Behavior Management Techniques Adopted by Pediatric Dentists in Egypt

Samah Kanzel (✉ dr.samahkanzel@yahoo.com)

Faculty of odontology, Cairo University <https://orcid.org/0000-0003-0282-2457>

Fatma Abdelgawad

Cairo University

Kamal El Motayam

Cairo University

Research article

Keywords: Dental Anxiety, Behavior Management Techniques, Pediatric Dentistry, Survey

Posted Date: November 12th, 2019

DOI: <https://doi.org/10.21203/rs.2.17100/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Dental treatment exposes the patients to an environment that may trigger natural response of fear, leading to difficulties in accepting treatment or even dental avoidance. The study aimed to identify the most common behavior management techniques (BMT) adopted by pediatric dentist in Egypt for managing uncooperative children.

Methods: Questionnaires were hand delivered to pediatric dentists, which designed to record participants demographic and practice information, their current use of BMT, to determine the most common behavior management techniques used for each patient age; and their relationship to practitioner gender, total year in practice and position in the faculty.

Results: Surveys were returned by 72 pediatric dentists (27.8% were males and 72.2% were females). Parental presence was practiced by all participants mainly for patients less than 2 years (93.1%). Tell-show-do was considered the most used technique (95.8%) for patients 3-5 years. Their employment of advanced techniques by respondents was less than basic techniques, being least for sedation and highest for general anesthesia mainly for the very young patients (73.2%).

Conclusions: Presence of parents at the operatory became imperative for patients less than two years to gain their cooperation, unless general anesthesia will be used for them.

Introduction

Dental treatment expose the patients to an environment that may trigger natural response of fear, leading to difficulties in accepting certain types of treatment or even dental avoidance ¹. The nature of dental anxiety is different among children, some of them present with fear or phobia in relation to specific dental stimuli such as needles ²and other children report more generalized anxiety related to dental setting ³. So, as the etiology of dental anxiety is multi-factorial, it is important to have a wide variety of behavior management techniques (BMT) tailored according to the need of child patient and skills of pediatric dentist.

Behavior guidance techniques are set of procedures employed by dental practitioners used to alleviate anxiety, establish communication, instill positive dental attitude and to enable performing quality oral health care safely and efficiently for children and persons with special health care needs ^{45 6}.

The American Academy of Pediatric Dentistry (AAPD) has classified behavior guidance techniques (BGT) into basic and advanced techniques. Basic BGT included communication and communicative guidance, positive pre-visit imagery, direct observation, ask-tell-ask, voice control, nonverbal communication, tell-show-do, positive reinforcement & descriptive praise, memory restructuring, distraction, parental presence/absence and nitrous oxide/oxygen analgesic. These techniques considered the foundation for all the management activities provided by the dentist. However, some uncooperative children require more advanced techniques, e.g., protective stabilization, sedation and general anesthesia ⁶. Hand over mouth

technique has lost its popularity being used less by pediatric dentistry practitioners⁷, until it was eliminated from the clinical guidelines of American Academy of Pediatric Dentistry⁶. The aim of this study was to identify the most common behavior management techniques adopted by pediatric dentist in Egypt in management of uncooperative children.

Methodology

The survey was conducted in Egypt at pediatric dentistry department of Cairo, Ain-Shams and Al-Azhar governmental Universities. The ethical approval was obtained from the Research Ethics Committee, Faculty of Dentistry, Cairo University on 24/10/2016, furthermore, approvals from Ain-Shams and Al-Azhar Universities to be include in the study were granted. All research methods were performed in accordance with Cairo University Guidelines and regulations. Ninety two (92) questionnaires were hand delivered to pediatric dentists, which were either university staff members (master degree or PhD holding) or PhD students. Questionnaire was in English language and designed to record participants demographic and practice information and their current use of BMT to determine the most common techniques used for each patient age; and their relationship to practitioner gender, total year in practice and position in the faculty. Descriptive statistics, Chi-square (χ^2) test and Friedman's test were used to compare participant's gender, total years of practice, position in faculty and use of behavior management techniques at p -value less than 0.05 (statistically significant) or less than 0.01 (highly statistically significant).

Results

Surveys were returned by seventy two pediatric dentists (78.3% response rate), of those 20 (27.8%) were males and 52 (72.2%) were females. Further details on personal and demographic characteristics are described in table (1).

