

DOI: <http://dx.doi.org/10.22122/johoe.v7i2.406>

Received: 27 May 2017

Accepted: 03 Aug. 2017

## Impact of verbal explanation on parental acceptance level of different behavior management techniques in dental office

Fatemeh Jahanimoghadam DDS<sup>1</sup>, Naimeh Hasheminejad DDS, MSc<sup>2</sup>,  
Azadeh Horri DDS<sup>3</sup>, Mohammad Reza Rostamizadeh DDS<sup>4</sup>,  
Mohammad Reza Baneshi PhD<sup>5</sup>

### Original Article

#### Abstract

**BACKGROUND AND AIM:** Parents' attitudes towards different aspects of dentistry especially the use of behavior management techniques (BMTs) can greatly effect a child's cooperation in a dental office. The present quasi-experimental study was conducted with the aim to assess the effect of a verbal explanation on parents' acceptance level of the most common BMTs used in pediatric dentistry.

**METHODS:** A videotaped presentation showing the 6 most commonly used BMTs in Iran was presented to 60 parents recruited by a convenient sampling method. Using visual analogue scale (VAS), the acceptance level of each BMT was measured before and after an explanation on the reasons of each BMT. Paired t-test, repeated measures analysis of variance (ANOVA) and independent t-test were used for statistical analysis of data. Significance level was set as 0.050.

**RESULTS:** Giving a verbal explanation on BMTs had a statistically significant effect on the acceptance of BMTs. Tell-show-do (TSD) and hand-over-mouth (HOM) techniques achieved the highest and lowest mean scores of parental acceptance, respectively. The acceptance of physical restraint ( $P = 0.013$ ) and parental presence/absence (PPA) ( $P = 0.015$ ) of parents was obtained higher among men compared to women using t-test.

**CONCLUSION:** Giving an explanation to parents while performing a BMT is effective in raising parents' acceptance of the technique. Non-invasive methods such as TSD and PPA of parents are the more favorable methods to parents.

**KEYWORDS:** Pediatric Dentistry; Behavior Control; Parental Consent

**Citation:** Jahanimoghadam F, Hasheminejad N, Horri A, Rostamizadeh MR, Baneshi MR. **Impact of verbal explanation on parental acceptance level of different behavior management techniques in dental office.** J Oral Health Oral Epidemiol 2018; 7(2): 80-6.

For a child, regular dental visits are necessary in order to maintain a good oral health.<sup>1,2</sup> Even the simplest dental procedures are considered to be stressful among young children.<sup>3</sup> Although the majority of children behave appropriately and can tolerate a dental treatment,<sup>4</sup> fear of dental treatment

can sometimes cause uncooperative behavior making it impossible for dentists to carry out the required dental care.<sup>5</sup> This is especially true for complex or long lasting dental procedures.<sup>6</sup>

In addition, children who do not experience a successfully complete dental procedure tend to have more stress for other

1- Associate Professor, Oral and Dental Diseases Research Center AND Department of Pediatrics, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

2- PhD Student, Oral and Dental Diseases Research Center AND Kerman Social Determinants of Oral Health Research Center AND Department of Dental Public Health, School of Dentistry, Kerman University of Medical Science, Kerman, Iran

3- Assistant Professor, Oral and Dental Disease Research Center AND Department of Pediatrics, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

4- Oral and Dental Diseases Research Center AND Kerman Social Determinants of Oral Health Research Center, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran

5- Associate Professor, Department of Biostatistics and Epidemiology AND Modeling in Health Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

Correspondence to: Azadeh Horri DDS

Email: [a\\_horri@kmu.ac.ir](mailto:a_horri@kmu.ac.ir)

dental treatments ahead.<sup>3</sup>

Child's behavior in dental office is greatly affected by parents' attitude and an effective communication of the child with parents is essential in providing optimum dental treatment by the dentist.<sup>7</sup> Moreover, many parents do not know how difficult it can be for a dentist to provide dental care for the uncooperative children and expect dentist (specially a pedodontist) to carry out treatment regardless of child's inappropriate behavior.<sup>8</sup>

According to American Academy of Pediatric Dentistry (AAPD) guidelines on behavior management, consent must be obtained from parents before performing any behavior management technique (BMT) other than communicative managements.<sup>9</sup>

Evidence show that parents prefer less aggressive BMTs, hence more aggressive techniques like hand-over-mouth (HOM) and physical restraints are sometimes not accepted. Similarly, studies In Iran have shown that parental presence/absence (PPA) and tell-show-do (TSD) are easily accepted whereas HOM and physical restraint and general anesthesia (GA) are of techniques which are not always consented.<sup>10,11</sup> Notably, less aggressive BMTs are not always efficient and many dentists are obliged to use more aggressive techniques for behavior control.

