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The influence of demonstration method education in the knowledge of tooth brushing in children age 10–12 years[☆]



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Abstract

Objective: To observe the influence of demonstration methods education on the knowledge of tooth brushing in primary school children in the 10–12 years age group.

Methods: The type of research used in this study is quasi-experimental research design with One-Group Pre-Test-Post Test Design. This research uses cross-sectional. Data were tested using the Wilcoxon Signed Ranks Test.

Results: Showed an increase in the level of knowledge of tooth brushing in students aged 10–12 years after education with the demonstration method, where for pre-treatment students were still found with a sufficient level of knowledge.

Conclusion: Education with the demonstration method influenced the knowledge of tooth brushing in elementary school children in the 10–12 year age group.

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Introduction

According to Kay and Locker, health education is helpful in raising the level of knowledge, and in changing both atti-

tudes and beliefs.¹ Health promotion programs provide not only schoolchildren but also their parents, with adequate information on dental care involving oral health habits and attitudes. The entire family should take responsibility for their dental hygiene.²

Few aspects of health areas accessible to personal control as oral hygiene, which can be improved by simple behavioral changes.³ A dental health education (DHE) program, which has as its objective, the improvement of the oral hygiene status of the participants would have obvious merits.⁴ DHE encompasses publicity campaigns, occasional talks at an elementary school, a showing of dental health films, and an extensive, reinforced program in a school curriculum.^{5,6}

¹ Peer-review under responsibility of the scientific committee of the International Conference on Women and Societal Perspective on Quality of Life (WOSQUAL-2019). Full-text and the content of it is under responsibility of authors of the article.

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Several factors are essential for effective DHE such as repetition and reinforcement of oral hygiene instructions. These concepts show significant, positive, short-range and long-term effects.

In education requires tools, especially for children. The use of these tools can change the behavior of children and is very important to achieve the goals of education. Dental and oral health education usually contain knowledge about how to maintain oral health. One example is the knowledge of how to brush teeth. The child is expected to be able to know the right type of toothbrush and toothpaste, the correct method of brushing teeth, and the right time and frequency of brushing.⁷

Delivering education material to the target must pay attention to the compatibility between the method used and the tools or supporting media for the delivery of the material. The use of media in learning helps provide meaningful experiences for children because it makes it easier for children to understand the material. Basically the educational process that involves more senses will be easier to be accepted and remembered by individuals. Dental and oral health education will be more effective and optimal by using appropriate methods and media.^{8,9}

Innovative methods for health education are very important to make a profit.⁴ Child to child approached education methods are a new way to provide health education to school children and the use of these methods maximize their spread health messages. This is an encouraging active method learn the easy way. The child has the power to spread the health message, therefore, connects what is educated in the schoolroom with what to do outside the classroom and at home. A child sends a health message to a younger brother and sisters, friends and therefore work together to become one a positive force for health.¹⁰

The age of 10–12 years is an effective age to provide information that leads to children's cognitive and motor development, for example brushing their teeth. Motor development in accordance with physical development, so it is very good when given instruction about brushing teeth at that age.^{7,11}

Based on the description above, the researcher is interested in examining the influence of demonstration methods education on the knowledge of tooth brushing in primary school children in the 10–12-year age group.

Methods

This type of research used in this study is quasi-experimental research design with One-Group Pre-Test-Post Test Design with the treatment group acting as a control. Observations were made pre-test and post-test treatment. The research approach used in this study uses a cross-sectional approach, namely observation. This research was conducted at the Toddopuli Makassar Elementary School in April 2019.

The population in this study is the Toddopuli Makassar Elementary School students in the age group of 10–12 years as many as 80 people. This research subject was chosen according to the research criteria. Inclusion criteria are, present when the research takes place, willing to be respondents by participating in all the series of studies. Exclusion criteria were not following education to completion, not

$$\% \text{ Knowledge} = \frac{\text{Correct answer}}{\text{Total questions given}} \times 100\%$$

Figure 1 Formula of the level of knowledge of children's oral health.

Table 1 Distribution of students by gender in Toddopuli Elementary School Makassar City.

Gender	N	%
Male	32	44.4
Female	40	55.6
Total	72	100

Table 2 Distribution of students by age 10–12 years in Toddopuli Elementary School Makassar City.

Age	N	%
10	24	33.4
11	31	43.1
12	17	23.5
Total	72	100

completing the pre-education questionnaires. The level of dental and oral health knowledge was assessed using a questionnaire. The number of correct answers is then recorded to be assessed using the formula.⁸

The level of knowledge of children's oral health can be determined by the formula (Fig. 1).

Information:

- Level of knowledge is less if the value $\leq 50\%$
- Level of knowledge is quite if the value is 50–75%
- Level of knowledge is good if the value $\geq 75\%$

Data processing using the help of SPSS software for windows.

