



## MEASURING DENTIST'S AWARENESS AND KNOWLEDGE ABOUT THE USE OF PROTECTIVE STABILIZATION DURING CHILDREN'S DENTAL TREATMENT

Meer Zakirulla<sup>1\*</sup>, Omar Ali Yahya Altimni<sup>1</sup>, Mohammed Saleem Ahmed Alamri<sup>1</sup>, Nawaf Hassan Ali Albwahi<sup>1</sup>, Ahmed Abdulkarim Abdulrahim Al Zaidi<sup>2</sup>, Mona Saleh Alazmi<sup>3</sup>, Noha Saeed Alzamil<sup>1</sup>, Abdulmohsen Mohammed AlQahtani<sup>4</sup>, Mohammed Abdullah Alshareef<sup>4</sup>, Mohammed Mahdi Mesfer Almubarak<sup>5</sup>, Ahmed Ibrahim Ruwayni<sup>5</sup>, Qasem Ahmed Salem Ghazwani<sup>5</sup>, Ali Mohammed A Alshahrani<sup>5</sup>, Abdulelah Abdullah M Alhunaishi<sup>5</sup>

1. *Department of Pediatric Dentistry & Orthodontic Sciences, College of Dentistry, King Khalid University, Abha, Saudi Arabia.*
2. *Safwat Al Montazah Specialized Medical Complex, Taif Private Hospital, Taif, Saudi Arabia.*
3. *College of Dentistry, Al-Jouf University, Al-Jouf, Saudi Arabia.*
4. *Armed Forces Hospital Southern Region, Khamis Mushait, Saudi Arabia.*
5. *Ministry of Health, Abha, Saudi Arabia.*

### ARTICLE INFO

**Received:**

20 Jun 2023

**Received in revised form:**

26 September 2023

**Accepted:**

02 Oct 2023

**Available online:**

28 Oct 2023

**Keywords:** Behavior management, Child behavior, Informed consent, Protective stabilization

### ABSTRACT

This study aims to measure dentist's awareness and knowledge about the use of protective stabilization during children's dental treatment. A cross-sectional study was conducted after receiving clarifications regarding the objectives of the research and signing a statement of informed consent. The participants of the study comprised of total number of 300 dental surgeons (male; and female) with an age range from 20- to 55- years old. A simple random sampling method was employed in the study to collect the sample. A self-administered structured questionnaire was developed, and the data was collected. Both descriptive and analytical statistical measurements were done. Participants 219 (73%) stated that fear of pain was the primary cause of fear in a child visiting a dentist. 66 (22%) and 15 (5%) said that fear of separation from the parents and fear of the unknown respectively were the causes of fear in a child visiting a dental clinic. As many as 255 (85%) dentists agreed to use voice control in dental clinics so that the child listens to the dentist during treatment. Amongst the other techniques employed by dentists, when the voice control is not successful were Physical restraints 195(65%), Conscious Sedation 69(23%), and General anesthesia 36(12%). Most participants were aware of the use of the protective stabilization technique, although few acknowledged having adequate skills to apply the various behavior management techniques. There is a need to build awareness among the dentists associated with child psychology and its application during treatment.

*This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, and build upon the work non commercially.*

**To Cite This Article:** Zakirulla M, Altimni OAY, Alamri MSA, Albwahi NHA, Al Zaidi AAA, Alazmi MS, et al. Measuring Dentist's Awareness and Knowledge about the Use of Protective Stabilization during Children's Dental Treatment. *Pharmacophore*. 2023;14(5):70-5. <https://doi.org/10.51847/QtmgngKz3>

### Introduction

Behavior management is a comprehensive and continuous approach, which is pivotal in pediatric dentistry. This methodology is specifically designed to establish a strong relationship between the child, parent, and dentist, aiming to eliminate fear and anxiety while building trust. Effective behavior management techniques (BMTs) enable dentists to foster a positive dental attitude in young patients, guide them through their dental experiences, and perform quality treatments safely [1]. However, it's essential to recognize that children have varying capacities to deal with different situations, and their perceptions play a crucial role in how they respond to dental care. One of the fundamental aspects of behavior management in pediatric dentistry

