

## PARENTAL ACCEPTANCE TOWARDS VARIOUS BEHAVIOR GUIDANCE TECHNIQUES USED IN PEDIATRIC DENTISTRY IN SOME PRIVATE AND GOVERNMENTAL DENTAL CLINICS IN BAHRAIN – A CROSS SECTIONAL STUDY

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### ABSTRACT

**Objectives:** Parental acceptance of different behavioral guidance techniques (BGTs) may vary among different cultures and socioeconomic standards within the same culture. The aim of the study was to investigate parental acceptance of several BGT in some private and governmental dental clinics in Bahrain.

**Subjects and methods:** A hundred and forty parents who accompanied their children to either governmental or private dental clinics in Bahrain. **Parents were divided into; Group P** (n=70) parents who accompanied their children to private dental clinics., or **Group G** (n=70) parents who accompanied their children to governmental dental clinics. Both groups P & G were subdivided into subgroups 1 & 2 (n=35) according to the age of children. **Subgroup 1:** parents of children aged 2-6 years old. **Subgroup 2:** parents of children aged >6-12 years old. After being shown a video with 11 behavior guidance techniques, parents rated the acceptance of each technique via 3-likert scale, visual analogue scale (VAS) and listing the techniques in order from 1 to 11.

**Results:** There no statistical significant difference between private and governmental clinics within both age groups regarding different demographic parameters. The acceptance of basic BGTs was high regardless the child age in comparison to advanced BGTs.

**Conclusion:** Positive reinforcement followed by Tell-Show-Do and Tell-Play-Do were the most accepted BGTs by Bahraini parents. General anaesthesia was the most accepted advanced BGT, followed by protective stabilization, N<sub>2</sub>O/O<sub>2</sub> sedation, parental absence and voice control. HOME was the least accepted technique by most of parents.

**KEYWORD:** Behavioral-Guidance-Techniques, Behavior management, Parental acceptance, Child.

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## INTRODUCTION

Nowadays, the need for dental care for children is growing. In the field of pediatric dentistry, there have been many advances and innovations. Some of these advancements have majorly enhanced the children dental experiences. The approach to children has been changed significantly. However, the main challenge of any pediatric dentist is the way of dealing with a child patient<sup>(1)</sup>.

There are several factors that could affect the child's ability of coping in the dental office such as child's physical, social, emotional, and cognitive development. These factors could affect the child's performance in a negative or a positive way inside the dental office<sup>(2)</sup>.

Dental anxiety is a challenge that dental practitioners face when treating a child patient. Children who are calm and unafraid may show positive conduct, as grinning and excitement. On the opposite side, anxious children may act falteringly. While other uncooperative children might resist the treatment procedures physically<sup>(3)</sup>.

One of the most demanding aspects of pediatric dentistry is the treatment of anxious children. Behaviour guidance techniques (BGTs) are of great significance in order to minimise fear and anxiety during dental treatment and encourage a positive dental attitude towards oral health care<sup>(4,5)</sup>.

The American Academy of Pediatric Dentistry (AAPD) divided the BGTs into two divisions: basic and advanced behavioural techniques. Basic BGTs include communication techniques, as tell-show-do, distraction, positive reinforcement, and voice control<sup>(5)</sup>.

Advanced BGTs include: protective stabilisation, sedation, and general anaesthesia<sup>(5)</sup>. Unfortunately, there are children that cannot be managed with basic BGTs, these children need advanced BGTs to manage them. Nevertheless, dental procedures as well as many of BGTs cannot be applied to children

without parental approval. Thus, the parental attitude towards different kinds of BGTs could significantly affect the dentist's decision towards using such techniques.

**Peretz and Zadik**, (1999)<sup>(6)</sup> found that the majority of parents preferred explanations before behavioral management were considered for their children, especially for firm techniques which such explanation might increase the parental acceptance conducted level. **Kamolmatayakul et al** (2002) reported that sedation and GA were the least acceptable techniques by parents for all dental procedures<sup>(7)</sup>.