Responses regarding general use of BMT were as follow: parental presence (100%), tell-show-do (97.2%), voice control (97.2%), positive reinforcement & descriptive praise (97.2%), distraction (97.2%), nitrous oxide/oxygen analgesic (26.4%), protective stabilization (76.4%), sedation (6.9%) and general anesthesia (81.9%). Techniques percentages, number of responses and their means for the different ages are illustrated in table (2). The results was highly significant with a p -value 0.000 ($P < 0.001$).

Parental presence technique was mainly selected for the very young patients, with 93.1% responded using the technique for patients 0–2 years, 88.9% employed it for patients 3–5 years. Whereas Tell-Show-Do and positive reinforcement has been chosen for middle aged children, 95.8% indicated their use of Tell-Show-Do for patients 3–5 years and 91.7% employed both techniques for patients 6–8 years. Respondents selected voice control again for the middle aged children, 88.9% employed it for patients 3–5 years and 87.5% for patients 6–8 years, but their degree of employment was less than Tell-Show-Do. Distraction was selected by 90.3% of participants to be used for 3–5 years patients. Nitrous oxide / oxygen inhalation sedation has been used by very few practitioners mainly for patients 3–5 years.

The use of advanced BMT by respondents was less than basic techniques, being least for sedation and highest for general anesthesia mainly for the very young patients with percentage of 73.2% and 71.8% for patients 0–2 years and 3–5 years respectively. The results were highly statistically significant for all techniques between different patients age ($P<0.001$). Techniques percentages for different ages are described in table (3). Regarding association between use of BMT and practitioner gender, total years in practice and position in faculty, there was no statistically significant difference between gender distribution and BMT except for Tell-Show-Do with a P -value = 0.030 ($P<0.05$). As well as, no statistically significant difference between pediatric dentist's experience and different use of behavior management techniques except for general anesthesia with a P -value = 0.011 ($P<0.05$).

Sedation or general anesthesia was selected to be the first alternative to hand over mouth exercise (HOME) after its elimination from AAPD clinical guidelines, as shown in figure (1).

Discussion

Most pediatric dentists preferred parental presence technique followed by general anesthesia for the management of uncooperative 0–2 years patients, as the major problem in providing treatment for them is their infantile behavior and immature communication ability⁸. According to Walter, 1999 infants are docile and easy to manage requiring the presence of their mothers since separation will influence the children's reactions to new situations⁹. General anesthesia can provide comprehensive mean for their management in a single visit and immediate relief of dental pain when other behavior measures fail¹⁰.

Tell-show-do (TSD) technique was the most used technique for patients 3–8 years, as it is safe, noninvasive and being acceptable among practitioners and parents^{11 4 6 11}.

Low proportion of pediatric patients employed nitrous oxide analgesia for their patients which reveal its unpopularity in Egypt. Although according to AAPD guidelines on nitrous oxide sedation, it was considered as having excellent safety when used by trained practitioner for carefully selected patients with suitable equipment and technique¹².

The least used technique was sedation compared with other behavior techniques and this might reflect the more psychological trend in managing young patients and less pharmacological mean of controlling child behavior. Sedation was associated with cases that resulted in permanent neurologic damage especially when used with very young patients less than three years old^{13 14}. In the contrary, sedation has been selected by most participants to be the first alternative to Hand over mouth exercise (HOME). The reason for eliminating and rejecting HOME was the possibility of inducing fear or psychological trauma to the child¹⁵.

Tell-Show-Do technique was preferred by females more than males, as well as practitioners with more than 10 years in practice are using general anesthesia more than less experienced practitioners. Yet, their position in faculty was not associated with statistically significant difference regarding use of BMT.

According to Adair et al., 2007 significant differences by age and sex were observed for the use of non-verbal communication and advanced behavior management techniques, but no significant differences were seen in respect to the use of most basic behavior management techniques ⁷.

The high response rate to this survey (78.3%) was a good indication of participant's cooperation and interest in the topic of BMT for child dental patients. This interest has been documented in previous surveys for BMT with response rates 66% with Adair et al., 2004 and 64% with Carr et al., 1999^{7 17}.

