THE INFLUENCE OF DIFFERENT ETHNICITY IN MALAYSIA ON PARENTAL PREFERENCE TOWARDS BEHAVIOUR MANAGEMENT TECHNIQUES IN PAEDIATRIC DENTISTRY

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by

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LIST OF ABBREVIATIONS

AAPD	American Academy of Pediatric Dentistry
BMT	Behaviour Management Technique
CS	Conscious Sedation
Dis	Distraction
GA	General Anesthesia
HOM	Hand Over Mouth
IPS	Institut Pengajian Siswazah
NBMT	Non-Pharmacological Behaviour Management Technique
NC	Non-Verbal Communication
NFBMT	Negative Feedback Behaviour Management Technique
NO	Nitrous Oxide
PP/A	Parental Presence or Absence
PR	Positive Reinforcement
PS	Protective Stabilization
Sed	Sedation
TSD	Tell Show Do
UKM	Universiti Kebangsaan Malaysia
USM	Universiti Sains Malaysia
VAS	Visual Analogue Scale
VC	Voice Control

LIST OF APPENDICES

PENGARUH PERBEZAAN ETNIK IBU BAPA DI MALAYSIA TERHADAP PEMILIHAN TEKNIK-TEKNIK PENGURUSAN TINGKAH LAKU DALAM PERGIGIAN KANAK KANAK

ABSTRAK

Tingkah laku disruptif boleh mengganggu kualiti penjagaan gigi, memanjangkan tempoh masa rawatan dan meningkatkan risiko kecederaan kepada kanak-kanak sepanjang masa rawatan gigi. Cabaran merawat pesakit kanak-kanak yang tidak boleh atau tidak mahu bekerjasama telah membawa kepada pembentukan teknik-teknik pengurusan tingkah laku dalam pergigian kanak kanak. Tujuan kajian ini adalah untuk menilai penerimaan ibu bapa terhadap teknik-teknik pengurusan tingkah laku (BMT) yang berbeza yang digunakan ketika rawatan pergigian kanak-kanak dalam tiga etnik utama (Melayu, India dan Cina) di Malaysia. Ini ialah kajian perbandingan keratan rentas yang melibatkan kaedah persampelan mudah, menggunakan sebanyak 72 sampel ibu bapa yang menghadiri Klinik Pergigian Kanak Kanak, Bangunan Trauma, Hospital USM dan Klinik Pergigian Kanak Kanak, Fakulti Pergigian, Universiti Kebangsaan Malaysia, UKM. Persembahan video mengenai sepuluh BMT akan ditonton oleh ibu bapa yang terpilih mengikut urutan seperti berikut: *TSD, VC, Modelling, PR, Distraction, PP/A, HOM, NO, OS* dan *GA.* Analisis statistik dilakukan untuk statistik deskriptif seperti nilai min, sisihan piawai, kesilapan piawai dan variasi koefisyen variasi telah diukur. Pelbagai perbandingan telah dilakukan melalui *One Way Anova* dengan analisis *Post-Hoc* dan ujian *Fisher Extract*. Dalam 72 ibu bapa, 43 merupakan lelaki dan 29 merupakan wanita. Walaubagaimanapun, ibu bapa dengan kelulusan ijazah universiti (48.6%) merupakan majoriti dengan pendapatan sekitar RM2001-5000 (55.6%). Tambahan lagi, min lebih tinggi didapati dalam kaedah *tell-show-do* (*TSD*) (93.47±14.26) dalam teknik pengurusan tingkah laku, diikuti oleh *audio-visual*

distraction (81.94±18.05), *parental presence/absence (PP/A)* (73.89±22.62) dan sebagainya. Tiada perbezaan statistik yang berbeza secara signifikan untuk pemilihan teknik pemilihan pengurusan tingkah laku dalam kalangan kumpulan etnik dengan nilai $p > 0.05$ kecuali teknik *modelling* yang menunjukkan perbezaan yang signifikan dengan nilai $p < 0.05$. Tiada perbezaan yang signifikan secara statistic di antara tiga kumpulan apabila dibandingkan dengan *modelling* BMT. Kami menyimpulkan bahawa kaedah *tell-show-do, audio-visual distraction, modelling, parental presence/absence* telah menunjukkan hasil keputusan yang boleh diterima pakai dalam kalangan ibu bapa Asia dengan perbezaan yang berbeza secara signifikan dalam jumlah kebenaran yang diberikan dalam teknik-terknik tersebut. *Physical restraint, oral sedation* and *general anesthesia* merupakan antara teknik pengurusan tingkah laku yang memperolehi kebenaran paling sedikit dalam kajian ini.

