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BEHAVIORAL CHANGE THERAPY MODEL TRAINING AGAINST EFFORTS TO CHANGE TEETH BRUSHING BEHAVIOR OF PARENTS/GUARDIANS OF MENTALLY RETARDED CHILDREN

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ABSTRACT

Background: Dental and oral health problems are mostly experienced by the community, including mentally retarded children. This situation is caused by the low behavior of maintaining dental health. Mentally retarded children with all their limitations require the participation of parents/guardians. The behavior of brushing the teeth of parents has a big influence in increasing the behavior of brushing the teeth of mentally retarded children. Strategies for providing dental health education that are in accordance with the needs and abilities of children are urgently needed. The behavior change therapy model for parents/guardians is a learning model as a behavioral skill in brushing teeth for mentally retarded children. The purpose of this study is to produce a behavior change therapy model capable of improving the behavior of brushing the teeth of parents/guardians of mentally retarded children. Method : Research and Development (R& D) the procedure has 5 stages of information collection, model design, expert validation and revision, model testing, and final results of the model. The sample consists of 32 parents/guardians. Sampling using purposive sampling technique. The data from the model were tested by using a paired difference test, a difference test between groups, and a proportion test. The results show. **Results** In this study, it was found that changes were significant in increasing knowledge (0.000), attitudes (0.000), skills (0.000) of parents/guardians. Conclusion model of behavior change therapy is feasible and its application is effective in increasing the behavior of brushing the teeth of parents/guardians of mentally retarded children.

Keywords: behavioral change therapy model, tooth brushing behavior, parents/guardians of mentally retarded children

Introduction

World Health Organization (WHO) in 2016, 90% of school-age children worldwide experience dental caries.¹ The 2018 Basic Health Research shows that 57.6% of Indonesians have dental and oral health problems.² This is still far from Indonesia's national target in 2030 caries free.³

According to the Social Welfare Education and Research Agency (Badiklit Kesos), population data for people with severe disabilities in 2012 amounted to 3,342,303 people with a percentage of mentally retarded children as much as 13.68% (290,837 people).⁴ Dental health problems also occur in retarded children Saptiwi and Triyanto 2015 stated that the number of dental and oral hygiene (OHIS) which reached 97.4% was in the medium category at the Semarang City SLBN and 73.37% in the medium category at Widiasih Parigi SLBN.^{5,6}

Dental and oral disease can be caused by the accumulation of plaque in the oral cavity. Plaque will start to form immediately if you don't brush your teeth. However, efforts to reduce the accumulation of plaque in contact with the tooth surface must still be done to prevent cavities. ⁷ In addition to internal factors, there are also external factors of dental disease, namely the behavior of brushing the teeth of mentally retarded children who tend to be less good.

The impact caused by dental disease experienced by children will hinder the process of child growth and development such as the child's intellectual level will decrease if it occurs continuously for a long time. This is because children often leave school because of health problems.⁸

Mentally retarded children are classified into three namely debil, embicil and idiot.⁹ This is in accordance with the level of ability possessed. Children often experience intellectual, behavioral and social

weakness, sometimes even mentally retarded children have an imbalance in motor coordination, such as children who cannot hold their saliva, so they need oral exercise to overcome them.¹⁰⁻¹²

The needs of mentally retarded children are very diverse so that the role of teachers and parents is needed to teach about brushing teeth which is a maintenance effort. The participation of parents greatly influences the behavior of children. Children will follow parental behavior that is applied at home.¹³ Cooperation from various parties can improve optimal dental health in mentally retarded children.¹⁴ The skill of brushing teeth properly and thoroughly is an activity that is difficult for normal children to do.¹⁵ Collaborative learning methods between teamwork and the involvement of other components greatly affect the success of learning.¹⁶

The method of delivery must be adapted to aids or supporting media facilities for delivery.¹⁷ Effective media should utilize the more senses used to record information, the more likely it is to understand the information conveyed.¹⁸ *THERE IS* recommends principles of therapy in mentally retarded children where "play is a child's way of learning and an outlet for the innate needs of his activity".¹⁵

The model used to introduce good and correct ways of brushing teeth is the first step for children to improve tooth brushing behavior then it takes an effort with the innovation in the program of brushing teeth. Based on these problems, it is necessary to do research in an effort to improve in brushing teeth, it is often possible to produce innovations as an alternative to solve problems.

Methods

The method used in this research is Research and Development (R&D). The main steps of the research and development

procedure include five stages: 1). information gathering, 2). design and build models, 3). Expert validation and revision, 4). Module test, 5). Final result model.12 Measurement of knowledge, attitudes and skills of parents/guardians about brushing teeth with the following activities: pre-test, training and post-test.