Fully informing parents about a BMT, specially more aggressive ones, could change parents' attitude towards the technique.<sup>12</sup> As a detailed verbal explanation on each required BMT could be time consuming, it is important to investigate whether a full verbal explanation regarding the aim and course of the required BMT could change parents' attitudes in a positive way, and if so, if it is true for all BMTs.

No study has been conducted in Iran regarding the investigation of the effect of a verbal explanation on the acceptance of BMTs. Iran is a country with a wide variety of cultural backgrounds. Culture is an important factor regarding parents' attitude towards BMTs,<sup>11</sup> and dentists should be aware of the most accepted BMTs in the

culture of the society and ways in which they could change parents' attitude towards more aggressive techniques in case of necessity of use of these techniques.

Therefore, the present study was carried out with the aim to investigate the effect of a verbal explanation on parents' acceptance level of BMTs and to identify the most common BMTs accepted by parents in south east region of Iran (Kerman City).

## Methods

This cross-sectional descriptive analytic study was conducted in pediatric dentistry clinic of Kerman University of Medical Sciences. This clinic is a public dental one. Due to lower dental costs in morning shifts (treatment is carried out by undergraduate and post graduate students), morning patients are usually from lower socioeconomic levels. Meanwhile, the dental treatments in the afternoon shift is carried out by pedodontists with a higher cost. Therefore, patients referring in the afternoon shift are in higher socioeconomic status compared to those referring in the morning shift. According to similar studies by Lowe<sup>8</sup> and Eaton et al.<sup>12</sup> and considering type one error of 5% and test power of 80%, 60 subjects were selected from among parents who accompanied their children for dental treatment in the clinic. A sampling list was not available in order to carry out a random sampling method, thus, a convenience sampling method was used for the selection of subjects. In order to achieve a more acceptable sample size, a dental student who was familiar with BMTs, referred for the data collection in random days and random times. Moreover, subjects were selected from both morning and afternoon shifts in order to have a more acceptable sample. A brief explanation describing the aim and course of the study was given to parents who were waiting to receive a dental appointment for their child treatment. A written informed consent was obtained from parents who agreed to participate.

According to other similar studies,

exclusion criteria were set as below. Parents of children with a long lasting hospitalization experience, parents of the disabled or retarded children, parents of children under 2 and above 15 years of age, and single parents.<sup>5,10</sup>

The present study was granted ethical approval by ethical committee of Kerman University of Medical with the code k/92/165.

Parents were asked to fill in a checklist that included 2 parts. The first part consisted of the following items: demographic data including gender, age, and family income, items regarding the dental fear among subjects, and child's previous dental experience and previous dental fear in their parents' point of view, which were asked and recorded as low, medium or high. It should also be noted that the subjects remained anonymous in the study.

The second part of the checklist was completed while a videotaped presentation was demonstrated. The presentation included 12 visual analogue scale (VAS) lines (6 and 6 related to the acceptance rate of 6 BMTs before and 6 BMTs after watching the explanatory film, respectively).

The videotaped presentation was made in 3 parts to demonstrate the 6 frequently used BMTs, namely TSD, Voice control, HOM, physical restraint, PPA, and GA.

Parents were sent to the dental school theatre room in groups of 10 to 15. The film was presented to them in a calm atmosphere using a 2\*1.5 meter dimension Epson projector. In the first two minutes of the video, an explanation was given on the aim of the study and the instruction to fill in the checklist. In the second part of the film, a pedodontist performed 6 BMTs on a child during an assumed dental treatment. All 6 BMTs were performed on 1 child to avoid different child faces affecting the results. Each BMT lasted 1 minute. In the third part, the same BMTs were presented again, this time with a narrator's voice simultaneously giving an explanation on the aim, reasons and indication of each BMT (the explanatory film).