**Corresponding Author:** Meer Zakirulla; Department of Pediatric Dentistry & Orthodontic Sciences, College of Dentistry, King Khalid University, Abha, Saudi Arabia. E-mail: drzak786@gmail.com.

is acknowledging that children possess different levels of coping skills. Some children may have little to no capacity to handle stressful situations, while others may exhibit a more robust ability to manage their emotions and anxiety. This diversity in children's responses underscores the need for a tailored approach to behavior management. Perception is critical in managing a child's behavior during dental visits [2]. How children perceive various stressful stimuli in different situations significantly influences their reactions. For instance, a child may interpret the dental chair and instruments as intimidating, leading to fear and anxiety. Understanding these perceptions allows dentists to employ appropriate techniques to manage them effectively. It's important to note that not all behavior management techniques are universally acceptable to parents. While some parents may be comfortable with certain BMTs, others may find them unacceptable. The acceptability of a particular technique often depends on the child's specific needs at the time of treatment, the type and urgency of the required dental care, and parental preferences [3].

Behavior management techniques are essential for creating a positive and trusting environment in pediatric dental practices. When implemented correctly, these techniques can significantly reduce a child's perception of the dental situation, enhance their coping skills, and increase their willingness to accept dental care. Additionally, BMTs facilitate the development of trust between the child, the dentist, and the parents [4]. Over time, dental visits can become less anxiety-provoking for children, paving the way for a more positive and relaxed experience. In some cases, traditional behavior management techniques, such as tell-show-do (TSD), positive reinforcements, and modeling, may not be sufficient to manage a child's behavior during dental treatment. In such instances, dentists may need to consider alternative methods, such as physical restraints (PRs) or voice control, as well as sedation or general anesthesia. The appropriateness of using PRs will depend on factors such as the child's needs, the type and urgency of treatment, parental acceptance, and local laws and regulations. Given the significance of behavior management in pediatric dentistry, it's crucial to assess parental knowledge, attitude, and awareness regarding using physical restraints (PRs) on children during dental treatment. Understanding parental perspectives and concerns can help dentists tailor their approaches and communication to ensure children's and parents' comfort and trust [5]. Therefore, this study aims to assess dentists' awareness and knowledge about the use of protective stabilization during children's dental treatment.

## Materials and Methods

A cross-sectional study was conducted after receiving clarifications regarding the objectives of the research and signing a statement of informed consent. The participants of the study comprised of total number of 300 dental surgeons (male; and female) with an age range from 20- to 55- years old to know the knowledge of dentists about the use of protective stabilization during children's dental treatment. A simple random sampling method was employed in the study to collect the sample. Ethical approval for performing the survey was obtained from the Scientific Research Committee of King Khalid University, College of Dentistry [IRB/KKUCOD/ETH/2022-23/048].

### *Questionnaire Structure*

The study involved a total of 300 dental surgeons practicing in the Abha region of Saudi Arabia. These participants were contacted through an online Google Forms questionnaire. The questionnaire found in the research had two primary parts. The initial component collected demographic information regarding the individuals, including age group, gender, and degree of education. The next part contains 10 questions, that have been formatted with 'yes' and 'no' response choices. Additionally, there have been multiple-choice questions.

### *Piloting*

Before the main data collection, the questionnaire was pre-tested with a comfort sample of 20 dental surgeons. These participants were interviewed to gather feedback on the questionnaire's clarity, length, and overall acceptability. Based on their feedback, necessary adjustments and corrections were made to the questionnaire.

### *Validity and Reliability*

The questionnaire underwent validity and reliability testing to ensure that it measured what it intended to measure consistently. This is a common practice in survey research to ensure the quality and accuracy of the data collected. Validity was assessed to ensure that the questionnaire was appropriate for the study's objectives and the characteristics of the participants.