Results

Knowledge of tooth brushing of Toddopuli Makassar Elementary School students was assessed by giving Pre education and post-education questionnaires. Then the answers are input and data processing, and analysis is done using the SPSS program (Table 1). Data were tested using the Wilcoxon Signed Ranks Test.

The data in Table 1 show that Toddopuli Makassar Elementary School students who attended education are more female as much as 40 students (55.6%) compared to male-only 32 students (44.4%).

The data in Table 2 show that Toddopuli Makassar Elementary School students in the 10–12 years age group who participated in this study had the most students aged 11 years as many as 31 students (43.1%) and the least students aged 12 years were 24 students (33.4%).

Table 3 shows that before education with the demonstration method the level of knowledge with the largest

Table 3 Knowledge of School students according to the knowledge of tooth brushing before and after education.

Knowledge level	Pre-test		Post-test	
	N	%	N	%
Less	0	0.0	0	0.0
Enough	13	18.1	0	0.0
Good	59	81.9	72	100
Total	72	100	72	100

Table 4 Wilcoxon Signed Ranks Test analysis results.

	N	Mean rank	Sum of ranks
<i>Post-pre</i>			
Negative ranks	0 ^a	.00	.00
Positive ranks	65 ^b	33.00	2145.00
Ties	7 ^c		
Total	72		

^a Post Test < Pre Test.

^b Post Test > Pre Test.

^c Post Test = Pre Test.

proportion is knowledge in the good category that is 59 students (82%) and the smallest is the less category (0%). However, there are still a number of children in enough category as many as 13 students (18.1%). For the level of knowledge, after the demonstration method education, there was a reversible change in the positive direction, where there is no more enough or sufficient categories found.

The results showed an increase in the level of knowledge of tooth brushing in students aged 10–12 years after education with the demonstration method. In the pre-treatment students still found student with enough level of knowledge. After the demonstration method education, there was a reverse change in the positive direction where there is no longer enough or sufficient categories found. This change is supported by the results of statistical tests with the Wilcoxon Signed Ranks Test. Table 4 shows the positive ranks of 65 students. This situation shows that there are significant differences in the level of knowledge of toothbrushing of elementary school Toddopuli Makassar Primary students in the age group of 12 years before and after education with demonstrated methods.

Discussion

Based on the results of the study after education using the demonstration method shows that the overall level of student knowledge is included in good criteria. A total of 65 students (90.28%) experienced an increase in knowledge after being educated with the demonstration method. This means the demonstration method can be useful for increasing student knowledge. The results of this study are in line with the research of Hestiani et al.¹² which shows that there are 54 out of 60 respondents whose knowledge has increased from less to sufficient categories. Increased knowledge of respondents due to their willingness to know the prevention of dental caries through toothbrush demonstrations

and pay attention to the interventions provided, in addition to the learning media used to provide motivation and psychological influence for respondents. The media used in this study were a demonstration (tooth brushing). Providing information with an interesting demonstration and pleasant atmosphere can make respondents more receptive.¹³ These results are also in line with the research of Netty and Relintan¹⁴ who used Phantom as a demonstration media.

Education using demonstrations has the advantage, the process of delivering educational material will be more memorable for participants, forming understanding properly and perfectly, and will be maximized if participants actively participate. In general, people will usually believe in something that is seen directly or done by themselves rather than being heard. Demonstrations can be repeated and let participants try to use teaching aids that are in accordance with the teaching material. The existence of this condition is in accordance with an Edgar Dale's theory which says that the more concrete the media, the better the level of target acceptance, conversely the more abstract a medium is, the less the acceptance level will be. In this case the demonstration provides a concrete experience to the education participants because with the demonstration the target is given direct experience to look more closely at it.⁸

The factors that influence health education are aspects of the selection of methods, tools/media, and the number of target groups. Meaning that to get the maximum results of education, influenced by these three factors. The media used is determined by the intensity of the media in providing learning experiences to students. The method of demonstration with teaching aids will involve several senses when receiving educational material, so the delivery of material to participants will be more effective. A person can learn something better by using more than one sense when receiving education. What is remembered from the content of counseling is 50% of what is heard and seen. The more senses used in learning is better. Between the five senses, the one distributes most of the knowledge to the brain are the eyes (approximately up to 87%), while 13% of human knowledge is acquired through other senses.

Conclusion

Based on the results of the study, it can be concluded that education with the demonstration method has an influence on the knowledge of tooth-brushing in elementary school children in the 12-year age group. There is an increase in the knowledge of tooth brushing elementary school Toddopuli Makassar Primary students in the age group of 12 years after education using the demonstration method.

Conflict of interest

The authors declare no conflict of interest.

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