investigated the parental acceptance towards different behavior management methods in Zahedan, Sistan and Balouchestan, Iran.

The results of this study familiarize the dentists with the parents' preferences in this region to communicate more effectively with children. Given the importance of behavior management techniques and the role of communication triangle in pediatric dentistry, the present study was performed to evaluate the parental acceptance towards different behavior management methods in pediatric dentistry, and to see if it is affected by the child's age and sex, number of children, birth rank, and parents' education.

## 2- MATERIALS AND METHODS

### 2-1. Study design and population

This cross-sectional descriptive-analytical study was performed on 70 randomly selected parents who sought dental treatment for their <12-year-old children, referring to the Department of Pediatric Dentistry of Zahedan Dental School, Iran. This study lasted three months (January- March 2017). Based on previous research, a total of 70 children were considered as the sample size (11, 12, 14).

### 2-2. Methods

The selected behavior management techniques included tell-show-do, voice control, hand-over-mouth, modeling, physical restrain, sedation (premedication), and general anesthesia; all of which are approved by the American Academy of Pediatric Dentistry (AAPD). Parents were invited to the conference hall, where a trained senior dentistry intern explained the advantages and disadvantages of each technique through images and slideshow according to the AAPD within 15 minutes (15). Then, parents were requested to complete a questionnaire about demographic data including the pediatric patient's age, sex, birth rank, and the total number of children, as well as the accompanying parent's sex and education. Furthermore, a picture displaying all the

techniques in one frame was shown to the parents and they scored their acceptance towards each behavior management techniques by using a 10-cm visual analogue scale (VAS) ranging from 0 - 10. A score of 0 meant complete opposition of parents to this method and 10 meant complete acceptance of parents. The VAS scale was formerly reported as a reliable scale for measuring parental acceptance in this regard (16, 17).

### 2-3. Ethical consideration

Informed written consent was obtained from all parents. The study was approved by the Ethics Committee of Zahedan University of Medical Sciences (#IR.ZAUMS.REC.1395.94).

### 2-4. Inclusion and exclusion criteria

All parents had the minimum education level required to answer the questionnaire. The parents of children who had a history of previous dental visit or were unwilling to participate or needed emergency visit were excluded from the study.

### 2-5. Data Analyses

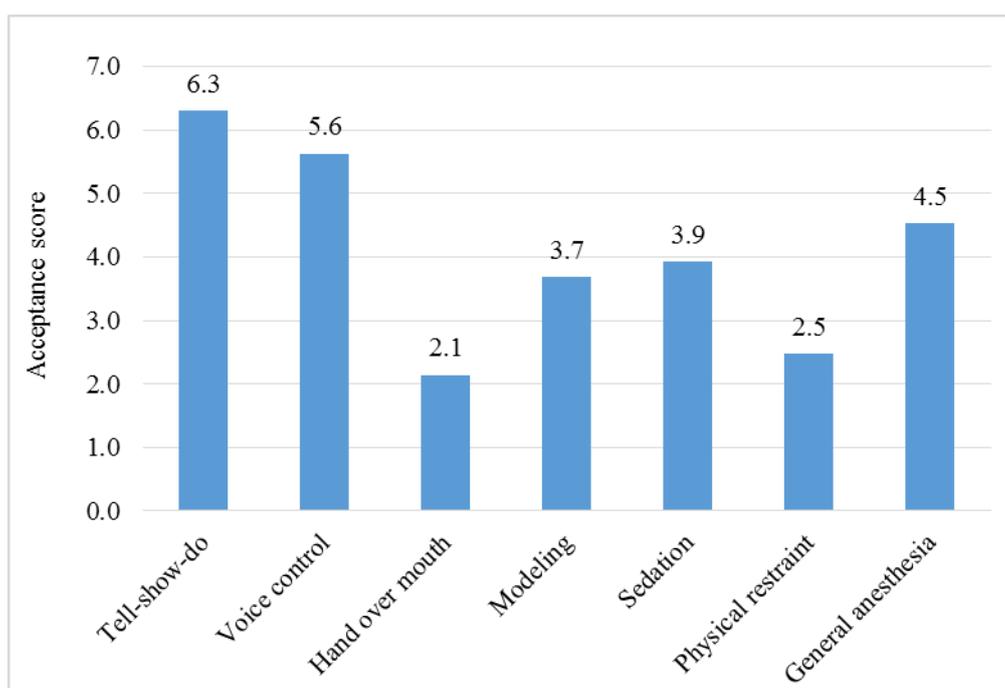
Data were fed into SPSS software (version 21, SPSS Inc., IL, USA) for statistical analyses. Comparisons concerning the parental acceptance of behavior management methods were done by using Kruskal-Wallis and Mann-Whitney U test ( $\alpha=0.05$ ).