Collecting information by identifying and analyzing the problems experienced by mentally retarded children about dental health through qualitative descriptive methods with observations and interviews with the Health Office, Education Office, Head of Public Health Center, Head of School, Psychologist, Dental Nurse, parents and UKS teachers.

The data resulting from the collection of information are used as the basis for compiling a model that will be applied to children with mental retardation that is tailored to the needs and abilities of the child.

Validation test is used to test the feasibility of the product before it is applied to the target. The validation stage was tested by 3 experts in the field of health promotion, psychologists and special education experts. The data collection technique used a questionnaire, then made a revision. Tests are carried out to produce a suitable model to be applied.

Product trials are applied to the target directly. Design used quasi experiment (*pre and post-test with control group design*) with 32 parents/guardians of mentally retarded children divided into 2, namely 16 in each group.

The purpose of this study was to develop a dental health learning method for mentally retarded children. The statistical test of research data at the expert validation stage used intraclass correlation, while at the trial stage in the control and intervention groups, the data was paired if the data were normally distributed using the repeated measure ANOVA test.

Results

A. Information Gathering

Mentally retarded children with characteristics that are limited in intellectual, behavioral, social and sometimes the ability to coordinate motor movements so that they need alternative behavior change programs in brushing teeth that are done repeatedly as well as providing education, practice and require parental mentoring roles. Training from dental health workers is needed by parents in providing correct education to children related to brushing teeth according to the condition of the child they have because each child has different abilities.

B. Model design

The data from the collection of information is designed in an effort to develop learning methods about brushing teeth in people who are expected to have good and correct parental/guardian tooth brushing behavior that can be useful in increasing the ability of mentally retarded children to brush their teeth independently as well as alternative changes in brushing behavior, namely the behavior change model. therapy brushing teeth in mentally retarded children

C. Expert Validation

This validation is carried out to obtain data that is used as a basis for testing the feasibility of the model.

Table 1 Expert Validation Statistic Test

Exam iner	Scor e	Aver age	Catego ry	P- Value
Exami ner I	87.27		Very worth it	0.001
Exami ner II	94.55	86.67		
Exami ner III	78.18			

**intraclass correlation coefficient*

Based on the results of the expert validators, it is known that the average score is 86.67 with a very decent category (without revision). The results of expert validity show that the p-value is 0.001 ($p < 0.05$) meaning that the model *behavior change therapy* feasible as a model of dental health education in mentally retarded children.

D. Test Model

This study aims to test the effectiveness of the behavior change therapy model on increasing the knowledge, attitudes and skills of parents/guardians. In order to determine the effectiveness of the model, two different groups were tested. The first group received a behavioral change therapy model of brushing teeth and the second group received a dental health program at school. Respondents in this study amounted to 32 parents/guardians of mentally retarded children.

Table 2 Data on the characteristics of parents

No	Charact eristics	Type of treatment				P-Value
		Interventi on		Control		
		N	%	N	%	
1	Age < 35 years old	5	15.6	2	6.3	0.212*
	> 35 years old	11	34.4	14	43.8	
2	Educati on	1	3.1	1	3.1	0.360**
	SD	2	6.3	0	0	
	junior	10	31.3	10	31.3	
	high school	3	9.4	5	15.6	
	SMAPT					
3	Work					0.741**
	entrepre neur	5	15.5	5	15.6	
	IRT	11	34.4	10	31.3	
	civil servant	0	0	1	3.1	

*chi-square **man whitney

Table 2 shows that the age of parents/guardians in the intervention and control groups is the majority > 35 years old. The results of the different test showed that the p-value was > 0.05, so it could be concluded that the age of the parents/guardians in this study had the same variance.

The education of parents/guardians in the intervention and control groups was majority high school, the results of the different test showed a p-value > 0.05, so it can be concluded that the education of parents/guardians had the same variance.

The majority of the work of parents/guardians in the intervention and control groups were housewives (IRT), the results of the different test showed a p-value > 0.05, so it can be concluded that the work of parents in this study had no difference.

This study aims to examine the effectiveness of the behavior change therapy model on increasing the knowledge, attitudes and skills of brushing the teeth of parents/wali

Table 3. Normality test of parental data

Variable	P-value	
	Interven tion	Control
Pre-test knowledge	0.262	0.004
Knowledge post test 1	0.001	0.019
Knowledge post test 2	0.002	0.094
Pre-test attitude	0.169	0.414
Post test attitude 1	0.296	0.270
Post test attitude 2	0.052	0.017
Pre test skills	0.109	0.094
Post test skills1	0.001	0.234
Skills post test2	0.000	0.004

*Shapiro-Wilk

The results of the normality test of parental behavior data showed that the p-value < 0.05 so it can be concluded that the data are not normally distributed, then use a non-parametric test. The total score

shows that the data is normally distributed, so the parametric test is used.

