ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at: www.ijmacr.com

Volume – 4, Issue – 4, July – August - 2021, Page No. : 73 – 79

Non Pharmacological Behaviour Management Techniques in Pediatric Dentistry

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How to citation this article: Dr. Milind Rajan,Dr. Pravalika Nyalapatla, Dr. Pusa Deepak, Dr Alisina Karimi,Dr. Aanchal Verma, Dr. Dhritanayana Das, "Non Pharmacological Behaviour Management Techniques in Pediatric Dentistry", IJMACR- July – August - 2021, Vol – 4, Issue - 4, P. No. 73 – 79.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Management of child's behavior is an integral component of pediatric dental practice. To manage behavior of pediatric patient in dental setup, pediatric dentists use a variety of non pharmacological and pharmacological techniques. Present review article aims in enumerating the various non-pharmacological behaviour management techniques used for management of pediatric patient in the dental operatory.

Keywords: Pediatric patient, Behaviour management, Non Pharmacological Behaviour management techniques

Introduction

Successful management of the pediatric dental patient depends on the ability of the pediatric dentist to satisfy immediate dental needs which give emphasis to enhancing the communication and partnering with the child and parent to endorse a positive attitude and good oral health.[1] Behavior management is widely agreed to be a key factor in the care of children in Pediatric Dentistry. Indeed, if a child's behavior in the dental surgery/office cannot be managed then it is difficult if not impossible to carry out any dental care that is needed. Behavior management is therefore one of the corner stone's of the pediatric dental care.[2]

Wright GZ in 1975 defined behavior management as the means by which the dental team effectively and efficiently performs treatment for a child and at the same time, instills a positive dental attitude. He suggested that a

"positive dental attitude" was the aim of behavior management.[3]

Behavior management has been defined by the **American Academy of Pediatric Dentistry (2015)** as "A continuum of interaction with a child/parent directed toward communication and education". There are number of non-pharmacological or psychological techniques that aim to manage patient behavior. Behavior management methods are about communication, education, shaping and motivation. Some methods aim to improve the communication process, while others are intended to eliminate inappropriate behavior or reduce anxiety. Most recommended techniques for modifying the child's behavior during dentistry have involved various forms of pre-exposure to the dental setting and procedures. **The American Academy of Pediatric Dentistry** had outlined behavior management methods for use with children including voice control, tell-show-do, positive reinforcement, distraction and non-verbal communication, hand-over-mouth (HOM) technique, physical restraint and pharmacological interventions such as conscious sedation, nitrous oxide, and general anesthesia.[4] Present review article aims in enumerating the various non-pharmacological behaviour management techniques used for management of pediatric patient in the dental operatory.

Table no 1: Non-pharmacological Behaviour Management Techniques

Technique	Explanation
Pre-appointment Behavior modification	Pre-appointment letters, description of what to expect at their appointment.
Verbal communication	Child friendly and age appropriate words, avoiding negative or emotive words.
Non-verbal communication	Child friendly environment, happy and smiling dental team, gentle pats or squeezes to alleviate distress
Voice control	Altering volume, tone and pace as necessary.
Tell-Show-Do	Tell: age appropriate explanation e.g. slow handpiece as a 'digger'. Show: demonstration e.g. Shown vibrations on finger. Do: without delay.
Enhancing control	Hand-signalling/stop signal, or using a traffic light (green, amber, red dependent on level of discomfort).
Positive reinforcement (behaviour shaping)	Selective reinforcement of specific positive behaviours, increasing the probability of repetition of the ideal behaviour e.g. "You are getting a sticker/badge for opening really wide". Negative reinforcement has been shown to be less effective.
Modelling	Learning by observing others in real life or video, particularly a positive outcome at the end of the appointment.
Distraction	Shifting attention to something else to assist with more unpleasant procedures e.g. cartoons, audio, asking the child to clench their fist to prevent gagging, or tugging on their lip while administering local anaesthetic
Systematic desensitisation	Relaxation, followed by planned exposure of the patient to fear-producing stimuli in a hierarchical

	order (from least to most fearful), only progressing when they feel able. An excellent guide for needle desensitisation was produced by Greig Taylor and Caroline Cambell

Communication: Communicative management and appropriate use of commands are used universally in pediatric dental patients with both the cooperative and uncooperative child. At the beginning of a dental appointment, asking questions and active/reflective listening can help establish rapport and trust. The dentist may establish relationship to educated patient and deliver quality dental treatment safely.[4]