### *Data Evaluation*

Both descriptive and analytical statistical strategies were employed to investigate the info collected from the individuals. The evaluation was executed using the SPSS 18 software program. Overall, it seems like a structured and systematic approach was taken to design, test, and administer the questionnaire to gather data from dental surgeons in the Abha region of Saudi Arabia for the research study. The use of pilot testing and validity checks reflects an effort to ensure the quality and reliability of the data collected.

## Results and Discussion

A total of 300 (150 males and 150 females) dentists responded to the questionnaire. 88% of study subjects were of 20-30 years, 7% were of 31-40 years, 5% were of 41-50 years, and 0% were >50 years (**Table 1**). Knowledge and attitudes among dentists about the use of protective stabilization during children's dental treatment are shown in **Table 2**. The majority of participants, 189(63%) said that they have come across an uncooperative child during pediatric dental treatment. 195(65%) agreed that they are using physical restraints for managing an uncooperative child in their dental clinic.

**Table 1.** Distribution of study sample according to Age, Gender and Level of education.

GENDER	n (300)	%
Male	150	50%
Female	150	50%
Age		
20-30 years	264	88%
30-40 years	21	7%
40-50 years	15	5%
>50 years	0	0%
Educational Level		
Undergraduate student	186	62%
General Dentist	93	31%
Specialist	21	7%

n = Number; % = Percentage.

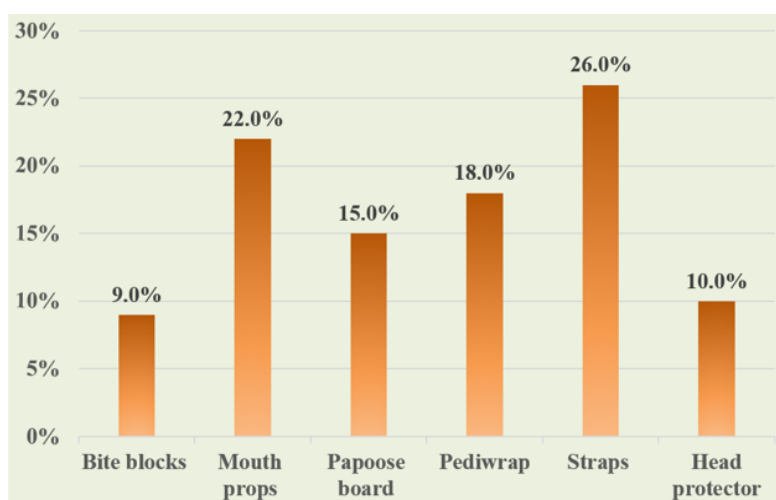
**Table 2.** Knowledge of dentists about the use of protective stabilization during children's dental treatment

Questionnaire	Total (n)-300	%
Q1. Has you Come across uncooperative child during pediatric dental treatment?		
Yes	189	63%
No	111	37%
Q2. Have you used before Physical restraints for managing uncooperative child in dental clinic?		
Yes	195	65%
No	105	35%
Q3. What is the cause of fear in a child visiting to a dentist?		
Fear of pain	219	73%
Fear of separation from the parent	66	22%
Fear of the unknown	15	5%
Q4. If child is being uncooperative, how would you continue the treatment?		
Tell-show-do (the dentist tells the child, shows the instruments, and then does the treatment)	267	89%
Hand-over-mouth technique (the dentist puts his hand over the child's mouth and in a stern but whispering voice explains him to remain quiet, till the child calms down)	33	11%
Q5. Would you be okay for using Voice control in dental clinic (stern and strict voice) so that your child listens to the dentist during treatment?		
Yes	255	85%
No	45	15%
Q6. If the above techniques are not successful, then how would you want the dentist to continue the treatment?		
Physical restraints (barriers and devices used to restrict the child's movements)	195	65%
Conscious sedation (Nitrous oxide and oxygen mixture given by inhalation to the child to reduce anxiety)	69	23%
General anesthesia (full-body anesthesia)	36	12%
Q7. If you are okay with physically restraining the child, would you allow parents to.		
Stay in the dentist's office?	219	73%
Rather wait in the waiting room?	81	27%
Q8. Are you aware of the laws governing the use of physical restraints by the dentist?		
Yes	177	59%
No	123	41%
Q9. What is your opinion regarding use of physical restraints in Behavior management of children?		