Table 4 Test the effectiveness of parental/guardian knowledge of mental retardation in the intervention group and the control group

Variables and groups	Mean±SD Pre-test	Mean±SD Post-test1	Mean±SD Post-test2	P-value
Paired Test*				
Intervention	7.00±1.033	8.56±0.629	9.31±0.704	0.000
Control	7.19±0.750	7.81±0.911	7.75±1,000	0.095
Paired Post Hoc Test**				
	Pretest-posttest1	Posttest1-posttest2	Pretest-posttest2	
	<i>P-value</i>	<i>P-value</i>	<i>P-value</i>	
Intervention	0.000	0.003	0.000	
Control	0.028	0.718	0.057	
Unpaired test ***				
	Post-test 1	Post-test 2		
Intervention	8.56±0.629	9.31±0.704		
Control	7.81±0.911	7.75±1,000		
P-value	0.011	0.000		
Unpaired test value of change (Δ)***				
	Mean±SD	Mean±SD	Mean±SD	
	Pretest-posttest1	Posttest1-posttest2	Pretest-posttest2	
Intervention	1.56±1.263	2.31±1.537	2.31±1.537	
Control	0.63±1.025	0.56±1.094	0.56±1.094	
P-value	0.028	0.001	0.001	

*repeated Mesuare Annova **Post Hoc LSD ***IndependentT-Test

The results of the paired data effectiveness test showed that the p-value of the intervention group was 0.000 ($p < 0.05$), meaning that the model *behavior change therapy* Brushing teeth in mentally retarded children is effective in increasing the knowledge of parents/guardians. The p-value of the control group was 0.095 ($p < 0.05$), meaning that the program model implemented in schools was not effective in increasing the knowledge of parents/guardians of mentally retarded children.

The results of the test of the effectiveness of unpaired data change the value of (Δ) pretest-posttest1, posttest1-posttest2 and pretest-posttest 2 were significantly proven with p-values of 0.028, 0.001 and 0.001 ($p < 0.05$), which means the model *behavior change therapy* brushing teeth is more effective in increasing the knowledge of parents / guardians compared to the model of dental health programs that are usually carried out in schools

Table 4.5 Test the effectiveness of the attitudes of parents/guardians of mentally retarded children in the intervention group and the control group

Variables and groups	Mean±SD Pre-test	Mean±SD Post-test1	Mean±SD Post-test2	P-value
Paired Test*				
Intervention	37.38±2.209	43.88±2.156	46.25±2.113	0.000
Control	39.75±2.2324	41.06±2.205	40.81±1.834	0.089
Paired Post Hoc Test**				
	Pretest-posttest1 <i>P-value</i>	Posttest1-posttest2 <i>P-value</i>	Pretest-posttest2 <i>P-value</i>	
Intervention	0.000	0.003	0.000	
Control	0.026	0.708	0.165	
Unpaired test ***				
	Post-test 1	Post-test 2		
Intervention	43.88±2.156	46.25±2.113		
Control	41.06±2.205	40.81±1.834		
P-value	0.001	0.000		
Unpaired test value of change (Δ)***				
	Mean±SD Pretest-posttest1	Mean±SD Posttest1-posttest2	Mean±SD Pretest-posttest2	
Intervention	6.50±1.966	8,88±2,500	8,88±2,500	
Control	1.31±2.120	1.06±2.909	1.06±2.909	
P-value	0.000	0.000	0.000	

*repeated Mesuare Annova **Post Hoc LSD***Independent T-Test

The results of the paired data effectiveness test showed that the p-value of the intervention group was 0.000 ($p < 0.05$), meaning that the behavior change therapy model of brushing teeth in mentally retarded children was effective in improving the attitudes of parents/guardians. The p-value of the control group was 0.089 ($p < 0.05$), meaning that the program model implemented in schools was not effective in improving the attitudes of parents/guardians of mentally retarded children.

The results of the test of the effectiveness of unpaired data change the value of (Δ) pretest-posttest1, posttest1-posttest2 and pre-posttest2 were significantly proven with p-values of 0.000, 0.000 and 0.000 ($p < 0.05$), which means the model *behavior change therapy* Brushing teeth in mentally retarded children is more effective in improving the attitudes of parents/guardians of mentally retarded children compared to the dental health program model that is usually done in schools.