Verbal communication

The dentist should aim to establish an empathetic relationship with the patient, and create a non-threatening perception of the dental environment. To achieve this, it is essential that clinicians have a sound knowledge of the child's cognitive processes, and pay attention to their emotions.[5] To develop a trusting relationship with the young patient, the dentist should establish a direct approach by communicating with them in a friendly, calm, and non-judgmental manner, using comprehensible vocabulary and avoiding negative phrases. A two-way communication between child and dentist allows the child to exhibit their skills for coping with a dental visit.[6,7]

Non-verbal communication

Non-verbal communication, such as positive eye contact and friendly facial expressions are essential to achieve an empathetic relationship between child and dentist.[3]

Tell show do: Introduction of novel instruments and/or procedures can often scare kids with anxiety as they may not be alert of the intended reason of these instruments or procedures. Tell-Show-Do is a fundamental principle used in pediatric dentistry whereby the child is brings in gradually to the instrument and/or procedure, and which consists:

- Tell: Words to explain procedures in language suitable to the level of accepting for each child
- Show: Exhibition of the procedure in a watchfully defined, non-threatening setting;
- Do: Complete the procedure with no deviating from the clarification and demonstration

For example, when introducing the slow speed handpiece earlier to initiating a prophylaxis, initial, discuss the sound that will be made while it is turned on, then, demonstrate its apply on his/her finger, and follow with using the hand-piece in your patient's mouth.[2]

The Tell-Show-Do technique was modified into the Tell-Show-Play-do technique, using the concept of learning by doing, in reducing children's fear and anxiety toward dental treatment and promoting adaptive behavior.[8]

Signalling: This is to allow the patient to communicate with the dental team during any phase of the treatment by means of previously-established signals with specific meanings. The patient, by raising a hand or a finger can communicate their wish to stop the treatment (for rest breaks), or notify the dentist of any unpleasant feelings. The relationship of trust is greatly improved by the clinician responding promptly and appropriately to the young patient's signals.[9]

Relaxation training: This intervention requires well-developed learning skills, and therefore, is deemed potentially useful only for older patients. The relaxation techniques are based on the hypothesis that a person cannot be anxious at the same time as they are physically relaxed. These techniques work on muscle tension, joint mobility, or breathing by producing feedback feelings in order to reduce a patient's anxiety level.[10]

Breathing relaxation: This is a breath conditioning technique (mainly involves engaging the diaphragm muscle), characterised by an increased depth in both inhalation and exhalation, and a reduced breath frequency for an established range of time (e.g. two to four minutes). This type of breathing provides more oxygen to the body, thus reducing the heart rate. Breathing relaxation is easy to perform, and can be adopted by anxious patients in the dental chair immediately before the treatment, or at home.[9,10]

Hypnosis: The dentist aims to establish a psychological interaction with the patients to reduce their peripheral awareness, by focusing their attention on evoked ideas and images, in order to condition their perceptions, feelings, thoughts, and consequently, their behaviour.[11]

Voice control: This technique was suggested by Pinkham (1985). Voice control is a deliberate alteration of voice volume, tone, or pace to influence and direct the patient's behavior. The objectives of voice control are to gain the patient's attention and compliance; avert negative or avoidance behavior; and establish appropriate adult-child roles.[12]

Modelling: Introduced by Bandura in 1969; He stated that learning occurs only as a result of direct experience which can be vicarious- witnessing the behavior and the outcome of that behavior for other people. The technique is based on the psychological principle that people learn about their environment by observing others' behaviour, using a model, either live or by video to exhibit appropriate behaviour in the dental environment. This may demonstrate appropriate behaviour via a third party, decrease anxiety by showing a positive outcome to a procedure a child requires themselves, and illustrate the rewards for performing appropriately. [13,14]

Memory restructuring: Memory restructuring is a behavioural approach in which memories associated with a negative or difficult event (eg, first dental visit, local anesthesia, restorative procedure, extraction) are restructured into positive memories using information suggested after the event has taken place. This approach been tested with children who received local anesthesia at an initial restorative dental visit and has been shown to change local anesthesia-related fears and improve behaviours at subsequent treatment visits. Restructuring involves four components: (1) visual reminders; (2) positive reinforcement through verbalization; (3) concrete examples to encode sensory details; and (4) sense of accomplishment. The objectives of memory restructuring are to restructure difficult or negative past dental experiences, and improve patient behaviour at subsequent dental visits. It can be used with patients who had a negative or difficult dental visits.[15]

Parental presence/absence: The presence or absence of the parent sometimes can be used to gain cooperation for treatment. A wide diversity exists in practitioner philosophy and parental attitude regarding parents' presence or absence during pediatric dental treatment. The objectives of parental presence/absence are:

For parents to: participate in infant examinations and/or treatment; offer very young children physical and psychological support; and observe the reality of their child's treatment.