Kata Kunci: Teknik-teknik pengurusan tingkah laku, rawatan pergigian, pergigian kanak kanak, Kumpulan etnik, Cina, Melayu, India

THE INFLUENCE OF DIFFERENT ETHNICITY IN MALAYSIA ON PARENTAL PREFERENCE TOWARDS BEHAVIOUR MANAGEMENT TECHNIQUES IN PAEDIATRIC DENTISTRY

ABSTRACT

Uncooperative or disruptive behaviour can interfere with quality of care, increase the length of treatment time and increase risk of injury to the child. The challenge of treating children who are unable or unwilling to cooperate has led to the development of a variety of behaviour management techniques. The aim of this study is to assess the parental acceptance of different behaviour management techniques (BMT) used during dental treatment of children in three major ethnic group (Malay, Indian and Chinese) of Malaysia. This was a cross-sectional comparative study involving convenient sampling method, using a sample of 72 parents attending Paediatric Dentistry Clinic, Hospital USM and Klinik Pergigian UKM, Universiti Kebangsaan Malaysia. A videotape presentation was produced to demonstrate ten of the AAPD approved BMTs to the selected parents in the following order: TSD, VC, Modelling, PR, Distraction, PP/A, HOM, NO, OS and GA. Statistical analyses was done for descriptive statistics such as mean values, standard deviations, standard errors and coefficients of variation were measured. Multiple comparisons were done by One Way Anova with Post-Hoc analysis and Fisher Extract test. Among 72 parents, 43 were males and 29 were female parents. With respect to ethnicity Malay (50%) were more when compared to Chinese (25%) and Indian (25%). However, parents with college degree (48.6%) was found to be more with income range 2001-5000 RM (55.6%).Further, a higher mean was reported in tell-show-do (93.47±14.26) method of behaviour management technique, followed by audio-visual (81.94±18.05), parental presence/absence (73.89±22.62). There was no statistically significant difference

among all the independent ethnic groups with *p*-value > 0.05 except modelling technique which showed a significant difference with *p*-value 0.047. There was statistically significant difference between three groups when compared to modelling BMT. Post Hoc Analysis with multiple comparisons by Bonferroni, only comparison between Chinese and Indian shown statistically significant mean difference (*p*-Value=0.047). We conclude that tell-show-do, distraction, modelling, parentalpresence/ absence has been shown to produce similarly acceptable results amongst Malaysian parents with statistically insignificant differences in the amount of approvalgiven for the techniques. Physical restraint, oral sedation and general anesthesia were the least approved in the current study.

Key Words: Behaviour management techniques, Dental treatment, Paediatric dentistry, Ethnic groups, Parents

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Paediatric dentists contribute by oral health care and serve dental diseases in children, newborns, adolescents, and persons with special/certain health care needs. Safe and rational treatment often requires the management of the child's behavior. Behavior problems in between children at the time of dental procedures are very common. Holst *et al.* (1993) reported that among children going through their initial dental visit, 76% of children showed cooperation, 13% were hesitant, and 11% were obstructive. Uncooperative or disruptive behaviour can interfere with quality of care, increase the length of treatment time, and increase the risk of injury to the child. The challenge of treating children who are unable or reluctant to cooperate has led to the initiationof a variety of behaviour management techniques (BMTs).

The two main classifications of behavioural management techniques are pharmacological technique and non-pharmacological technique. The former covers general anesthesia, conscious sedation and usually should only be retained for the kids lacking in cooperativity or perticularly anxious. However, the non-pharmacological techniques are essential and are usually foremost techniques not just on their own but occasionally to addendum the pharmacological techniques such as, to examine and diagnose children prior to general anesthesia and review them after. There are currently 14 American Academy of Pediatric Dentistry (AAPD)- described BMTs. These include: basic behaviour guidance techniques, such as positive pre-visit imagery, direct observation, tell-show-do (TSD), ask-tell-ask, voice control

(Avcu *et al.*), non-verbal communication (NC), positive reinforcement and descriptive praise (PR), distraction (Dis), memory restructuring, parental presence/absence (PP/A), and nitrous oxide/oxygen inhalation (NO); and advanced behaviour guidance techniques, such as protective stabilization (PS), sedation(Sedation), and general anesthesia (GA) (AAPD, 2016). In addition to the techniques mentioned above, the controversial technique, physical intervention (Roberts *et al.*, 2010) and 'hand-over-mouth' techniques are not culturally acceptable in the United Kingdom and would require specific consent (Nunn *et al.*, 2008).

Approximately 1 in 10 children is unwilling to attend their initial dental visits while a similar proportion has undesirable responses during dental treatment (Newton and Sturmey, 2003). This underlines the importance of having a good working armamentarium of behavioural management skills a pediatric dentist should be equipped with, and pediatric dentists use a variety of behavioural and pharmacological techniques (Roberts *et al.*, 2010). These techniques undergo re-assessment over time and some of them may have already been abandoned. The heterogeneity of results on the efficacy of different behavioural management techniques in empirical studies could be due to the discrepancies in the actual definition of techniques, methods of application of techniques, underlying philosophy, cultural and personal preferences. Previous studies often applied multiple methods, which makes it very difficult to study a single technique in isolation (Levitt *et al.*, 2000).

One aspect of behaviour management research is aimed at understanding parental perceptions regarding behaviour guidance techniques and to determine factors that may affect their attitudes towards the various techniques. Societaland professional views of behaviour management and parenting styles have changed tremendously over

the past years. Studies show societal changes toward increased parental participation during the child's dental experience. As a result, the selection of the behaviour management techniques to be used is no longer made largely by the dentist but, rather, with the active involvement and consent of the parents. Therefore, effective communication with parents is crucial and presents the opportunity for both dental specialists and parents to carefully work together and select the best treatment methods to make the child's visit as safe, effective, and comfortable as possible. Few or no recent studies had studied parental acceptance and consent to the full comprehensive list of behavioural management techniques in the Eastern world. A study by Newton and Sturmey (2003) published almost 2 decades ago, investigated firstly, the acceptance to tell-show-do, physical restraints, voice control, `hand-over-mouth', and pharmacological forms of behavioural management techniques; and secondly, the best way to communicate and obtain consent. The best way to achieve understanding and consent was by oral explanation and with this method, all parents consented to and accepted tell-show-do behaviour management techniques.