While carefully watching the second part

of the film, after each BMT was shown, the film was paused and subjects were asked to rate their acceptance of each of 6 the BMTs by marking on the VAS response line respective to that BMT. Then the third part of the film (the explanatory film) was demonstrated and subjects were asked to mark their acceptance rate after each BMT was explained. Hence, the first 6 VAS lines in the checklist indicated the acceptability of the 6 BMTs before the explanation and the next 6 VAS lines were marked after watching the explanatory film.

The VAS response line represented continuous scale ranging from 0 to 100 mm. The scores 0 and 100 on the left and right sides of the line represented completely acceptable and completely unacceptable responses, respectively. The distance between the mark and the left end of VAS line was measured using a calibrated ruler and recorded as the acceptability level.

Since the results of the intervention (the explanatory film) was recorded immediately after the intervention, the presence of a control group of parents did not seem necessary and was not considered in the study design.

Data were analyzed using repeated measures analysis of variance (ANOVA), paired t-test, and independent t-test in the SPSS software (version 18, SPSS Inc., Chicago, IL, USA). The significance level was set at 0.050.

## Results

Of 65 parents invited, 60 parents participated in the study; of which, 40 (66.7%) and 20 (33.3%) were women and men, respectively. All 60 subjects completed the study procedure and no one left the study. Mean age of the parents was  $36.7 \pm 7.6$  years.

The education level of majority of parents (62.0%) was under bachelor's degree and 38% of the participants had a bachelor's degree or higher.

53.3% and 46.7% of the subjects belonged to a low-income and high-income family, respectively.

Concerning dental fear, 53.4%, 38.3%, and 8.3% of the parents had moderate, low, and high levels of dental fear, respectively. Along with fear among parents, 48.0%, 27.0%, and 20.0% of children had moderate, low, and high levels of dental fear in their previous dental experience. However, 5.0% of the children had no experience of dental treatment.

**Acceptance of different BMTs:** Table 1 shows the mean parental acceptance rate related to each BMT before any explanation. TSD gained a mean VAS score of  $81.98 \pm 20.21$  and hence was the BMT with the highest rate of acceptance. However, HOM achieved the least mean VAS score as  $20.21 \pm 27.49$ .

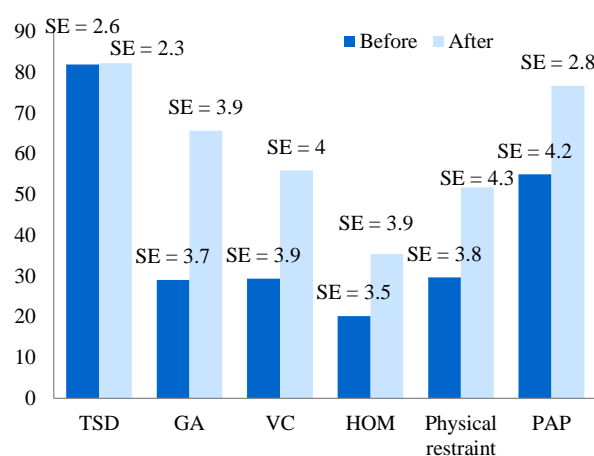
**Table 1.** Mean acceptance rate of each behavior management technique (BMT) before explanation

BMT	VAS score (mm) (mean ± SD)	Ranking
TSD	81.98 ± 20.21	1
GA	29.06 ± 29.17	5
Voice control	29.40 ± 30.90	4
HOM	20.21 ± 27.49	6
Physical restraint	29.68 ± 29.95	3
PPA	55.01 ± 32.93	2

BMT: Behavior management technique; TSD: Tell-show-do; GA: General anesthesia; HOM: Hand-over-mouth; PPA; Parental presence/absence; VAS: visual analogue score; SD: Standard deviation

Figure 1 demonstrates the mean

acceptance level of different BMTs before and after the verbal explanation. The rate of acceptance of TSD by parents was significantly higher compared to all the other BMTs ( $P < 0.001$ ). Following TSD, the PPA technique achieved the most acceptance level ( $P < 0.001$ ). No statistical significance was found in terms of acceptance level among the remaining BMTs, i.e., GA, voice control, HOM, and physical restraint, thus it was not possible to judge on the ranking of the remaining BMTs (Table 2).