Table 4.6 Testing the effectiveness of the skills of parents/guardians of mentally retarded children in the intervention group and the control group

Variables and groups	Mean±SD Pre-test	Mean±SD Post-test1	Mean±SD Post-test2	P-value
Paired Test*				
Intervention	8.31±1.302	10.69±1.662	11.50±1.033	0.000
Control	7.69±1.352	8.00±1.211	8.06±1.063	0.080
Paired Post Hoc Test**				
	Pretest-posttest1 <i>P-value</i>	Posttest1-posttest2 <i>P-value</i>	Pretest-posttest2 <i>P-value</i>	
Intervention	0.000	0.001	0.000	
Control	0.055	0.751	0.054	
Unpaired test ***				
	Post-test 1	Post-test 2		
Intervention	10.69±1.662	11.50±1.033		
Control	8.00±1.211	8.06±1.063		
P-value	0.000	0.000		
Unpaired test value of change (Δ)***				
	Mean±SD Pretest-posttest1	Mean±SD Posttest1-posttest2	Mean±SD Pretest-posttest2	
Intervention	2.38±1.204	0.81±0.834	3.19±0.911	
Control	0.31±0.602	0.06±0.772	0.38±0.719	
P-value	0.000	0.013	0.000	

*repeated Mesuare Annova **Post Hoc LSD*** Independent T-Test

The results of the paired data effectiveness test showed that the p-value of the intervention group was 0.000 ($p < 0.05$), meaning that the behavior change therapy model of brushing teeth in mentally retarded children was effective in improving the skills of parents/guardians. The p-value of the control group was 0.080 ($p < 0.05$), meaning that the program model implemented in schools was not effective in improving the skills of parents/guardians of mentally retarded children.

The results of the test of the effectiveness of unpaired data change the value of (Δ) pretest-posttest1, posttest1-posttest2 and pre-posttest2 were significantly proven with p-values of 0.000, 0.013 and 0.000 ($p < 0.05$), which means the model *behavior change therapy* Brushing teeth on mentally

retarded children is effective in improving the skills of parents/guardians of mentally retarded children compared to the dental health program model that is usually done in schools.

E. Model Results

The product is in the form of a behavioral change therapy model for brushing teeth in mentally retarded children which is the output of developing a learning model for brushing teeth in mentally retarded children. The implementation of the behavior change therapy model module is through the provision of stimuli carried out by teachers, parents, and mentally retarded children.



Picture of the output model of behavior change therapy

Discussion

The results of collecting information concluded that the behavior of mentally retarded children in brushing their teeth required efforts to provide education with appropriate and appropriate methods and supported by learning media that could attract attention so that children were able to carry it out.¹⁷ The results of expert validation showed that the p-value was 0.000, which means Behavior change therapy model brushing teeth in mentally retarded children is relevant as a model for dental health education programs for mentally retarded children. Expert validation is important to assess the feasibility of the basic concepts and theories used in a model/model. The model trial in this study was conducted on 32 parents/guardians of children.

The behavior change therapy model training on brushing teeth was carried out to parents in increasing the knowledge and attitude of brushing teeth. According to Santoso (2017), dental health maintenance training is an activity that is planned through a teaching and learning process that aims to provide knowledge and instill attitudes so that a person can independently perform dental and oral hygiene maintenance actions.

The results of the effectiveness test of the paired variable knowledge and attitude of brushing teeth showed that the p-value of the

intervention group was 0.000 ($p < 0.05$), which means that the behavior change therapy model was effective in changing the behavior of parents/guardians of mentally retarded children in brushing their teeth.

The role of parents to children in dental and oral health is very influential. This is in accordance with Panjaitan's research (2011) that parental guidance and assistance to children in terms of maintaining oral and dental hygiene is very necessary as a role model. The facilities provided by parents in maintaining oral hygiene are also very important so that children can easily brush their teeth to keep their teeth and mouth clean.

Parents who have been given training are role models for mentally retarded children because then parents will become models as an effort to shape children's tooth brushing behavior. According to Rini (2012) parental assistance in brushing teeth greatly influences changes in tooth brushing behavior and the level of children's dental hygiene.²¹ The same study by Amelia in (2019) stated that parental participation was needed in providing guidance, understanding, reminding, and provide necessities in brushing teeth, in order to maintain dental and oral hygiene

Conclusion

Based on the results of the study, it can be concluded that the behavior change therapy model is feasible and its application is effective as an effort to increase the tooth brushing behavior of parents/guardians of mentally retarded children. It is expected that the role of parents/guardians as a companion for children is very necessary so that the creation of good brushing behavior in children and this model can be used as a special program to improve tooth brushing behavior in mentally retarded children.

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