## 3- RESULTS

Demographic characteristics of participants have been shown in **Table.1**. According to the mean scores rated on VAS, the most frequently accepted techniques were tell-show-do ( $6.3\pm 2.47$ ), followed by the voice control ( $5.62\pm 1.82$ ), general anesthesia ( $4.52 \pm 2.17$ ), modeling ( $3.68\pm 1.60$ ), and sedation ( $3.92\pm 1.13$ ), respectively. The physical restrain ( $2.47\pm 1.34$ ), and hand-over-mouth ( $2.14 \pm 0.87$ ) were least accepted by the parents (**Figure.1**).

**Table-1:** Baseline characteristics of participants.

Variables	Sub-group	Number	Percent
Child age group	3-4 year	3	4.3
	5-6 year	14	20.0
	7-8 year	30	42.9
	9-11 year	23	32.9
Child gender	Girl	40	57.1
	Boy	30	42.9
Number of children	A child	36	51.4
	More than one child	34	48.6
Birth order	1	36	51.4
	2	30	42.9
	3	4	5.7
Parent with child	Mother	52	74.3
	Father	18	25.7
Parent education	Diploma	36	51.4
	University	34	48.6

**Fig.1:** The mean score of parental acceptance towards different behavior management techniques (ranged 0-10).

Agewise comparisons revealed significant differences among the acceptance rates towards tell-show-do ( $P < 0.05$ ), voice control ( $P < 0.05$ ), and modeling techniques ( $P < 0.05$ ), as they were most accepted among parents of children aged 9-11. Similar pattern was observed in physical

restrain and general anesthesia methods, as these techniques were more accepted among parents of children aged 3-4 years old. Parents' acceptance rates were not significantly different based on their children's age in terms of hand-over-mouth and sedation techniques (**Table.2**).

**Table-2:** Relationship between the parents' acceptance towards each behavior management technique and the patient's age.

Child's age range	Behavior management technique						
	Tell-show-do	Voice control	General anesthesia	Modeling	Sedation	Physical restrain	Hand-over-mouth
3-4 years	3.00±1.00	2.67±0.58	6.67±0.53*	2.33±0.58	5.00±0.00	5.00±0.00*	1.33±0.58
5-6 years	4.14±1.41	3.36±0.34	6.36±0.02*	3.21±0.42	4.07±0.83	3.57±0.09	2.07±0.73
7-8 years	5.7±2.02	6.00±0.34*	4.43±0.68	3.23±0.22	4.10±0.27	2.27±0.23	2.27±0.08
9-11 years	8.38±0.98*	6.91±0.79*	2.26±0.03	4.74±0.74*	3.48±0.99	1.74±0.81	2.13±0.63
<i>P</i> - value	0.000	0.000	0.000	0.000	0.064	0.000	0.371

\* Indicates statistical significance, Kruskal Wallis test.

No significant relationship was detected between the parents' acceptance of behavior management technique and the pediatric patient's sex (**Table.3**), and birth

rank (**Table.4**), total number of children in family (**Table.5**), and parental education (**Table.6**).

**Table-3:** Relationship between the parents' acceptance towards each behavior management technique and the patient's gender.

