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Modification of problem-based learning and role play models to skills early detection of dental caries

(Study to Parents at Integrated Islamic Elementary School, Manokwari District, West Papua Province, Indonesia)

Karsum Udin¹, Lanny Sunarjo², Ari Suwondo², Bedjo Santoso², Diyah Fatmasari²

¹Postgraduate Program in Oral Health Therapist Master of Applied Health Polytechnic Semarang

²Postgraduate Health Polytechnic Semarang Indonesia

*Corresponding Author: Karsum Udin

Email id: karsum123udin@gmail.com

ABSTRACT

Background

The UKGS program has been running since 1951 but the results have not been satisfactory, the results of the Basic Health Research show that the caries experience index in the 12 year age group (DMF-T) has increased from 0.91 in 2007 to 1.4 in 2013. early prevention of dental caries involves the participation of parents through training with modification of Problem Based Learning (PBL) and Role Play models

Material and Methods

Quasi-experiment with pretest-posttest with control group design. The independent variable of this study is the modification of PBL and Role Play and the dependent variable is the skill of early detection of dental caries. Data retrieval uses an observation sheet. The number of samples of 25 people as an intervention group received training using PBL and Role Play modification methods, 25 people received training with the lecture method as a control group. The analysis used univariate and bivariate.

Results

Training with modification of PBL and Role Play increased skill (0.001). This indicates that the value of $p < 0.05$ means that there are significant differences before and after treatment.

Conclusion

Modification of Problem Based Learning and Role Play models effectively increases skills of early detection of dental caries

Keyword: Modification PBL and Role Playing, Skill, Early detection of dental caries

INTRODUCTION

The UKGS program has been running since 1951 but the results have not been satisfactory, the results of basic health research show that in 2007 the caries experience index in the 12 year age group (DMF-T) 0.91 increased 1.4 in 2013 [1]. Dental caries occurs due to the demineralization process of bacterial interactions on the tooth surface. Bacteria are acidic so that in a certain period of time, the acid will damage the tooth enamel and cause the tooth to become hollow. The etiological factors for carries are microorganisms, plaque, diet and time. [2]

Dental plaque plays an important role in causing caries. [3] efforts to control plaque mechanically can be done periodically every 6 months to dental health facilities. Behavior is one of the causes of caries in permanent teeth. [4] Low parental participation in maintaining dental and oral health. [5]

Parent's knowledge and skills can be enhanced by training. Some studies say that counseling and training for health cadres provide effective results in increasing knowledge, attitudes and actions. [6] The lecture method is a teaching method that is very popular to use because the use of the lecture method is easier and does not require a lot of equipment. But over time the lecture method was considered boring and made participants become passive in participating in the training. [7]

Problem-based learning is an educational model that encourages parents to know how to learn and work with groups to find solutions to real-world problems, problem simulations are used to activate parents' curiosity. [8]

The role-playing model is a way of developing the imagination and appreciation of parents by acting as parents and children. There is an influence of role-playing and audiovisual training on the level of knowledge and attitudes of trainees. [9]

Detection of early caries is a visual screening model that can detect dental caries early, record on the child's dental control card and immediately bring it to a dental health facility. Card controls the child's teeth as parental records and evaluation of dental health workers. Early caries detection model by looking at skills that parents have after training.

MATERIAL AND METHODS

This type of research is the Quasy Experiment research with pretest and post-test design with a control group design. The sample in this study were parents of class II of integrated Islamic elementary school students in the district of Manokwari, West Papua, Indonesia. The sample consisted of 50 respondents consisting of 25 respondents in the treatment group who were given training in a modification of problem-based learning and role play models for 4 times with a duration of 8 hours/training and in the control group as many as 25 respondents. Measuring tool uses a checklist.

In this study, research ethics included informed consent, anonymity, confidentiality, and truth. Ethical approval was obtained from the Health Polytechnic Semarang Health Research Ethics Committee.

