Comparative study to assess the effectiveness of Video modelling through You Tube with other popular methods like tell-show-do technique and live modelling

Abstract:

Background: Children usually respond to dental visits with some fear and anxiety. Delivery of effective dental treatment to a child patient requires thorough knowledge to recognize dental fear and its management by the application of behavioural management techniques. The present study was conducted to compare the effectiveness of three nonpharmacologic behavior management techniques, Tell-Show-Do (TSD) technique, Live modeling and Video modelling through you tube videos in managing behaviour and dental anxiety in uncooperative children during dental treatment.

Material & methods: Forty-five children, age 3-8 years indicated for restorations were divided into three groups as per the behavior guidance technique namely tell-show-do, live modelling and video modelling. Children with Frankl behaviour rating 2 and 3 were selected for this study. The behaviour was assessed using Frankl behaviour rating scale and anxiety indicators–Facial Image Scale (FIS) scores were recorded pre and post treatment.

Results: Chi square test shows that the value of Frankl Behaviour Rating Scale and Facial Image Scale between pre and post treatment had a significant difference in all three groups i.e. Tell-Show-Do, Video modeling, Live modelling behaviour management technique. Anova test shows that the value of Frankl Behaviour Rating Scale and Facial Image Scale pre-treatment and post-treatment had statistically insignificant difference in all three groups.

Conclusion: The study concluded that video modelling through YOU TUBE videos among 3-8 years old children was as effective as other conventional techniques to reduce anxiety and uncooperative behaviour in paediatric dental patients.

Key-words: Video modelling; Behaviour management; Frankl Behaviour Rating.

Introduction:

Dental appointment is a stressful situation, which raises children's anxiety level and avoidance behavior. Children's dental anxiety is an intense but situational and transient anxiety.[1] Several communicative, advanced and pharmacological interventions have been developed to manage children's anxious and cooperative behaviors.[2] Tell show do (TSD) (Nonpharmacological technique) is the most commonly used technique in pediatric dentistry. It consists of explaining and demonstrating the technique and the instruments used during treatment.[3] But as per various studies, two forms of modelling, live and filmed, have shown to be effective in reducing fear and anxiety in children towards dental treatment.[4,5] Modeling refers to learning by observation and children may reproduce behavior exhibited by the model in the same situation. It was described by

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Bandura in 1967 as a process which can reduce children's fear and avoidance behavior. Studies on modeling have demonstrated its therapeutic effect in management of anxiety[6,7] and educational effect in improving coping skills of children in medical stressful situations.[8] The American Academy of Pediatric Dentistry (AAPD) emphasizes more on the implementation of non-pharmacological behaviour management rather than pharmacological techniques.[9] It has been established that audio visual modelling, also known as filmed modelling can be equally effective in managing anxious paediatric patients.[10] This study was undertaken with the aim to assess the effectiveness of Video modelling through You Tube, compared with other popular methods like tell-show-do technique and live modelling.

Material & methods:

The present cross-sectional study was conducted among a total of 45 healthy children belonging to the 3-8-year age group. The source of sample included outpatients reporting to the Department of Pediatric and Preventive Dentistry at the dental hospital. Children and parents who were willing to participate in the study, children with no past dental experience, children who fall under Frankl behavior rating (FR) of 2 (negative) or 3 (positive) were included in the study. Children with special healthcare needs, children with an underlying systemic health condition were excluded from the study. An informed consent was taken from the parents or guardians of the children who were willing to participate in the study after explaining them the study. Rating 1 of the scale represented a child with "Definitely negative" behaviour where the refuses treatment and is forcefully crying. Rating 2 of the scale represents "negative" behavior where the child is reluctant towards the treatment but the negative behaviour is not as enhanced as Frankl behavior Rating 1. Frankl rating 3 represented "positive" behavior where the child accepts the treatment and follows the instructions of the dentist but is cautious about the procedure. Frankl rating 4 represents "definitely positive" behavior where the child shares a good rapport with the dentist and is interested and enjoying the procedure.Forty-five children, in the age group of 3-8 years, with Frankl behaviour rating 2 and 3 were divided into three groups namely Video Modelling through You Tube, Live modelling and Tell-show-do technique. Anxiety indicators–Facial Image Scale (FIS) scores and Frankl behaviour rating scale were recorded before, during and after restorative treatment.

Statistical analysis:

Statistical analysis was performed by compilation and presentation of the data and analysis of the data. The data was entered over a spreadsheet, and statistical analysis was performed using SPSS software version 22 (IBM, Armonk, New York, United States). Chi square test and Anova test was used.

Results:

Table 1: Pre-treatment and post treatment value of Frankl Behaviour Rating Scale with application of Tell-Show-Do, Video modeling, Live modelling behaviour management technique.

