Behavior Guidance Techniques in Children

Çocuklarda Davranış Rehberliği Teknikleri

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ABSTRACT The successful delivery of dental treatment in children relies on the implementation of effective communication and behavior guidance techniques. Behavior guidance is a structured process aimed at reducing dental fear and anxiety, fostering a positive attitude toward oral health care, and ensuring the provision of safe and comfortable treatment. This chapter reviews behavior guidance strategies recommended by international guidelines, including communication-based techniques (e.g., tell-show-do, positive reinforcement, distraction, voice control), supportive approaches, and pharmacological methods such as nitrous oxide inhalation, sedation, and general anesthesia. The indications, contraindications, objectives, and clinical applications of these techniques are presented, along with an overview of the role of behavior guidance within the interaction among the child, parent, and clinician. Individualizing behavior guidance strategies according to the child's developmental stage, medical status, and treatment needs is essential for delivering high-quality and safe oral health care.

Keywords: Behavior; dental anxiety; anesthesia, general; deep sedation; pediatric dentistry

ÖZET Çocuklarda dental tedavinin başarılı şekilde gerçekleştirilebilmesi, etkili iletişim ve davranış rehberliği tekniklerinin uygulanmasına bağlıdır. Davranış rehberliği; çocuk hastanın dental korku ve anksiyetesini azaltmayı, olumlu bir dental tutum geliştirmeyi ve güvenli, konforlu tedavi sunmayı amaçlayan bir süreçtir. Bu bölümde, Uluslararası rehberler tarafından önerilen davranış yönetimi teknikleri çerçevesinde; iletişim temelli yöntemler (anlat-göster-uygula, pozitif pekiştirme, dikkat dağıtma, ses kontrolü vb.), destekleyici yaklaşımlar ve farmakolojik yöntemler (azot protoksit sedasyonu, sedasyon ve genel anestezi) ele alınmaktadır. Tekniklerin endikasyonları, kontrendikasyonları, hedefleri ve klinik uygulamalarına odaklanılmış; davranış rehberliğinin çocuk, ebeveyn ve klinisyen etkileşimindeki rolü özetlenmiştir. Davranış yönetimi tekniklerinin çocuğun gelişim düzeyi, tıbbi durumu ve tedavi ihtiyacına göre bireyselleştirilmesi, kaliteli ve güvenli ağız-diş sağlığı hizmeti sunumunda kritik öneme sahiptir.

Anahtar Kelimeler: Davranış; dental anksiyete; anestezi, genel; derin sedasyon; çocuk diş hekimliği

Behavior guidance in pediatric dentistry is not merely a set of isolated techniques, but a structured clinical framework that organizes the interaction between the child, parent, and dental team. Therefore, behavior guidance encompasses every stage of care, from anticipatory communication before the appointment to the strategic use of verbal and nonverbal methods during procedures.[1,2]

The behavior guidance techniques aim to foster communication, regulate anxiety, support cooperation, and establish trust, thereby enabling efficient and safe dental treatment. The techniques help the child gain a sense of predictability and control, transforming dental care into a more comprehensible and tolerable experience.[1,2] Parental behaviors also play a critical role in shaping the child's dental experience. Accordingly, behavior guidance requires a family-centered and culturally sensitive communication approach that integrates both the child and the caregiver. The dental team's demeanor,

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communication style, empathy, and choice of language are essential elements in establishing a stable foundation of trust and cooperation.[3]

BASIC BEHAVIOR GUIDANCE TECHNIQUES

COMMUNICATION AND COMMUNICATIVE GUIDANCE

Communication-based behavior management is the foundational strategy underpinning all other behavior guidance techniques and is implemented throughout every stage of dental care. The clinician aims to build trust by using concise, developmentally appropriate, and positively framed instructions that align with the child's cognitive and emotional capacities. When nonverbal cues -such as body posture, eye contact, and facial expressions- are congruent with verbal communication, the child's confidence in the dental team increases. During communication, the child's verbal reactions, behavioral cues, and emotional shifts are closely monitored, enabling immediate adjustment of the approach when needed. This technique is considered the first-line strategy for any child with cooperative potential and carries no contraindications. Clinically, effective communication not only enhances the child's sense of security but may also lower perceived pain intensity by reducing uncertainty and fostering cognitive control.[2,4]

POSITIVE PREVISIT IMAGERY

Positive previsit imagery is a preparatory behavior guidance technique that allows children and their parents to become familiar with the dental environment before the appointment through calm, non-threatening visual exposure. In this approach, the child is shown photographs or digital visuals depicting the dental chair, instruments, clinician, and treatment setting, thereby creating a predictable mental script for what will occur during the visit. Providing structured visual information not only reduces uncertainty and anticipatory anxiety but also encourages children to ask questions and engage more confidently in the upcoming appointment. This technique is applicable to all age groups, carries no known contraindications, and is especially valuable for children who will be attending their first dental visit.[5] Current evidence demonstrates that both traditional and digitalized versions of positive previsit imagery lead to clinically meaningful reductions in preoperative dental anxiety. Reddy et al. found that digital imagery produces greater reductions in anxiety than standard verbal preparation typically provided in the waiting area.[6] Likewise, Rashwan et al. reported that previsit imagery significantly decreases fear, avoidance behaviors, and disruptive reactionsduring procedures such as local anesthesia administration.[7] Collectively, these findings reinforce that positive previsit imagery is an effective method of psychological preparation, particularly for children anticipating their first exposure to dental care.

