International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 6 Issue 4, April-2019, Impact Factor: 3.015

# Non Pharmacology Means of Child Behaviour Management: A Review

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## INTRODUCTION

Paediatric patients frequently show undesirable behaviour that impacts on the ability of the dentist to treat them effectively and dentists working with children are often required to instigate interventions to decrease the likelihood of these behaviours occurring, using the basic principles of behavioural psychology. These we termed as non-pharmacological behaviour management technique.[1]**Wright** suggested that a "positive dental attitude" was the aim of behaviour management, subsequently he has defined the term further.[2] To do this the dentist must establish a relationship based on trust with the child and accompanying adult to ensure compliance with preventive regimes and allow treatment to occur (the treatment alliance).[3]The other major difference between adult and children is, of course, that in most instances you are not dealing with a 1:1 situation as happens with your adult patients. Instead you have to manage a three or four-way interaction with the parent and dental nurse involved.[4]Behaviour management is therefore one of the corner stones of the paediatric dentistry.[5]

Behaviour management is defined as the means by which the dental health team effectively and efficiently performs dental treatment and thereby installs a positive dental attitude **(Wright 1975)[6]**

| **Behaviour management classification[7]** | |
|---|---|
| **Pharmacological** management describes the use of drugs to manage the behaviour of paediatric patients undergoing dental procedures. | **Non pharmacological** describes the various techniques to manage the behaviour of paediatric patients undergoing dental treatment without the use of drugs |

No one method will be applicable in all situations, rather the appropriate management technique(s) should be chosen based on the individual child's requirements. a wide variety of behaviour management techniques are available to dental practitioners, namely; tell-show-do, desensitization, modelling, positive reinforcement, voice control, distraction, parental presence/absence, restrain/protective stabilization, nonverbal communication, hand-over-mouth, sedation and general anaesthesia.[8] This paper will review a representation of non –pharmacological management of child dental behaviour.

## TYPES OF NON PHARMACOLOGICAL BEHAVIOUR MANAGEMENT

| 1. Communication | 2. Psychological | 3. Physical |
|---|---|---|
| Non Verbal<br>Verbal<br>Use Of Second Language | Tell Show Do, Desensitization Modelling, Behaviour shaping, Contingency management, Externalisation, Distraction, Assimilation & Coping, Parental Presence And Absence , Voice Control, Hypnosis, Use Of Poetry and Drawing | Hand over mouth exercise, Hand over mouth airway restricted and Physical Restraints |

## COMMUNICATION

Communication is a complex multisensory process which has an ability to listen, empathize, and ultimately establish a trusting dentist-patient relationship. It is a two-way process with verbal utterances and non-verbal cues.[9]