Parental attitude towards different basic and advanced BGTs may vary according to many factors such as different culture and socioeconomic status. Therefore, the present study was to investigate and compare parental acceptance towards some basic and advanced BGTs in some private and governmental dental clinics in Bahrain. Moreover, no previous studies assessed the parental acceptance of BGTs in Bahrain.

## SUBJECTS AND METHODS:

Ethical approval was obtained from the research ethics committee of Faculty of Dentistry, Ain Shams University (FDASU-RecIM 022112) and Primary Healthcare Centers in Bahrain. (PHCRC/TOR/007)

### Study design:

The present study is a cross-sectional study that employed a semi-structural questionnaire which was developed based on a previous study<sup>(12)</sup>. Parents were recruited from some private and governmental dental clinics in Bahrain and directly interviewed by the principal investigator. Parental acceptance of some basic and advanced BGTs was investigated after showing the patients a specially designed videotape explaining those techniques. The study was conducted and reported according to TREND guidelines<sup>(13)</sup>.

The study population included 140 parents chosen conveniently from a group of parents who accompanied their children to either governmental or private dental clinics in Bahrain. Parents were selected according to the following criteria:

- **Inclusion criteria:**

- Male or female parents of 2-12 year-old children.
- Parents who are able to watch (view and listen to) and understand the video.
- Parents who agreed to sign an informed written consent.

- **Exclusion criteria:**

- Parents who have a child with a special health care need.
- Children accompanied by legal guardians other than parents.
- Parents aged under 18 years old.

**Study groups and subgroups:**

Parents were divided into two main groups (n=70) according to the type of dental clinic. Each group was divided to subgroups according to the age of children as follows: **Group P:** Included 70 parents who accompanied their children to private dental clinics. **Group G:** Included 70 parents who accompanied their children to governmental dental clinics. Both groups P & G were subdivided into subgroups 1 & 2 (n=35) according to the age of children. **Subgroup P1 & G1:** Included 35 parents of children aged 2-6 years old. **Subgroup P2 & G2:** Included 35 parents of children aged >6-12 years old.

**Methods:**

**Video:** The videotape was filmed in a private dental clinic in Bahrain. A voice over describing each BGT was recorded in Arabic language with native Bahraini language by the principal investigator. Two children (A 4 years-old boy and a 5 years-old girl) (Figure1) volunteered and were

taught to act as if they were undergoing dental care in the video. A written informed consent was taken from parents approving the use of videotapes for research purpose as well as an oral consent was obtained from volunteered children. The principal investigator played the role of the dentist in the videotape.

**Video characteristics:** The final videotape comprised of eleven abbreviated videos that ranged in duration from 20 to 50 seconds. The video included an introduction to the concept as well as an explanation and demonstration of the following BGTs that have been described by the American Academy of Pediatric Dentistry (AAPD)<sup>(5)</sup>, and other researchers.<sup>(14,15)</sup> 1. Tell Show Do 2. Tell Play Do.3. Direct observation. 4. 3-D distraction. 5. Positive reinforcement. 6.Voice control. 7. Hand Over Mouth Exercise (HOME) 8. Parental Presence/ Absence 9. Protective stabilization. 10. Nitrous Oxide / Oxygen sedation 11. General Anesthesia. The techniques were presented in the same order.

All enrolled parents in the current investigation were interviewed individually in a quiet private room after signing the consent form. A video demonstration was presented to parents via an apple iPad pro 2020 device with 11-inch IPS LED-backlit display to fully understand every BGT (Figure 2).

**Questionnaire:**

A questionnaire based on a previous study was used (12). The questionnaire was based on a direct face to face interview that was used to collect information concerning demographic data and to evaluate parental acceptance regarding different BGTs that might be applied with their children in the dental clinic. The questions were arranged by the investigator and reviewed by the two experienced evaluators, in simple Arabic words. It was designed according to Information about the parents: General demographic information, Parental dental anxiety level by using the Modified Dental Anxiety Scale (MDAS). **Information about the child:** This included: (name, age, type of school, presence of



Fig. (1) Volunteered children, A: Direct observation Technique, B: TSD Technique, C: Tell-Play-Do Technique



Fig. (2) Interviewing parents

siblings and his/her order in the family as well as past dental experience). And **Parent's acceptance to each of the (BGTs)**: by using a 3 points likert type scale. It was also assessed via a 100-millimeter horizontal visual analogue scale (VAS) A response line was pointed, the right end of the line represents "completely acceptable", and the left end of the line represents "completely unacceptable" (Figure 3).

