Model Mentoring Teachers and Parents as an Efforts for Brushing Teeth Behavior in Preschool Children

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Abstract

The dental health problems of preschool children are higher compared to primary schools, this is due to children not being able to do independent activities in brushing their teeth. The teacher and parent mentoring model is a model of learning to brush teeth in an effort to form the behavior of preschool brushing teeth with a period of 10 days. Methods: This study is the Research and Development (R & D) and test the model using experimental quasy pretest and posttest with control group design. Preschoolers research subjects were divided into 2 groups: 1. Intervention model of mentoring teachers and parents brushing teeth 2. Model 21 days as the control. Data were tested using intraclass correlation coefficient tests, repeated measures anova, friedman, t-test and mann whitney. Results: The application of the teacher and parent mentoring model was equally effective with the 21-day brushing model for improved tooth-brushing skills ($p > 0.304$) and equally effective for increasing plaque-free scores ($p < 0.788$) compared to the control group. Conclusion: The application of the teacher and parents mentoring model effectively as efforts to establish the behavior of preschool children brushing teeth.

Keywords: *Mentoring; teachers and parents; behavior of brushing teeth; preschoolers*

Introduction

Dental caries in childhood can interfere with mastication system and interfere with the digestive system that can be detrimental to health and child development. Riskesdas in 2018 proved that the prevalence of dental health of children aged 5-6 years by 93% with def-t index of 8.43. Such conditions do not meet the WHO target and FDI is 50% of children aged 5-6 years free of dental caries.[1, 2] One cause of the high prevalence of dental caries for dental health maintenance behaviors are less than the maximum, this is evidenced Indonesia's population had brushed his teeth with the categories of behavior really only reached 2.8% and by 2.8 West Java Province.[2, 3]

Efforts to prevent the occurrence of dental caries can be done through the behavior of most major dental maintenance and recommended by way of brushing your teeth. That is the simple act of brushing teeth to remove plaque and food debris with a toothbrush and toothpaste, because plaque and leftover food is a major cause of dental caries, therefore, required the establishment of maintenance behavior of oral health from an early age.[4]

Early childhood is a "golden age period", meaning the golden period for all aspects of human development, whether physical, emotional and social cognition, where the development of intelligence in this period increased by 50%. Early childhood is the ideal time for a child's motor skills, including brushing teeth, so that will cause a sense of responsibility for the cleanliness of himself.[6]

Changes in a child's behavior depends on the ability of adaptation to the stimulus response beyond himself. It fits in the Roy adaptation theory (Sari et al, 2012) suggests that changes in a person's behavior depends on the incoming stimulus and adaptability of the person, that is to say through the right stimulus and the appropriate development of children, will help in entering the next phase of development is well. It is also affecting the child's behavior change is a stimulus

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from the environment, namely the involvement of members of the family and the school. Through the active participation of parents it will be better the child's behavior in brushing teeth. In addition teachers who can provide guidance brush after lunch to reduce the number of plaques students.[5, 7, 8]

According to the theory of behavior change (Maher, 2014) states that a person is required to change the habit of a constant period and conditioned for 21 days in order to change the habit.[9] as innovation researchers to model the formation of the behavior of brushing teeth with a time of intervention 10 days through the approach of the teachers and parents in phases: first 2 days of the formation of consciousness which aims to create knowledge, this phase teachers provide stimulus in the form of counseling, simulation and practice brushing teeth consistently using a variety of instructional media video brushing and parents accompany brushing teeth at night before bed, 2 days arouse interest in the second stage with the aim of having the ability to identify the child; 2 days of the third stage of formation the ability to assess (evaluate) aimed at children have ability compare; 2 The fourth day is awaken the ability to practice (try) with the purpose of the child has the ability to practice.

Based on this background, researchers are interested to prove that the application of the model and the teacher mentoring can shape the behavior of brushing teeth in 10 days, especially preschoolers.

Method

The method used in this research is the Research and Development (R & D) with quasy experiment (pre and post-test with control group design). This study aims to develop a learning model of oral health in preschool children. The procedure of research and development include the 5 main steps, as follows: 1) the collection of information, 2) design of products/ models, 3) expert validation and revision, 4) testing products/ models, and 5) the product.

The sample used in this study amounted to 123 people divided into 2 groups: Sample I: the sample for the information gathering stage with purposive sampling amounted to 9 people. Sample II: sample for model testing of teachers and parents with purposive sampling, 6 teachers, 54 parents and 54 preschool children. Data collection on the measurement of tooth brushing skills using an observation sheet to brush teeth and a plaque-free score using a free plaque examination sheet for preschoolers scores. The statistical test at the expert validation stage uses the intraclass corelation coefficient while the test phase is analyzed using repeated measure anova/friedman test and independent t-test/mann whitney test.