<table>
<tr><th colspan="2">Communication</th></tr>
<tr><th>A. Non verbal communication [10]</th><th>B. Verbal communication</th></tr>
<tr><td>a. Facial expressions: This form the major part of nonverbal communication. The success of voice control technique depends on the appropriate use of facial expressions. In fact, voice control can be used with facial expressions alone[11]<br>b. Gestures: These are deliberate movements and signals to communicate without words. Common gestures include waving, pointing, and using fingers.[12]<br>c. Paralinguistics: This includes tone of voice, loudness, inflection, and pitch. When words are said in a strong and confident tone, children show approval and enthusiasm. If the same words are said in a hesitant tone, it might convey disapproval and lack of interest. The tone and pitch of voice play a vital role in voice control technique.[13]<br>d. Body language and posture: A slumped posture indicates low spirits or fatigued nature. An erect posture shows high spirits and confidence. Forward and down posture indicates decisive and powerful attitude. Back and up posture depicts a thoughtful and perceptive attitude.[13]<br>e. Proxemics: This is the study of spatial distances between individuals. People often need their “personal space” which is also an important aspect of nonverbal communication.[13] Hence, it is important to make the child feel comfortable and at home in the dental operatory.[8]<br>f. Eye contact: It is important to make and maintain eye contact with children. Sitting and speaking at eye level shows a friendlier and less authoritative nature of the dentist.[13]<br>g. Haptics: Communicating through touch is another important nonverbal behavior. Touch can be used to communicate affection, familiarity, and sympathy/empathy.<br>h. Appearance: Colors used in the dental office, attire of the dental team, hairstyles, and appearance of the dentist can influence the emotions of the child.</td><td>Communication includes a transmitter (dentist), a medium (spoken word/language), and a receiver (child). The message should be clear so that it is understood the same way both by the dentist and the child. For a normal child, the process of maturity in language by way of conversation occurs between 2 and 4 years of age.[14] Communication based on age :<br>a. Newborns: The first form of communication used by the newborn is crying. They prefer to listen to“baby talk,” once referred to as motherese. This type of speech is now known as child-directed speech.[15] This helps the infants to perceive the sounds that are fundamental to their language.[13]<br>b. Infants(up to 18 months)Infants generally communicate with cries, coos, gurgles, and grunts, nonverbal gestures such as facial expressions, bodily movements (cuddling and arching), eye movements, and movements of limbs.[16]One-syllable sounds made, and they begin to combine these words (baba dada). This language can also be used by the dentist to capture the attention of these young children.[15]<br>c. Toddlers (up to 3 years)Toddlers communicate with a combination of gestures, grunts, and one or two-word sentences.[16] We need to respond quickly to their communicative efforts and expand their one or two-word communication into sentences using their words.[13]<br>d. Preschoolers (3–6 years): By age 3, most children begin to talk in full sentences. Active listening and appropriate responses should be effectively used to manage these children. One of the characteristic features of preschoolers is role playing, and hence modeling can be used to enhance communication.[13]<br>e. Middle years’ child (6–12 years) Children of this group master skill in school and learn conversation and talk much like adults. These children feel comfortable with touch, pat, or handshake. Some children use delaying tactics (e.g., wants to drink some water or to use the restroom) during dental procedures. Care has to be taken to prevent avoidance learning.[13]<br>f. Adolescents (12 years and up) Adolescence is the stage at which children typically act more negative and have conflicts with adults such as parents or dentists. Hence, it is important not to behave like one in their group unless you really are.[13]</td></tr>
</table>

**C. Use of Second Language (Euphemisms):** Choices of words, which is used by the dentist or staff influence the emotional status of the patient. Therefore, the use of euphemism or reframing is very important while addressing to the patient. The dental staff as well as the dentist should be oriented to the use of a “second language”. It is not what you

say but it is how you say it.[7]Common used terms are: Air: Wind , Impression material : Pudding, mashed potatoes , Anaesthetic: Sleepy medicine or sleepy water, Bur: Brush or pencil, Caries: Brown spot; sugar bugs, Explorer: Tooth counter, Rubber dam: Raincoat, X-ray: Camera, Radiograph: Picture, Hand piece: Whistling train

## PSYCHOLOGICAL APPROACH

The psychology of childhood if conscientiously and intelligently pursued provides a rich background of information about children's behaviour and psychological growth under a variety of environmental conditions. . It also helps in different management techniques practised in paediatric dental clinic.[7]

**Tell – Show- Do:** Tell-Show-Do is a fundamental principle used in paediatric dentistry whereby the child is brings in gradually to the instrument and/or procedure, and which consists:[18]

| | | |
|---|---|---|
| **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; and | **Do:** Complete the procedure with no deviating from the clarification and demonstration |

This method is extensively use to familiarise a new procedure to the patient. This technique has been an effective way for reducing previously formed anxiety in the child patient.

**Ask-tell-ask:** This technique involves inquiring about the patient's visit and feelings toward or about any planned procedures (ask); explaining the procedures through demonstrations and non-threatening language appropriate to the cognitive level of the patient (tell); and again inquiring if the patient understands and how she feels about the impending treatment (ask).