DIRECT OBSERVATION

Direct observation is a traditional behavior guidance technique in which the child watches a real or recorded dental procedure within a controlled, low-stress environment. The child may observe another cooperative child, a short modeling video, or a simplified version of the procedure, allowing them to become familiar with the instruments, sounds, and clinical workflow. This structured exposure reduces uncertainty and normalizes the dental setting, helping both the child and parent ask questions, clarify concerns, and mentally prepare for the upcoming procedure. Applicable to children of all ages and without contraindications, direct observation is particularly beneficial for first-time dental visitors, as it enhances their sense of predictability, safety, and readiness. Within the framework of social learning theory, current evidence shows that observational exposure significantly reduces anxiety and improves cooperative behavior in pediatric patients. Randomized controlled trials using video modeling demonstrate that children who observe a complete dental procedure display lower anxiety scores, fewer disruptive behaviors, and higher procedural compliance.[8,9] Similarly, Hine et al. reported that even a short modeling video reduces physical and vocal disruptions and increases the successful completion of routine dental treatments.[10] Collectively, these findings affirm that structured observation -whether direct or video-based- effectively decreases anticipatory anxiety and strengthens behavioral adaptation, making it a highly valuable preparatory strategy for children undergoing their first dental experience.

TELL–SHOW–DO

Tell–Show–Do is the most widely used traditional behavior guidance technique in pediatric dentistry. In this approach, the clinician first explains the procedure using developmentally appropriate language, then demonstrates its sensory aspects in a safe and non-threatening manner, and finally performs the procedure. Consistency between what is shown and what is ultimately done serves as the foundation for establishing trust with the child. Therefore, careful word choice is essential, avoiding terminology that may suggest pain or threat and instead adopting child-friendly communication. Tell–Show–Do effectively reduces dental anxiety and helps regulate hypersensitivity to environmental stimuli, making it an indispensable compo-

nent of behavior guidance across a wide range of developmental stages [2, 5]. Recent studies indicate that although the traditional tell–show–do method remains effective, modern adaptations incorporating play- and technology-based elements may further enhance anxiety reduction. The introduction of digital and gamified elements allows children to engage with the dental environment more safely and predictably, thereby improving behavioral cooperation and enhancing the overall treatment experience. These findings highlight that while the foundational strength of tell–show–do remains intact, technologically enriched and play-based modifications are becoming increasingly valuable in contemporary pediatric dental practice.[5,11]

ASK-TELL-ASK

Ask–Tell–Ask is a structured, dialog-based communication strategy designed to improve the child's understanding, emotional readiness, and engagement during dental treatment. Unlike purely instructional methods, Ask–Tell–Ask emphasizes bidirectional communication, allowing the clinician to actively incorporate the child's perspective into the guidance process. In the first "ask", the clinician elicits the child's emotions, prior experiences, expectations, or worries, creating an opportunity to identify misconceptions or anxieties that might interfere with cooperation. During the "tell" phase, the clinician provides a developmentally appropriate, concise, and reassuring explanation of the upcoming procedure, tailored to the child's expressed concerns. In the final "ask," the clinician confirms the child's understanding—either by inviting them to restate the information or by prompting them to express remaining concerns—thereby ensuring that the explanation has been fully processed.[2]

Recent evidence indicates that while Tell–Show–Do remains more effective in reducing first-visit anxiety, integrating Ask–Tell–Ask can enhance engagement, autonomy, and communication quality. Clinical trials suggest that combining the two strategies—initial emotional assessment through Ask–Tell–Ask followed by procedural familiarization through Tell–Show–Do—may yield optimal behavioral outcomes, especially for anxious or hesitant children. Survey data further show that pediatric dentists rely heavily on such foundational communication techniques, whereas more time-intensive strategies (e.g., desensitization, memory restructuring) are used selectively.[12] Overall, Ask–Tell–Ask contributes a collaborative, child-centered dimension to the behavior guidance framework and strengthens the clinician–patient alliance.

VOICE CONTROL

Voice control is a deliberate modulation of vocal tone, pace, intensity, and rhythm used to immediately capture the child's attention and redirect behavior within the dental setting. As a communication-based technique, it relies on the clinician's ability to convey authority, calmness, and clarity through controlled vocal shifts. These modulations help the child regain focus, inhibit impulsive or avoidance behaviors, and re-establish appropriate adult–child interaction Dynamics.[2,13] Although most children intuitively recognize such vocal cues as signals to pay attention, parents unfamiliar with the technique may misinterpret them as punitive. Providing a brief explanation beforehand improves parental acceptance and helps align expectations. Voice control is safe for all children without hearing impairment and remains a core, rapidly deployable communication strategy in behavior guidance.