Positive	285	95%
Negative	15	5%

n = Number; % = Percentage.

Participants 219 (73%) stated that fear of pain was the primary cause of fear in a child visiting a dentist. 66 (22%) and 15 (5%) said that fear of separation from the parents and fear of the unknown respectively were the causes of fear in a child visiting a dental clinic. As many as 255 (85%) dentists agreed to use voice control in dental clinics so that the child listens to the dentist during treatment. Amongst the other techniques employed by dentists, when the voice control is not successful were Physical restraints 195(65%), Conscious Sedation 69(23%), and General anesthesia 36(12%). The majority of the dentists 219(73%) responded that they would allow parents into the dentist's office during the physical restraining of the child during treatment. Nearly half of the participants agreed 177(59%) that they are aware of the laws governing the use of physical restraints by the dentist. The majority 285 (95%) of the dentist's opinions were positive regarding the use of physical restraints in behavior management of pediatric dental patients. The response to the question on awareness of the use of which kind of physical restraints in their dental clinical setup is shown in **Figure 1**.



**Figure 1.** Response of dentists regarding awareness of physical restraints types

Behavior management is a comprehensive and continuous approach, which is pivotal in pediatric dentistry. This methodology is specifically designed to establish a strong relationship between the child, parent, and dentist, aiming to eliminate fear and anxiety while building trust. When performing procedures on children, such as immunization, lumbar puncture, and medical treatment, it is possible to see fear, anxiety, and behavior problems. Fear is a psychological reaction to a particular threatening stimulus [6]. The issues with behavior management, which directly affect the results of dental treatment, are defined by the dentist's knowledge and experience dealing with an obstinate or pre-cooperative child. Children will occasionally scream, shout, and fight to get out of the dental chair [7]. In such cases, there is a requirement to maintain the child's actions, often with more coercive methods to help value attention, such as the immobilization of the child, currently known as "protective stabilization". The restriction of a patient's ability to move independently, known as protective stabilization (synonyms: physical restraint, physical contention) aims to lower the risk of injury while providing dental care and thus enhance its quality. The global oral setting was another factor considered before using protective stabilization. Protective stabilization was used to complete a treatment course or make the diagnosis. Additionally, protective stabilization was ideally carried out during brief techniques or following care. The surroundings have a significant impact on a child's actions. This is why the usage of protective stabilization caused dentists to doubt the impact of maternal learning on a child's conduct. Actually, with regard to their hygiene or health, some relatives do not want to make their kids do things that they don't want them to. Because societies around the world have different perspectives on children's rights and feelings, the use of protective stabilization in pediatric dentistry for children with normal development has also been seen separately in recent years [8, 9]. Therefore, in today's world, health specialists are challenged to provide more charitable wellness care for both parents and children by taking into account the risks and benefits of a particular technique for the person as well as the parents' perceptions of that process [10].

The purpose of the current study was to evaluate the variation and understanding of the use of protective stabilization for dental treatment in dentists in the Abha area of Saudi Arabia. The survey's positive response rate (65%), which is encouraging, shows how interested dentists are in the subject of child behavior management during dental treatment. As operators continue to gain experience throughout their careers, they have evidence to support or modify their behavior management techniques (BMTs) in accordance with their training characteristics. More instruction seminars on protective stabilization are required to raise the standard of oral health in children. Children's anxiety levels increase during the conditions related to dentistry, which could be overcome by developing a positive approach in children and parents toward dentistry and by utilizing various behavior management [11]. The dentist has trust, empathy, and safety as part of the triangular partnership that includes the child and

