

# LET’S GEAR PAST THE FEAR – COMPARATIVE EVALUATION OF FILMED MODELLING AND TELL-SHOW-DO TECHNIQUE BASED ON SITUATIONAL ANXIETY DURING FIRST DENTAL VISIT– AN ORIGINAL STUDY

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## ABSTRACT

**BACKGROUND:** A successful dental treatment by a Paediatric dentist is depicted with a smile on the treated child’s face. The most popular techniques followed in practice for behaviour management of a child is Filmed Modelling and Tell-Show-Do which is compared in the present study.

**AIM:** To compare the effectiveness of Filmed Modelling and Tell-show-Do behaviour management technique on situational anxiety amongst the children during their first dental visit.

**MATERIALS & METHODS:** Children of age group between 5 to 9 years presenting for the first time to the dental outpatient unit were randomly selected for the study. 50 children were divided into two groups; Group I received Filmed Modelling technique and Group II received Tell-Show-Do technique. Each child’s anxiety was measured using modified Venham’s anxiety rating scale and physiological changes were monitored using pulse oximeter before behaviour management and after treatment by oral prophylaxis.

**RESULTS:** Student’s t test was done to compare the anxiety rating and Chi square test was done to compare the heart rates measured at two intervals. Statistically significant differences were seen in clinical anxiety rating scores between the two groups where Filmed Modelling was found to be better and no statistically significant differences were observed on comparison of heart rates between the two study groups.

**KEYWORDS:** Filmed modelling, Tell-Show-Do, Situational anxiety, Dental anxiety, Anxiety measurements

## INTRODUCTION:

Professional dental care is necessary for continued maintenance of good oral health. The AAPD emphasizes the importance of initiating professional oral health intervention in infancy and continuing through adolescence and beyond.<sup>1-3</sup> Every child in each age group has distinct developmental needs to be satisfied at specific intervals as a part of comprehensive evaluation.<sup>4,5</sup> The greatest obstacle that prevents an individual from actively involving in professional dental care are fear and anxiety. Odontophobia (dental fear) is a “unique phobia with special psychosomatic components that impact on the dental health of the odontophobic persons.”<sup>6</sup> Processes contributing to the etiology of dental fear and phobia are a variety of genetic, behavioural and cognitive factors.<sup>7</sup> Disruptive behaviour is found to occur when the level of fear is incongruent with the circumstance and patient exhibits an inability to control the impulses.<sup>8</sup> The reported incidence of dental fear and anxiety was found to be 17.1% in Singapore population, 30% in Chinese and 50% in Danish population, 11% incidence of dental phobia in German population.<sup>9,10,11</sup> The prevalence of dental fear was found to be 7.1% in Scottish population, 24.3% in Netherland population and a highest prevalence of 42.1% in Japan population.<sup>12,13,14</sup> These emotions cause behavioural changes that can interrupt with the treatment procedures. Certain behaviour management techniques like non-pharmacological or pharmacological techniques can be followed to manage these emotions at the dental operatory. One of the most common non-pharmacological technique adopted is Tell-show-Do as given by Addleston in 1959<sup>15</sup> where each procedure is explained to the patient to his/her level of understanding and this technique can be implemented only if the child is 3 year of age or older. Modelling is another technique by Bandura in 1967<sup>15</sup> that helps to alleviate the fear and anxiety in children. It is the process of acquiring behaviour through observation of a model where the child learns through social learning. In the current study, a comparison between Filmed Modelling and Tell-Show-Do non-pharmacological behaviour management techniques for children at their first dental visit was done.

## MATERIALS AND METHODS:

### STUDY SAMPLE:

The study was conducted in the outpatient unit of the department of Pedodontics where a total of 50 subjects between 5 to 9 years of age were randomly selected for the study.

The selection criteria included children reporting for their first dental visit and with no history of any medical conditions, especially those affecting the heart rate. Medically compromised and special children were excluded from the study including those with acute dental pain, abscess and those whose parents were not willing to allow their children to participate in the study. An informed consent was obtained from the parents of all participants after explaining in detail about the study procedure and the subjects were placed into two groups – Group I and Group II by random sampling.

