



# Behavior Management Techniques in Pediatric Dentistry: How Well are they Accepted?



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## Abstract

**Introduction:** Behavior management of child dental patients is essential and pediatric dentists use a variety of Behavioral and pharmacological techniques.

**Aim and objective:** To examine the acceptance by parents living in Saudi Arabia of nine Behavior-management techniques and its association with several possible confounding factors.

**Methodology:** Following ethical approval, the parents were shown a video with nine behavior management techniques and their acceptance rate of each technique on a VAS (0-10).

**Results:** A total of 405 participants were recruited in this study from different cities in Kingdom of Saudi Arabia. 127 participants were male (31.4%) and 278 female (68.8%).

**conclusion:** The most accepted technique was Tell-Show-Do, and the second preferred technique was Nitrous oxide inhalation sedation followed by GA and the least preferred was Passive restraint followed by HOM technique. Male parents preferred general anesthesia while the female parents preferred nitrous oxide inhalation sedation.

## Introduction

Behavior management of child dental patients is essential, and pediatric dentists use a variety of Behavioral and pharmacological techniques [1-3]. These techniques undergo re-assessment over time and some of them may have already been abandoned. One of the factors most frequently cited for these changes is parental acceptance [2-7]. This underlines the importance of pediatric dentists understanding which Behavior-management techniques are still acceptable to parents and identifying the factors influencing their acceptability.

## Aim and Objective

To examine the acceptance by parents living in Saudi Arabia of nine Behavior-management techniques and its association with several possible confounding factors.

## Review of Literature

Lawrence et al. [8] evaluated parents' attitudes toward behavior management techniques used in pediatric dentistry by comparing the effect of prior explanation on parental acceptance of eight behavior management techniques. Videotaped segments

made of children's dental appointments containing examples of eight behavior management techniques were used. Parents viewing videotapes with explanations were significantly more accepting of behavior management techniques than those viewing videotapes without explanations; Mean visual analogue scores for both groups indicated generally positive attitudes toward the behavior management techniques studied. Parents reporting greater stress were less accepting of the behavior management techniques studied.

Murphy et al. [9] assessed the attitudes of parents toward behavior management techniques employed in pediatric dentistry. Sixty-seven parents viewed videotaped segments of actual treatment of three to five-year-old children. The majority of parents favored tell-show-do, positive reinforcement, voice control, and mouth props. Physical restraint by the dentist and assistant were viewed significantly more favorably than sedation and HOME. The least acceptable techniques were general anesthesia and Papoose Board.

Boka et al. [10] examined the acceptance by Greek parents of nine Behavior-management techniques and its association with

several possible confounding factors. After being shown a video with nine behavior management techniques, parents rated the acceptance of each technique on a 0–10 scale. The best accepted technique was tell–show–do, followed by parental presence/absence (PPA) technique and nitrous oxide inhalation sedation. The least accepted techniques were passive restraint and general anesthesia.

**Methodology**

The study followed the World Medical Association Declaration of Helsinki and was registered in The Colleges’ research center and the registration number was (FIRP/2016/73). Following ethical approval, the parents were shown a video with nine behavior management techniques. Then, they were asked to complete a questionnaire about demographics and rate their acceptance of each technique on a VAS (0-10). The study has been conducted at cities of Saudi Arabia.

The video which were used in this study with an introduction to each Behavior-management technique in Arabic, was explaining the techniques one by one. A child aged between 7-9 years was acting in the video with the written informed consent of his/her parents. The child instructed to react as if he/she was actually receiving the dental treatment. The Behavior-management techniques that included in the video were: (1) tell–show–do, (2) nitrous oxide inhalation sedation, (3) passive restraint by Papoose Board, (4) voice control, (5) hand-over-mouth, (6) oral sedation, (7) active restraint, (8) general anesthesia and (9) Parental presence/absence technique.

While watching the video, before the dental treatment of the child, parents had been given 10 seconds between each successive presentation of a technique for rating the technique which has just viewed on a scale of (0–10), as a measure of their acceptance. Rating 0 means that the parent completely opposed the technique and 10 means that the parent completely accepted its use for their child.

**Inclusions**

The Arabic speaking parents of all 3- to 12-year-old children have been invited to participate in the study.

**Exclusions**

Parents of children with mental or physical disabilities.

Duration of study: 2 months

**Statistical Analysis**

All data were subject to appropriate statistical analysis using SPSS data processing software.