**Desensitization:** This technique was demonstrated by **James** and popularised by **Wolpe.**[7]While desensitization is traditionally used with a child who is already anxious about the dental situation, its principles can be readily utilised by paediatric dentists with all patients, in order to minimise the possibility that patients might develop dental anxiety.[5]**Howitt and Stricker** addressed the hierarchy of anxiety evolving stimuli in the dental experience in children as:[7]
Injection > exposure to dental environment > dental drill> rubber dam > hand instrument > prophylaxis

**Modelling:** Modelling and /or learning by observation of a model have many synonymous terms : imitation, observational learning, identification, internalisation ,interjections, coping, social facilitation , contagion and role taking. This technique is more helpful in those aged between 3 and 5 years.[19]

| **Types of modelling** | | | |
|---|---|---|---|
| **Live Modelling Technique:** In this technique the doctor makes the child to observe one or more individuals who demonstrate positive behaviour in a particular situation. Models like a parent or a sibling can be used for this modelling. | **Audio Visual Aids :** One of the primary principles of this technique is Vicarious Extinction, wherein "fearful and avoidant behaviour can be extinguished vicariously through observation without any adverse. | **Filmed model** | **Posters** |

**Behaviour Shaping**

It is defined as a process which slowly develops a behaviour by reinforcing successive approximation of the desired behaviour until the desired behaviour is expressed. The following is an outline for a behaviour shaping:[7]

- State the general goal or task to the child at the outset
- Explain the necessity for the procedure
- Divide the explanation for the procedure slowly
- Make all explanations at a child's level of understanding with use of euphemisms
- Use successive approximation
- Reinforce appropriate behaviour
- Disregard minor inappropriate behaviour

**Contingency Management**

This behaviour management technique is based on BF Skinner's operant conditioning.[7]
It is a method of modifying the behaviour of children by presentation or withdrawal of reinforcers.[6] It includes:

- Positive reinforcement
- Negative reinforcement
- Omission or time out
- Punishment

1) **Positive reinforcers**: Positive reinforcement is an effective technique to reward desired behaviors and, therefore strengthen the recurrence of those behaviors. Social re-inforcer include positive voice modulation, facial expression, verbal praise, and appropriate physical demonstrations of affection by all members of the dental team. Non-social re-inforcers include tokens and toys (America Academy of Pediatric Dentistry(AAPD),2005–06) Children respond well to praise and encouragement.[23]
2) **Negative reinforcers**: It is the one whose contingent withdrawal increases the frequency of a behaviour. It is similar to de-emphasis or substitution type of restraining
3) **Time out (or) omission**:It is the withdrawal of the pleasant stimulus to reinforce good behaviour . Asking the mother (pleasant stimulus for the child) to stay out of the dental operatory to make the child cooperative is an example of time out .
4) **Punishment:** It is the presentation of the unpleasant stimulus to the child, e.g. voice control, hand over mouth exercise hand over mouth exercise (HOME).

**Externalisation**
It the process by which child's attention is focussed away from the sensation associated with dental treatment by involving in verbal or dental activity.

**Distraction**
This is a newer method of behaviour management in which the patient is distracted from the sounds and /or sight of dental treatment thereby reducing the anxiety. Distraction, one of the psycho-behavioural approaches used in medical and dental treatment situations, is defined as a non-aversive approach used to modify a child's discomfort by disrupting his/her attention away from the main task to accomplish successful treatment with high quality.[20]Objective is to relax the patient and to reduce anxiety during treatment .[7]This can be done through talking, asking the parent to play with the child, using headphones to play music or allowing the child to watch a DVD or some cartoons.[21]

***Types: 1. Audio distraction***: Patients listens to audio presentation through headphones throughout the course of the treatment .[7]***2. Audio-visual distraction:*** Patient is shown audiovisual presentation through television during the entire treatment.[7]***3. Virtual Reality Distraction***in recent years, there has been an increase in behavioural research in virtual reality (VR) and virtual world.[22] VR technology was solely recognized for its entertainment value; however, in the past 10 years, its application has been expanded to a variety of clinical areas, including pain management and treatment of psychiatric disorders.[23] The VR device (Google VR Box and Anti Tank Virtual Reality 3D Glasses) used during the dental procedures blocked the visual field of the child completely and had headphones to deliver the sound and connected to a player capable of playing MP4 audiovisual files.