At the end of scoring of all techniques, the parents were asked to list the techniques in order from 1 to 11, so that 1 is the most acceptable technique and 11 is the least acceptable (1).

### Statistical analysis

Categorical data were presented as frequencies and percentages and were analyzed using chi-square test followed by pairwise comparisons utilizing multiple z-tests with Bonferroni correction. Numerical data were presented as mean and standard deviation values. They were tested for normality using Shapiro-Wilk's test. They were non-parametric and were analyzed using Mann-Whitney U test. The significance level was set at  $p < 0.05$  for all tests. Statistical analysis was performed with R statistical analysis software version 4.3.0 for Windows<sup>1</sup>.

1 R Core Team (2023). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

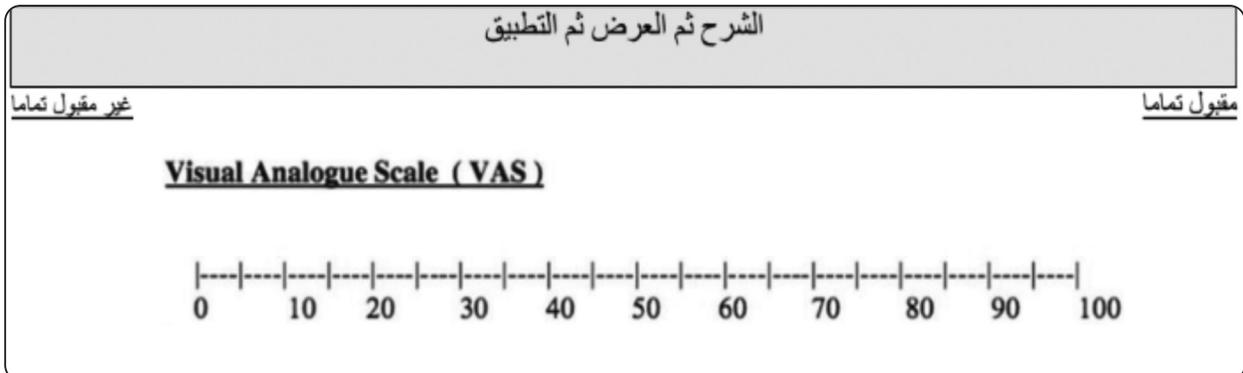


Fig. (3) Visual Analogue Scale for TSD.

## RESULTS

### Demographic data

#### *Effect of clinic type:*

There was no significant difference between private and governmental clinics within both age groups regarding different demographic parameters ( $p>0.05$ ).

#### **Technique acceptance:**

#### *Effect of clinic type (intergroup comparison):*

For the younger subgroups, there was a statistical significant different between clinics regarding “3-D distraction” technique with significantly higher percentage of parents in private clinics choosing “Neutral” and with significantly higher percentages of parents in governmental clinics choosing “Acceptable” ( $p=0.014$ ). For other techniques the difference was not statistically significant ( $p>0.05$ ). For the older subgroups, there was no statistical significant difference between parents in both clinics regarding the acceptance of all techniques ( $p>0.05$ ).

#### *Effect of age (intragroup comparison):*

For children treated in private clinics, there was a statistical significant different between parents of both age groups regarding “Protective stabilization” technique with significantly higher percentage of

parents of older children choosing “Acceptable” ( $p=0.041$ ). For other techniques, the difference was not statistically significant ( $p>0.05$ ).