Child's gender	Behavior management technique						
	Tell-show-do	Voice control	General anesthesia	Modeling	Sedation	Physical restrain	Hand-over-mouth
Girl	6.3±2.6	5.5±1.9	4.6±2.4	3.7±1.8	4.1±1.0	2.5±1.4	2.0±0.8
Boy	6.3±2.4	5.8±1.8	4.4±1.9	3.7±1.4	3.9±1.3	2.4±1.3	2.3±1.0
<i>P</i> - value	0.981	0.335	0.678	0.716	0.481	0.751	0.224

Kruskal Wallis test.

**Table-4:** Relationship between the parents' acceptance towards each behavior management technique and the patient's birth rank.

Child's birth rank	Behavior management technique						
	Tell-show-do	Voice control	General anesthesia	Modeling	Sedation	Physical restrain	Hand-over-mouth
First child	5.75±2.6	5.61±1.8	4.78±2.1	3.56±0.8	4.08±1.0	2.47±1.4	2.22±0.9
Second child	6.97±2.2	5.70±1.7	4.37±2.2	3.73±1.3	3.70±1.2	2.53±1.3	2.03±0.8
Third child	6.25±2.3	5.25±1.5	3.50±1.9	۴,۵±1.2	4.25±0.5	2.00±0.8	2.25±0.9
<i>P</i> - value	0.120	0.850	0.538	0.358	0.198	0.801	0.678

Kruskal Wallis test.

**Table-5:** Relationship between the parents' acceptance towards each behavior management technique and the total number of children in family.

Total number of children	Behavior management technique						
	Tell-show-do	Voice control	General anesthesia	Modeling	Sedation	Physical restrain	Hand-over-mouth
One	5.75±2.62	5.61±1.84	4.78±2.15	3.56±1.84	4.08±1.05	2.47±1.42	2.22±0.90
More than one	6.88±2.20	5.65±1.84	4.26±2.21	3.82±1.31	3.76±1.21	2.47±1.28	2.06±0.85
<i>P</i> - value	0.053	0.796	0.322	0.313	0.167	0.875	0.487

Kruskal Wallis test.

**Table-6:** Relationship between the parents' acceptance towards each behavior management technique and parental education.

Parental education	Behavior management technique						
	Tell-show-do	Voice control	General anesthesia	Modeling	Sedation	Physical restrain	Hand-over-mouth
High school diploma	5.0±1.8	5.3±1.0	4.0±1.2	3.9±1.7	4.1±1.1	2.4±1.3	2.1±0.8
University degree	6.0±2.3	6.0±1.6	3.5±1.7	3.5±1.4	3.7±1.1	2.5±1.4	2.2±0.9
<i>P</i> - value	0.067	0.186	0.216	0.701	0.238	0.913	0.747

Kruskal Wallis test.

#### 4- DISCUSSION

Parents play a crucial role in developing the child's skills of dental anxiety management. Parents with more positive attitude towards behavior management techniques more calmly admit consent in case the clinician opts for any of these techniques and act more cooperatively (4). The present study was performed to evaluate the parental acceptance towards different behavior management methods in pediatric dentistry. This study found that tell-show-do and voice control were the most acceptable techniques among parents. In the study by Forghani et al. (18) the acceptance of tell-show-do by mothers was 100%, and voice control was 92%. The acceptance rate of tell-show-do was the same as the findings of most similar studies (8-10, 16, 17, 19-22). The main reason is that tell-show-do technique is non-aggressive and better complies with ethical principles and standards. The voice control technique was moderately accepted as reported by Lawrence et al. (16), de