Result

A. Information collection

The results of the information gathering concluded that to shape the behavior of preschoolers in brushing their teeth, it is necessary to provide education on dental and oral health by providing education and practice of brushing their teeth through the assistance of parents and school teachers, who have previously been given training by dental health workers.

B. Product/ Model Design

The result data from information gathering is used to design teacher and parent mentoring models as a model for the formation of tooth brushing behavior for preschool children.

C. Validation Expert

Table 1. Statistical test the validity of the expert

Validity Expert *			
	n	**f (%)**	**p-value**
Relevant	10	100	0,000
Irrelevant	0	0	

* Correlation coefficient intraclass

The results of the validity of the experts pointed out that the p-value = 0.000, which means mentoring models relevant teachers and parents as a model of dental health education in preschool children.

D. Trial Product / Model

Table 2. Test the data pairs in the intervention group and the control group

Group Mean ± SD		Skills brushing teeth*		Free score plaque**	
		p-value	Mean ± SD	p-value	
Intervention	Pre-test	28.63 + 13.63	0.000	60.33 + 10:41	0.000
	Post-test1	98.33 + 2,304		91.70 + 4,331	
	Post-test2	99.63 + 0688		93.00 + 2,961	
Control	Pre-test	32.19 + 17.61	0.000	56.77 + 7334	0.000
	Post-test	96.26 + 3108		86.85 + 4.120	
	Post-test2	98.74 + 2.330		90.11 + 3,683	

** Friedman ** Repeated Measure Anova*

Table 2 shows the results of the effectiveness of paired data on tooth brushing skills and plaque-free scores showed the p-value of the intervention and control group was 0.000 ($p < 0.05$), meaning that the 10-day brushing model was accompanied by teachers and parents and the 21-day brushing model was equally effective Improve teeth brushing skills and plaque-free scores for preschoolers.

Table 3. Test data is unpaired intervention group and the control group

Group ΔMean + SD		Skills brushing teeth *		Free score plaque**	
		p-value	ΔMean + SD	p-value	
Intervention	Pre-test		0.304		0.788
	Post-test1	70.81 + 13.70		32.96 + 9460	
	Post-test2				
Control	Pre-test				
	Post-test	66.37 + 17:49		33.59 + 7526	
	Post-test2				

** Mann Whitney ** Indepenedent t-test*

Table 3 shows the results of the effectiveness of unpaired data on tooth brushing skills and plaque-free scores between the intervention group and the control group showed a p-value ($p > 0.05$), meaning that the model of assisting brushing teeth by teachers and parents 10 days and brushing models 21 days the same- is equally effective at improving preschool brushing skills and plaque-free scores.

F. **Product Results**

Products such as training curriculum and monitoring sheets brushing teeth is the output from the learning model development and media for the dental health of preschool children. Implementation of this model by providing a stimulus undertaken by school teachers and parents.

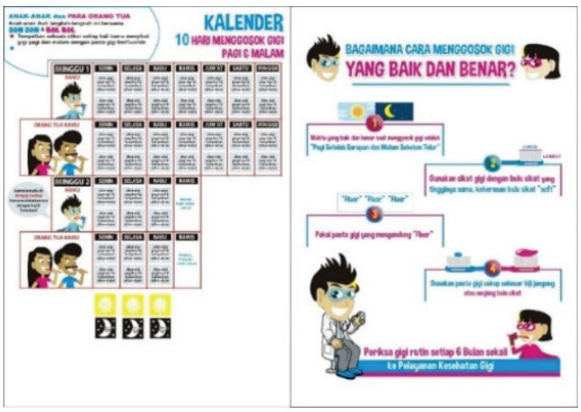

Figure 1. Monitoring sheets brushing teeth mentoring teachers and parents

Discusision

The collected information can be concluded that to establish the independence of preschool children in brushing teeth need for efforts to provide education

methods are appropriate and supported a variety of media that can attract attention so that children are able to carry it out and giving education/ stimulation in early childhood should be appropriate aspects of child development. The learning model brushing teeth suitable to realize it is a model of mentoring teachers and parents. The results of the validity of the experts pointed out that the p-value = 0.000, which means mentoring models relevant teachers and parents as a model of dental health education in preschool children.