caregiver. Additionally, the dental literature has demonstrated that children and their caregivers may experience psychological risks as a result of protective stabilization [12, 13]. In one investigation, Brazilian children between the ages of 6 and 12 were assessed for stress by contrasting those who cooperated but didn't need protective stabilization for dental treatment. Children who were stabilized displayed higher levels of stress and personal, and behavioral distress than those who cooperated and were not immobilized [14]. Parents of schoolchildren who had been stabilized for dental treatment also showed the adverse effects of child simplicity, and they displayed more fear and stress-related behaviors than mothers of unrestrained children. Crying or refusal in children up to three years old is typically brought on by emotional immaturity fundamental to the young age, despite the fact that prior encounters with examinations or procedures that caused fear or anguish may serve as a set system. Pediatric dentists should, however, be aware of the potential repercussions of protective stabilization and try to avoid any unpleasant emotions or pain sensations that might later reinforce their unfavorable actions. The acceptance of PST was linked to the development of a trusting relationship between the dentist and the patient [15].

The American Association of Pediatric Dentistry (AAPD), British Society of Paediatric Dentistry (BSPD), and the Brazilian Association of Pediatric Dentistry (ABOPED) indicate PST when there is an immediate need for a diagnosis or treatment in an uncooperative patient due to a lack of maturity or physical/ mental disability, at the same time, it should not be used as a means of discipline, convenience, or retaliation [16]. According to earlier studies [17, 18], parents with diplomas and/ or BSc are more likely to accept their children for the dentist's protective stabilization procedure. Additionally, in these studies [17, 18], the parents' ages and the number of children were important factors. Newer parents were more likely than older parents to accept protective stabilization techniques. A recent study [19] found a correlation between the dentists' education and the country of practice and the acceptance rate of protective stabilization techniques attributed to cultural differences and ease of access to general anesthesia (GA). On the other hand, there were studies [20, 21] that found that regardless of the dentists' and other healthcare providers' demographics, dentists mostly had negative feelings and emotional challenges in using protective stabilization techniques, irrespective of the gender, they have reported there is personal stress when it comes to the use of protective stabilization. As a result, the family and the dentist may decide whether to use protective stabilization together because it does affect the child's well-being, paying particular attention to the alternatives and beliefs involved. This observational research has restrictions. The sample of dentists selected was a convenience sample. However, it had representation from part of Saudi Arabia (Abha); it was not randomly chosen nor precisely represented the distribution of dentists in Saudi Arabia. Additionally, the research outcomes may have been constrained by the inherent limitations of any self-administered questionnaire design. The cultural and demographic differences between local communities impacted the dentist's perceptions of protective stabilization techniques. Another limitation could be that dentists typically have to deal with child patients with more behavioral difficulties, which might have affected their perception of the use of protective stabilization.

## Conclusion

Dentists often encounter uncooperative children in the dental setup who refuse to cooperate with dental treatment and frequently warrant to use of protective stabilization techniques in this situation. However, very less studies have been conducted in the past that investigate the dentist's perception of the use of protective stabilization techniques in children. Most participants were aware of the use of protective stabilization techniques, although few acknowledged having adequate skills to apply the various behavior management techniques. There is a need to build awareness among the dentists associated with child psychology and its application during treatment. Protective stabilization should be used only after considering alternate behavior management techniques for treating child patients. Subsequently, new advances in behavior management techniques need to be learned and the professionals should be refreshed with respect to their usage.

**Acknowledgments:** None

**Conflict of interest:** None

**Financial support:** None

**Ethics statement:** The research proposal was submitted and Approved by the Scientific Research Committee of King Khalid University, College of Dentistry [IRB/KKUCOD/ETH/2022-23/048].

## References

1. American academy of pediatric dentistry: Guideline on behavior guidance for the pediatric dental patient. *Pediatr Dent.* 2007;29:115-24.
2. 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.
3. Roberts JF, Curzon MEJ, Koch G, Martens LC. Behaviour management techniques in paediatric dentistry. *Eur Arch Paediatr Dent.* 2010;11:166-74.

