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The Effect of Education on Hand Washing Using Water and Soap with The 6-Step Method on Children at Anugrah Indah Palembang Kindergarten

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ABSTRACT

Background & Objective: Infectious diseases remain a serious threat to the health of school-age children and young children because they love to play, both at school and at home. A child's health is influenced by daily behaviors, one of which is hand washing. Based on the results of a preliminary study on October 12, the researcher conducted an interview with the head of Anugrah Indah Palembang Kindergarten and obtained data on children who did not know about the causes of disease transmission. The number of children who did not know the causes of disease transmission was 50 children. The objective of this study was to determine the effect of hand washing education using water and soap with the 6-step method on children at Anugrah Indah Kindergarten in Palembang. **Method:** This study used a pre-experimental design with a one-group pre-post test design. **Result:** The results of the assessment before the 6-step hand washing demonstration showed that out of 51 respondents, 2 respondents had good knowledge, 8 respondents had sufficient knowledge, and 40 respondents had poor knowledge. **Conclusion:** There was an increase in knowledge of the 6-step handwashing method after the demonstration, with 36 respondents having good knowledge, 13 respondents having adequate knowledge, and 1 respondent having poor knowledge.

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Introduction

Indonesia's health sector currently faces a double challenge. Primary school-aged children (6-12 years old) are a high-risk group and vulnerable to disease. Clean

and healthy living behaviors (PHBS) are usually associated with this group. If not managed properly, schools can serve as mediators for disease transmission in addition to being places of learning. Epidemiologically, environment-based diseases are most commonly found in kindergarten and elementary school children. Health problems such as diarrhea, respiratory infections, dengue fever, anemia, intestinal worms, obesity, dental health, and physical and verbal abuse at home. According to the Indonesian Ministry of Health, one of the infectious diseases in children is diarrhea. Diarrhea is a common disease in Indonesia and has the potential to cause death or extraordinary events (KLB).

Infectious diseases are diseases caused by microorganisms, such as viruses, bacteria, parasites, or fungi, and can spread to other healthy people, known as infectious diseases. Infectious diseases are still a serious threat to the health of school-age children and early childhood because they love to play, both at school and at home. A child's health is influenced by daily behaviors, one of which is hand washing. Hand washing is the act of cleaning the hands with water or liquid intended to make the hands clean. Washing hands properly and thoroughly is the easiest and most effective way to prevent the spread of disease.

Handwashing is part of Clean and Healthy Living Behaviors (PHBS). The problem of poor handwashing practices is not only found in developing countries, but also in developed countries, where most people still forget to do it (Juliawan et al., 2019). Handwashing is very beneficial both for maintaining hand hygiene and killing microorganisms on the hands, and previous studies have proven that it can prevent community-acquired diseases such as diarrhea, acute respiratory syndrome (ARS), and avian influenza. However, the importance of handwashing with soap (HWS) in preventing infectious diseases seems to be poorly understood by the general public and not applied in practice (Asda et al., 2020).

The appropriate times to wash hands with soap are before and after eating, before preparing food, after disposing of a child's feces, after playing and exercising, after defecating, and after urinating. There are six steps to proper handwashing, including wetting both palms, the backs of the hands, and three palms. Rub the backs of the thumbs and nails, then rinse with clean water (SUYUTI, 2019).

Proper handwashing behavior and the correct use of soap can prevent diarrhea by up to 45%, according to WHO research. A study conducted by Burton et al. (2011) found that washing hands with soap makes germs on the hands spread more easily than washing hands with water alone (Octa, 2019).

One of the actions taken by health services in an effort to prevent infectious diseases is to instill the habit of washing hands with soap starting from school age. Perceptions and behaviors towards the habit of washing hands show that almost every household in Indonesia has soap and that washing hands can reduce the risk of diarrhea by up to 50% by washing hands with soap or preventing infectious diseases (Adista & Yulvia, 2021).

Research conducted by (Atikah, 2024) shows that handwashing is a form of health education and training that can teach school children healthy habits from an early age and improve their knowledge and skills regarding hygiene practices. Between before and after handwashing, information and handwashing skills improved.

According to (Taadi et al., 2019), proper handwashing should follow six effective steps at five key moments. The appropriate duration for washing hands with soap and

running water is 40 to 60 seconds, and using tissue is 20 to 30 seconds. However, despite receiving health education about handwashing from health workers, patients' families were still unable to perform the six steps of handwashing properly.

According to researchers (Hasanah & Mahardika, 2020), among the diseases that can be prevented by washing hands with soap are (1) Respiratory tract infections: Washing hands with soap can remove respiratory germs on the palms and hands, thereby preventing the spread of other disease-causing germs (2). Diarrhea: Infectious germs that cause diarrhea spread through the fecal-oral route, so washing hands with soap can prevent the spread of other disease-causing germs (3). Worms, eye infections, and skin diseases: Studies have shown that in addition to washing hands with soap.