The selection of a specific, or often combination of techniques for a particular child may also be dependent on a variety of factors, including but not limited to the time available in the dental setting, anxiety level of a child (Newton and Sturmey, 2003), competence and philosophy of dentist, parental anxiety level and parental acceptance, cultural (Goleman, 2014) and personal preferences. All practitioners in Malaysia encounter patients of a different culture daily as Malaysia is well known with its diverse backgrounds and in certain instances, may have trouble in communicating treatment objectives and expectations. This also highlights the fact that cultural factors affecting behavioural guidance require the upmost attention in today`s increasingly diversified world. Every culture has its own set of values, beliefs, and practices. Examples of

specific cultural practices—such as drinking a cooling tea or taking herbal medicine as treatment for hot gum diseases in the Chinese population and the concept of 'personalismo' in the Latino culture, which suggests that the dentist sits close to the mother and child in order to better connect with the family—support the need for an awareness of cultural differences in parental attitudes toward BMTs used in pediatric dentistry (Chang *et al.*, 2018).

1.2 Problem statement

Parental perception are continuously changing as society develops, which explain why it is necessary to regularly revalue their beliefs and modernize our understanding of their viewpoint toward behaviour management techniques. All of the Behaviour management techniques (BMTs) are not equally accepted by parents. Several studies of parental behaviour of acceptance guidance techniques applied in paediatric dentistry show differing views of parental attitudes. Multicultural impact on health/dental beliefs, in addition to community-based changes in parenting, consider complications that dental practitioners in Malaysia face when deciding suitable BMTs option for children. As far as our knowledge, no studies have been done to assess the parental approval of different behaviour management techniques (BMT) used during dental treatment of children in three major ethnic groups (Malay, Indian and Chinese) of Malaysia.

1.3 Justification of the study

Most of the studies carried out by researcher in different populations is regarding parental acceptance of techniques used in paediatric dentistry, however no study has examined ethnic and cultural factors influence in acceptance levels of the BMTs in Malaysia. This study aimed to determine how ethnicity influences parental acceptability of behaviour management techniques used in paediatric dentistry. According to the

study conducted by (Chang *et al.*, 2018) there are parental preferences of behaviour management techniques which differed between ethnicity, with Asian parents significantly less accepting of sedation compared with Caucasian and Hispanic parents.

1.4 Objectives

1.4.1 General Objective

To assess the parental acceptance of different behaviour management techniques (BMTs) used during dental treatment of children in three major ethnic group (Malay, Indian and Chinese) in Malaysia.

1.4.2 Specific Objective

1. To determine the level of parental acceptability of different behaviour management techniques (BMTs) used during dental treatment of children according to three major ethnic group in Malaysia
2. To compare parental acceptability of different behaviour management techniques (BMTs) among Malay, Chinese and Indian parents
3. To evaluate relationship between socio demographic factors of parents towards selection of different BMTs in three major ethnic group in Malaysia.

1.5 Research Questions

1. What is the prevalence of parental acceptability of different behaviour management techniques (BMTs) used during dental treatment of children in three major ethnic groups in Malaysia?
2. Are there any significant differences on parental acceptability for different BMTs based on ethnicity in Malaysia?

3. Is there any correlation between socio demographic factors of parents towards the selection of different BMTs in three major ethnic groups in Malaysia?

1.6 Null Hypothesis

1. There is no significant difference on parental acceptability of different BMT between three major ethnics (Malay, Indian and Chinese) in Malaysia.
2. There is no correlation between socio demographic factor of parents towards the selection of different BMTs in three major ethnic groups in Malaysia.