Recent evidence shows that while voice control is clinically useful, it is less effective than more immersive or engaging alternatives particularly Tell–Show–Do and audiovisual distraction methods. Techniques such as virtual reality produce greater reductions in anxiety and behavioral distress.[14,15] Thus, voice control is most effective when integrated with complementary strategies and applied with attention to the child's temperament and emotional needs.

NONVERBAL COMMUNICATION

Nonverbal communication encompasses the intentional use of facial expressions, eye contact, posture, gestures, and therapeutic touch to guide or reinforce a child's behavior during dental treatment. As a core component of clinician–child interaction, it strengthens the effectiveness of all communication-based behavior guidance strategies by providing consistent emotional signals, conveying safety, and promoting rapport. Because many children—especially those with limited verbal abilities, heightened anxiety, or developmental differences—rely heavily on nonverbal cues, the clinician's physical presence plays a central role in maintaining cooperation. Calm body posture, a relaxed facial expression, and gentle gestures can help regulate the child's emotional state, while overly abrupt movements or mismatched expressions may inadvertently increase tension. Recent findings indicate that a clinician's overall professional appearance and grooming are also interpreted by pediatric patients as part of nonverbal communication. Clean attire, protective equipment, and a well-groomed appearance are perceived as reassuring, whereas conspicuous accessories or unkempt hairstyles may diminish trust and increase uncertainty. These

observations highlight the significant influence of nonverbal signals on children's perceptions of clinician confidence, competence, and emotional safety.[4,13]

POSITIVE REINFORCEMENT AND DESCRIPTIVE PRAISE

Positive reinforcement and descriptive praise are evidence-based behavioral strategies used to strengthen and increase the likelihood of desirable behaviors during dental treatment. Social reinforcers—such as warm vocal tone, genuine smiling, nodding, and brief celebratory gestures—create an immediate sense of accomplishment for the child. Descriptive praise, which provides specific and behavior-focused feedback (e.g., "Thank you for sitting still") and is more effective than generalized statements such as "Good job." Nonsocial reinforcers may involve small rewards or symbolic tokens. Applicable to children of all ages, this approach aims to increase the likelihood of positive behaviors and enhance motivation throughout the dental treatment process.[2] Recent evidence indicates that positive reinforcement is among the most effective and widely accepted behavior guidance strategies, strongly associated with high cooperation levels, improved procedural tolerance, and overall treatment success in pediatric dentistry. Its impact is further enhanced when combined with structured guidance techniques such as Tell–Show–Do, offering a safe, nonpharmacologic alternative to sedation for many children.[16]

DISTRACTION

Distraction is a behavior guidance technique that aims to redirect the child's attention away from a potentially unpleasant or anxiety-provoking procedure by engaging their senses or imagination. By shifting focus toward an alternative stimulus, distraction reduces the child's cognitive and emotional processing of dental stimuli, thereby decreasing perceived pain and preventing escalation of fear-based responses.[2] Common distraction modalities include imaginative prompts, interactive storytelling, environmental design elements, music, ceiling-mounted televisions, animated videos, and tablet-based activities. In recent years, immersive technologies such as virtual reality headsets have become increasingly prominent, offering multisensory engagement that effectively occupies the child's attentional capacity. Short, planned pauses during procedures can also serve as a subtle form of distraction, allowing the child to re-regulate emotions before resuming treatment. This technique is applicable to children of all ages and carries no known contraindications, making it a versatile and widely implementable component of behavior guidance. Contemporary evidence demonstrates that virtual reality and other audiovisual distraction tools significantly reduce anxiety, behavioral distress, and pain perception during pediatric dental procedures. Notably, virtual reality, tablet-based distraction, and other active audiovisual systems are consistently identified as among the most effective nonpharmacologic interventions for mitigating dental anxiety and enhancing cooperation.[17,18]

MEMORY RESTRUCTURING

Memory restructuring is a cognitive-behavioral intervention designed to transform a child's previously negative, frightening, or painful dental memories into more adaptive, accurate, and positive representations. The technique is based on the understanding that children's recollections of past dental experiences directly influence their behavior, anxiety levels, and cooperation during future appointments. This technique involves four core components: discussing the negative memory with the child after the procedure, emphasizing positive feedback, highlighting specific sensory details, and reinforcing the child's sense of accomplishment. For example, showing a smiling photograph taken at the first visit, praising cooperative behaviors displayed during treatment, or asking the child to reenact these behaviors at a subsequent appointment are practical applications that support this process. The goal is to reshape the child's interpretation of past experiences and promote improved behavior at future dental visits. Memory restructuring can be used for any child who has had a challenging prior appointment and carries no known contraindications.[19,20] Research demonstrates that memory restructuring reduces the recalled intensity of pain and fear, with children reporting their previous dental procedures as less distressing after undergoing this intervention. Importantly, these altered memories are associated with higher cooperation, reduced anxiety, and calmer behavior during follow-up appointments.[19,20]