4. 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.
5. Peretz B, Zadik D. Parents' attitudes toward behavior management techniques during dental treatment. *Pediatr Dent.* 1999;21:201-4.
6. Patil RU, Sahu AK, Bansal A, Damle N, Kashyap S. Knowledge, attitude, and awareness in parents on the use of physical restraints during children's dental treatment. *Int J Pedod Rehabil.* 2021;6(2):46-51.
7. Ilha MC, Feldens CA, Razera J, Vivian AG, de Rosa Barros Coelho EM, Kramer PF. Protective stabilization in pediatric dentistry: A qualitative study on the perceptions of mothers, psychologists, and pediatric dentists. *Int J Paediatr Dent.* 2021;31(5):647-56.
8. American Academy on Pediatric Dentistry. Clinical Affairs Committee-Behavior Management Subcommittee; American Academy on Pediatric Dentistry Council on Clinical Affairs. Guideline on behavior guidance for the pediatric dental patient. *Pediatr Dent.* 2012-2013;34:170-82.
9. American Academy on Pediatric Dentistry. Council on Clinical Affairs. Guideline on protective stabilization for pediatric dental patients. *Pediatr Dent.* 2013-2014;35:188-92.
10. Perkins E, Prosser H, Riley D, Whittington R. Physical restraint in a therapeutic setting; a necessary evil? *Int J Law Psychiatry.* 2012;35(1):43-9.
11. Venkataraghavan K, Shah J, Kaur M, Trivedi K, Shah S, Virda M. Pro-activeness of parents in accepting behavior management techniques: a cross-sectional evaluative study. *J Clin Diagn Res.* 2016;10(7):ZC46-9.
12. McWhorter AG, Townsend JA. Behavior symposium workshop a report – current guidelines/revision. *Pediatr Dent.* 2014;36(2):152-3.
13. Christiano B, Russ SW. Matching preparatory intervention to coping style: the effects on children's distress in the dental setting. *J Pediatr Psychol.* 1998;23(1):17-27.
14. Cardoso CL, Loureiro SR, Nelson-Filho P. Pediatric dental treatment: manifestations of stress in patients, mothers and dental school students. *Braz Oral Res.* 2004;18:150-5.
15. Ilha MC, Feldens CA, Razera J, Vivian AG, de Rosa Barros Coelho EM, Kramer PF. Protective stabilization in pediatric dentistry: A qualitative study on the perceptions of mothers, psychologists, and pediatric dentists. *Int J Paediatr Dent.* 2021;31(5):647-56.
16. Allen Y, Thillainathan S, Belis W, Master S. British society of paediatric dentistry: A policy document on the use of clinical holding in the dental care of children. *Int J Paediatr Dent.* 2016;18:39-46.
17. Rana K, Saha S, Sarkar S. Dentist's skills of behavior management: A study of knowledge, attitude, and practice of dentists in managing child patient. *Int J Pedod Rehabil.* 2021;5(2):44-8.
18. Malik P, Ferraz dos Santos B, Girard F, Hovey R, Bedos C. Physical constraint in pediatric dentistry: The lived experience of parents. *JDR Clin Trans Res.* 2022;7(4):371-8.
19. Sabbagh HJ, Sijini OT. Parental preference for parental separation and their satisfaction regarding their children dental treatment in pediatric dental clinics in Saudi Arabia. *J Int Soc Prev Community Dent.* 2020;10(1):116.
20. Aarvik RS, Agdal ML, Svendsen EJ. Restraint in paediatric dentistry: A qualitative study to explore perspectives among public, non-specialist dentists in Norway. *Acta Odontol Scand.* 2021;79(6):443-50.
21. Lloyd M, Law GU, Heard A, Kroese B. When a child says 'no': Experiences of nurses working with children having invasive procedures. *Paediatr Care.* 2008;20(4):29-34.