1.7 Conceptual Framework of the Study

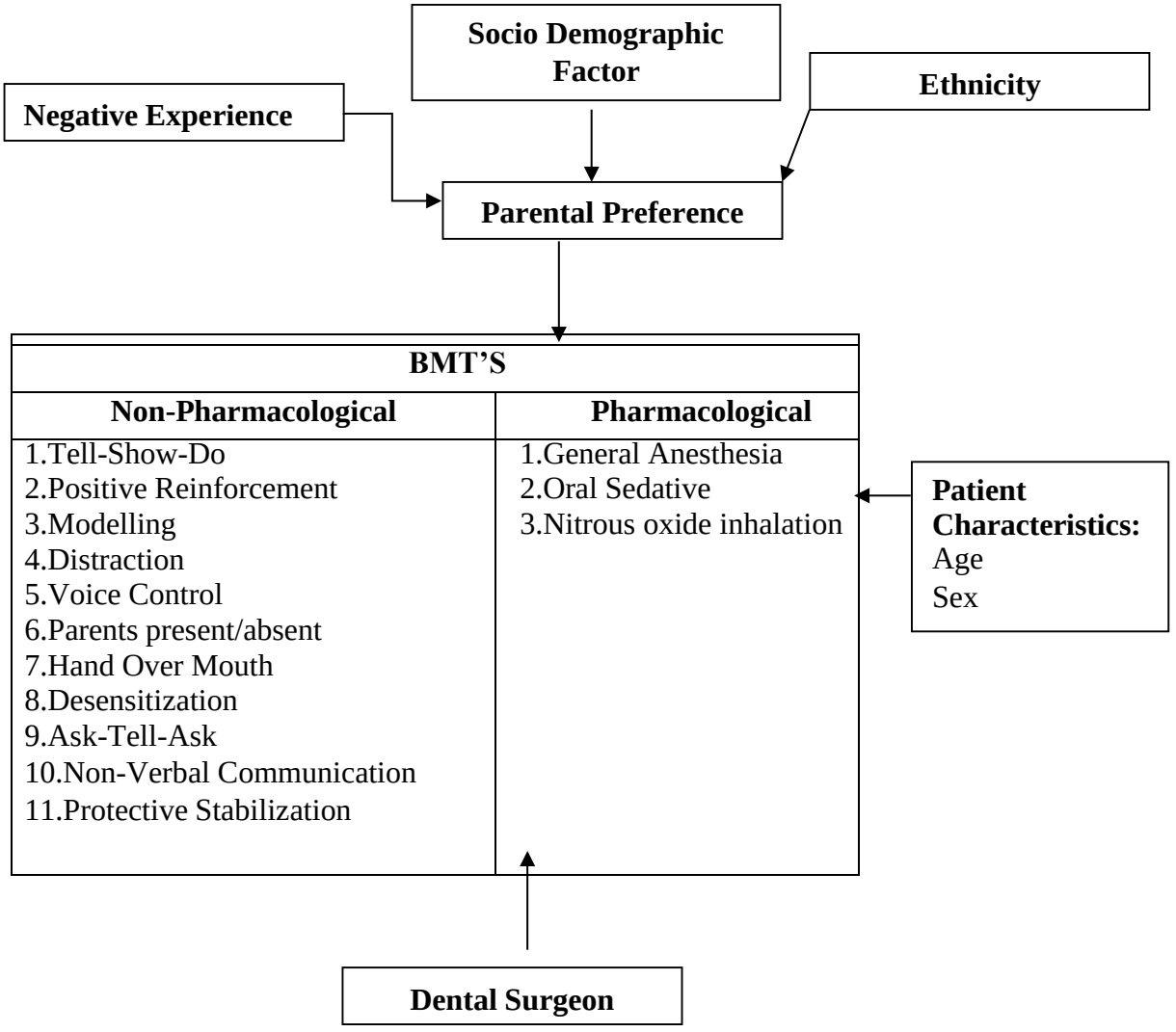

Figure 1.1 Conceptual framework of the study

CHAPTER 2

LITERATURE REVIEW

2.1 Non-Pharmacological Behaviour Management Techniques (NBMTs)

The importance of behaviour management in providing dental care for children is widely acknowledged. Undoubtedly, if a child's behaviour in the dental clinic cannot be managed, it will be difficult, if not impossible, to provide any necessary dental care. Any approach to behavioural management for the dental child patient must be based on caring and a genuine concern for the child's well-being (Roberts *et al.*, 2010). A variety of non-pharmacological behaviour management techniques are available to help prevent and/or manage dental behaviour management problems. Some techniques are designed to improve communication, while others are designed to reduce anxiety or eliminate inappropriate behaviour. While each technique is described separately, they are frequently used in combination (Campbell *et al.*, 2011).

2.1.1 Tell-show-do

The 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 paediatric dentistry whereby the child is brought in gradually to the instrument and/or procedure, and which consists of:

1. **Tell**: Words to explain procedures in language suitable to the level of acceptance for each child

2. **Show**: Exhibition of the procedure in a watchfully defined, non-threatening setting; and
3. **Do**: Complete the procedure with no deviation from the clarification and demonstration

For example, when introducing the slow speed hand piece earlier to initiating a prophylaxis, initially, discuss the sound that will be made while it is turned on, then, demonstrate it by applying it on his/her finger, and followed by using the handpiece in your patient's mouth.

Objectives

- To allow the child to learn about and understand dental procedures in a way that minimizes anxiety.
- Used with rewards, to gradually shape the child's behaviour towards acceptance of more invasive procedures.

Tell-Show-Do could be considered, to be one way of performing explanation both verbally and age-appropriate language ('tell'), and physically ('show/demonstrate') before following through immediately with 'doing' the actual procedure (Roberts *et al.*, 2010). This basic technique is commonly used and recommended by many (Newton and Sturmey, 2003; Roberts *et al.*, 2010) eventhough a look at the current available evidence would reveal few studies of high evidence level (Campbell *et al.*, 2011). A permissive approach, where procedural, sensory information and reasons for treatment are provided to decrease uncertainty, proved to be effective in the reduction of anxiety and is mostly used as part of the tell-show-do techniques.In

addition, tell-show-do may not be as adequate as other techniques e.g. modelling and desensitization where more distressing treatments are required (Machen and Johnson, 1974).