DESENSITIZATION TO DENTAL SETTING AND PROCEDURES

Systematic desensitization is a graduated exposure-based behavioral technique designed to reduce fear and anxiety in children who experience significant distress regarding the dental environment or specific dental procedures. Instead of confronting the feared stimulus abruptly, the child is introduced to it gradually, allowing anxiety to diminish in a controlled, stepwise manner. The process may begin in the home environment, using informational booklets, short videos, or interactive practice tools provided through the

clinic's website. Parents play an essential role by modeling simple preparatory behaviors, such as opening their mouth, touching their cheek, or practicing with a dental mirror, thereby promoting familiarity and predictability. In the clinical setting, the sequence typically begins with an office tour outside regular hours, followed by brief exploratory visits to the operatory, and ultimately a scheduled appointment with the dental team. The goal is for the child to identify their fears, develop relaxation strategies, and gradually face anxiety-evoking situations in a safe and controlled manner. This method is particularly beneficial for children who have encountered fear-inducing stimuli, who present with high levels of anxiety, or who have neurodevelopmental differences.[21,22]

Recent studies indicate that systematic desensitization significantly improves familiarity and reduces anxiety, especially among children with autism spectrum disorder. Qualitative findings further show that repeated exposure fosters trust, predictability, and collaborative engagement between the child, caregivers, and the dental team; however, the approach may pose logistical and financial challenges for families because it often requires multiple short appointments. Additionally, recent experimental evidence reveals that the timing of the desensitization steps plays a critical role: preparatory information and visual cues delivered closer to the actual appointment date yield greater cooperation across examination tasks.[21,22]

ENHANCING CONTROL

Enhancing control is a behavior guidance technique designed to help anxious or fearful children participate more securely and predictably during dental procedures. The method involves teaching the child a simple, pre-agreed signaling gesture -most commonly raising a hand- to indicate discomfort, fear, or the need for a pause. Before treatment begins, the clinician and the child practice this signal together so the child understands that it provides a temporary, safe, and limited interruption, not a means to stop treatment entirely. When the signal is used during the procedure, the clinician should pause immediately, acknowledge the child's concern, and provide brief reassurance, thereby supporting emotional regulation and restoring a sense of safety. The primary purpose of this technique is to give the child a sense of partial control, which can reduce perceived threat, prevent escalating distress, and minimize behavioral disruptions. It is suitable for any child capable of meaningful communication. However, introducing the signal too early or emphasizing it excessively may inadvertently heighten anxiety by signaling that something aversive is expected; therefore, timing and phrasing are critical.[2,23]

COMMUNICATION TECHNIQUES FOR PARENTS (AND AGE-APPROPRIATE PATIENTS)

Parents hold the legal and emotional responsibility for their children, making their cooperation essential for effective behavior guidance in pediatric dentistry. However, socioeconomic stressors, family conflict, cultural differences, and language barriers may complicate this communication process. Structured communication strategies help overcome these challenges and support a more collaborative, family-centered model of care. Techniques such as ask–tell–ask, teach-back, and motivational interviewing encourage parents to express their concerns, clarify their understanding, and participate actively in decision-making. These methods allow the clinician to assess parental expectations, verify accurate comprehension of treatment information, and guide behavior change through respectful, empathetic dialogue. When applied effectively, they strengthen the partnership between the dental team and the family, leading to improved adherence, more predictable child behavior, and higher overall treatment success.[2]

PARENTAL PRESENCE/ABSENCE

The strategic use of parental presence or temporary absence is an important behavior guidance option that can enhance cooperation during dental treatment. While many children experience increased security and emotional stability when their parent is present, others may become more anxious, distracted, or dependent, especially if the parent displays intrusive or maladaptive behaviors. In such cases, a brief, pre-discussed, and fully consented separation may help refocus the child's attention and enable more effective communication between the clinician and the patient. The technique aims to direct the child's attention toward the dentist, minimize avoidance behaviors, and reduce anxiety while preserving the parent-child bond. Importantly, temporary separation is not punitive, nor is it intended to exclude the parent; rather, it is a structured behavioral strategy designed to help the child achieve better self-regulation. It remains appropriate for most children except when the parent is unable or unwilling to provide supportive involvement or when cultural expectations strongly oppose separation.[2,5]

