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Original Research

The Effect of Education on Clean and Healthy Living Behavior of Latrine Use in School-Age Children

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Abstract

Background: The habit of urinating in a clean toilet is a common thing in PHBS. Given that many diseases are transmitted when urinating in any place, this is a healthy habit.
Objective: The purpose of the research is to find out whether school-age students of SD Hasanudin Gowa use latrines or not. as a result of PHBS instruction.
Methods: The research design in this study is Pre Experiment with a Pretest – Postest approach.
Results: The results of the statistical test using an alternative test (Wilcoxon Test) with a value of p= 0.004 < 0.05, then $H_o$was rejected andH_a was accepted so that it can be concluded that there is an Effect of Education on PHBS Knowledge of Toilet Use in School-Age Children at SD Hasanudin Gowa. For this reason, it is hoped that there will be a need to increase education on student knowledge in PHBS on the use of latrines so that good student knowledge can change bad behavior for better in terms of improving healthy and clean living behavior.
Conclusion: Based on the results of the study, it is concluded that there is an influence of PHBS education on the use of latrines on school-age children at SD Hasanudin Gowa. So it is recommended that every student not only knows what a healthy latrine is and PHBS for the use of clean and healthy latrines but can apply it.
Keywords: Education; Knowledge; Clean and Healthy Living Behavior

Introduction

Sanitation, particularly access to safe and hygienic toilets, remains a critical public health issue both globally and nationally. A toilet is a facility for disposing of human feces and urine, which may consist of a squatting or sitting system with or without a goose-neck trap, and is typically equipped with a water-based cleaning system (Rohmah, 2016). A proper toilet helps prevent the contamination of water sources, reduces human contact with feces, eliminates unpleasant odors, facilitates smooth defecation, and minimizes the presence of insects or disease-carrying vectors. Its construction should be safe, durable, and easy to clean (Nugraha, 2015). Proper sanitation plays a crucial role in breaking the fecal-oral transmission chain, especially through safe disposal of feces, which directly contributes to improved public hygiene and reduces disease risks (Directorate General of Disease Prevention and Control, 2011).

According to the World Health Organization (WHO, 2015), approximately 946 million people globally still practice open defecation. Among the ten countries with the highest prevalence, Indonesia ranks second, with 12.9% of its population engaging in open defecation. Nationally, the Indonesian Health Profile (2018) indicated only a modest increase of 1.47% in access to improved sanitation facilities from 2016, with just 67.80% of households having access to healthy latrines. This figure falls short of the Family Health Approach (PIS-PK) targets, which emphasize the use of proper toilets as a criterion for a healthy family.

In South Sulawesi, regional data also show significant gaps. In 2015, only 64.75% (2,030) of villages had implemented the Community-Based Total Sanitation (STBM) program, and only 18.09% (567 villages) had been declared open defecation-free. Specifically, in Gowa Regency, data from the 2013 PHBS monitoring report showed that out of 163,277 households, only 36,385 (22.28%) were monitored, and merely 9,202 (5.29%) households met the criteria for Clean and Healthy Living Behavior (PHBS) (South Sulawesi Health Profile, 2014).

Therefore, this study aims to evaluate the effectiveness of health education in promoting clean and healthy living behavior (PHBS), particularly the use of latrines, among school-aged children in Gowa Regency

Methods

Study Design

The research design used in this study was a pre-experimental design with a pretest-posttest approach, in which respondents were assessed before and after receiving the intervention to determine changes in knowledge and behavior.

Samples/Participants

The sample in this study consisted of 30 school-age children in grades 4 and 5 at SD Hasanuddin Gowa. Respondents were selected using a stratified random sampling technique, which involves dividing the population into strata, selecting a random sample from each stratum, and combining the samples to estimate the population parameters. The inclusion criteria were school-age children in grades 4 and 5 who were able to read and willing to participate in the study. The exclusion criteria were students who were unable to read, were not present in the research environment during data collection, or were unwilling to participate.