Based on the results of a preliminary study on October 12, the researcher conducted an interview with the head of Anugrah Indah Kindergarten in Palembang and obtained data on children who did not know about the causes of disease transmission. The number of children who did not know the causes of disease transmission was 50 children.

Objective

The objective of this study was to determine the effect of hand washing education using water and soap with the 6-step method on children at Anugrah Indah Kindergarten in Palembang.

Method

This research was conducted at Anugrah Indah Kindergarten in Palembang in 2024, from December 18, 2024 to January 18, 2024. The subjects of this study were 50 kindergarten children at Anugrah Indah Kindergarten in Palembang. This research used a *pre-experimental design* with a *one-group pre-posttest design*. In this study, the sample was given a pretest (initial observation) before being given the intervention, after which the intervention was given, followed by a posttest (final observation).

In the initial stage of this study, field observations were conducted at Anugrah Indah Kindergarten in Palembang, then the sample was determined using *total sampling* technique, and the selected respondents were first explained about the purpose and procedure of the study. In the second stage (*pretest*), the respondents' level of knowledge about hand washing was measured using a questionnaire, then they were given an intervention on the 6 effective steps of hand washing with water and soap. In stage 3 (*post-test*), the respondents' level of knowledge about hand washing was measured again using a questionnaire.

Results

This research was conducted for approximately one month in January 2025. The number of respondents was 50 children at Anugrah Indah Kindergarten. The collected data was then processed and subjected to univariate and bivariate analysis. The characteristics of this research consisted of questionnaires measured before and after the handwashing education was given.

TABLE 1. Frequency Distribution Before Education on Effective 6-Step Handwashing for Children

No	Level of knowledge	Frequency	Percentage
1.	Good	2	4.00
2.	Fair	8	16.00

3.	Poor	40	80.00
	Total	**50**	**100**

Based on Table 1, the results of the assessment showed that 50 respondents were given education on hand washing frequency. The pre-test results showed that 2 respondents (4.00%) had sufficient knowledge, 8 respondents (16.00%) had adequate knowledge, and 40 respondents (80.00%) had insufficient knowledge.

TABLE 2. Frequency Distribution of Categories After Education on Effective 6-Step Handwashing for Children

No	Level of knowledge	Frequency	Percentage
1.	Good	36	72.00
2.	Fair	13	26.00
3.	Poor	1	2.00
	Total	**50**	**100**

Based on Table 2, after providing education on the 6 effective steps of hand washing to children, the characteristics of the post-test frequency category were obtained from 50 respondents with a good level of knowledge (36 respondents, 72.00%), an adequate level of knowledge (13 respondents, 26.00%), and a poor level of knowledge (1 respondent, 2.00%).

Before conducting bivariate analysis, a data normality test was performed using the Shapiro Wilk test because the sample size was less than 50 respondents, with the condition that if the p-value was > 0.05, the data was normally distributed, and if the p-value was < 0.05, the data was not normally distributed.

TABLE 3. Results of the Kolmogorov-Smirnov normality test

	Kolmogorov-Semirnov		
	Statistik	***df***	***Sig.***
Pre-Knowledge Test	.404	50	.000
Post-Knowledge Test	.159	50	.002

Based on the results of the normality test, data using the Shapiro Wilk test because the sample size was less than 50 respondents, with the provision that if the *p value* > 0.05 then the data is normally distributed and if the *p value* < 0.05 then the data is not normally distributed. Based on the results of the normality test, it was found that the p-value was 0.000 before the *pre-test* and 0.000 after the *post-test*, which means that the data was not normally distributed. Therefore, for bivariate analysis, a non-parametric test was used, namely the *Wilcoxon test* with a significance level of α = 0.05 (*95% confidence interval*).

TABLE 4. Distribution Before and After Education on Hand Washing Using Water and Soap

No	knowledge	N	Mean	SD	p-value
1.	Pre-Test	50	53.14	12.368	0,000
2.	Post-Test	50	81.27	7.130	

Based on the calculations, it is known that the mean (average) knowledge before being given health education through e-booklets was 53.14, and after being given a

demonstration of hand washing using water and soap, it was 81.27. It can be seen that the mean (average) before was smaller than after. From the results of the non-parametric Wilcoxon test, a sig (p-value) of 0.000 < 0.05 was obtained, proving hypothesis 1, which states that there is an effect of demonstrations on children in preventing the spread of disease among children at the Anugrah Indah Kindergarten in Palembang.

Discussion

The results of this study show that knowledge prior to handwashing education varied significantly. Based on the pre-test data, the characteristics of the 50 respondents who received hand washing education were as follows: 2 respondents (4.00%) had a good level of knowledge, 8 respondents (16.00%) had an adequate level of knowledge, and 40 respondents (80.00%) had a poor level of knowledge.

Research conducted by (Atikah, 2024) shows that hand washing is a health education and training program that can teach school children healthy habits from an early age and improve their knowledge and skills regarding hygiene practices. Between before and after hand washing, information and hand washing skills improved.

