



## Research Article

## The Effect of Tooth Brushing Counseling on Increasing Knowledge of Dental and Oral Health of Physical Education Teachers

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### ABSTRACT

Background: Dental and oral health requires comprehensive handling. Prevention of dental and oral diseases can be done by providing dental health education from an early age, counseling is very effective in improving the level of dental and oral health. Purpose: To determine the effect of brushing counseling on dental and oral health knowledge of elementary physical education teachers in Padang Panjang. Methods: This type of research is a quasi-experimental research with a total sampling technique with a total population of 42 physical education teachers, 21 people are included in the experimental group, namely the group that is given counseling and 21 others are included in the control group, namely the group that is given counseling using leaflet media. This study uses the Wilcoxon Signed Ranks Test hypothesis test. Results: The level of knowledge of dental and oral health before counseling was 33.3% in good criteria, 47.6% enough and 19.0% less and after counseling it became a good category that is, 90.5%, enough 9.5% and less as much as 0 %. The Wilcoxon Signed Ranks Test results showed significant value of 0.000 and 0.000 < 0.05. Conclusion: Counseling teeth brushing an effects on increasing knowledge of oral and dental health on physical education teachers

**Keywords:** Counseling, knowledge, physical education teacher

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### INTRODUCTION

Health is a healthy state, both physically, mentally, spiritually and socially so that everyone can live productively socially and economically. Health development aims to increase awareness, willingness and ability to live a healthy life for everyone in order to realize the highest degree of public health. Efforts to realize the highest degree of health for the community are carried out using integrated and comprehensive activities in the form of individual health efforts and public health efforts. Health efforts can be carried out in the form of promotive, preventive, curative and rehabilitative approaches that are carried out in an integrated, comprehensive and sustainable manner.<sup>1-4</sup>

Dental and oral health requires comprehensive treatment because it is a public health problem, the handling must be done quickly and precisely because it has a very broad impact, the most important way is by brushing teeth, maintaining dental and oral health behavior by brushing teeth is still low, this is indicated by data that 91.1% of the Indonesian population has brushed their teeth, but only 2.8% have behaved properly in brushing their teeth. The proportion of people who brush their teeth every day after breakfast is only 12.6% and before going to bed at night is only 28.7%, this may be due to a lack of knowledge and public awareness of dental and oral hygiene. Based on the results of basic health research in 2018, the proportion of dental problems in Indonesia is tooth decay/cavities/pain as much as 45.3%, while

the majority of oral problems experienced by the Indonesian population are swollen gums or abscesses by 14%.<sup>5-8</sup>

Prevention of dental and oral diseases can be done by providing dental health education from an early age, because this counseling is very effective in improving the level of dental and oral health. Knowledge is the result of knowing that occurs after people sense an object. Sensing can occur through the five human senses, namely through the senses of sight, hearing, smell, taste and touch. Human knowledge is generally obtained through the eyes and ears, knowledge is very important in shaping one's actions. The first step of health empowerment is knowledge and awareness about ways to maintain and improve health. Knowledge that exists in a person is received through the senses. Expert research states that the most widely distributed knowledge into the brain is the sense of sight, approximately 75% - 87% of human knowledge is obtained through the sense of sight, 13% through the sense of hearing and another 12% is obtained through the other senses.<sup>9-11</sup>

School Dental Health Efforts (UKGS) are public health efforts at maintaining and improving the dental and oral health of all students in the target schools supported by individual health efforts in the form of curative for individuals who need dental and oral health care. Physical education teachers can provide dental and oral health education and counseling. UKGS can make students take care of themselves by preventing dental and oral diseases and being able to take appropriate action to seek treatment if needed. This can help achieve optimal dental and oral health.<sup>12-14</sup>

## RESULTS

## METHODS AND MATERIALS

The design of this study used a quasi-experimental research method. This research was carried out in November-December 2020. The population in this study amounted to 42 elementary school health and health teachers in Padang Panjang City, which were taken using the total sampling technique. The variables of this study include the independent variables, namely counseling on brushing teeth, the dependent variable, namely the knowledge of dental and oral health of the physical education teacher.

Data collection in this study was carried out in the intervention group and the control group. The technique used to collect primary data is by distributing questionnaires totaling 21 questions. The data taken were the pre-test and post-test questionnaire scores in the intervention group and the control group. The pre-test and post-test questionnaires used are oral health knowledge questionnaires in the form of a checklist with 15 questions that have been modified.

Data analysis was carried out using the SPSS 16.0 for windows program. The data obtained from the research results were processed and analyzed using the Wilcoxon signed ranks test to determine the effect of tooth brushing counseling on the level of dental and oral health knowledge of physical education teachers.

**Table 1:** Frequency distribution of respondent characteristics gender

Group	Gender	n	%
Intervention	Male	16	76.2
	Female	5	23.8
Control	Male	13	61.9
	Female	8	23.8

Table 1 shows that in the intervention group that the majority of respondents were male, namely 16 people (76.2%), while in the control group the majority were also male, namely 13 people (61.9%).

**Table 2:** Frequency distribution of respondent characteristics age

Group	Age	n	%
Intervention	19-39 years	9	42.9
	40-59 years	12	57.1
Control	19-39 years	5	23.8
	40-59 years	16	76.2

Table 2 show that in the intervention group the respondents were at most 40-59 years old, namely 12 people (57.1%) and in the control group the respondents were at most 40-59 years old, namely 16 people (71.4%).