Current evidence regarding its effectiveness is mixed. Some clinical trials indicate that the parental presence/absence technique does not consistently outperform other non-pharmacological approaches.[24] However, more recent

findings show that anxious children aged 6–9 years may benefit substantially, demonstrating improved cooperation with structured parental presence–absence.[24] A 2018 review suggests that controlled parental presence can enhance emotional security, particularly in younger or more vulnerable children.[25] Additionally, a randomized controlled trial showed that active parental presence—in which parents provide supportive verbal guidance—results in significantly better behavior compared with passive presence, even in children with varying intelligence levels.[26]

ADDITIONAL CONSIDERATIONS FOR BASIC BEHAVIOR GUIDANCE TECHNIQUES

Sensory-Adapted Dental Environments; SADE

This technique includes adaptations made to create a calming effect in the clinical environment. It is used for patients with autism spectrum disorder, sensory processing difficulties, other disabilities, or dental anxiety.[27]

Visual components of SADE: Dimming the room (darkening curtains and switching off all the lights), usage of ambient lights or projected lights on curtains, slow moving visual color effects (Snoezelen) shone onto the ceiling in the child's visual field (swimming fish or bubbles, based on child preference), not using dental over headlamp (replacing it with operator wearing headband LED light).

Auditory components of SADE: Rhythmic soothing music, classical music with natural sounds is used. Noise reduction using sponge coated dental turbine drill can be used.

Tactile components of SADE: Deep pressure hugging effect provides a sense of calmness, comfort and protection for the child.

Animal-Assisted Therapy; AAT

This is a complementary technique that involves the use of an animal trained for healthcare environments during a dental visit. The animal must have undergone comprehensive training and certification processes. In pediatrics, AAT with dogs (dog-assisted therapy or canine-assisted therapy) has been shown to increase positive behaviors and attention in children with developmental disorders and during painful procedures, as well as promote calmness in children.[28] The animal can help overcome communication barriers, enable the patient to establish a safe and comfortable relationship, and reduce treatment-related stress. In this way, the interaction between the patient and the dental team increases, and an anxious or fearful patient may become calmer. It also aims to reduce perceived pain by diverting the patient's attention away from a potentially stressful situation.

The technique should not be used in the presence of allergies or other medical conditions triggered by animal exposure (such as asthma or immunosuppression), or when a lack of interest in or fear of the animal is identified.[2]

Picture-Exchange Communication System; PECS

The picture exchange communication system is a communication system that consists of a series of pictures showing structured methods and techniques for oral hygiene enhancement and proper dental care practices in children with social-communication deficits and is frequently used with autistic children.[29]

A picture board prepared in advance for the dental appointment is available. Each image corresponds to a single object, person, or concept. The visuals on this board describe the steps of the dental procedure. In addition, symbols that allow the patient to request a break during the procedure (such as a stop sign) may also be included. The individual communicates a request or thought by sharing a picture card that contains a recognizable symbol.

Mind-Body Therapies

In the past couple of decades, the scientific interest in alternative medicine approaches has increased. Among those, mind–body approaches and mindfulness-based approaches have received the most attention. Mindfulness-based approaches are thought to target the physiological stress response by teaching practical skills to help regulate the arousal associated with the stress response. It is posited that long-term practice of these skills can help improve adaptive emotion regulation and thus decrease negative emotions, like stress.

Most mind–body approaches teach, to a certain degree, how to be "mindful," that is, to remain focused on present thoughts and emotions including during stressful experiences, thus increasing the ability to cope with stressors. Mindfulness appears to increase decentering (i.e., detachment), which may in turn help with decreasing negative cognitions. Mind-body therapies in children include bio-feedback, breathing exercises, and hypnosis.[2]

Nitrous Oxide/Oxygen İnhalation

Nitrous oxide is a gaseous inhalational anesthetic, with a light sweet smell, that can be easily available in an outpatient setting, such as the dentist's office, where it can be effectively administered via a nasal hood in a mixture with

oxygen to improve cooperation in ASA I and ASA II paediatric patients. Nitrous oxide/oxygen inhalation is a safe and effective method with a rapid onset of action, easy titration, and reversibility. It provides variable levels of analgesia and amnesia. It reduces the gag reflex, increases the pain threshold, and decreases unwanted movements during treatment. It is indicated for developing a positive attitude toward dental treatment in fearful or anxious patients, or for cooperative children in whom adequate local anesthesia cannot be achieved.

Before use, treatment needs and patient safety must be thoroughly evaluated. It is contraindicated in conditions such as chronic obstructive pulmonary diseases, upper respiratory tract infections, seasonal allergies, recent middle ear infections or ear–nose–throat surgeries, severe emotional disorders or substance dependence, untreated cobalamin (vitamin B12) deficiency, and the first trimester of pregnancy.

The most common adverse effects include nausea and vomiting. Other side effects include oversedation, sweating, dysphoria, headache, dizziness, hallucination. Diffusion hypoxia may occur due to rapid release of nitrous oxide from the blood stream into the alveoli, if 100% oxygen is not administered at the end of nitrous oxide inhalation for 5 or more minutes. In such cases, the clinician must be prepared to apply moderate and deep sedation guidelines.[30]

ADVANCED BEHAVIOR GUIDANCE TECHNIQUES

Basic behavior guidance techniques should form the foundation of all behavior guidance applied by the dentist. However, some children may require more advanced techniques due to a lack of psychological or emotional maturity and/or mental, physical, or medical disabilities. Advanced behavior guidance techniques include protective stabilization, sedation, and general anesthesia.