For practitioners to: gain the patient's attention and improve compliance; avert negative or avoidance behaviour; establish appropriate dentist-child roles; enhance effective communication among the dentist, child, and parent; minimize anxiety and achieve a positive dental experience; and facilitate rapid informed consent for changes in treatment or behavior guidance.[14,15]

Systematic desensitisation: This intervention is composed of three phases. In the first phase, the dental practitioner invites the patient to indicate the most fearful conditions among those imagined during treatment. In addition, the patient is asked to define the order of severity of the perceived threatening dental stimuli. The second phase is characterised by teaching the patient relaxation techniques. The third phase is focused on progressive exposure to the treatment, by beginning with the simplest and least painful (or entirely painless) interventions, to the more complicated treatments, sometimes causing pain, and inducing anxiety.[17]

Recent advances in behaviour management techniques

Aromatherapy: Aromatherapy based treatment alludes to the medicinal or remedial utilization of essential oils consumed through the skin or olfactory framework. Essential oils, which are extracted from plants, are utilized to regard ailment and also to improve physical and mental prosperity. Despite the fact that the utilization of refined plant materials goes back to medieval Persia, the term "aromatherapy" was first utilized by Rene Maurice Gattefosse in the mid twentieth century.

The impact of aromatherapy based treatment on dental anxiety has been assessed in a few studies. Lehrner et al. studied the impact of orange odour and reported enhanced mind-set and less anxiety only in females.[18] Five years after the fact, in another study, they analyzed the effect of orange and lavender odour with a music condition and a control condition and exhibited that odours are capable for diminishing anxiety and altering enthusiastic states in dental patient.[19]

Mobile dental app: In 2017, Patil VH et al utilized mobile dental app for reducing fear and anxiety in children in the dental set up. An interactive session of using the dental application during the treatment was allowed and the children were virtually made dentists and allowed to provide different treatments through the application. By this technique, the fear towards different dental instruments and its use in children could be reduced and more cooperative behaviour could be achieved. Mobile dental application could be used as an adjunct behaviour management technique however further research is needed.[20]

Videogame distraction: Even though there are a wide range of behaviour management techniques available for managing highly anxious children, it was impossible to divert the child's attention during pain perception in invasive procedures. The use of videogame as a distraction tool is based on the principles of cognitive-behavioral therapy and neurofeed back mechanism for children with anxiety disorders.[21] Videogames are interesting and commonly available media, which can help in implementing distraction in children by active participation of the child during the dental procedure.

Sil et al. (2013) and Wohlheiter KA et al. (2013) used videogames to reduce pain perception during cold-pressor trials.19,20 Videogames could be an effective distractor and improve oral health related outcomes, however extensive studies in its applicability in the field of pediatric dentistry is required.[22,23]

Witaul distraction technique: The WITAUL (Writing in the air using leg) technique is a novel distraction technique devised by Kamath PS et al (2013). This technique involves lifting the right leg and using it to write in the air. Even though what is written with the leg is of no significance, the author has often chosen to inform the child to write his/her name, to make it appears more personalized. The WITAUL technique appears to be a simple and effective distraction tool and can be routinely

used during administration of local anesthesia in pediatric dental patients.[24]

Eye moment distraction: Tirupathi S et al. (2019) introduced eye moment distraction technique to manage anxious pediatric patient. In this technique children were asked to close their eyes and perform deep breathing followed by rotation of eyes in alternative clockwise and anti-clockwise directions. The children were instructed to count the number of eye rotations using their fingers. Author found Eye movement distraction as a form of distraction can be used effectively in reducing the anxiety associated dental invasive procedure.[25]

Conclusion

The greatest challenge faced by a dentist while treating a pediatric patient is uncooperative behaviour due to anxiety or fear. Effective child management requires not only the application of different behaviour techniques, but also the assessment of developmental stage of child as well as the influence of parents on the child. A wide variety of behavioural management techniques are available such as modelling, tell-show-do, ask-tell-ask, systematic desensitization, distraction and other techniques to pediatric dentists which must be used as appropriate taking into account cultural, philosophical and legal requirements in the country of dental practice of every dentist concerned with dental care of children, solely for the benefits of the child. This also related with an important thing called treatment alliance, once if a child or parents are comfortable with the treatment of clinician then they will keep on consulting the same clinician.

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