**Results**

**Demographic**

A total of 405 participants were recruited in this study from different cities in Kingdom of Saudi Arabia. 127 participants were

male (31.4%) and 278 female (68.8%). Nationality distribution was classified into Saudi (60%) and non-Saudi (40%). The participants’ age was found as following: 20-30 (32%), (31-40) (40%), (41-50) (20%) and above 50 years olds (8%). The education level of participants was bachelor degrees (73%), high school graduate (16%), middle school (2.2%), post degree (2.2%) and elementary school (0.5%). The occupation distribution of our participants was as following: students (13%), housewife (30%), teachers (27%), engineers (7.2%), doctors (4.7%), workers (5.7%) and others (13.1%). Number of child per family was as following: one child (30%), two to three (35%), four to five (23.7%) and 6 or more (11.1%). All participants’ characteristics were summarized in Table 1.

**Table 1:** Demographics.

	Number (%)
Total	405
<b>Gender</b>	
Male	127 (31.4%)
Female	278 (68.8%)
<b>Nationality</b>	
Saudi	242 (59.8%)
Non Saudi	163 (40.2%)
<b>Age</b>	
20-30	131 (32.3%)
31-40	160 (39.5%)
41-50	81 (20.0%)
Above 50	33 (8.1%)
<b>Educational Level</b>	
Elementary school	2 (0.5%)
Middle school	9 (2.2%)
High school graduate	65 (16.0%)
Bachelor degree	294 (72.6%)
Master degree	26 (6.4%)
Post degree	9 (2.2%)
<b>Occupation</b>	
Student	53 (13.1%)
Housewife	120 (29.6%)
Teacher	108 (26.7%)
Engineer	29 (7.2%)
Doctor	19 (4.7%)
Worker	23 (5.7%)
Others	53 (13.1%)
<b>Number of children</b>	
1	122 (30.1%)
2-3	142 (35.1%)
4-5	96 (23.7%)
6 or more	45 (11.1%)

In terms of the best techniques, with regards of gender no different on opinion was found with male and female in all technique except active restraint where male prefer more than female ( $t=2.33, P=0.02$ ). Non-Saudi participants preferred parent presence/absence ( $P=0.003$ ) and voice control ( $P=0.005$ ) techniques more compared to Saudi participants.

No significant effect of age of the parent was seen on the choice of techniques. ANOVA revealed that there is significant correlation

between education level and 'HOM' technique ( $P=0.005$ ). As the educational level increased, "HOM" technique was less preferred. In terms of participants' occupations, for the professionals 'GA' and 'HOM' techniques were less preferred which was statistically significant ( $P=0.03$ ), ( $P=0.0001$ ). As number of children per family increased, The preference of the following techniques increased with statistical significance; 'Tell-show-Do' ( $P=0.038$ ), 'Active restraint' ( $P=0.014$ ), 'General anesthesia' ( $P=0.03$ ) and 'Parental presence/absence' ( $P=0.003$ ) (Table 2-6).

**Table 2:** Frequency distribution of each technique.

Valid	Tell-show-do	Nitrous oxide inhalation	Passive restraint	Voice control	Hand-over-mouth	Oral sedation	Active restraint	General anesthesia	Parental presence/absence
1	15(3.7%)	65(16.0%)	121(30.1%)	43(10.6%)	97(24.0%)	68(16.8%)	74(18.3%)	104(25.7%)	39(9.4%)
2	3(0.7%)	8(2.0%)	23(5.7%)	12(3.0%)	29(7.2%)	16(4.0%)	19(4.7%)	16(4.0%)	13(3.2%)
3	13(3.2%)	25(6.2%)	28(6.9%)	17(4.2%)	29(7.2%)	24(5.9%)	27(6.7%)	20(4.9%)	19(4.7%)
4	7(1.7%)	22(5.4%)	24(5.9%)	30(7.4%)	40(9.9%)	28(6.9%)	23(5.7%)	20(4.9%)	22(5.4%)
5	46(11.4%)	41(10.1%)	44(10.9%)	54(13.3%)	42(10.4%)	42(10.4%)	41(10.1%)	39(9.6%)	40(9.9%)
6	33(8.1%)	40(9.9%)	45(11.1%)	41(10.1%)	32(7.9%)	29(7.2%)	43(10.6%)	25(6.2%)	38(9.4%)
7	36(8.9%)	44(10.9%)	37(9.1%)	50(12.3%)	30(7.4%)	37(9.1%)	39(9.6%)	22(5.4%)	39(9.6%)
8	54(13.3%)	41(10.1%)	19(4.7%)	43(10.6%)	37(9.1%)	37(9.1%)	54(13.3%)	28(6.9%)	48(11.9%)
9	38(9.4%)	21(5.2%)	21(5.2%)	38(9.4%)	15(3.7%)	34(8.4%)	22(5.4%)	37(9.1%)	47(11.6%)
10	160(39.5%)	98(24.2%)	42(10.4%)	77(19.0%)	54(13.3%)	90(22.2%)	63(15.6%)	94(23.2%)	101(24.9%)
Total	405(100%)	405(100.0%)	405(100.0%)	405(100%)	405(100%)	405(100%)	405(100%)	405(100%)	405(100%)

