Intervention Program on Dental Fear in Sekeloa Kindergarten Bandung Indonesia

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Abstract

Dental treatment is a situation that can cause stress, and eventually increasing the level of fear in children. Several communicative, advance and pharmacological interventions have been established to manage dental fear and uncooperative behavior in children, and it is more recommended focusing more on the non-pharmacological intervention. The purpose of this test is to evaluate the film and live modeling effects in reducing dental fear in pre-school children. The participants are students of Sekeloa Kindergaten Bandung Indonesia that have never been visit the dentists before. The program consists of five sessions that are divided into two visits, i.e. the visit in classroom and in dental practice room. Assessments before and after the model film simulation and after the treatment testing, each of the children is measured for the DF level using Facial Image Scales. Forty-five children participating in this intervention program. Before the film model simulation there is a balance between the number of children who are afraid and who are not afraid. After the film simulation, the number of children who are afraid is decreased. And so, after the test session, the number is decreasing a lot. The use of modeling video has a beneficial potency for clinical practices in reducing fear.

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Introduction

Dental fear (DF), or feeling afraid and anxious about visiting a dentist, is a significant problem for most children and teenagers, with a prevalence of about 5 to 20% in various countries. In some cases, severe DF is considered a dental phobia.[1,2,3] Children and teenagers with DF usually show uncooperative behavior during the dental visit, which causes difficulties in dental treatment.[2] This behavior affects treatment results, creates stress for the dental clinic staff, and usually causes conflict between the dentist and patients or their parents. Children and teenagers who are severely afraid avoid or delay treatment, which will eventually worsen their dental and oral health.

DF also causes sleep difficulty, affects daily activities,[4] and has a negative impact on the individual's psychological function.[5] DF that appears in childhood can be sustained continuously to adulthood, becoming a significant predictor of dental treatment rejection in adults.[6] Thus, it is critical that DF be identified, intercepted, and prevented in childhood, so that the individual's oral and dental health can be maintained for a longer period.

Dental treatment can cause stress and eventually increase the levels of fear and rejection in children. While DF in children is common, it is considered a situational and transient anxiety. Several communicative, advanced, and pharmacological interventions have been established to manage DF and uncooperative behavior in children.[7] The American Academy of Pediatric Dentistry (AAPD) recommends focus on more non-pharmacological interventions.[8]

The child's initial visit to the dentist is critical for establishing the child's attitude toward dentistry and its effect on the success of any ensuing treatment. Dentists aware of a child's anxiety in advance of the first visit and dental treatment often use the Tell-Show-Do Technique.

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Before any treatment is performed, children are informed about what will be done and then presented with a simulation. Tell-Show-Do is based on the learning theory principle,[7,9] and is usually performed by the dentist in the operatory. Other methods include desensitization, observational modeling, and therapeutic play, all of which are accepted child behavior modification media.[7] 'Modeling' refers to learning through observation, whereby children can imitate/copy the behavior performed by the model in the same situation. As explained by Bandura in 1967, this is a process that can reduce child fear and rejection.[9]

Modeling can be applied in two forms: live and on film. Studies of these forms have shown therapeutic effects in anxiety management,[10] and educational effects in improving the coping ability of children in medical situations that cause stress.[11] Modeling can also have appropriate educational effects in patients with various levels of intellectual and developmental disability.[12,13]

The use of live and film modeling techniques has already been tested as an effective intervention in preparing children for dental visits.[14] Real models such as friends, siblings, or parents are used before the visit to teach the uncertain child about the behavior expected.[15] Several studies have evaluated the effectiveness of film modeling in reducing children's DF, and have proved that such modeling can be as effective as live modeling and desensitizing methods.[16] In contrast to the other social-based learning methods, film modeling does not take the time of the dentist or dental staff, even though the desired solution has not been reached.[14]

In Indonesia, children often acquire incorrect information about dentists from their environment, including their parents, siblings, and friends. Therefore, an alternative intervention program was prepared by means of the modeling technique filmed in the pre-school classroom setting and continued with live modeling in the dental operatory setting. Initially, we tested this program in a kindergarten (Sekeloa Kindergarten) located near the Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia. The school was chosen because, from preliminary interviews, it was confirmed that its children were often exposed to incorrect information about dentists, which prevented them from seeking dental treatment. The purpose of this test was to evaluate the effects of film and live modeling on reducing dental fear in pre-school children.

Methodology

The strategy used in this program was based on supportive relationships. The intervention was intended to prevent dental fear through secondary prevention, because the participants could be exposed to dental fear through vicarious learning and verbal conditioning. The participants were students at the Sekeloa Kindergarten in Bandung, Indonesia, and had never before visited a dentist.

The program consisted of five sessions divided into two visits, i.e., the visit in the classroom and the visit in the dental operatory. The first visit featured counseling and continued with the film model simulation. In the counseling session, the participants were informed about dentists, the treatment performed by dentists, and reasons why the treatment was necessary. The medium used was a story drawing. The narrator was the dentist and the participants were in a small group of 5 or 6 in each session, lasting 10 minutes. The counseling session was followed by a seven-minute video viewing session.

The film showed dental treatment for an engaged model of a kindergarten student. The location was a child-friendly dental clinic. The scenario was comprehensive, starting with a welcome by the receptionist, sitting in the waiting room, meeting the nurse and dentist, and having the dental treatment. In several scenes, the camera zoomed in on the child's facial expression during the treatment, as well as on the facial expression and methods of the dentist when treating the patient.