For children treated in governmental clinics, there was a statistical significant different between parents of both age groups regarding “Positive reinforcement” with significantly higher percentage of parents of younger children choosing “Neutral” and with significantly higher percentage of parents of older children choosing “Acceptable” ( $p=0.039$ ). For “Voice control”, there was also a statistical significant difference with significantly higher percentage of older children choosing “Acceptable” ( $p=0.009$ ). In addition, the difference was also statistically significant for “Parental presence / absent” technique, with significantly higher percentage of parents of younger children choosing “Neutral” and with significantly higher percentage of parents of older children choosing “Acceptable” ( $p=0.008$ ). For other techniques, the difference was not statistically significant ( $p>0.05$ ). (Figure 4)

#### ***Listing the techniques from the most accepted to the least accepted***

In both groups, positive reinforcement has the highest rate of acceptance, followed by TSD, Tell-Play-Do, 3-D distraction and direct observation. Then, GA, protective stabilization, N2O/O2, parental presence/ absence, voice control and the last one was HOME. (Figure 5)

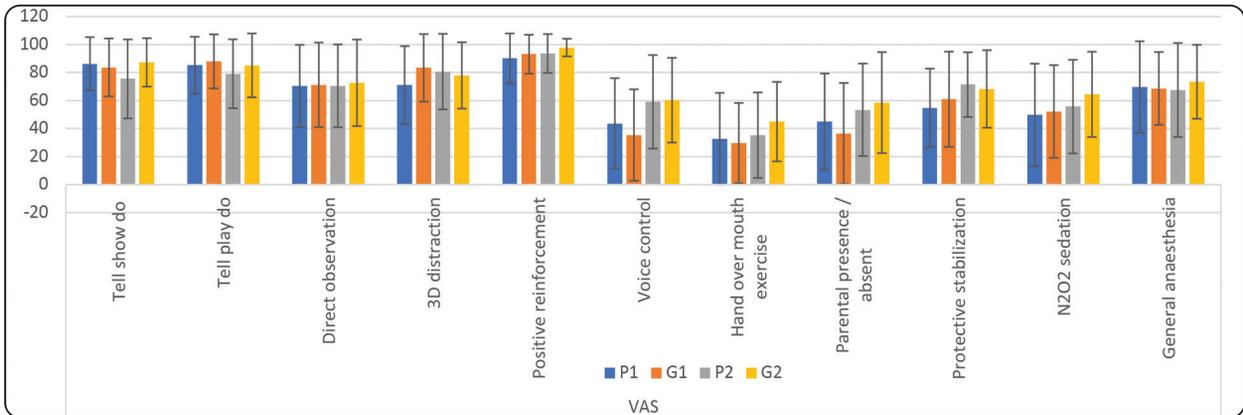


Fig. (4) Bar chart showing mean and standard deviation values for VAS.