Leon et al. (20), and Alammouri (19), and less accepted according to Desai et al. (16), Boka et al. (8), Peretz et al. (10), and Muhammad et al. (22). A review of the studies performed from 1984 to 2020 revealed a change in parents' attitude towards behavior management techniques in dentistry over time. Formerly, physical management methods were accepted by parents; while recently, pharmacological management techniques were more accepted by parents (11, 23). In 2012, Patel et al. (24) reported that sedation and general anesthesia were the first two most acceptable methods because no basic behavior guidance technique was surveyed. Similarly, in the present study general anesthesia was the third acceptable method. In the study by Eaton et al. (21) general anesthesia was the third acceptable method after tell-show-do and nitrous oxide. In recent years, parents tend to be more open to general anesthesia, as they get more familiar with outpatient treatments and general anesthesia. This method is recognized as safe in the

hospital and operating room; meanwhile, it is increasingly employed in pediatric dentistry (16). Popularity of general anesthesia among parents has increased over the past 30 years (17, 21). Parents of children who were treated under general anesthesia declared high satisfaction with improved quality of life by reducing pain and improving their children's nutrition, sleep and behavior patterns (25, 26). Both sedation and general anesthesia are used as advanced behavior management techniques in pediatric dentistry. While in the present study, general anesthesia was more acceptable than sedation, it is still unknown which method is superior. Mortality and postoperative complications are likely to occur in both methods (27, 28). American Academy of Pediatric Dentistry dictates that deep sedation and general anesthesia be delivered solely by highly trained professionals in an adequately equipped place for monitoring of the patient's condition and performing emergency procedures (29).

Dean et al. (30) reported that mothers of children undergoing general anesthesia at the hospital experienced higher stress compared with those whose children were treated under conscious sedation. A 6-month follow-up by Fuhrer et al. (14) revealed that the pediatric patients undergoing general anesthesia exhibited more positive behavior compared with those receiving dental treatment under conscious sedation. In recent years, parental acceptance of physical behavior management techniques has declined (24). In the present study, physical restraint and hand-over-mouth were the least acceptable methods among parents. It was in line with Eaton et al. (21), Desai et al. (16), and Jafarzadeh et al.'s finding (11), which reported hand-over-mouth as the least favorable method. The present findings showed that parents' scores of acceptance of different behavior management techniques were significantly different

based on the child's age. However, it was not significantly different based on the child's sex and birth rank, the total number of children in family, and parents' education. Jafarzade et al. (11) reported no significant association between the acceptance rate of any of the behavior management techniques and parents' age, education level, or occupation. Nor did Muhammad et al. (22) find any significant relationship between the parental acceptance of different behavior management techniques and parents' age, sex, ethnicity, and education level.

A study of 50 Spanish parents by de Leon et al. (20) revealed that there was no significant relation between parents' acceptance of different methods, the child's age and sex, and parents' previous experiences of dental visit. The results of the above-mentioned studies were consistent with the present study concerning the insignificant relation between the child's sex and parental education; however, they contrasted the current findings in terms of the relationship between the parental acceptance of different behavior management methods and their child's age. Havelka et al. (31) reported that compared with participants with lower social status, those with higher social status showed more acceptance towards active restraint and tell-show-do techniques, but less acceptance towards papoose board (passive restraint), and general anesthesia.

The different results of parents' age-related attitudes in the present study with other studies might be related to the different studied age ranges. In the current study, parents with 3-4 year old children preferred different behavior management techniques, general anesthesia and physical restraint were more commonly accepted; whereas, tell-show-do technique was less accepted among these parents. The reason is that younger children could hardly understand the subject.

Results of different investigations show that the parents' acceptance of various behavior management techniques changes over time. The effective technique must match each child's characteristics and family culture, socio-economic state, and parental personality. The dentist's capability for child management is also a key factor for success. Moreover, the present findings cannot be generalized to the whole Iranian population since the participants were all from the same geographical region. Further studies are required to evaluate the parental attitude towards different behavior management techniques and to compare different behavior management techniques in a clinical trial.

## 5- CONCLUSION

The present study revealed that parents mainly prefer the tell-show-do technique above all for management of their child's behavior in dentistry; whereas, physical restraint and hand-over-mouth methods were the least accepted. It was also found that parents consider their child's age when deciding on a behavior management technique, regardless of the child's sex and birth rank, and the total number of children in the family, and parents' education.

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**7- CONFLICT OF INTEREST:** None.

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