Conclusions

Within all limitations of this study, it has been concluded that:

- Presence of parents at the operatory has become imperative during management of patients less than two years old to gain their cooperation, unless general anesthesia will be used.
- Tell-show-do is the best behavior management technique for patients three to eight years old.

Declarations

Ethics approval and consent to participate:

- Ethical approval was obtained from the Research Ethics Committee, Faculty of Dentistry, Cairo University on 24/10/2016. All research methods were performed in accordance with Cairo University Guidelines and regulations. Signed consent was waived in this study because it meets the Cairo University Research Ethics Committee requirements for waiving all consent. Subjects are verbally informed about the study where participation consists only of filling out an anonymous questionnaire; the participants completes the questionnaire, and by doing so, agree to participate in the research. In addition, the study involves no procedures for which written consent is normally required outside of the research context. It would not adversely affect the rights and welfare of the participants as the identities of subjects was completely anonymous. For that, written consent wasn't applicable in this study.

Consent for publication:

Not applicable.

Availability of data and materials:

Materials, data and associated protocols are available with the corresponding author upon request with no restrictions.

Competing interests:

The authors declare that they have no competing interests.

Funding:

The study did not receive any research funding, as it was a master degree thesis.

Authors' contributions:

Guarantors of integrity of entire study, S. K., F.A, K. M.; study concept, literature research, data acquisition, drafting for paper, manuscript preparation S.K; study design, data analysis/interpretation, discussion S. K.,F. A.; manuscript revision/review F. A.; supervised and proofread manuscript, F. A., K. M.

Acknowledgements

Many thanks to Dr Philip Rowe, Visiting Research Fellow at Liverpool John University, United kingdom, for his contributions to the statistical analysis (permission to acknowledge has been taken from Dr. Row).

Corresponding Author Information:

Samah Kanzel, M. D.

Pediatric Dentistry and Dental Public Health Department

Faculty of Dentistry, Cairo University

11 El Saraya st., El Manial, Giza, Egypt

Tel. 00201061494753

E-mail: dr.samahkanzel@yahoo.com

List of abbreviations:

Behavior management techniques

BMT

Behavior guidance techniques

BGT

American Academy of Pediatric Dentistry

AAPD

Tell-show-do

TSD

Hand-over-mouth-exercise

HOME

Doctor of philosophy

PhD

References

1. Carter AE. Pathways of fear and anxiety in dentistry: A review. *World J Clin Cases*. 2014;2(11):642. doi:10.12998/wjcc.v2.i11.642.
2. Majstorovic M, Veerkamp JSJ. Relationship between needle phobia and dental anxiety. *J Dent Child (Chic)*. 2004;71(3):201–205.
3. Klingberg G, Broberg AG. Dental fear/anxiety and dental behaviour management problems in children and adolescents: A review of prevalence and concomitant psychological factors. *Int J Paediatr Dent*. 2007;17(6):391–406. doi:10.1111/j.1365–263X.2007.00872.x.
4. Roberts JF, Curzon MEJ, Koch G, Martens LC. Review: behaviour management techniques in paediatric dentistry. *Eur Arch Paediatr Dent*. 2010;11(4). doi:10.1007/BF03262738.
5. Oliver K, Manton DJ. Contemporary behavior management techniques in clinical pediatric dentistry: out with the old and in with the new? 2015;82(1).
6. AAPD. Behavior Guidance for the Pediatric Dental Patient. *Pediatr Dent*. 2017;39(6):246–259.
7. Adair SM, Waller JL, Schafer TE, Rockman R. A survey of members of the American Academy of Pediatric Dentistry on their use of behavior management techniques. *Pediatr Dent*. 2004;26(2):159–166.
8. Cunha RF, Zaze ACSF, Vieira AE de M, Melhado FL, Sundefeld MLMM. Longitudinal behavioral analysis during dental care of children aged 0 to 3 years. *Braz Oral Res*. 2009;23(3):302–306. doi:10.1590/S1806–83242009000300013.
9. Walter LR de F. *Odontologia Para O Bebê: Odontopediatria Do Nascimento Aos 3 Anos*. Artes Médicas, Divisão Odontologia; 1999.
10. Lee P-Y, Chou M-Y, Chen Y-L, Chen L-P, Wang C-J, Huang W-H. Comprehensive dental treatment under general anesthesia in healthy and disabled children. *Chang Gung Med J*. 2009;32(6):636–642.