**Assimilation and Coping**
**Stress** can act to increase pain perception while coping decrease it by a process called as assimilation.

**Coping** refers to cognitive and behavioural efforts made by individuals to master, tolerate or reduce stressful situations.

(1) **Behavioural coping:** Efforts include physical or verbal activities in which the child engages to deal with stress. There are readily visible to dentist, e.g.inquisitive question about the procedure.[7] (2) **Cognitive coping**: Efforts which involves manipulation of emotions. These are not visible to dentist but these play a crucial role in child's ability to deal with the treatment as well as forming a positive outlook for future.[7]

**Parental Presence or 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. Children's responses to their parents' presence or absence can range from very beneficial to very detrimental.[9]

Objectives: 1.Gain the patient's attention and improve compliance. 2. Avert negative or avoidance behaviors. 3. Establish appropriate dentist-child roles. 4. Enhance effective communication among the dentist, child, and parent. 5. Minimize anxiety and achieve a positive dental experience.

Contraindications: Parents who are unwilling or unable to extend effective support (when asked).[9]

**Voice Control:** Young children often respond to the tone of voice rather than the actual words. Voice control techniques use a controlled alteration of voice, volume, tone or pace to influence and direct a patients behaviour.[2] The technique is useful for inattentive but communicative children.[24] This technique is ineffective for children with severe hearing impairments.

**Hypnosis:** It was first suggested by *Franz A Mesmer, a Viennese physician in 1773*. It is defined as a state of mental relaxation and restricted awareness in which subjects are usually engrossed in their inner experiences such as magnary, are less analytical and logical in their thinking and have enhanced capacity to respond to suggestion in an autonomic and dissociated manner.[7] It is quite often described as the medicine of imagination.[25]

**Cognitive Behavioural Therapy:** This is a well-known technique and is a psycho-social intervention. CBT is a talking therapy that can help a patient to manage their problems by changing the way they think and behave. It focuses on the development of personal coping strategies that target solving current problems and changing unhelpful patterns in cognitions (e.g. thoughts, beliefs, and attitudes), behaviours, and emotional regulation.[26]CBT requires close collaboration between the individual and the practitioner, so that the therapeutic relationship fosters independence for the patient to help themselves and apply their learnt strategies in the future management of the problem – therefore offering a form of long-term management or "cure" if you will.[27]

**Neuro Linguistic Programming (NLP)**
Pedodontists frequently encounter children with dental anxiety in their day to day delivery of care. Pedodontists understandably find it challenging to understand how a patient can retain a negative perception despite the high standard of compassionate care they make sure they provide. This is one of the great challenges of working with nervous children. The effect of perception and the subjective experience of reality can be outlined using the Neuro Linguistic Programming (NLP) communication model. An understanding of the mindset of a nervous child patient using this simple model can greatly empower us as clinicians to remain patient and supportive. Simple tools such as repeating important information voluntarily, offering choices and retaining an agreeable disposition can go a long way to improving the dental care experience for nervous child patients.[28]

**Use of Poetry:** This technique is employed in children above 7 years of age. The poem is written as a collective effort, the dentist contributing one line and the child next, e.g. teeth are white, when they are bright; teeth do shine, when you clean; teeth are happy, when they are healthy; teeth stay long, when they are strong. By selecting words like shine, happy and long it was easy to make the child discover clean, healthy and strong ,by doing this , it allows child discover information about his teeth and their wellbeing .