Active or passive protective stabilization may not always be accepted by some parents; parents may more readily accept pharmacological behavior guidance options (sedation and general anesthesia).

It has been reported that dental treatments performed under general anesthesia or sedation can improve quality of life in children and reduce initial dental fear and anxiety.[31] A detailed evaluation of the patient's medical, dental, and social history, as well as temperament, is extremely important for the use of these techniques. In addition, the urgency and necessity of the patient's oral and dental health needs must be carefully considered. Informed consent for the recommended technique should be obtained, and the risks, benefits, and alternatives must be thoroughly discussed with the parent. Dentists and their teams who intend to use these techniques must have adequate training and equipment.

PROTECTIVE STABILIZATION

The broad definition of protective stabilization is the physical limitation of a patient's movements by a person or restrictive equipment, materials, or devices with or without the patient's permission for a finite period of time in order to provide an examination, diagnosis, and/or treatment in a safe manner.[32] 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 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.

Protective stabilization may be used in situations where urgent treatment is required but the patient is unable to cooperate, or when uncontrolled movements pose a safety risk to themselves or the dental team, and when sedation or general anesthesia is not appropriate.

In patients with cardiac instability, respiratory problems, musculoskeletal weakness, joint hypermobility, bone fragility, skin sensitivity, psychological instability, thermoregulation disorders, or those using psychotropic medications, risks related to medical history should be assessed and medical consultation should be obtained. It should not be used in patients who cannot be safely immobilized due to medical, psychological, or physical reasons, or in patients with a history of trauma -including physical or sexual abuse- or in those who do not require urgent treatment.

Informed consent must be obtained from the parent prior to applying protective stabilization. If the patient is capable of understanding, the reason for the procedure should also be explained to them. This technique should be performed by a team with the necessary knowledge and skills. The least restrictive, safe, and effective method should be selected for treatment. When restriction is carried out by a parent, dentist, or dental assistant, the term *active immobilization* is used; when devices or equipment are used, the term *passive immobilization* applies. The patient's physical and psychological status should be continuously monitored during application, and the procedure should be modified when necessary. If stress or hysteria

develops, stabilization must be terminated immediately to prevent psychological or physical trauma.

For patients undergoing protective stabilization, the indication for stabilization, the type of stabilization used, the informed consent form obtained for protective stabilization, the duration of the stabilization, the assessment of behaviors during stabilization, and any adverse outcomes such as skin marks must be thoroughly documented.

SEDATION

Sedation can be used safely and effectively in patients who are unable to cooperate due to a lack of psychological or emotional maturity and/or mental, physical, or medical conditions. When administering sedation, the safety of the patient, the practitioner, and the staff must be considered along with the necessity for diagnosis and treatment. Sedation may be used in fearful/anxious patients in whom basic behavior guidance techniques are ineffective, as well as in patients. The goals of sedation are to protect the patient's safety and health, minimize physical discomfort and pain, control anxiety, reduce psychological trauma and increase the likelihood of amnesia, modify behavior and/or movement to allow the procedure to be completed safely, and return the patient to a condition that meets established discharge criteria. Sedation should not be used in cooperative patients with minimal dental needs, or in the presence of medical and/or physical conditions that would make sedation risky.

- Minimal sedation (anxiolysis) is a drug-induced state during which patients respond normally to verbal stimulation. Airway status, ventilation, and cardiovascular functions are unaffected.
- Moderate sedation is a drug-induced depression of consciousness in which patients respond purposefully to verbal commands (either alone or accompanied by light tactile stimulation), no interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.
- Deep sedation suppresses consciousness and protective reflexes, but patients readily respond purposefully following repeated or painful stimulation. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.[33]

Patients undergoing deep sedation should be attended to by a physician or nurse dedicated to patient observation ("patient monitoring"), who closely watches over their condition (the skin, mucous membranes, blood color, and other variables such as oxygen saturation levels, breath sounds and blood pressure, body temperature, hemodynamic assessment.[34]

The records of patients undergoing sedation must include documented informed consent obtained from the parent, preoperative and postoperative instructions and information provided, health assessment, the names of medications administered along with their route, site, time, dose, and time-based record of their effects on the patient; and documentation -prior to, during, and until discharge- of level of consciousness, responsiveness, heart rate, blood pressure, respiratory rate, and oxygen saturation, as well as any adverse events and their guidance, the discharge time, and the patient's condition at discharge.

