



Demonstration Method Better Increased Knowledge, Attitude, and Skills on Hand Washing With Soap in Elementary School Students

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Abstract

Background: Every year, about 100,000 children in Indonesia die from diarrhea. In 2021, diarrhea cases in Taurus Health Center, Kupang, East Nusa Tenggara working area occurred more in elementary school children. Hand washing with soap (HWS) reduced diarrhea rates by 47%. This study aimed to analyze the different effect between lecture and demonstration methods on knowledge, attitudes and skills on hand washing with soap in GMIT Manumuti Elementary School students.

Method: This *quasi-experimental study* was done in “*pretest-posttest group design*”. The subjects were all of 68 students in grade 5 (total sampling technique), who were evenly and randomly divided into 2 groups of lecture and demonstration. Data were collected through observations and interviews using structured questionnaires and were analyzed by paired and independent sample t-tests.

Results: The subjects were 10-12 years old and 58.5% were boys. The mean knowledge scores increased from 52.2 ± 8.89 to 75.1 ± 7.17 ($p=0.001$) in the lecture group and from 62.5 ± 8.89 to 86.9 ± 7.17 ($p=0.001$) in the demonstration group, respectively. The mean attitude scores increased from 57.9 ± 10.52 to 70.1 ± 5.46 ($p=0.001$) in the lecture group and from 67.1 ± 10.11 to 82.8 ± 8.78 ($p=0.001$) in the demonstration group, respectively. The mean skill scores increased from 53.3 ± 13.38 to 68.94 ± 7.80 ($p=0.001$) in the lecture and from 60.76 ± 17.11 to 82.7 ± 10.33 ($p=0.001$) in the demonstration group. The mean knowledge, attitude and skills' scores in the demonstration group after the intervention were all higher ($p<0.05$) than the control group.

Conclusion: Demonstration method increased knowledge, attitude and skills on hand washing with soap better than the lecture method in elementary school students at GMIT Manumuti Elementary School.

Keywords: Knowledge, Attitude, skill, Lecture, Demonstration, hand washing

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Introduction

Hand washing with soap (HWS) is one of Clean and Healthy Behavior Program (CHBP) which have been conducted for several years in Indonesia. However, HWS in the school is often neglected, which has an impact on the health of children. Students need to do HWS because they can reduce or deleting the existing germs in hand. Based on the 2018 Basic Health Research, the behavior of HWS in Indonesian society and HWS in children's school base was still low, only 49.8% and 17%, respectively¹ Indonesian Central Statistics Agency in 2018 showed that HWS behavior in East Nusa Tenggara Province community, was still low, only 20.4%. The impact of this low practice of HWS were infections like diarrhea and worms' infection.²

The United Nations International Children's Emergency Fund (UNICEF) reported that in every second, a child died because of diarrhea. WHO data in 2019 showed that every year, diarrhea was the reason for 100,000 deaths of Indonesian children. Data from the East Nusa Tenggara Provincial Health Office showed that diarrhea was among the highest 10 disease in the health centers and hospitals in East Nusa Tenggara (NTT), with a total of 54,260 cases.³ In 2019-2021, 324 cases of diarrhea occurred in the working area of Tarus Health Center. The District Health Office of Kupang reported 4,100 cases in 2019, 2,498 cases in 2020, and 4,100 cases in 2021.⁴

Disease diarrhea in the work area of the Tarus Health Center occurred more often in children (154 cases). Among the children less than 1 year old there were 44 cases, while among children aged 1-4 years, 50 cases of diarrhea, and among children aged more than 5 years, 60 cases of diarrhea. Thus, the most cases occurred among children aged more than 5 years old. Diarrhea sufferers mostly came from Taurus sub-districts. Based on a report from Tarus Health Center in 2022 from January - December there are 9 cases of diarrhea in children age schools.⁵

The WHO stated that HWS can reduce the number of diarrhea cases by up to 47% (WHO, 2019). A study in Bandung showed that the incidents of diarrhea and worms were due to the lack of CHBP. One of the CHBP was the understanding and the application of HWS using clean running water.⁶ Previous research has shown that the students who had more knowledge on how to implement CHBP, the better their behavior would be. On the contrary, the less knowledge to the implementation CHBP, the behavior in the implementation would be worse.⁷

A study conducted in Merauke, Papua, stated that attitude also determined CHBP among school students.⁸ In this study, there is a correlation between attitudes and CHBP as attitudes greatly affect the action. Another study showed that skills were correlated to CHBP.⁹