Instruments

The instrument used in this study was a questionnaire developed based on relevant literature concerning health education using leaflets, specifically targeting knowledge of Clean and Healthy Living Behavior (PHBS) in relation to toilet use. The questionnaire consisted of 10 items measured using a Guttman scale. Responses were scored as "yes" = 1 and "no" = 0. A total score greater than 5 was categorized as good knowledge, and a score less than or equal to 5 as poor knowledge. The reliability test of the instrument showed a Cronbach's alpha value of 0.82, indicating that the instrument was reliable.

Data Collection

Data collection was conducted in three stages. First, a pretest was administered by distributing a questionnaire to assess the respondents' initial knowledge. Next, a health education intervention was conducted using a leaflet that explained the importance of toilet use and clean living behaviors. Finally, a posttest was carried out by redistributing the same questionnaire to measure any changes in the respondents' knowledge following the intervention.

Data Analysis

The collected data were checked, edited, and coded to ensure completeness and accuracy, then tabulated for analysis. Descriptive statistics were used to describe respondent characteristics and knowledge levels, while inferential analysis such as a paired t-test or Wilcoxon signed-rank test (depending on data normality) was used to determine the effectiveness of the intervention.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Committee of the Polytechnic of Health, Ministry of Health, Makassar (Poltekkes Kemenkes Makassar). The research was carried out by adhering to ethical principles, including informed consent, confidentiality, and voluntary participation.

Results

Characteristics of respondents by gender

Table 1 shows the distribution of respondents by gender. Of the total 30 respondents, 15 were female (50.0%) and 15 were male (50.0%).

Table 1 Distribution of Respondents by Gender

Gender	Frequency (f)	Present (%)
Woman	15	50.0 %
Man	15	50.0 %
Total	30	100.0 %

Source: SPSS Processed Data, 2022

Characteristics of respondents by age

As presented in Table 2, the majority of respondents (93.3%) were aged between 9–11 years, while only 2 respondents (6.7%) were aged over 12 years.

Table 2 Distribution of Respondents by Age

Age (Years)	Frequency (f)	Present (%)
9-11 Years	28	93.3%
>12 Years	2	67%
Total	30	100.0%

Source: SPSS Processed Data,2022

Characteristics of respondents by class

Table 3 indicates that respondents were evenly distributed across grades 4 and 5, with 15 students in each grade (50.0%).

Table 3 Resonden Distribution Based on Hasanudin Gowa Elementary School Class

Class	Frequency (f)	Present (%)
4	15	50.0%
5	15	50.0%
Total	30	100.0%

Source: Primary Data 2022

Respondent Characteristics

Univariate Analysis

Characteristics of respondents based on Pre-Test

Table 4 shows that before the educational intervention, 15 respondents (50.0%) demonstrated good knowledge of PHBS toilet use, while the remaining 15 (50.0%) had less knowledge.

Table 4 Distribution of Respondents According to the Pre-Test of Hasanudin Gowa

Class	Frequency	Present (%)
4	15	50.0%
5	15	50.0%
Total	30	100.0%

Source: SPSS Processed Data 2022

Characteristics of respondents based on Post-Test

According to Table 5, following the educational intervention, 25 respondents (83.3%) had good knowledge, while only 5 respondents (16.7%) were still categorized as having less knowledge.

Table 5 Distribution of Respondents According to Post-Test SD Hasanudin Gowa

Post-Test	Frequency (f)	Present (%)
Good	25	83.3 %
Less	5	16.7 %
Total	30	100.0 %

Source: SPSS Processed 2022

Bivariate analysis

Table 6 presents the cross-tabulation between the educational intervention and respondents' knowledge of Clean and Healthy Living Behavior (PHBS) regarding toilet use. The findings reveal that among the 30 respondents, 14 students (46.7%) who received the educational intervention demonstrated good knowledge, while only 1 student (3.3%) who also received the intervention still showed less knowledge. On the other hand, 11 students (36.7%) who had not received the intervention already had good knowledge, and 4 students (13.3%) in the same group had less knowledge. These results suggest that the educational intervention had a positive effect on improving students' knowledge about proper toilet use, as a greater proportion of those who were exposed to the intervention showed an improvement in their understanding of PHBS-related practices.