GENERAL ANESTHESIA

General anesthesia is a state in which consciousness is controlled and protective reflexes, including the patient's ability to maintain their airway independently, are lost. The necessity for diagnosis and treatment, as well as the safety of the patient, practitioner, and staff, should be evaluated when considering the use of general anesthesia. The anesthetic and sedative agents used during the procedure are aimed at enhancing the safety, health, and comfort of children.

When deciding on general anesthesia, alternative methods, the patient's age, risk-benefit assessment, the possibility of postponing treatment, the patient's dental needs, the impact on treatment quality, the patient's emotional development, medical status, and barriers to care (e.g., cost) must all be taken into consideration.

The goals of general anesthesia are to provide safe, effective, and efficient dental treatment. Additionally, this method, by eliminating anxiety and unwanted movements, can minimize the pain response. It is indicated for the treatment of patients who are mentally, physically, or medically disadvantaged; in situations where local anesthesia is ineffective due to acute infection, anatomical variation, or allergy; in patients requiring urgent and comprehensive dental care due to dental trauma, severe infection/cellulitis, or acute pain; in cases where combining major surgical procedures with dental treatments can reduce anesthesia exposure; and in patients in whom general anesthesia may benefit emotional development or reduce medical risk.

General anesthesia should not be used in healthy, cooperative patients with minimal dental needs; in young children who can be managed with therapeutic approaches; or in the presence of medical conditions that make general anesthesia risky. Research indicates that the benefits of these agents must be evaluated in the context of their potential harmful effects. More studies are needed to determine possible risks in young children.

Preoperative records for general anesthesia must include the indication for its use, informed consent, instructions provided to the parent, dietary restrictions, and a preoperative health assessment.