11. S AD, Balharith M, Alhazmi S, Alobaidi F, Kakti A. Behavior Management Techniques in Pediatric Dentistry: How Well are they Accepted? 2017;5(4). doi:10.19080/AJPN.2017.05.555.
12. The American Academy of Pediatric Dentistry. Guideline on use of nitrous oxide for pediatric dental patients. *Pediatr Dent*. 2016;35(5):E174–8.
13. Côté CJ, Notterman DA, Karl HW, Weinberg JA, McCloskey C. Adverse sedation events in pediatrics: a critical incident analysis of contributing factors. *Pediatrics*. 2000;105(4 Pt 1):805–814.
14. Chicka MC, Dembo JB, Mathu-Muju KR, Nash DA, Bush HM. Adverse events during pediatric dental anesthesia and sedation: a review of closed malpractice insurance claims. *Pediatr Dent*. 2012;34(3):231–238. doi:10.1016/0090–4295(93)90521-B.
15. Ramos MM, Carrara CF de C, Gomide MR. Parental acceptance of behavior management techniques for children with clefts. *J Dent Child (Chic)*. 2005;72(2):74–77.
16. Adair SM, Schafer TE, Waller JL, Rockman RA. Age and gender differences in the use of behavior management techniques by pediatric dentists. *Pediatr Dent*. 2007;29(5):403–408.
17. Carr KR, Wilson S, Nimer S, Thornton Jr. JB. Behavior management techniques among pediatric dentists practicing in the southeastern United States. *Pediatr Dent*. 1999;21(6):347–353.

Tables

Table (1): Personal and demographic information of study participants		
Variable	n	%
Gender		
Male	20	27.8%
Female	52	72.2%
Total years in practice		
< 5 years	7	9.7%
5 - 10 years	25	34.7%
10 - 20 years	32	44.4%
> 20 years	8	11.1%
Nature of primary practice		
Private	41	56.9%
Hospital-based	22	30.6%
Military services	2	2.8%
National health insurance	3	4.2%
Academic staff	61	84.7%
Other	5	6.9%
Position in faculty		
Assistant lecturer	35	49.4%
Lecturer	16	22.5%
Associate professor	7	9.9%
Professors	2	2.8%
Emeritus professors	4	5.6%
Postgraduate students	11	15.5%

Table (2): Popularity of behavior management techniques among participants			
Technique	N	Percent	Mean
Parental presence	72	100.0%	2.81
Tell-Show-Do	70	97.2%	3.63
Voice control	70	97.2%	3.22
Positive reinforcement and descriptive praise	70	97.2%	3.88
Distraction	70	97.2%	2.65
Nitrous oxide/Oxygen inhalation	19	26.4%	0.67
Protective stabilization	55	76.4%	2.03
Sedation	5	6.9%	0.82
General anesthesia	59	81.9%	2.36

Table (3): Frequency and percentage of behavior management techniques for each patient age

	0-2 years	3-5 years	6-8 years	9-12 years	>12 years
Parental presence	93.1% (67)	88.9% (64)	45.8% (33)	25% (18)	27.8% (20)
Tell-Show- Do	43.1% (31)	95.8% (69)	91.7% (66)	73.6% (53)	58.3% (42)
Voice Control	31.9% (23)	88.9% (64)	87.5% (63)	65.3% (47)	48.6% (35)
Positive reinforcement	59.7% (43)	91.7% (66)	91.7%66	79.2% (57)	65.3% (47)
Distraction	51.4% (37)	90.3% (65)	87.5% (63)	54.2% (39)	40.3% (29)
Nitrous oxide sedation	15.4% (11)	20.8% (15)	13.9% (10)	8.3% (6)	8.3(6)
Protective stabilization	65.3% (47)	65.3% (47)	36.1% (26)	19.4% (14)	16.7% (12)
Sedation	21.1% (15)	73.2% (19)	19.7% (14)	8.5% (6)	7% (5)
General anesthesia	73.2% (52)	71.8% (51)	46.5% (33)	28.2% (20)	19.7% (14)

Figures

Figure 1

A bar chart showing percentages of pediatric dentist's opinions regarding 1st alternative to hand over mouth exercise (HOME)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [additionalfile1.pdf](#)
- [Additionalfile2.docx](#)