The validation process is essential expert in the development of products / models in order to produce a product / model useful in improving the quality of education.[10] Based on the characteristics of preschool children have not been able to do their own hygiene activities including brushing their teeth so they still need help from others both teachers and parents. Teachers and parents have a role in their dental health maintenance behaviors, besides that they play an important role in a child's learning process such as learning to brush their teeth so that a school-based dental health program involving teachers and parents is effective in brushing children's teeth. Teachers and parents are given training aimed at improving knowledge, attitudes, actions for maintaining dental health towards the implementation of the model, so that it is expected to be able to transfer knowledge of skills to children. In accordance with the research of Gao et al. (2013) the model of dental health promotion to preschool children should emphasize promotive and preventive involvement by involving the role of parents and teachers in their implementation children.[11] School teacher for 10 days interventions such as counseling with simulation methods brushed his teeth using multiple media learning. To create awareness of children, the first 2 days every day a children is given counseling by watching the video brushing teeth followed by a simulation using pillow books and puzzles. Next go 2 the second day up to 2 days five children with a given extension by using a simulation method pillow books and puzzles as well as the practice of brushing your teeth.

The initial phase of school teachers do themed film screenings brushed his teeth using audio-visual media. The response of samples in initiating more passion and enthusiasm, which means that the stimulus given to the child succeed. This video media will make the child to concentrate to follow the activities because the two senses are used simultaneously view and hear. Children will understand the messages conveyed through animation moves seen concretely in the video that encourages the birth of a child's emotional response that ultimately children become enthusiastic or motivated to follow the next activity. This is consistent with the theory of behavioral change Stimulus-Organism-Response (SOR) which says that the different causes behavior changes depending on a given stimulus or stimuli.[12]

The results of the paired variable data effectiveness test showed that the intervention group's p-value was 0,000 ($p < 0.05$) meaning that the teacher and parent mentoring model was effective in improving the teeth brushing skills of preschool children. Teeth brushing skills in the intervention group increased because intervention was provided with simulations using pillow book and puzzle media, demonstration methods using phantom and brushing practice methods. Using multiple methods can improve a child's ability to brush his teeth

according to the objective indicators that researchers set. This is in line with research by Ruhaena (2015) using various methods to improve the skills of preschoolers.[13] In addition to using various methods, the implementation of the model also uses learning media so that children are directly involved in the use of media such as pillow books and puzzles and it is possible for many senses to play a role.

The more the five senses that are used will facilitate understanding of the material, someone who has an understanding of a concept, that person will easily do the practice. The practice of brushing teeth for 10 days consistently brushing their teeth in the morning after rest accompanied by the teacher and the night before going to bed with the assistance of parents has brought significant changes to the intervention group.

According to the theory of behavior change revealed to change a person's habits, it requires a constant period.[9]

The success of this model is also seen an increase in plaque-free score preschoolers. The test results showed that the effectiveness of the data pairs p-value intervention group was 0.000 ($p < 0.05$) means that the model mentoring teachers and parents to parents and teachers free of plaque effectively improve the scores of children. Score plaque free preschool children had increased because the sample had been taught to understand the practice to brush their teeth. Practice brush their teeth will be able to remove plaque. Research Raj (2013), proving that brushing your teeth with the correct technique will improve oral hygiene preschoolers.[14]

The results of the effectiveness of the unpaired test of tooth brushing skills in the intervention and control group were 0.304 ($p < 0.05$), meaning that the teacher and parent mentoring model was equally effective in increasing the brushing skills of preschool children compared to the brushing model for 21 days.

In the intervention group for 10 days effectively increasing the skills of brushing teeth of preschool children due to the advantages of mentoring models of teachers and parents provide a lot of stimulus in the learning process, the implementation is carried out by the teacher and parents and children are directly involved in demonstrating themselves how to brush teeth properly and correctly. Also supported by the toothbrush storage model facilities found in the intervention group, each child has a toothbrush and toothpaste as well as a storage mouth rinse for personal storage so that children find it easier to collect and store toothbrushes without the help of others. Facility support is one of the successes of the dental health program at school. Hayat Research (2013) factors that influence the success of UKGS are health service facilities.[15]

Conclusion

The results showed that the teacher and parent mentoring model had been shown to be effective in increasing the teeth-brushing skills of preschool children.

Ethical Clearance: This research was approved by the Health Research Ethics Commission of the Faculty of Dentistry of Sultan Agung Islamic University, Semarang, Indonesia under number 048/B.1-KEPK/ SA-FKG/ III/ 2019. We explained the objectives to the participants and received their written.

Source Funding: This study was done by self-funding from the authors.

Conflict of Interest: The authors declare that they have no conflict interests.

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