2.1.2 Modelling

According to the social learning theories (Bandura and Walters, 1963) a large part of a child's development and learning is based upon his observation and imitation of others' vicarious conditioning, and this forms the basis of the management technique of modeling (Adelson and Goldfried, 1970). It is particularly effective when theobserver is paying attention to the model, and the model is perceived to be similar statusand sex as him/herself. Ideally, for an anxious patient, the model would also appear to be initially anxious but then proceed to developing better coping behaviour and is then rewarded for the modeled behaviour. For a non-anxious child, the model need not exhibit initial anxiety, but rather for instance be seen to be asking questions about the novel situation. The observer may then feel easier dealing with similar uncertainties in a like fashion, anticipating rewards for doing so. It is indirect learning, i.e. earning fromothers, who may be parents, teachers, peers, siblings or the media (Ghose *et al.*, 1969; Gordon *et al.*, 1974). Modeling has been shown to be an effective technique with either filmed modeling (Melamed *et al.*, 1975) or live modeling (Ghose *et al.*, 1969; Gordon *et al.*, 1974).

Objectives

- To reduce anxiety in a child with previous experience.
- To introduce a child to dentistry.

2.1.3 Behaviour Shaping and Positive Reinforcement

A number of dental procedures require reasonably composite behaviours and actions from our patients that must be explained and learned. For kids, this requires little clear steps. This process is named behaviour shaping.

It consists of a definite series of steps towards model behaviour. This is most simply accomplished by selective reinforcement. Reinforcement is the strength of a pattern of behaviour, mounting the probability of that behaviour being exhibited again in the future. Whatever thing that the child finds enjoyable or satisfying can act as an optimistic reinforcement; badges or stickers are frequently used at the end of a successful appointment. However, some of the most powerful reinforces are social stimuli, such as verbal praise, positive voice modulation, facial expression, and approval by hugging. A kid centred, empathic response giving definite praise, for example, “the way you keep your mouth open is amazing” has been exposed to be more successful than a general comment such as “good boy/girl.” Positive reinforcement for example praise, is an element of behaviour shaping, employed to strengthen a child`s desired behaviour in the dental clinic (Wright and Kupietzky, 2014).

2.1.4 Distraction

Distraction intends to move the patient’s attention away from the treatment procedure. This could be in the form of cartoons, books, music or stories. An additional well standard method is for dentists to speak to patients as they work so that patients pay attention to them rather than focusing on the treatment procedure. Short-term distractions, such as pull the cheek or lip and chatting to the patient when applying local anesthesia, are also useful.

Results are varied on studies on the effects of distraction on children (Campbell *et al.*, 2011). Older studies nullified the effectiveness of audio-visual distraction methods. Children nowadays are more computer literate and potentially more sensitive to multimedia forms of distraction.

2.1.5 Desensitization

While desensitization is conventionally used with a kid who is already anxious concerning the dental situation, its principles can be willingly utilized by Paediatric Dentists with all patients, in order to reduce the possibility that patients may build up dental anxiety. The child's existing anxieties are dealt with by revealing him or her to a series of dental experiences, presented in an order of increasing anxiety suggestion, systematic only when the child can admit the earlier one in a relaxed state (Machen and Johnson, 1974). In the innovative psychotherapeutic mode, numerous sessions would be needed just to ascertain the actual hierarchy of stimuli for a client's dread while, in pediatric dentistry, a supposed progression is used. Therefore, for most children a digital examination would head to the use of a mirror and probe or explorer, followed possibly by radiography, rubber cup scaling, fissure sealing and leading ultimately to local analgesia, restorations, and rubber dam.

2.1.6 Positive Stabilization

Protective stabilization involves limiting a patient's movement to decrease the risk of injury to everybody while allowing safe conclusion of treatment. Varieties of protective stabilization can be engaged ranging from a family member/caregiver holding the kid's hands to the utilization of a stabilization tool (i.e., papoose board or paedo wrap). Informed acquiesce must be obtained regarding the use of protective stabilization, and if a family member has a problem at any time in using the protective

stabilization, the technique is topped up immediately. We do not utilize any stabilization plans as they have the possiblilty to limit respirations.

2.1.7 Hand Over Mouth (HOM) Techniques

HOM involves restraining the child in the dental chair, placing a hand over the mouth (to allow the child to hear). The nose must not be covered. The dentist then talks quietly to the child explaining that the hand will be removed as soon as crying stops. As soon as this happens the hand is removed, and the child is praised. If protests start again, the hand is replaced. The technique aims to gain the child's attention and enable communication, reinforce good behaviour and establish that avoidance is futile. Those who advocate the technique recommend it for children aged 4-9 years when communication is lost or during temper tantrums. Parental consent is important, and the technique should never be used on children too young to understand or with intellectual or emotional impairment.

The 'hand-over-mouth' technique is an extremely controversial technique and is culturally unacceptable in the UK hence like other forms of physical restraint, is not recommended (Campbell *et al.*, 2011; Nunn *et al.*, 2008).

2.1.8 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 patient's behaviour. Such techniques aim to improve attention and compliance as well as to establish authority. For example, an abrupt change from soft to loud is practiced, in order to gain attention of a child who is not complying. Voice control has been shown to decrease disruptive behaviour without producing long-term negative effects (Greenbaum *et al.*, 1990). The technique is useful for inattentive but

communicative children. However, it is not appropriate for children too young to understand or with intellectual or emotional impairment.

2.1.9 Non-Verbal Communication

This form of communication occurs continuously and may reinforce or contradict verbal signals. Such communication includes:

- body language
- smiling
- eye contact
- expression of feeling without speaking
- touching of the child
- giving him a pat
- showing concern
- giving him a hug

Posture and facial expression and appropriate contact are used for the reinforcement and guidance of behaviour. This technique is appropriate for children with hearing impairments. Establish contact to calm the child; however, some children have tactile defensiveness that startle reflexes.