**Table 3:** Frequency distribution of respondent characteristics education

Group	Education	n	%
Intervention	Diploma	3	14.3
	Bachelor	17	81.0
	Master	1	4.8
Control	Diploma	2	9.5
	Bachelor	19	90.5
	Master	0	0

Table 3 shows that the intervention group of respondents has the most Bachelor's education, namely 17 people or (81.0%) and in the control group the respondents have the most Bachelor's education, namely 19 people (90.5%).

**Table 4:** The difference between the knowledge level of the Physical Education teachers in the intervention group and the control group

Group	Pre-test	Post-test	Difference
Intervention	69.81	83.48	13.67
Control	70.43	78.38	7.95

Based on table 4, it is known that changes in the average knowledge of brushing teeth to the intervention group and control group, a big change occurred in the intervention group with counseling more influential in conveying the material on brushing teeth.

The difference in the average value of the intervention group and the control group, in the intervention group the average value increased from 69.81 before counseling was given to 83.48 after being given counseling, the control group from 70.43 before being given counseling to 78.38.

**Table 5:** Results of the Wilcoxon Knowledge Analysis in the intervention group and the control group

Group	Positive Ranks	Negative	p-value
Intervention	17	2	0.000
Control	16	0	0.000

Based on the results of the Wilcoxon signed ranks test analysis, it was found that there were 17 children in the intervention group and 16 in the control group with better

knowledge of how to brush their teeth than before. The results of the Wilcoxon signed ranks test show a significance value of 0.000 and 0.00 is less than 0.05, meaning that there is a significant effect between before and after counseling.

**Table 6:** Results of the Mann-Whitney Analysis of Knowledge in the intervention group and the control group

Variable		Knowledge	
		Mean Ranks	p-value
Group	Intervention	24.83	0.065
	Control	18.17	

Table 6 shows the comparison of knowledge before and after counseling using the Mann-Whitney test. The results of the Mann-Whitney test showed a significance value of 0.065 < 0.05, meaning that there was a significant difference between counseling on the level of knowledge of brushing teeth on physical education teachers elementary schools in Padang Panjang. The intervention group had a mean (mean-ranks) of 24.83 > 18.17 in the control group.

## DISCUSSION

Health education is any planned effort to influence other people, whether individuals, groups, or communities, so that they do what is expected by the perpetrators of Health Education or promotion. Health counseling is also an activity that has inputs, processes and outputs. Health counseling activities aim to achieve a change in attitude, influenced by many factors, in addition to the method of the officer who does it as well as aids or teaching aids and the media used, in order to achieve an optimal result, these factors must work together and harmoniously.<sup>15,16</sup>

Knowledge is a part of human thinking related to needs. This knowledge will be maximized if it is influenced by

the intensity of one's attention and perception of the object. Sensing of objects occurs through the five human senses, namely through sight, hearing, smell, taste and touch.<sup>16</sup>

The results of the Wilcoxon signed ranks test analysis showed that there were 17 respondents in the intervention group and 16 in the control group with better knowledge of brushing teeth than before. The results of the Wilcoxon signed ranks test show a significance value of 0.000 and 0.000 which is less than 0.05, so there is a significant effect between before and after the counseling. The results of the post-test > pre-test showed that tooth brushing counseling could increase knowledge about the dental and oral health of physical education teachers, so that there were benefits of tooth brushing counseling for primary school physical education teachers in Padang Panjang City.

This significant increase in knowledge is due to the fact that the counseling provided to the respondents is more complete, clear, varied, interesting and fun. In addition, one that affects knowledge is age and level of education. Age affects the capture power and mindset of a person the older he gets the more his capture power and mindset develops, this can be explained that when you

are old enough the level of maturity and strength of a person will be more mature in thinking and working, but as stated by Verner and Davison that there are 6 physical factors that can hinder the learning process in adults, thus making a decline at one time in the power of thinking and working. So that through previous knowledge, own experience, experience of others, environment and other intrinsic factors can shape one's knowledge in the long term and will last until old age.<sup>10</sup> This is in line with research conducted by Purwati that the level of knowledge is influenced by education, for a higher level of knowledge, the level of knowledge will also be better.<sup>17</sup>

Comparison of knowledge before and after counseling using the Mann-Whitney difference test. The results of the Mann-Whitney test showed a significance value of  $0.065 < 0.05$  with an average (mean-ranks) of  $24.83 > 18.17$ . This shows that counseling is more influential than counseling with leaflet media because it can be understood by respondents.

The results of this study are supported by research conducted by Pratiwi *et al.* regarding the effect of dental and oral health counseling using Flip-charts on tooth brushing knowledge for adolescent elementary school students. The study showed that dental and oral health counseling using Flip-chart on tooth brushing knowledge had a significant effect on students' tooth brushing knowledge.<sup>18</sup>

## CONCLUSIONS

Based on the research results, it can be concluded that Counseling teeth brushing an effects on increasing knowledge of oral and dental health on physical education teachers

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## CONFLICT OF INTEREST

The authors declare that they have no conflict interests.

## ETHICAL CLEARANCE

This research has received a certificate of ethical approval from the ethics commission of the Yogyakarta Health Polytechnic with No. e-KEPK/POLKESYO/0664/XII/2020.

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