**Figure 1.** Mean percentage of behavior management technique (BMT) acceptance before and after the verbal explanation  
SE: Standard Error; TSD, Tell Show Do ; VC, Voice Control ;HOM, Hands Over Mouth; PPA, Parental presence/absence

**Table 2.** Pairwise comparisons between different behavior management techniques (BMTs) regarding their parental acceptance before explanation

Pair wise comparison	Mean difference	SE	P
TSD			
GA	52.917	5.104	< 0.001
Voice control	52.583	4.663	< 0.001
HOM	61.767	4.364	< 0.001
Physical restraint	52.300	4.567	< 0.001
PPA	26.967	5.217	< 0.001
GA			
Voice control	-0.333	5.006	> 0.999
HOM	8.850	4.272	0.640
Physical restraint	-0.617	4.366	> 0.999
PPA	-25.950	4.578	< 0.001
Voice control			
HOM	9.183	3.088	0.064
Physical restraint	-0.283	3.863	> 0.999
PPA	-25.617	4.496	< 0.001
HOM			
Physical restraint	-9.467	3.496	0.133
PPA	-34.800	4.351	< 0.001
Physical restraint			
PPA	-25.333	3.970	< 0.001

TSD: Tell-show-do; GA: General anesthesia; HOM: Hand-over-mouth; PPA; Parental presence/absence; SE: Standard error

**Effect of verbal explanation:** Furthermore, for all BMTs, the comparison of acceptance level before and after explanation showed a statistically significant difference ( $P < 0.050$ ), therefore giving an explanation was very useful in raising parent's acceptance level in all BMTs. Nonparametric tests were also performed for all data analyses which yielded the similar results.

**Effect of basic and demographic data:** Regarding the physical restraints, an acceptability score of  $42.80 \pm 37.20$  and  $23.10 \pm 23.40$  was obtained for men and women, respectively [ $P = 0.013$ , confidence interval (CI) = 95%]. In addition, an acceptability score of  $69.70 \pm 32.00$  and  $47.60 \pm 31.10$  was obtained respectively for men and women in terms of the PPA technique ( $P = 0.015$ , CI = 95%). According to these results, there was a statistically significant difference in terms of the acceptance level between women and men, as men tended to show higher acceptance levels of the above techniques.

Participants' education level did not affect their acceptance level of any BMT after the explanation.

For statistical analysis, 3 dental fear levels mentioned above were recoded as two levels of low dental fear and moderate/high dental fear. Results did not show any statistically significant difference between the acceptance levels among parents with low fear compared to parents with moderate/high dental fear.

Regarding child's dental fear, an initial acceptance level of  $89.40 \pm 8.00$  was obtained for parents of children with a low dental fear (according to statement of their parents) for TSD, which was higher than the acceptability level of  $78.40 \pm 23.00$  achieved by parents of children with a moderate/high dental fear ( $P = 0.010$ ). This difference was not statistically significant for other BMTs.

Moreover, family income did not affect the parents' acceptance of any BMT before the explanation, however after the verbal explanation, the acceptance of TSD was significantly higher among parents with high

income compared to low income parents ( $P = 0.046$ ).

## Discussion

In this study, the most accepted BMTs were TSD and PPA; this is in agreement with other studies reporting TSD as the most accepted BMT in terms of viewpoint of parents, as it is a safe and non-invasive technique. It seems that the acceptability of this technique has not changed over time,<sup>4,12-15</sup> hence it can be applied to Iranian parents. Accordingly, providing detailed explanation regarding these techniques does not seem necessary.

In addition, the HOM and GA had the least acceptance rates; this finding is also consistent with other studies with very little difference in ranking.<sup>4,5,12,16,17</sup> For example, Eaton et al. indicated that HOM and physical restraints were the BMTs with lowest rates of acceptance.<sup>12</sup>

In a study by Razavi and Purtaji,<sup>10</sup> a lower acceptance rate was obtained for GA compared to HOM, which is in contrast to many other studies presenting HOM as the lowest rate of acceptance of BMT by parents. These studies violated the hypothesis that easier accessibility and lower costs of HOM could be the reason for this difference.