REFERENCES

1. Kohli N, Hugar SM, Soneta SP, Saxena N, Kadam KS, Gokhale N. Psychological behavior management techniques to alleviate dental fear and anxiety in 4-14-year-old children in pediatric dentistry: A systematic review and meta-analysis. Dent Res J (Isfahan). 2022;19:47.
2. American Academy of Pediatric Dentistry. Behavior guidance for the pediatric dental patient. The Reference Manual of Pediatric Dentistry. Chicago, IL. American Academy of Pediatric Dentistry; 2024. p.358-78.
3. Lee DW, Kim JG, Yang YM. The Influence of Parenting Style on Child Behavior and Dental Anxiety. Pediatr Dent. 2018;40(5):327-33.
4. Hamzah HS, Gao X, Yung Yiu CK, McGrath C, King NM. Managing dental fear and anxiety in pediatric patients: A qualitative study from the public's perspective. Pediatr Dent. 2014;36(1):29-33.
5. Gizani S, Seremidi K, Katsouli K, Markouli A, Kloukos D. Basic behavioral management techniques in pediatric dentistry: A systematic review and meta-analysis. J Dent. 2022;126:104303.
6. Reddy RE, Merum K, Mudusu SP, Srikanth S, Dubey P. Effect of Digitalized Previsit Imagery on Behavior of Children in the Dental Operatory. Int J Clin Pediatr Dent. 2021;14(Suppl 2):S124-S30.
7. Ibrahim Rashwan Z, Salah Eweida R, Ibrahim Hamad N, Abd El Razik Ahmed Mohamed A. Effect of Virtual Reality Distraction versus Positive Pre-Visit Imagery Intervention on Children's Dental Fear and Anxiety during Local Anaesthesia Injection: Implications for Evidence-Based Practice. Egyptian Journal of Health Care. 2020;11(4):886-901.
8. Alnamankany A. Video modelling and dental anxiety in children. A randomised clinical trial. Eur J Paediatr Dent. 2019;20(3):242-6.
9. Biradar NV, Patil SK, Pustake BJ, Kothawade DS. A Comparative Evaluation of Three Different Modeling Videos on Dental Anxiety of 3-6-year-old Children Requiring Treatment under Local Anesthesia: A Parallel, Randomized Controlled Trial. Int J Clin Pediatr Dent. 2024;17(12):1357-62.
10. Hine JF, Hajek RT, Roberts HJ, Allen KD. Decreasing disruptive behaviour during routine dental visits: a video modelling intervention for young children. Int Dent J. 2019;69(4):265-72.
11. Lekhwani PS, Nigam AG, Marwah N, Jain S. Comparative evaluation of Tell-Show-Do technique and its modifications in managing anxious pediatric dental patients among 4-8 years of age. J Indian Soc Pedod Prev Dent. 2023;41(2):141-8.
12. Elicherla NR, Saikiran KV, Anchala K, Elicherla SR, Nuvvula S. Evaluation of the effectiveness of tell-show-do and ask-tell-ask in the management of dental fear and anxiety: a double-blinded randomized control trial. J Dent Anesth Pain Med. 2024;24(1):57-65.
13. Bagattoni S, Lardani L, Gatto MR, Giuca MR, Piana G. Effects of audiovisual distraction in children with Down syndrome during dental restorations: a randomised clinical trial. Eur J Paediatr Dent. 2020;21(2):153-6.
14. Shetty V, Suresh LR, Hegde AM. Effect of Virtual Reality Distraction on Pain and Anxiety During Dental Treatment in 5 to 8 Year Old Children. J Clin Pediatr Dent. 2019;43(2):97-102.
15. Almaeen SH, Alam MK, Alruwaili HO, Alshammri BS. Comparative Study of Behavior Management Techniques in Pediatric Dentistry. J Pharm Bioallied Sci. 2025;17(Suppl 2):S1249-S51.
16. Verma RK, Sindgi R, Gavarraju DN, Manasa PL, Bakkuri PK, Dubey A, et al. Effectiveness of Different Behavior Management Techniques in Pediatric Dentistry. J Pharm Bioallied Sc. 2024;16(3):2434-6.
17. Felemban OM, Alshamrani RM, Aljeddawi DH, Bagher SM. Effect of virtual reality distraction on pain and anxiety during infiltration anesthesia in pediatric patients: a randomized clinical trial. BMC Oral Health. 2021;21(1):321.
18. Dahlan M, Alsaywed R, Alamoudi R, et al. Assessment of Different Distraction Behavioral Methods in Pediatric Dental Clinic: A Systematic Review. Cureus. 2023;15(7):e42366.
19. Kamath PS. A novel distraction technique for pain management during local anesthesia administration in pediatric patients. J Clin Pediatr Dent. 2013;38(1):45-7.
20. Pickrell JE, Heima M, Weinstein P, et al. Using memory restructuring strategy to enhance dental behaviour. Int J Paediatr Dent. 2007;17(6):439-48.
21. Martinez Perez E, Adanero Velasco A, Gomez Clemente V, Miegimolle Herrero M, Planells Del Pozo P. Importance of Desensitization for Autistic Children in Dental Practice. Children (Basel). 2023;10(5).
22. Cai J, Habib D, Bedos C, Santos BFD. Parents' Perceptions Regarding the Effectiveness of Dental Desensitization for Children with Autism Spectrum Disorder. Pediatr Dent. 2022;44(3):192-7.
23. Levi M, Bossu M, Luzzi V, et al. Breathing out dental fear: A feasibility crossover study on the effectiveness of diaphragmatic breathing in children sitting on the dentist's chair. Int J Paediatr Dent. 2022;32(6):801-11.
24. Boka V, Arapostathis K, Charitoudis G, Veerkamp J, van Loveren C, Kotsanos N. A study of parental presence/absence technique for child dental behaviour management. Eur Arch Paediatr Dent. 2017;18(6):405-9.
25. Riba H, Al-Shahrani A, Al-Ghutaimel H, Al-Otaibi A, Al-Kahtani S. Parental Presence/Absence in the Dental Operatory as a Behavior Management Technique: A Review and Modified View. J Contemp Dent Pract. 2018;19(2):237-41.
26. AlDhelai TA, Khalil AM, Elhamouly Y, Dowidar KML. Influence of active versus passive parental presence on the behavior of preschoolers with different intelligence levels in the dental operatory: a randomized controlled clinical trial. BMC Oral Health. 2021;21(1):420.
27. Tirupathi SP, Afnan L. Effect of Sensory Adapted Dental Environment (SADE) on physiological and behavioral parameters related to stress and anxiety in children with Autism Spectrum Disorder (ASD) undergoing dental treatment: A systematic review and meta-analysis. Spec Care Dentist. 2024;44(5):1346-58.

28. Pinheiro SL, Silva C, Luiz L, et al. Dog-assisted therapy for control of anxiety in pediatric dentistry. J Clin Pediatr Dent. 2023;47(6):38-43.

29. Arafa A, Sheiko O, Jameel A, Fansa HA. Clinical effectiveness of picture exchange communication system (PECS) on 5- to 7-year-old children's oral health. Eur Arch Paediatr Dent. 2025;26(1):191-9.

30. Arcari S, Moscati M, Giuca MR, et al. SIOI Policy on nitrous oxide/oxygen anxiolysis in Paediatric Dentistry. Eur J Paediatr Dent. 2025;26(2):165-8.

31. Yildirim S, Bakkal M, Bulut H, Selek S. Quantitative evaluation of dental anxiety indicators in the serum and saliva samples of children treated under general anesthesia. Clin Oral Investig. 2018;22(6):2373-80.

32. Ilha MC, Feldens CA, Razera J, Vivian AG, de Rosa Barros Coelho EM, et al. 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.

33. Hara T, Ozawa A, Shibutani K, et al. Practical guide for safe sedation. J Anesth. Jun 2023;37(3):340-56.

34. Practice guidelines for moderate procedural sedation and analgesia. A report by the American Society of anesthesiologists task force on moderate procedural sedation and analgesia, the American association of oral and maxillofacial surgeons, American College of radiology. American dental association, American society of dentist anesthesiologists, and society of interventional radiology. Anesthesiology. 2018;128:437-79.