**Table 3:** Mean of each technique.

	Mean	Std. deviation
A) Tell-show-Do	7.76	2.496
B) Nitrous oxide inhalation sedation	6.16	3.171
C) Passive restraint by Papoose Board	4.59	3.171
D) Voice control	6.32	2.879
E) Hand-over- mouth	4.9	3.162
F) Oral sedation	6	3.246
G) Active restraint	5.63	3.121
H) General anesthesia	5.61	3.541

**Table 4:** The frequency of the most preferable technique by parents.

Valid	Frequency	Percent
tell-show-do	139	34.3
nitrous oxide inhalation sedation	81	20
passive restraint	8	2
voice control	16	4
hand over mouth	11	2.7
oral sedation	44	10.9
active restraint	14	3.5
general anesthesia	57	14.1
parent presence/absence	35	8.6
Total	405	100

**Table 5:** T-TEST: With regards to gender, no difference of opinion was found with male and female in all techniques except active restraint where males preferred more than females (P=0.02).

	1- Gender	Mean	Std. Deviation	Sig
A) Tell-show-Do	Male	7.94	2.242	0.33
	Female	7.68	2.603	0.303
B) Nitrous oxide inhalation sedation	Male	6.24	3.022	0.738
	Female	6.12	3.241	0.731
C) Passive restraint by Papoose Board	Male	4.9	3.28	0.179
	Female	4.45	3.065	0.191
D) Voice control	Male	6.56	2.627	0.261
	Female	6.21	2.985	0.239
E) Hand-over- mouth	Male	4.91	3.113	0.985
	Female	4.9	3.19	0.985
F) Oral sedation	Male	6.11	3.296	0.637
	Female	5.95	3.228	0.64
G) Active restraint	Male	6.17	2.951	0.02
	Female	5.39	3.171	0.017
H) General anesthesia	Male	5.76	3.584	0.555
	Female	5.54	3.525	0.558
I) Parental presence/ absence technique.	Male	6.87	3.033	0.541
	Female	6.67	2.911	0.547

**Table 6:** ANOVA: No significant difference between technique and age and within the different age groups.

	df	Mean Square	F	Sig.	
A) Tell-show-Do	Between Groups	3	3.037	0.486	0.692
	Within Groups	401	6.252		
	Total	404			
B) Nitrous oxide inhalation sedation	Between Groups	3	7.441	0.739	0.529
	Within Groups	401	10.074		
	Total	404			
C) Passive restraint by Papoose Board	Between Groups	3	24.626	2.531	0.057
	Within Groups	401	9.731		
	Total	404			
D) Voice control	Between Groups	3	9.066	1.095	0.351
	Within Groups	401	8.282		
	Total	404			
E) Hand-over- mouth	Between Groups	3	21.625	2.181	0.09
	Within Groups	401	9.913		
	Total	404			
F) Oral sedation	Between Groups	3	10.886	1.033	0.378
	Within Groups	401	10.535		
	Total	404			
G) Active restraint	Between Groups	3	19.784	2.046	0.107
	Within Groups	401	9.668		
	Total	404			
H) General anesthesia	Between Groups	3	18.831	1.508	0.212
	Within Groups	401	12.488		
	Total	404			

I) Parental presence/ absence technique	Between Groups	3	9.805	1.13	0.337
	Within Groups	401	8.678		
	Total	404			

**Discussion**

The most accepted technique was tell-show-do, as in most previous studies [5,10-13]. The very high rating found for tell-show-do was expected, as it is among the safest and least invasive behavior-management techniques and its acceptability appears relatively stable over time [2,3,5].

There was no significant differences for each behavior management technique between the different age groups which is similar to a study conducted by [9]. The least accepted techniques in the present study were HOM, and passive restraint by Papoose Board. These were also found as the least accepted techniques in other studies, although not in the same order [9]. Passive restraint using a Papoose Board, called also “protective stabilization” [3], is a controversial technique among clinicians, since its use has been suggested to have the potential to produce serious consequences, such as physical or psychological harm, loss of dignity, and violation of a patient’s rights [2-3]. Hand-over-mouth is a controversial technique and it is no longer included in the AAP

A statistical significant difference is found between acceptance of the different techniques and the socioeconomic status and gender of the parent. While in our study, more the parents were professionally qualified and higher educated, less preferred was the HOM technique and passive restraint. (P=0.0001), (P=0.005). Further research is required where more subjects of the different representative regions of Saudi Arabia should be included.

**Conclusion**

The most accepted technique was Tell-Show-Do, and the second preferred technique was Nitrous oxide inhalation sedation, followed by the least preferred was Passive restraint followed by HOM technique. Male parents preferred general anesthesia while the female parents preferred nitrous oxide inhalation sedation.

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