Group I consisted of 25 children, who were conditioned using Filmed modelling technique, using an animated movie, to receive dental management.

Group II consisted of 25 children, who were conditioned using Tell-Show-Do technique by step-by-step explanation of the procedure and demonstration of the dental procedure, to receive the dental management.

The procedure of the study included initial evaluation by a blinded observer to record the Anxiety rating using modified Venham's 6-point anxiety rating scale<sup>16</sup> (Table 1) followed by recording of the heart rate by a peripheral pulse Oximeter (S.cure). The behaviour shaping was done according to the groups assigned. (Fig 1 and Fig 2) The anxiety rating scale and heart rate was evaluated and recorded following dental treatment. The data recorded was tabulated in a data sheet (Excel, MS Office. Ver2016) and evaluated statistically using a software (SPSS Ver 20). Statistical analysis for Venham's Anxiety rating was done using Chi-Square Test (Table 2) for evaluation of anxiety rating and Student's t Test for evaluation of pulse rate, before and after the anxiety management procedures in the children.



Fig 1: Filmed modelling



Fig 2: Tell-Show-Do

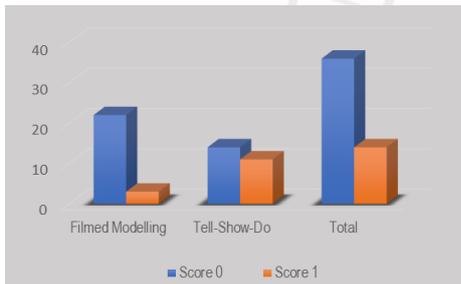


Fig 3: Graph showing the anxiety rating after the Treatment

**RESULT:**

A total of 50 children between 5 to 9 years of age participated in the study out of which 22 were male and 28 were female children. The first reading of anxiety rating score as measured by the blinded observer, showed that 72% of the children were tense, 14% were reluctant, 12% were unease and 2% of the study group exhibited interference. More number of children were tense with the characteristic features expressed in tone of voice, question, and answers reflecting anxiety; verbal protest, crying, hands tensed and raised but not interfering very much; protest more, distract, troublesome; children still complied with the request to cooperate.

A second anxiety rating using modified Venham’s index as measured following the treatment showed that 72% of the children were relaxed and the remaining 28% of them were unease. Out of the relaxed 72% of the population, most of the children belonged to Group 1 (Fig 3). Therefore, based on the anxiety rating score, Filmed Modelling was found to be significantly efficient than Tell-Show-Do technique.

Mean of heart rates in both the treatment groups were calculated and Student t test was done to analyse the differences in heart rate prior to behaviour management and following the treatment. (Table 3 & 4) Statistics showed a definite 5-point reduction in filmed modelling group whereas not much of a difference was observed in Tell-Show-Do technique. Although the overall correlation of

**Table 1. Venham’s Index. (modified 6-point anxiety rating scale)<sup>16</sup>**

Score	Criteria
0	RELAXED. Smiling, willing, able to converse, displays behaviour desired by the dentist
1	UNEASY. May protest briefly to indicate discomfort, hands remain down or partially raised; tense facial expression, high chest, capable to cooperate
2	TENSE. Tone of voice, question, and answers reflect anxiety; during stressful procedure, verbal protest, crying, hands tensed and raised but not interfering very much; protest more distract troublesome; child still complies with the request to cooperate
3	RELUCTANT. Pronounced verbal protest, crying using hands to stop procedure; treatment proceeds with difficulty
4	INTERFERENCE. General crying, body movements sometimes needing physical restraint, protest disrupts procedure
5	OUT OF CONTACT. Hard loud crying, swearing, screaming; unable to listen, trying to escape; physical restraint required

**Table 2. Chi-square test to analyse the difference in anxiety reading**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.349 <sup>a</sup>	1	.012		
Continuity Correction <sup>b</sup>	4.861	1	.027		
Likelihood Ratio	6.653	1	.010		
Fisher's Exact Test					
Linear-by-Linear Association	6.222	1	.013		
N of Valid Cases	50			0.025	0.013

**Table 3. Mean of measured heart rates before and after oral prophylaxis**

Paired T test	N	Behaviour Management	SIGNIFICANCE
	25	Filmed modelling	0.273
	25	TSD	0.076
	50	Overall correlation	0.075

**Table 4. Student t test for measured heart rates**

HEART RATES	MEAN HEART RATE	
	Filmed Modelling	Tell-Show-Do
Pre-treatment	102.08±14.52	97.92±16.75
After treatment	97.04±19.18	97.12±11.09

heart rates measured before and after the treatment was not significant (Table 2), the measured heart rate was found to be in accordance with the changes in anxiety rating score.