Table 6 Analysis of the Influence of Education on Knowledge of Clean and Healthy Living Behavior (PHBS) Use of Toilets in School-Age Children

The Influence of Education	PHBS knowledge of the use of latrines					Total
	Good		Less			
	f	%	f	%	n	%
Good	14	46,7	1	3,3	15	50.0
Less	11	36,7	4	13,3	15	50.0
Total	25	83,3	5	16,7	30	100.0

Source: SPSS Processed 2022

Discussion

The results of this study showed a significant improvement in students' knowledge regarding Clean and Healthy Living Behavior (PHBS), particularly in toilet use, after the implementation of health education. Prior to the intervention, only 11 respondents (36.7%) demonstrated good knowledge, and 4 respondents (13.3%) had poor knowledge. This condition suggests that while some students had a foundational understanding of PHBS, others lacked awareness, possibly due to limited interest or exposure to health-related information. This finding is consistent with the view of Muhibbin Syah (2012), who states that learning outcomes are closely related to the quality of the learning experience. Low levels of interest and attention during the educational sessions may have contributed to lower pretest scores.

Following the intervention, only one respondent (3.3%) remained in the low knowledge category, indicating that the educational activity was effective. According to the Wilcoxon signed-rank test, the p-value was 0.004, which is less than the significance threshold of 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming a significant impact of the health education intervention on students' knowledge about PHBS and toilet use.

This result aligns with Notoatmodjo (2002) as cited in Rajaratenam et al. (2014), who explains that disposition is an internal response or tendency that influences individuals' readiness to accept and apply new knowledge. Increased understanding after receiving health education is also supported by Listiani (2015), who emphasized that enhanced knowledge positively influences behavioral change. In this context, students who initially had good knowledge improved further after being exposed to structured information delivered through leaflets and verbal explanations.

The success of the intervention can also be attributed to the approach used during the education session, which involved interactive communication and visually engaging materials. These methods were likely effective in increasing students' attention and retention, leading to meaningful knowledge gain. Health education, as emphasized by Notoatmodjo (2010), is not merely about transferring information but also about shaping behavior through three stages: changing negative behavior into positive behavior, developing positive behavior, and maintaining consistent healthy practices.

In practice, the improved knowledge was reflected in students' understanding and willingness to implement behaviors such as flushing the toilet after use and washing hands properly using six steps with antiseptic soap. These indicate not only cognitive change but also early signs of behavioral intention.

This study has several limitations. First, the sample size was relatively small and limited to one primary school, which may affect the generalizability of the findings. Second, the observation period was short, so it did not allow the assessment of long-term behavioral change. Third, the effectiveness of the intervention might have been influenced by external factors such as the presence of teachers during the session or students' prior exposure to similar health topics. Future research should involve a larger and more diverse sample, include long-term follow-up, and possibly compare different methods of health education delivery.

Conclusion

There are 15 speakers (50%) who have a good understanding, and less than 15 speakers (50%) so the students' knowledge is comparable. And after educational actions were carried out, student knowledge increased, out of 30 resource persons there were 25 resource persons (83.3%) who had good knowledge and 5 resource persons (16.7%) were lacking. The data from the *Wilcoxon Test alternative test* obtained a value of $p = 0.004 < 0.05$. So that there is an influence of education on PHBS knowledge of the use of latrines. It is hoped that the results of this study will be a spur for health workers, especially nurses, in order to increase education in increasing knowledge for school-age children about PHBS the use of latrines.

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