2.1.10 Ask-Tell-Ask

First the child is asked about how he is feeling; whether anxious or scared. Then he is reassured that the treatment would not be painful or discomforting. After reassurance, the child is again asked if he is feeling better and relaxed now.

2.1.11 Negative Reinforcement/ Reward/ Feedback

Negative reinforcement, if used in the context as NFBMT, appears to be an oxymoron and has been defined differently across various literatures (Campbell *et al.*,

2011; Newton and Sturmey, 2003; Roberts *et al.*, 2010). Campbell *et al.* (2011) defined it as the encouragement of a desired Behaviour by eliminating the unpleasant 'negative reinforce' e.g. deliberate parental absence or 'hand-over-mouth' action; and cautioned against confusion with punishment. This contrasted with authors definition: a child`s negative behaviour is augmented as his undesirable behaviour, escaping from dental surgery, results in suspension of the feared dental stimuli. Instead, these authors` suggested that 'punishment' or 'negative feedback' is the appropriate terms to use when referring to any consequences used to cease/reduce a behaviour (Newton and Sturmey, 2003; Roberts *et al.*, 2010).

It is one of the BMTs, which, generally, aids in gaining the child's cooperation to deliver the treatment in an effective and efficient manner. Parental presence in the operatory could decrease the compounding effect of traumatic separation, offer emotional support for the child and aid in communication (Ripa and Barenie, 1979). The steps taken when using this technique are as follows:

- A pre-appointment letter or message is sent to the parents, to briefly explain the work that will be done during the first dental visit and the BMTs, which might be used during the first and following visits, including, but not limited to the parent-in–parent-out technique.
- A videotape to illustrate different BMTs is played to the parents after collecting the necessary patient's information on their arrival. Playing such a video recording has been found to be very helpful (Ripa and Barenie, 1979). Another video recording is played to the child to prepare him/her for the dental visit. Such a recording is considered as a modeling tool (Fields and Pinkham, 1976).

- When the parents are in the operatory, they are not allowed to interfere with the procedure after they have approved and consented to the proposed treatment. Furthermore, the parents should be prepared to leave the dental operatory if the youngster does not cooperate. This agreement between the dentist and the parents needs to be made before the child is seated in the dental chair, and it is important that the child knows about the agreement (Casamassimo, 2013).
- Children between 36 and 49 months of age are good candidates when this technique is used (Casamassimo, 2013).
- The child should understand the seriousness of having the parents leave, if necessary. On the promise of the child to cease the uncooperative behaviour, the parents can return to the treatment room. If the child resumes the unwanted behaviour, the parents are asked to leave, again. This is repeated until the child's cooperation is gained. If the child is overly anxious, it is preferable to use other techniques.

2.2 Pharmacological Behaviour Management Techniques (BMTs)

The dentists' methods for dealing with dental anxiety are mainly intended to avoid uncomfortable and ineffective confrontations with children. The goal is to create an environment that fosters a child's confidence while also allowing the dentist to perform procedures with minimal disruption. Although it is ideal to use behavioural management techniques alone to achieve treatment goals and guide the child toward more appropriate behaviour, this is not always possible. This is especially true when dealing with children who are fearful or anxious, or who have a disability that prevents them from cooperating. When such children require dental treatment, either conscious

sedation or pre-medication with pharmacological agents is frequently recommended (Folayan *et al.*, 2002).

2.2.1 Oral Sedation

A variety of medications can be directed to a patient to alter their consciousness stage. This does not make the child "go to snooze," but makes him/her less alert of what is happening and afterwards, not as anxious or fearful toward dental treatment. There are several levels of sedation that can be achieved, but since every child is dissimilar, these levels are rather difficult to predict. There are also numerous requirements that must be fulfilled before sedation can be an effective management option. Common oral sedation drugs used in paediatric dentistry are midazolam, flumazenil, diazepam, pethidine, morphine, fentanyl, dexmedetomidine, propofol, ketamine and remifentanil (Sedation, 2020).

2.2.2 General Anesthesia

General anaesthesia is an inhibited state of unconsciousness escort by a loss of protective impulses, including the capability to maintain an airway separately and respond decisively to physical stimulation or verbal instruct. The use of common anaesthesia sometimes is essential to provide class dental care for the child.Depending on the patient, this can be done in a medical hospital or an ambulatory setting, counting the dental office. Prior to the application of general anaesthesia, proper documentation shall address the foundation for the use of general anaesthesia, informed authority, instructions provided to the parent, dietary precautions, and preoperative health evaluation. In regards to pharmacologic behaviour management techniques, AAPD member dental practitioners prefer general anesthesia most frequently followed by conscious sedation (Adair *et al.*, 2004).

2.2.3 Nitrous Oxide/ Oxygen Inhalation

Nitrous oxide/oxygen inhalation or inhalation sedation is a secure and useful technique to decrease anxiety and develop effective communication. Its onset of action is quick, the effects simply are titrated and reversible, and improvement is fast and complete. In addition, nitrous oxide/oxygen inhalation intervene a variable amount of analgesia, gag reflex reduction and amnesia. It requires to diagnose and treat, as well as the protection of the patient and practitioner, and it must be measured before the use of nitrous oxide/oxygen. Its use is reported increasing among younger paediatric dentists (Carr *et al.*, 1999).