**Uses of Drawings:** This is useful for children of 3 to 5 years of age .Child is given a paper and pencil or a crayon and asked to draw teeth and showed how teeth can be made to look like his pet. He is then told that like his pets the tooth also have to be looked after and kept clean.

## PHYSICAL APPROACH

Majority of the children can be managed effectively using the techniques which are listed above. However, children, who occasionally present with behavioural changes like being hyperactive will need more advanced techniques.[21] The protective stabilization, sedation and general anaesthesia are some of the advanced behaviour guidance techniques are used and are taught in advanced paediatric dental programmes.[29]
Two common methods used in clinical practice are:

(a) **Hand Over Mouth Exercise (HOME)**
The behaviour modification method of aversive conditioning is also known as Hand- Over- Mouth- Exercise (HOME).[32] Its purpose is to gain the attention of a highly oppositional child so that communication can be established and co-operation obtained for a safe course of treatment. The child is made to put his hand over his mouth and behavioural expectations are explained. The hand is removed, depending on the behaviour of the child. Parent consent is more important, and the techniques should never be used on the children too young to understand or with intellectual or emotional impairments.[36]

HOME, although very effective when used correctly, is no longer endorsed by the American Academy of Paediatric Dentistry (AAPD) [Guidelines, 2008]. ]. However, a recent survey of 2,600 members of the AAPD recorded that 350 of the 704 respondents (50%) believed HOME was still an acceptable technique [Oueis et al., 2010]. It continues to be a very controversial technique. . There is a variation of HOME where the child's airway is deliberately restricted, named **hand-over-mouth with airway restriction (HOMAR).** This is to be universally condemned and should never be used.

(b) **Physical Restraints**

Restraints are usually needed for children who are hypermotive, stubborn or defiant (Kelly 1976).The child is seated in the mother's lap and one of the mother's hands is placed on child's forehead while the other hand is place on both the child's wrists. Physical restraints involve restriction of movement of the child's head, hand, feets or body. It can be : (i) Active – restraints performed by the dentist, staff or parent without the aid of a restraining device. (ii) Passive – with the aid of restraining device.

***Types of Restraint***

a) For body - Pedi wrap, Papose board, Sheets, Beanbag with strap ,Towel and tapes
b) For extremeties - Velcro straps, Posey straps, Towel and tape
c) For the head - Head positioner
d) Mouth - Mouth blocks, Banded tongue blades, - Mouth props are used at the time of local anesthesia to prevent child from closing his mouth

## LIMITATIONS

Today's children differ from those of past generations. They begin school earlier. Though the media, they are more aware than children were years ago. Parenting also has changed. Much of the behavioural science research was done with traditional families in the 1960s and 1970s. Single-parent homes were less common, and terms such as reconstituted families and same-sex marriage were unknown. With both parents working or with single-parent families, it is not unusual for a father to accompany a child to the dental office. Have parental expectations changed in the dental office? Yes. Parental influences, as well as legal and ethical concerns have resulted in a decreased or discontinued use of controversial techniques like HOME. Dental students rarely have opportunity to observe or use the technique. The corners of the pediatric treatment triangle have been changing rapidly, which influences the practice of dentistry for children.

## CONCLUSION

A wide variety of behavioural management techniques are available to paediatric dentists which must be used as appropriate taking into account cultural, philosophical and legal requirements in the country of dental practice of every dentists concerned with dental care of children, solely for the benefit of the child. We should be an ontological coach, guiding the child's way of being/behavior in the dental operatory using appropriate verbal, paralinguistic, and nonverbal communication skills. A healthy communication thus builds the child's trust, installs a positive attitude, and leaves a lasting impression. The aim of any dental treatment should be to build the trust of the patient and establish a positive dental attitude which can be maintained throughout life. Behaviour management techniques can help to achieve these goals.

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