Although HOM is still considered acceptable to many dentists, concerning the low parental acceptance of HOM in recent studies, this technique has been removed from AADP guidelines.<sup>18</sup>

This study is also in agreement with previous studies regarding GA as a fairly unacceptable BMT.<sup>4,14</sup> As, Paryab et al.<sup>19</sup> declared that Iranian parents considered that GA may harm the intellectual and mental skills of their children.

An important and useful finding of this study was the effectiveness of explanation on the rationale and aim of the technique on raising parents' acceptance for all BMTs. For TSD and PPA which were acceptable BMTs even before explanation, detailed explanation does not seem to be necessary and could be time wasting due to the frequent use. BMTs

with higher aggression like HOM and GA require detailed explanation about the aim, course, and advantages of the techniques. Although this explanation might seem time-consuming, it can change parents' attitude and help achieve their consent. This was confirmed by other studies. In a case-control study by Scott and Garcia-Godoy, it was concluded that explanation could make HOM a more acceptable technique to parents.<sup>20</sup> In addition, in a study by Havelka et al.,<sup>21</sup> the positive effects of explanation on parents' acceptance level was observed for all BMTs. This was not true among the low educated parents' regarding GA.

In the present study, the initial acceptance of men of physical restraint and PPA was higher compared to that of women. Moreover, Chen et al. indicated that passive restraint was more accepted among men, in addition, women tended to accept TSD more than men.<sup>22</sup> If the use of these techniques are ever needed, spending enough time for convincing mothers is very important.

Similar to the study by Chen et al.,<sup>22</sup> no relationship was found regarding parent's education level between parents' education and their acceptance of BMTs after the explanation. Therefore, it seems that for all BMTs, an explanation can be useful in acceptance of the technique even among the parents with low level of education.

In fact, the sample size in this study was not sufficient for analyzing the education level since parents were not evenly distributed in different educational levels. This sample size was mainly suggested for the comparison of different BMTs and also for the evaluation of the effect of explanation on the acceptance level; this was one of the main limitations of the study.

The results of the present study showed that parents' dental anxiety was not related to

the acceptance of BMTs. Boka et al. also concluded that parental dental experience and anxiety did not affect their acceptance of each of the BMTs.<sup>17</sup>

Finally, child's dental anxiety only affected their parents' initial acceptance of TSD and did not raise the acceptance of parents of other BMTs.

Conducting this study was along with some limitations. As mentioned previously, a completely random sampling was not possible to carry out due to the lack of a sampling frame. In addition, a larger sample of parents including parents in private dental offices would make a better distribution in different demographic variables.

Furthermore, it would be more desirable to evaluate the acceptance of other BMTs like sedation with nitrous oxide (N<sub>2</sub>O), especially with the unstable trend of parental acceptance related to this technique over time.<sup>4,8,11</sup> Unfortunately, this technique is not frequently used in Kerman dental offices.

## Conclusion

Pediatric dentists in different societies should be aware of the parental acceptance of different BMTs in their society in order to increase the chance of choosing the best BMT.

Sometimes, the use of BMTs with higher aggression are needed, as achieving the ability to raise parental acceptance of BMTs is very helpful.

## Conflict of Interests

Authors have no conflict of interest.

## Acknowledgments

The authors of the present study sincerely appreciate the authorities of research committee of Kerman University of Medical Sciences for their financial support of the project.