The second visit involved monitoring via a live model and testing. The monitoring session was performed during the participants' visit to the dentist's office, where they could see and feel the situation and the action performed by the dentist. Five or six children constituted a group for the purposes of this monitoring session. The dentist cleaned the teeth of the live model. After the children monitored the live model, they tried the dental treatment on their own. The first author observed all sessions.

Assessment Method

Before the program was initiated, the children's DF levels were measured by means of the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS),[17] the Indonesian version that consists of 15 questions with 5 possible responses on a Likert scale. The participants' mothers completed the questionnaire. The total scores ranged from 15 to 75, with those responding above 38 to the DF criteria being included in the study as participants. The questionnaire had already been subjected to the language adaptation process in the Language Study Centre, Culture Faculty, Universitas Padjadjaran, and tested with the Cronbach Alpha reliability score of .966.

Before and after the model film simulation and after the treatment testing, each of the participants was measured for DF levels according to Facial Image Scales (FIS).[18] This device is based on 5 facial expressions, from 'not afraid' to 'very afraid'. The participants were asked by the first author to choose the picture that best represented their feeling after watching the film model.

Before the testing in the dental operatory, the behavior of each child was measured according to the Frankl Behavior Scale.[19] The behavior was measured observationally by the first author based on 4 behavior levels, from 'very negative' (1) to 'very positive' (4). After the test, participants were asked for their opinion about the dentist and the treatment. The questions were, 'Are you afraid of the dentist now? How was your feeling during the treatment? How was your feeling after the treatment?'

Results

The study was performed in the Sekeloa Kindergarten and received ethical approval from The Health Research Ethics Committee, Faculty of Medicine, Universitas Padjadjaran, Bandung,Indonesia. Of the 64 children, 56 had never been to a dentist, with a CFSS-DS score above 38, but only 45 parents gave permission for their children to participate in this study (3- to 6-year-old children). The intervention results data can be seen in Table 1.

CFSS-DS		FBS				FIS 1		FIS 2		FIS3		FIS 1-2			FIS 2-3		
DF	Non-DF	1	2	3	4	F	NF	F	NF	F	NF	increase	stable	decrease	increase	stable	decrease
2	43	3	13	22	7	22	23	13	32	5	40	2	22	21	1	17	27

Table 1. Intervention Result Data.
CFSS-DS=children fear survey schedule-dental subscale; FBS=Frankl behavior scale; FIS=facial image scale; DF=dental fear; F=afraid; NF= not afraid

Vicarious Learning	
Theme 1	Child become afraid of the dentist due to an experience of watching their parents when visiting a dentist
Theme 2	Child become afraid of the dentist due a negative story about dentist from their siblings
Theme 3	Child become afraid of the dentist due a negative story about dentist from their friends
Theme 4	Parents often give "visiting a dentist" as punishment if the child do something wrong

Table 2. Interview result on source of Information about dentist.

Table 2 shows that, before the film model simulation, there was a balance between the number of children who were afraid and those who were not afraid. After the film simulation, the number of children who were afraid decreased. After the test session, the number decreased significantly.

The data were analyzed by means of a paired-sample *t*-test, which showed that Facial Image Scale (FIS) scores decreased for children after watching the model film (from 2.80 to 2.22) as well as after the live modeling (from 2.22 to 1.62). Thus, it was concluded that FIS scores decreased from the beginning to the end of the program. Table 3 also shows a significant relation before and after the program, (.005) < α (.05), with an average correlation of .409.

	Facial Image Scale Score Mean	
	before	after
Correlation		
Watching film model	2.80	2.22
Simulation live model	2.22	1.62
Whole intervention	2.80	1.62
Average correlation		0.409
Alpha		0.005

Table 3. T-test analysis.

Discussion

Good communication is key to the development of a healthy relationship between the dentist and each patient. Based on Piaget's theory, children between the ages of 4 and 6 are in the pre-operational phase.[20] The development of vocabulary, attention span, and ability to concentrate are signs of their readiness for social communication, such as dental visits.[7]

The Tell-Show-Do technique is the backbone of early childhood education and behavioral guidance and is usually used at the first visit. Several epidemiology questions have revealed its positive effect on DF reduction. However, the Tell-Show-Do performance has limited application time for both the dentist and the parents. In this intervention program, the Tell-Show-Do technique is demonstrated in the monitoring and testing stages, where the child observes another person receiving the dental treatment, after which the child is asked to receive the treatment.[21]

The program was designed to evaluate the efficiency of a video recording model to familiarize the patient with the various aspects of a dental visit. The resulting program confirmed that the model successfully reduced the levels of fear in 4- to 6-year-old children and increased their cooperative behavior during dental treatment.

This film was produced with a child model of the same age and situation, and the video recording clearly shows the model handling a procedure similar to that proposed for the afraid child. This technique prevents the delivery of advanced information to the children who are sensitive to the procedure. In several scenarios, the child's expression responses to certain treatments are common. For example, they are shocked when hearing and feeling the drill on their teeth or when feeling the cold sensation of the cotton used to anesthetize gums during dental extraction. The Tell-Show-Do technique also shows a scene in which children see how the drill works on their nails.

At the end of the film, the model is complimented. Along with the presentation of correct information to children, the strengthening of appropriate behavior is the crucial element in the modeling procedure, which demands that the children learn and adjust their behavior to receive a compliment.[22]

Conclusion

In conclusion, the use of a modeling video is a powerful tool for clinical practices in facilitating knowledge acquisition, reducing anxiety, and improving their patients' ability to handle tense situations. This intervention is much better if combined directly with child testing, so that the Tell-Show-Do technique, already proven effective in reducing DF, can further improve the expected results.

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