2.3 Parents Influenced on Selecting Different BMTs in Paediatric Dentistry

Every child is different. Hence, behaviour management is not one-size-fit-all and needs to be flexible and individualized for each child. Behavioural has meaning andgives clinicians insight about the child and family. The selection of BMTs should be made in consultation with parents, as parents play a crucial role in the successful dental management of the child. The patient-parent-dentist triangle is a dynamic relationship. Most parents with the given knowledge will make good decisions for their children. Not only do parents have autonomy over treatment decisions, but also on the materials used and the methods of delivery, their words and actions which can help shape a child's expectations and attitudes towards oral health. Parental acceptance of BMTs have a lot to do with how it is "framed," and when presented in the proper way, allow parents to understand the need and rationale for using such a technique. Therefore, it is important to understand which of the various techniques are acceptable to parents, and to identify factors that influence approval or disapproval of a technique.

Changes in parenting styles have greatly influenced the way pediatric dentists' practice. Studies have shown that parental rearing practices contribute to anxiety in children and how they cope with stress. Baumrind's three parenting styles (authoritarian, permissive, and authoritative) are commonly used in studies to determinetheir influence on a child's behaviour in the dental setting (Robinson *et al.*, 1995).

Investigators discovered that the children of authoritative parents easily tolerated the treatment course and mostly required no intervention, while children of authoritarian parents exhibited active body movements that required the use of restraint and VC (Aminabadi *et al.*, 2015). Another study found that children with authoritative parents exhibited more positive behaviour and less caries, compared to children with authoritarian and permissive parents (Howenstein *et al.*, 2015). There exists an intimate relationship between parenting styles and children's temperament; therefore, the child-parent interaction should be considered in behaviour management strategies. In a survey exploring the perception of board-certified pediatric dentists, the majority believed that today's parents are more overprotective and willing to accept their child's disrespect, and less tolerant of any suffering their child might experience from a dental procedure (Casamassimo *et al.*, 2002). In addition, as high as a 85% of the dentists believed these perceived shifts in parenting styles had resulted in "somewhat or much worse" patient behaviour (Casamassimo *et al.*, 2002). Pediatric dentistry presented with the challenge to modify BMTs to treat each patient in the most efficient and effective manner.

Machen (1984) were the first to demonstrate differences in parental acceptance of various BMTs. Parents in that study rated TSD as most accepting and the Papoose Board (Goetz *et al.*) as least accepting. Since then, numerous factors influencing parental acceptance of various BMTs have been investigated.

Fields Jr *et al.* (1984) investigated whether acceptability of BMT was dependent upon the type of dental procedure accomplished and found that most parents accepted GA and sedation only for extractions and restorations.

Lawrence *et al.* (1991) discovered that by providing an explanation of each BMT before it was shown in a videotape, parents were more accepting of the techniques. Abushal and Adenubi (2003) found that group viewers reported less acceptance levels than individual viewers.

Early studies have shown that parents preferred basic BMTs, such as TSD and PR, over pharmacologic techniques, such as GA and sedation (Machen, 1984). Over the past two decades, parental acceptability of basic BMTs remain popular and relatively stable, while aversive techniques, such as restraint and HOM have decreased in acceptability.

In a 2005 study conducted by (Eaton, 2005), GA was ranked as the third most acceptable technique by parents. With increased familiarity with outpatient GA, accessibility of surgical centers, and public drug marketing, modern parents are willing to forgo disciplinary actions and opt for pharmacological techniques (Strange, 2014). Although there appears to be a dramatic increase in parental acceptance of pharmacological BMTs in the US, studies conducted in different parts of the world did not necessarily follow the trend.

In Jordan, TSD, PR, and Dis were highly approved by parents, and HOM, NO, CS and GA were least approved by parents (Alammouri, 2006). A study conducted in Kuwait showed that most school children's parents preferred the non-pharmacological techniques over the pharmacological technique. In fact, CS was rated as the least acceptable technique by Kuwait parents (Muhammad *et al.*, 2011).

Recently, in examining Greek parents' attitude towards BMTs, TSD was found to be best accepted, followed by PP/A, and the least acceptable techniques were passive restraint and GA (Boka *et al.*, 2014). It is obvious that the rising acceptability of advanced pharmacologic BMTs is not universal. In addition, parents in Spain were most accepting of TSD and VC, and least accepting of HOM and PB (de León *et al.*, 2010). The results were like the study examining Hispanic parents in the US, which also found parents to be most accepting of TSD and least accepting of HOM and the PB (Scott and García-Godoy, 1998). Despite the passage of time, this interesting parallelism suggests a certain degree of cultural influence on parental acceptance of BMTs.

Cultural factors affecting behavioural guidance require arguably the up most attention in the increasingly diversified world today (Coll and Pachter, 2002). All practitioners encounter patients of a different culture daily and in certain instances, may have trouble or barrier in communicating treatment objectives and expectations. Every culture has its own set of values, beliefs and practices. A qualitative study was carried out in New York City aimed to investigate Chinese immigrants' beliefs and perspectives regarding dental treatment (Wong *et al.*, 2005). An emerging theme from the interviews was parents' fear about GA or any anaesthetic medicine due to their potential effect on the development of the child's brain (Wong *et al.*, 2005). Most Chinese parents believed that anaesthesia could cause physical problems and negatively affect a child's memory, temperament and growth (Wong *et al.*, 2005).