RESULTS

Table 1. Respondents characteristics

Variable	Group intervention		Group control		P
	n = 25	%	n = 25	%	
Age					
26-35 years old	8	32	11	44	0,254
36-45 years old	14	56	12	48	
46-65 years old	3	12	2	8	
Gender					
Female	19	76	21	84	0,165
Male	6	24	4	16	

Education					
Senior High School	13	52	10	40	0,447
Degree	12	48	15	60	

Table 1 shows the age of respondents dominated by the age group 36-45 years in the intervention group 56%, the control group 48%. The level of education of respondents in the intervention group was 13 (52%) people and degree education was 12 (48%). While the control

group of high school education is 10 (40%) people, a degree is 15 (60%) people. The highest gender in both groups was 84% in the intervention group and 76% in the control group. The homogeneity test results between the characteristics of the two groups showed no differences ($p > 0.05$).

Table 2. Different test between an intervention group and control on Skills Early Detection Of Dental Caries.

Time	Intervensi Mean Rank	Kontrol Mean Rank	Z	P value
<i>Pre-test</i>	1,04	1,96	-134	0,465
<i>Post-test 1</i>	2,06	2,38	-4,857	0,001
<i>Post-test 2</i>	2,94	2,88	-6,038	0,001
<i>Post-test 3</i>	4,00	3,78	-6,462	0,001
<i>Post-test 4</i>	4,96	3,98	-6,822	0,001

Table 2 shows that there is a difference in the average rank scores of parents' skills in the intervention group and the control group among the five measurement times, namely before, a day after training, 7th day, 14th day, 21st day after training with $p = 0.001$

DISCUSSION

The results of the statistical analysis of the two unpaired groups showed that the modified method of Problem Based Learning and Role Play was more influential than the conventional method, this was indicated by the value between the two groups was $p < 0.05$.

This is because the learning process with Problem Based Learning methods relies on independent learning experiences and focuses on the skills of parents in finding sources of information about dental health and how to detect early dental caries in children. The training given to parents aims to build and maintain behavior in maintaining the health of children's teeth in the continuity of dental and oral health programs. Learning method with approach Problem-based learning is more effective because parents engage in discussions with groups so that they can provide input to each other's problems or cases. [10] In the learning process with the PBL method, parents can

easily obtain information, the media has an important role in providing new information that will form attitudes towards the health of the child's teeth and mouth. This method is modified with Role Play or role-playing between parents observing each other after discussing what has been seen. When playing the role of parents, students use cards to detect early dental caries.

The theory of Proceed Proceed suggests that one's knowledge in understanding an object influences that person to behave is a predisposing factor in changing health behavior. After someone knows the stimulus or object of health, then conducts an assessment or attitude, the next process is expected to he will practice what he knows by considering information and beliefs about the benefits and disadvantages. According to this theory, in addition to knowledge and attitudes, reinforcing factors, namely the availability of early detection cards as a means to monitor the development of children's dental health, have an effect on behavioral change, the participation of parents themselves is a supporting factor in changes in dental and oral health behavior.

Modification of Problem Based Learning and Role Play is the method used in this training is different from conventional methods. This method is more about solving problems that occur in the field and more practice the practice of detecting

dental caries while in the control group do not practice. The results of previous studies that training will improve cadres' skills in providing counseling to the community. [11]

Research results in Hong Kong stated that active learning and experience can be obtained with the Problem Based Learning method then achieved through role-playing, this method can improve the skills of care students. [12]. Parents' skills in this study were measured by the ability of parents to fill in the early detection card of dental caries and apply skills carried out continuously for 4 times.

In this intervention group, parents are trained to develop ways to find, ask, express, make decisions and parents train themselves to be creative in practice roles. [13]

Meaning that the more it is done repeatedly, the more it will sharpen the skills so that it will increase. While the training control group provided

with the lecture method has not been able to improve the skills of parents.

Training with the modification method of Problem Based Learning and Role Play increases the parents' skills. The results of this study are in line with research which states that the Problem Based Learning method increases cadre skills longer than conventional methods in integrated service center cadres. [14] Another study also stated that training with Role Play increased the skills of health center cadres in detecting mental disorders. [15]

CONCLUSION

Modification of Problem Based Learning and Role Playing models has an effect on improving the skills of early detection of dental caries

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