## References

1. Abushal MS, Adenubi JO. Attitudes of Saudi parents toward behavior management techniques in pediatric dentistry. *J Dent Child (Chic)* 2003; 70(2): 104-10.
2. Kupietzky A, Ram D. Effects of a positive verbal presentation on parental acceptance of passive medical stabilization

- for the dental treatment of young children. *Pediatr Dent* 2005; 27(5): 380-4.
3. Gomes HS, Vieira LA, Costa PS, Batista AC, Costa LR. Professional dental prophylaxis increases salivary cortisol in children with dental behavioural management problems: A longitudinal study. *BMC Oral Health* 2016; 16(1): 74.
  4. Murphy MG, Fields HW, Jr., Machen JB. Parental acceptance of pediatric dentistry behavior management techniques. *Pediatr Dent* 1984; 6(4): 193-8.
  5. Luis de Leon J, Guinot JF, Bellet Dalmau LJ. Acceptance by Spanish parents of behaviour-management techniques used in paediatric dentistry. *Eur Arch Paediatr Dent* 2010; 11(4): 175-8.
  6. Pai R, Mandroli P, Benni D, Pujar P. Prospective analysis of factors associated with dental behavior management problems, in children aged 7-11 years. *J Indian Soc Pedod Prev Dent* 2015; 33(4): 312-8.
  7. Harris NO, Garcia-Godoy F, Nathe CN. Primary preventive dentistry. London, UK: Pearson; 2009.
  8. Lowe O. Communicating with parents and children in the dental office. *J Calif Dent Assoc* 2013; 41(8): 597-601.
  9. Nachemson A. Towards a better understanding of low-back pain: a review of the mechanics of the lumbar disc. *Rheumatol Rehabil* 1975; 14(3): 129-43.
  10. Razavi S, Purtaji B. Determining the behavior management technique's acceptance of mothers referred to the department of pediatric dentistry in Qazvin (2007). *J Qazvin Univ Med Sci* 2009; 13(3): 81-6. [In Persian].
  11. Jafarzadeh M, Kooshki F, Malekafzali B, Ahmadi S. Attitude of parents referred to the department of pediatric dentistry towards different behavioral management techniques used in pediatric dentistry. *J Dent Sch Shahid Beheshti Univ Med Sci* 2015; 33(1): 44-50. [In Persian].
  12. Eaton JJ, McTigue DJ, Fields HW, Jr., Beck M. Attitudes of contemporary parents toward behavior management techniques used in pediatric dentistry. *Pediatr Dent* 2005; 27(2): 107-13.
  13. Ramos MM, Carrara CF, Gomide MR. Parental acceptance of behavior management techniques for children with clefts. *J Dent Child (Chic)* 2005; 72(2): 74-7.
  14. Lawrence SM, McTigue DJ, Wilson S, Odom JG, Waggoner WF, Fields HW, Jr. Parental attitudes toward behavior management techniques used in pediatric dentistry. *Pediatr Dent* 1991; 13(3): 151-5.
  15. Peretz B, Kharouba J, Blumer S. Pattern of parental acceptance of management techniques used in pediatric dentistry. *J Clin Pediatr Dent* 2013; 38(1): 27-30.
  16. Muhammad S, Shyama M, Al-Mutawa SA. Parental attitude toward behavioral management techniques in dental practice with schoolchildren in Kuwait. *Med Princ Pract* 2011; 20(4): 350-5.
  17. Boka V, Arapostathis K, Vretos N, Kotsanos N. Parental acceptance of behaviour-management techniques used in paediatric dentistry and its relation to parental dental anxiety and experience. *Eur Arch Paediatr Dent* 2014; 15(5): 333-9.
  18. Oueis HS, Ralstrom E, Miriyala V, Molinari GE, Casamassimo P. Alternatives for hand over mouth exercise after its elimination from the clinical guidelines of the american academy of pediatric dentistry. *Pediatr Dent* 2010; 32(3): 223-8.
  19. Paryab M, Afshar H, Mohammadi R. Informing parents about the pharmacological and invasive behavior management techniques used in pediatric dentistry. *J Dent Res Dent Clin Dent Prospects* 2014; 8(2): 95-100.
  20. Scott S, Garcia-Godoy F. Attitudes of Hispanic parents toward behavior management techniques. *ASDC J Dent Child* 1998; 65(2): 128-31.
  21. Havelka C, McTigue D, Wilson S, Odom J. The influence of social status and prior explanation on parental attitudes toward behavior management techniques. *Pediatr Dent* 1992; 14(6): 376-81.
  22. Chen X, Jin SF, Liu HB. Survey of parental acceptance rate to behavior management techniques used in pediatric dentistry. *Shanghai Kou Qiang Yi Xue* 2008; 17(5): 475-8. [In Chinese].