Health education is very important because it is one of the methods that can be used to increase someone's health. Based on previous study, health education can improve and change the knowledge, attitudes, and skills.¹⁰ Health education can be done through demonstration and lecture. The use of both method aimed to improve public health.¹¹ Previous research on students at SDN Segulung 02 and 05 in Madiun district showed the increase knowledge of HWS after demonstration and lecture methods.¹²

SD GMIT Manumuti is a private school in Jl. Timor Raya, Tarus Village, Central Kupang District. Based on the results of observations and interviews to the teacher and the students, the students were only washing their hands using water but not paying attention to the soap. Thus, it was important to study The Effect of Lecture and Demonstration Methods on HWS Knowledge, Attitudes, and Skills of GMIT Manumuti Elementary School Students in 2023.

Methods

This study was conducted in a *quasy-experimental design* with *pretest-posttest group* at GMIT Manumuti Elementary School. The subjects were 68 children from the fifth grade. We used total sampling

method. The subjects were evenly and randomly divided into two groups. They received education on hand washing with soap through lecture in one group and the other group received demonstration method. Data were collected through observations and interviews using structured questionnaires. Data analysis was performed using the *paired* and *independent sample t-tests*.

Results

The age of the subjects were 10-12 years old. Among them, 40 (58.5%) were boys and 28 (41.2%) were girls. Table 1 showed the mean knowledge scores at before and after intervention in the lecture and demonstration groups. This table showed that after the intervention, the mean knowledge scores were higher both in the lecture and demonstration groups. However, at after the intervention, the mean knowledge scores in the demonstration group was higher than the lecture group.

Table 2 showed the mean attitude scores at before and after intervention in the lecture and demonstration groups. This table showed that after the intervention, the mean attitude scores were higher both in the lecture and demonstration groups. However, at after the intervention, the mean attitude scores in the demonstration group was higher than the lecture group.

Table 3 showed the mean skills' scores at before and after intervention in the lecture and demonstration groups. This table showed that after the intervention, the mean skills' scores were higher both in the lecture and demonstration groups. However, at after the intervention, the mean skills' scores in the demonstration group was higher than the lecture group.

Those three tables showed that the demonstration method increased knowledge, attitude and skills on hand washing with soap in GMIT Manumuti elementary school students better than the lecture method

Table 1. Knowledge scores at before and after intervention in lecture and demonstration groups

Knowledge scores	Before		After		p-values*
	Mean	SD	Mean	SD	
Lecture	52.20	8.89	75.14	7.17	0.001
Demonstration	62.50	8.89	86.91	7.17	0.001
p-value#					0.0001

• Paired t-tests

Independent t-test

Table 2. Attitude scores at before and after intervention in lecture and demonstration groups

Attitude scores	Before		After		p-values*
	Mean	SD	Mean	SD	
Lecture	57.91	10.52	70.08	5.46	0.001
Demonstration	67.05	10.11	82.79	8.78	0.001
p-value					0.0001

• Paired t-tests

Independent t-test

Table 3. Skill's scores at before and after intervention in lecture and demonstration groups

Skill scores	Before		After		p-values*
	Mean	SD	Mean	SD	
Lecture	53.30	13.38	68.94	7.80	0.001
Demonstration	60.76	17.11	82.70	10.33	0.001
p-value			0.0001		

• Paired t-tests

Independent t-test

Discussion

Effect of lecture on knowledge in hand washing with soap

The results of the paired t-test analysis showed that the health education through lecture and demonstration improved student's knowledge on washing hands with soap at GMIT Manumuti Elementary School. Knowledge can be improved if the information is accepted by the subjects. The lecture method was suitable for the delivery of teaching materials in the form of information. This method is good when it is well prepared. However, the weakness of the lecture method is the passiveness of the children, thus make it boring. ¹³ is an impression in the thought man as a result uses five of his senses. Knowledge is very different from beliefs, and erroneous explanations. ¹⁴

This study found that there was improvement in the students' knowledge of hand washing with soap. This is in line with the previous results study previously conducted on elementary students of grade 4 and 5, which proved that health education improved knowledge about the CHBP. ¹⁵

Effect of lecture on attitude in hand washing with soap.