2.4 Parents and Paediatric Dentistry in Malaysia

Most of the Malaysia's population identifies, not surprisingly, as ethnically Malay. The Malay belongs to the Malayo-Polynesian ethno-linguistic family, reflecting ancestral ties to Borneo seafarers who made their way to the Malay Peninsula about

1,500 years ago. Today, the Malay make up about 50% of the total population of Malaysia. As the majority ethnicity, they do have a strong presence in the national economic, culture, and politics. Malaysia's second-largest ethnic population is, unlike the Malay, not ancestrally from the peninsula. Malaysia's population is about 22.6% Chinese, largely a result of major waves of Chinese immigration into the nation in the 19th century. It is, of course, important to remember that Chinese ethnicity is not an entirely homogenous category, and Malaysia holds populations of various subgroups of Chinese. The Cantonese-speaking Chinese live mostly in Malaysia's capital, while Mandarin-speakers live mostly in southern Malaysia and Hokkien-speakers live in the north. The third largest single ethnic group in Malaysia is the Indians, who make up about 6.7% of the total population. When the British Empire was at its height in the late 19th and early 20th centuries, many people from India were able to move easily across the empire in search of better economic opportunities. A number of these Indians ended up in Malaysia, which at the time was also a British colony. Hinduism is still practiced in Malaysia today, largely reflecting the influences of Indian immigrants on thenation.

According to a study by (Keshavarz, 2009) parents in Malay culture have crucial roles in directing the children toward the right behavior and attitude. Parents arealso responsible for transmitting the teachings of religion and culture to their children.Malay parents are regarded as clear authority figures and are obeyed without question.They pay attention to the spiritual growth in the development of the children. Malays continue to emphasize values such as unity, sharing, and caring for others. In Chinese family, interactions between parents and their child will be different from period to period. Parents tend to be more lenient toward infants and young children because theyare considered as tung-shih or too young to understand things (Keshavarz, 2009). Meanwhile for older children, they will be treated in harsh and strict manner ad also

they need to control their emotions and impulses. For the Chinese, dependency has been sustained when reaching the age of tung-shih. Parents must approve the major decisions of their children such as career and marriage (Keshavarz, 2009). According to previous study (Shek, 1998) there are some differences in parenting of the children according to their gender. Parents seem to have an authoritarian relationship with their sons; fathers also have firm rules as well as demand teaching for their sons than daughters (Keshavarz, 2009). The structure of the Indian families has been described as patriarchal, patrilineal, and patrilocal (Sheth, 1995) Indian parents tend to stress on respect, obedience, and high academic achievement in their children (Keshavarz, 2009). Furthermore, they encourage their children to control themselves, be patient and not yield to passion (Sala, 2002). In Indian families, sons and daughter will be treated differently. Parents protect their female children more than males. Additionally, children, particularly girls, are inhibited from showing assertive behavior and autonomy (Keshavarz, 2009).

Paediatric dentistry is one of the recognized specialties in Malaysian dental workforce. The Ministry of Health Malaysia (MOH) / Kementerian Kesihatan Malaysia (KKM) formalized paediatric dentistry as an independent department in all KKM hospital (Oral Health Program, Ministry of Health). At present, there are more than 30 hospitals with more than 40 specialists providing paediatric dentistry services in the KKM. They obtain a total of 13 recognized private and government universities' dental schools maintained by the Malaysia Dental Council. Each dental school has a paediatric dentistry unit which consists of paediatric dentists from different background.

In their study on dental students, Ali *et al.* (2021) aimed to identify the perceptions of BMT for paediatric patients in a Malaysian dental school. Using a validated questionnaire generated from previous literature, a classroom-style survey

was done on all dental students (Year 1 to Year 5, n = 336, response rate = 84.5%). Students utilized a visual analogue scale to register their acceptability score for each BMT; this number was then classed by different acceptance levels. Throughout the academic year, most students expressed support for positive reinforcement (e.g., encouraging a child "not to be a coward," promising a toy) and desensitization techniques (e.g., tell-show-do, music/video distraction, stimulating the child's imagination, using euphemism), but not for aversive interventions (e.g., hand over mouth, using Papoose Board, active immobilization) and sedation. The authors concluded that the outcomes of the study can be used to improve curricular content so that dental students are more equipped to implement suitable and effective BMT procedures during patient treatment (Ali *et al.*, 2021).

A research was carried to identify tparental perspectives of BMT in dental treatment for their preschool children in Malaysia. A 32–item questionnaire was developed and verified using seven videos of selected BMT. SPSS version 22 was used to analyze the data. A total of 55 parents were recruited in the study. Parents with children aged 3 to 5 years old make up the sample. Tell-Show-Do (TSD) is the most popular dental treatment method among parents. General anesthesia is the least popular. The authors concluded that the parents had above-average knowledge and perceptions of suggested behavior management approaches. Parents' concerns about their children's dental treatment will be alleviated if the approach is well explained and clarified (Wan Mokhtar *et al.*, 2019).

According to a study conducted by Rahman *et al.* (2021) the parental acceptance of different behavior management techniques (BMTs) used during dental treatment of children in three major ethnic groups (Chinese, Malay, and Indian) in Malaysia. A total