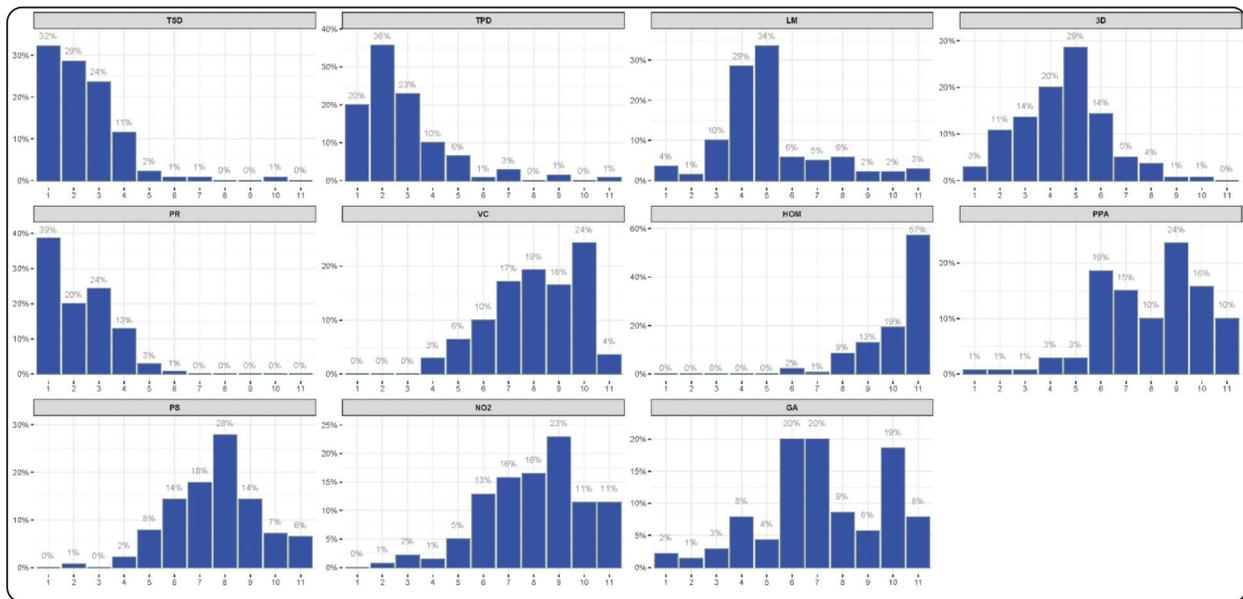


Fig. (5) Rating the techniques from the most to least accepted.

### DISCUSSION

Parental acceptance of different BGTs may vary among different cultures and socioeconomic standards within the same culture (16). This study was performed to establish the parental acceptance of various BGTs in Bahrain. Studies have reported that explanation of all various BGTs showed positive explanation effects on parental acceptance levels(6,17,18). Therefore, a brief explanation of the characteristics and aims of each BGT was introduced to parents through an audio-visual demonstration.

Literature has reported conflicting evidence on parental acceptance of BGTs in relation to their demographic characteristics. In the US, Eaton et al.(8) in 2005 reported that there was no impact of parental social and educational level as well as their age and gender on their acceptance of different BGTs. Conversely, other researchers reported opposite results (9,10,18,20,21). In the present study, there was no significant difference between private and governmental clinics within both age groups regarding different demographic parameters. According to the “Education for All” principle by

the Bahraini government, the government offers Bahraini's citizens free, high-quality education at public schools. Thus, all parents are well educated, whether with high or low economic level<sup>(22)</sup>.

No previous studies were found to investigate and compare parental acceptance of several BGTs in private and governmental dental clinics in Arabic middle eastern countries; so, direct comparisons to the present study results are not available. Regarding techniques acceptance, results of the present study disclosed insignificant differences between the mean VASs of the BGTs acceptance between parents of both clinics types. A possible explanation for the equal acceptance between both groups is the comparable education level and thus awareness as well as other presence of comparable demographic characteristics in both groups. In India **Shukla et al.**<sup>(11)</sup>, studied the acceptance among 40 parents of children between 3 to 12 years old in two locations. No statistical significant correlation was found between the parental rating of each technique and the child's age, either for children treated in the postgraduate clinic or those treated in private practice.

Researchers reported contradictory findings as per the influence of child age on parental acceptance of BGTs. Some researchers reported that age was not an influencing factor<sup>(23,24)</sup>. In other situations, parents showed stronger parental acceptability of some techniques with younger children as N<sub>2</sub>O/O<sub>2</sub> sedation<sup>(23)</sup>. Thus, in the current study, the parental acceptance between two age groups within each clinic type was compared. For parents of children treated in governmental clinics, there were significant differences between age groups regarding positive reinforcement, voice control, and parental absence. The acceptance of parents of older age group (G2) was significantly higher respect the previously mentioned techniques in comparison to the younger age group (G1).

In general, the results showed that in both groups, the acceptance of basic BGTs such as TSD, Tell-play-do, direct observation, 3-D distraction,

and positive reinforcement was high regardless child age. Yet, the acceptance of advanced BGTs such as voice control, HOME, parental absence, protective stabilization, N<sub>2</sub>O/O<sub>2</sub> sedation and GA was lower than those basic techniques especially in the younger age groups (A1 and B1). A possible explanation is that preschool-age children usually experience fear from many factors, including unknown and unexpected situations. Moreover, parents' genders may also have an impact because female parents admitted of being more protective for younger age children than male parents<sup>(25)</sup>.