The results of the paired t-test and independent t-test showed that lecture and demonstration method improved the attitude of students about hand washing with soap at GMIT Manumuti Elementary School 2023. This finding is supported by the previous study which is conducted on the

nurses of the Hospital in throwing away medical waste, which showed the increase of attitude after health education with lecture method. ¹⁶

The structure of attitudes formation is supported by affective and cognitive components. Components of cognition include trust in someone who knows. The knowledge then forms ideas, concepts, or perceptions that can form the attitudes. In addition, the reaction that is an affective component is strongly influenced by trust, which is a cognitive component. Then, behavior that influenced by emotions and beliefs, so that it forms a pattern of attitude to various objects he was facing. After receiving the health promotion and referring to it, one can behave more positively than the previous ones. ²⁰

Effect of lecture on skills in hand washing with soap.

This study results showed that the skills in hand washing with soap improved after the intervention. This finding supported by previous research that showed that lectures on SADARI skills in Futuhayah high school Demak, lecture method in SADARI (Breast Self-Assessment) skills of mothers in the working area of Karangmalang Health Center, Sragen. Improvement in skills can occur if information is accepted by respondents. ¹⁷

Effect of demonstration method on knowledge in hand washing using soap

This study showed the effect of health education through demonstration method on knowledge about hand washing with soap on the elementary school students. This is in line with a study at Dwikora Elementary School, North Lampung Regency, which shows that demonstration method on HWS increased students' knowledge, with p-value of 0.001.¹⁸ The other study also showed that demonstration improved knowledge about SADARI (Breast Self-Assessment) on women in Mekar Sari Village.¹⁹

Demonstration method is useful for teaching psychomotor ability. The demonstration method is good for increasing the attitudes and skills. The most effective demonstration is when the participant first observes the teacher and then practices a real situation.²⁰ The demonstration method can create a learning process which is concrete, more interesting, and participants can observe the procedure in a direct way. The subjects need information about HWS which can be applied in their daily life to increase their own health.

Effect of demonstration method on attitude in hand washing with soap.

This study showed that demonstration method can increase the attitude in hand washing with soap of elementary school students. The students noticed the messages they have received through demonstration on washing hands with soap. According to the theory of Rosenberg in Azwar (2013), which is known as Affective Cognitive Consistency theory, in framing the change, attitude can work through cognitive and affective components. Through cognition component, the demonstration gives knowledge, opinions, attitudes, and other things, so that with the material, they will change affective component and eventually their attitude will be changed. The affective component has a role in feelings or emotions, so that with the change feelings, cognitive aspect will also change and finally the attitude will also change. This is in line with the visible enthusiastic, emotions and feelings of curiosity, with various questions emerging

at the end of the session during the study. Questions raised from their experience and ignorance of the respondents regarding the material provided. After answers were given, they adopted it as an idea or perception and made reference for behaving more positively, as shown with their change attitude.

This study results is in line with the other study at Pukadale Elementary School, which showed that demonstration method increased students' attitude about HWS.²² This is also supported by the previous study which showed the effect of demonstration on the attitude on the portion accuracy for vegetable portion at Kardinah Regional Hospital, Tegal city.²³

Effect of demonstration method on skills of hand- washing with soap

The results of this study have showed the effect of demonstration method on increasing skills on hand washing with soap. This could be happened as the students wanted to notice the messages and conveyed. This is in accordance with the theory of stimulus- response that after someone experiences stimulus or object health, then the evaluation stage or opinion to the previous knowledge and process it or carry out the steps of hand washing using soap. The results of the other study at Sentani Timur, which stated that health education has a powerful function for participants of interest. Interesting methods will give more changes in cognitive, affection and psychomotor skills.²⁴

The results also in line with the study, which showed that there was an effect of health education with demonstration method to implement hand washing on the patients' attendants.²⁵ The limitations of this study was the intervention was done in a very short period of one week.

Conclusion and Suggestions

Based on these results, it can be concluded that both method, lecture and demonstration can increase the knowledge, attitude and skills of hand washing with among the elementary school students. Demonstration increased knowledge, attitude and skills more than the lecture method among GMT Manumuti Elementary School students. Therefore, it

is hoped that in the future, schools will use method demonstrations because they are more effective.

Ethics Agreement

This research passed the ethical review of the Health Research Ethics Committee of the Faculty of Public Health Commission, Nusa Cendana University, with number certificate 2023403-KEPK issued on April 3, 2023.

Availability of Data and Materials

Available

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Author Contributions

JP is the researcher the main one who conducted writing, data collection, analysis, and data processing. RL and MM are lecturer supervisor who directs and provides input if there are errors and writing in this research

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