Based on the results and discussion above, the researcher argues that this low level of knowledge may be caused by various factors, including lack of access to information, inadequate education, and lack of awareness of relevant health issues. Limited knowledge can hinder an individual's ability to make appropriate health-related decisions, which in turn can affect the overall health of children.

Therefore, these pre-test results emphasize the importance of implementing effective handwashing education to maintain children's health. By increasing understanding of proper handwashing, targeted education on proper handwashing can be a crucial first step in improving children's health status.

After providing education on proper hand washing, the characteristics of the post-test frequency category showed that 50 respondents had a good level of knowledge (36 respondents or 72.00%), 13 respondents had an adequate level of knowledge (26.00%), and 1 respondent had a poor level of knowledge (2.00%).

According to (Malkis 20210), washing hands with soap can prevent germs from entering the human body through the hands, reducing the incidence of diarrhea by 47% and respiratory diseases by 30%. Microorganisms such as viruses and bacteria are often overlooked because they cannot be seen with the naked eye.

Based on the results and discussion above, the researcher argues that educational intervention on proper hand washing is important in increasing children's awareness and knowledge. With better knowledge, it is hoped that respondents can make better decisions regarding proper and effective hand washing. Continuous and targeted hand washing education is necessary to ensure that the knowledge gained can be applied effectively in everyday life.

The effect of washing hands using water and soap with the 6-step method on children shows a significant effect (pre-test) with a non-parametric statistical test (Wilcoxon) value of 0.000 (p value 0.000 < 0.05). The results of this study show a P value = 0.000, so H0 is rejected and Ha is accepted, thus it can be concluded that there is an effect of educating children on proper hand washing.

This study explains that the average knowledge score before health education was given was 4.00% and changed to 72.00%. Based on the above information, this

shows that there is an effect of education on proper and effective hand washing for children at Anugrah Indah Kindergarten in Palembang. During the study, all respondents were active and cooperative.

From the results of the bivariate analysis, it is known that the mean (average) level of children's knowledge before being given a demonstration of effective 6-step hand washing was 53.14, and after being given a demonstration of effective 6-step hand washing, it was 81.27, so it can be concluded that providing a demonstration of effective 6-step hand washing can increase children's knowledge about infectious diseases.

From the results of the Wilcoxon non-parametric test, a sig (p-value) = 0.000 < 0.05 was obtained, proving hypothesis 1, which states that there is an effect of the six-step effective hand washing demonstration on the prevention of disease transmission at the Anugrah Indah Palembang kindergarten in 2024.

The results of this study are in line with the results of Sinaga et al. (2023), which found an increase in children's knowledge of hand washing for the prevention of disease transmission ($p< 0.05$) after the provision of hand washing demonstrations at the Anugrah Indah Palembang kindergarten in 2024. The results of this study are also in line with the results of the study by Hasanah & Mahardika (2020), which found an increase in children's knowledge about hand washing ($p<0.05$) after the hand washing demonstration at Anugrah Indah Kindergarten in Palembang in 2024.

The strength of this study is that it provides significant theoretical and practical contributions to understanding the effect of handwashing demonstrations with affective learning on disease transmission. A clear and structured methodology, including operational definitions and appropriate research instruments, increases the validity of the results. Comprehensive data analysis, including univariate and bivariate analysis, allows for a deeper understanding of the variables studied.

The weaknesses of this study are that limitations in the author's knowledge and abilities may affect the quality of data analysis and interpretation. There is potential for bias in data collection, especially if respondents do not provide accurate information. The limitations of the population and sample may not represent the wider population as a whole.

The results of this study can be used as a basis for designing more effective demonstration programs for children to prevent disease transmission. This study can be a reference for further research that seeks to explore factors that affect children's health. The practical implications of this study can help policymakers formulate better intervention strategies to improve children's health.

Conclusion

Prior to the demonstration of the six effective steps of hand washing, most of the children's knowledge level was as follows: 51 respondents had a good knowledge level (2 respondents or 4.00%), 8 respondents had an adequate knowledge level (16.00%), and 40 respondents had a poor knowledge level (80.00%). Most of the children's knowledge level after the demonstration of the six effective hand washing steps was 51 respondents with a good level of knowledge 36 respondents (72.00%), a sufficient level of knowledge 13 respondents (26.00%), and a poor level of knowledge 1 respondent (2.00%).

There was a difference in the level of knowledge before the demonstration of the six effective hand washing steps, where the mean (average) level of knowledge of

children before the demonstration of the six effective hand washing steps was 53. 14 and after the demonstration of the six effective steps of hand washing was 81.27. Therefore, it can be concluded that the demonstration of the six effective steps of hand washing can help increase children's knowledge about the importance of hand washing in preventing infectious diseases in children.

Recommendations

To health workers: This research can be used as input and a source of information in reducing disease transmission among children by teaching them to wash their hands properly. To educational institutions: This research can be used as a recommendation and to increase students' knowledge about effective health education, especially for children. To future researchers: This research can be used as a recommendation for continuing similar research with different designs, a larger sample size, and a longer research period so that the results obtained are more accurate and developed.

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