In agreement with the present study, **Allen et al.**<sup>(26)</sup>, reported that acceptance of parents for different BGTs is influenced by age. It had been reported that parents of younger children were more likely to accept N<sub>2</sub>O/O<sub>2</sub> and parents from higher socioeconomic status were more likely to accept GA. On the other hand, in contrary to this study result, **Muhammad et al.**<sup>(12)</sup>, evaluated the parental attitude toward different BGTs used during dental treatment of schoolchildren in Kuwait. The authors found that acceptance of each BGT was not related to the gender or age of the child. Furthermore, some studies concluded that parents of uncooperative children despite the age were more open to accept advanced BGTs, especially when their child is experiencing pain or discomfort<sup>(6,18,27)</sup>.

In the present study, positive reinforcement had the highest rate of acceptance, followed by TSD and Tell-Play-Do. The present study also confirmed previous findings regarding positive reinforcement and TSD as being the most accepted BGTs by parents<sup>(8,12,20,28)</sup>. These findings were consistent with a previous meta-analysis Brazilian study, in 2022, **Massignan et al.**<sup>(23)</sup>, concluded that parents were more likely to agree with basic BGTs over advanced BGTs. Furthermore, in a study by **Shukla et al.**<sup>(11)</sup>, GA was the third most accepted BGT after the audiovisual distraction and TSD.

In the current study, GA was rated as the most acceptable advanced BGT. In agreement to our

study, **Boka et al.**<sup>(29)</sup>, revealed that parents prefer GA over protective stabilization, HOME and voice control techniques. A potential reason is that these parents believe that GA will be less stressful for their kids and that using such invasive procedures will be a bad experience for them<sup>(29)</sup>. On the other hand, **Razavi and Purtaji** (2008)<sup>(30)</sup>, showed that GA showed the lowest acceptance among mothers following parent separation, HOME, and voice control. Mothers in that study, however, were mostly from low to middle class socioeconomic backgrounds, and this outcome might be related to the high cost of GA and low dental awareness. In agreement to that, **Shukla et al.**<sup>(11)</sup> found that GA was more widely accepted in private practice than in postgraduate clinics, which could be attributed to differences in the socio - economic status of each place.

**Jafarzadeh et al.** (2015)<sup>(10)</sup> concluded that acceptability of the modern pharmacological techniques (GA and N<sub>2</sub>O/O<sub>2</sub> sedation) increased over time. This increased tendency may be caused by parents' growing familiarity and awareness of outpatient procedures under pharmacological techniques.

The least accepted techniques in the present study were, HOME, voice control and parental absence. It appears that with time, parents' acceptance of HOME technique has decreased. In a study by **Scott and Garsia-Godoy**<sup>(17)</sup> it was reported that HOME was ranked the third least technique. Moreover, **Eaton et al.**<sup>(8)</sup> and **Alammouri**<sup>(28)</sup>, reported that HOME was the least accepted technique.

**Abushal et al.**<sup>(20)</sup>, agreed to our study and concluded that Saudi parents classify parental absence among the least acceptable BGT along with voice control, and HOME. Studies came to the conclusion that the majority of parents do not accept parental absence as they prefer to accompany their children when they see the dentist<sup>(29,31)</sup>. Moreover, **Desai et al.**<sup>(32)</sup>, reported that the majority of parents might resist being parted from their kids during treatment and believed that their presence would

increase children's cooperation.

A limitation of the current study was that the socio-economic status of participating parents was not measured prior to the study using specific scales. Yet, the type of clinic whether private or governmental was used as a proxy indicator for the socio-economic level.

## CONCLUSION

- There was insignificant difference in parental acceptance of various BGTs between private and governmental clinics.
- Positive reinforcement followed by TSD and Tell-Play-Do were the most accepted BGTs by Bahraini parents.
- General anaesthesia was the most accepted advanced BGT, followed by protective stabilization, N<sub>2</sub>O/O<sub>2</sub> sedation, parental absence and voice control.

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**Conflict of interest** the authors declare that they have no conflicts of interest in this study.

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