Pretreatment	T-S-D		Video Mod		Live Model		p value
	N	%	N	%	N	%	
Negative	10	66.7	8	53.3	8	53.3	0.76
Positive	5	33.3	7	46.7	7	46.7	
Posttreatment							
Negative	1	6.7	1	6.7	0	0	0.19
Positive	7	46.7	5	33.3	7	46.7	
Definitely Positive	7	46.7	9	60	8	53.3	
p value	<0.01*		<0.01*		<0.01*		

Chi square test shows that the value of Frankl Behaviour Rating Scale between pre and post treatment had a significant difference in all three groups i.e. Tell-Show-Do, Video modeling, Live modelling behaviour management technique.

Anova test shows that the value of Frankl Behaviour Rating Scale pre-treatment and post-treatment had statistically insignificant difference in all three groups

Table 2: Pre-treatment and post treatment value of Facial Image Scale with application of Tell-Show-Do, Video modeling, Live modelling behavior management technique.

Pretreatment	T-S-D		Video Mod		Live Model		p value
	N	%	N	%	N	%	
Mild Moderate	5	33.3	5	33.3	6	40	0.89
Moderate	8	53.3	8	53.3	7	46.7	
Moderate High	2	13.3	2	13.3	2	13.3	
Posttreatment							
None	3	20	3	20	1	6.7	0.19
Mild	10	66.7	12	80	12	80	
Mild Moderate	1	6.7	1	6.7	2	13.3	
Moderate	1	6.7	0	0	0	0	
Moderate High	0	0	9	60	0	0	
p value	0.009*		0.004*		<0.001*		

Chi square test shows that the value of Facial Image Scale between pre and post treatment had a significant difference in all three groups i.e. Tell-Show-Do, Video modeling, Live modelling behaviour management technique.

Anova test shows that the value of Facial Image Scale pre-treatment and post-treatment had statistically insignificant difference in all three groups.

Discussion:

Dental clinic is not a place where a child will walk in willingly rather it is the parent's decision. So, behaviour management techniques are highly essential to establish child-dentist communication, alleviating the child's fear regarding dental treatment, and enabling the dentist to provide quality dental care to the child. [11]

Carter AE et al in 2014, described various pathways of general fear and anxiety. These included Cognitive Conditioning, Informative, Visual Vicarious, Verbal Threat and Parental etiology.[12]

Based on Piaget's classification, children aged 4-6 years are in the pre-operational phase. The increment in vocabulary, attention, and concentration abilities in this period are signs of their readiness for social communications such as a dental visit.[13]

The present study revealed that Chi square test shows that the value of Frankl Behaviour Rating Scale and Facial Image Scale between pre and post treatment had a significant difference in all three groups i.e. Tell-Show-Do, Video modeling, Live modelling behaviour management technique. Anova test shows that the value of Frankl Behaviour Rating Scale and Facial Image Scale pre-treatment and post-treatment had statistically insignificant difference in all three groups.

Roshan NM et al (2018) evaluated the effectiveness of two nonpharmacologic behavior management techniques; filmed modeling (FM) and Tell-Show-Do (TSD) technique, on dental anxiety in children and to compare them based on heart rates and modified Venham's anxiety scale. The study concluded that Filmed modeling can be an efficient alternative method to TSD technique in preparation of the 6- to 9-year-old children during dental treatment.[3]

Tell-Show-Do technique is the backbone of the child's education and behavior guidance and is commonly used in the first appointment. The performance of Tell-Show-Do needs the time constraints of both the dentist and the parents.[14]

Alnamankany A (2019) evaluated the effect of video modelling on the reduction of dental anxiety (DA) in children receiving fissure sealants. The study concluded that Video modelling seems to be an effective method to reduce dental anxiety in children receiving fissure sealants. The mother's expectation of her child's behaviour appears to be a good indicator of the child's actual behaviour at the dentist.[15]

Dutta S et al (2023) evaluated the different non-pharmacological behaviour modification techniques preferred by the parents, to know whether single or multiple behaviour modification techniques are required to regulate the behaviour of the child and to assess the effectiveness of non-pharmacological behaviour modification techniques in the operating procedure. 30 children aged between 4-7 years who required pulp therapy treatment to be done under local anaesthesia were enrolled for the study with parental consent. A video containing different behaviour management techniques was shown to the parents who had accompanied the child to the operatory. A questionnaire was given to the parents for their feedback, the response to each question was coded and the values of each code were analyzed statistically. The parents' preferred technique was applied to their children before the planned treatment. Results showed that Nonpharmacological behaviour modification techniques were effective in 90% of the children and it was found to be highly significant ($p \leq 0.05$). It was seen that 66.67% of the children required more than one nonpharmacological behaviour modification technique to make them behave positively. The most preferred technique by the parents in this study was Positive Reinforcement (30%).[16]

The Frankl behaviour rating scale was used as it is considered reliable and assesses and describes the behaviour of a child to a great extent. All the children included in the study did not have any previous dental experience. The age group that was selected was between 3 to 8 years. The reason for selecting this age group was because children below the age group of 3 years would not have the understanding to interpret the video.

Conclusion:

According to our study, video modelling through YOU TUBE videos among 3-8 years old children is an effective way to reduce anxiety and uncooperative behaviour in paediatric dental patients.

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