## DISCUSSION:

The study was undertaken to compare between filmed modelling and TSD in reducing children's anxiety at the dental operatory during their first dental visit. The comparison between the groups showed that Filmed modeling was more efficient than Tell-Show-Do technique which was

in accordance with the study results conducted by Mehra Paryab and Zeinab Arab 2011,<sup>17</sup> Hrishikesh Walimbe et al 2017<sup>18</sup> and Roshan et al 2018.<sup>19</sup> In the study conducted by Mehra Paryab and Zeinab Arab,<sup>17</sup> the behaviour management techniques were employed as pre-appointment preparation where they concluded that Filmed Modelling could be an effective alternative to TSD. Similarly, Roshan et al,<sup>19</sup> compared between filmed modelling and TSD between 6 to 9 years of age and had similar kind of results as concluded by Mehra Paryab and Zeinab Arab.<sup>17</sup>

As a variant, there are other articles that

support a newer behaviour shaping technique that could be effective than modelling. Modelling can be done as live modelling or filmed modelling. Between which, filmed modelling has more significance as the child may not be able to connect with the selected live model, as the social skills acquired is a varying parameter with every child. Also, in routine dental practice, a cooperative live model may not be always available for behaviour shaping of the child and it is also time consuming technique.<sup>18</sup> In our study, for filmed modelling technique, a previously existing film was extracted from the animated series named Caillou which depicted the clear picturization of a child at his/her first dental visit. The duration of the video was 4 minutes and the audio-visual were made available in both English and other regional language, Tamil. Children were given the freedom of choosing the language of their choice before the start of the video. Since it was an animated version, the acceptance amongst the children was more and therefore the concentration and observance towards the scene was well oriented. The age group selected for our study was between 5 to 9 years. At this age, sufficient communication skills to understand the behaviour shaping techniques are developed. The most important is the cognitive ability to understand the filmed modelling. The increment in the vocabulary, attention, and concentration abilities in this period is sign of their readiness for social communications as given by Piaget's classification. Therefore, a basic understanding of cognitive development of the child helps in providing ideal behaviour modification technique.<sup>20</sup> Hrishikesh Walimbe et al,<sup>18</sup> compared between live modelling, filmed modelling and TSD out of which filmed modelling was found to have better results than the other behaviour management techniques.

In contrast to the above discussed articles, other type of non-pharmacological technique was given by Aruna Prashanth Vishwakarma et al 2017<sup>20</sup> in which they evaluated the effectiveness of customized Tell-Play-Do technique with live modelling for behaviour management of children between 5 – 7 years and concluded that TPD is effective in reducing children's fear and anxiety about dental treatment as the children enjoy playing with customized dental object.

Therefore, from the results obtained from various studies that were compared, it is evident that all non-pharmacological behaviour management

techniques are found to reduce the fear and anxiety in the dental operatory. Based on the results obtained from our study, it was found that Filmed modelling cannot only be an alternative but also serve more effectively than TSD.

## CONCLUSION:

Assessment of behaviour is the most important factor in the hands of Paediatric dentist that enables to execute proper treatment plan in the most appropriate manner. Considering our study results, Filmed modelling is found to be more efficient than Tell-Show-Do. Even though, there was no statistically significant difference, it is evident that there lies a direct correlation between the changes in heart rate and anxiety rating score and also shows that both behaviour management techniques, Filmed Modelling and Tell-Show-Do are effective in reducing the child's anxiety during the dental treatment.

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## CONFLICTS OF INTEREST:

There are no conflicts of interest.

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