International Journal of Health Science (IJHS)

E-ISSN: 2827-9603
P-ISSN: 2827-9603

Research Article

The Effectiveness of Educational Media on Patients' Clean and Healthy Living Behavior (PHBS) in Handwashing at the Outpatient Department of Annisa General Hospital, Citeureup, in 2025

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Abstract Background: Hospitals are health care facilities that not only serve to cure diseases but also play a crucial role in disease prevention and health promotion. Clean and healthy living behavior refers to conscious health practices undertaken by individuals, families, groups, or communities to improve overall health quality and prevent illness (Ministry of Health of the Republic of Indonesia, 2023). An initial survey conducted by researchers at Annisa General Hospital, Citeureup, on June 17, 2025, revealed that among 12 respondents in the outpatient department, 8 individuals (66.7%) had never received direct education on clean and healthy living behavior related to handwashing, while only 4 individuals (33.3%) had received such education. Methods: This study employed a pre-experimental design using a one-group pretest-posttest model. The study population consisted of 5,010 patients, and the sample included 38 participants. Data were analyzed using univariate analysis (frequencies) and bivariate analysis with the Wilcoxon Signed-Rank Test. Results: Based on Table 4.1, a total of 38 participants were included. Before the intervention, 18 individuals (47.4%) were categorized as having insufficient knowledge. Following the intervention, a significant improvement was observed, with only 1 participant (2.6%) remaining in the insufficient knowledge category. Twenty-eight participants (73.7%) were over the age of 35, 25 (65.8%) were unemployed, and 2 (5.3%) had never attended school. According to Table 4.4, the Z-score was -5.108, with a significance level (Asympt. Sig. 2-tailed) of 0.000. Conclusion: Participants' understanding improved after receiving instructions through a poster illustrating the six steps of proper handwashing with soap. The Wilcoxon Signed-Rank Test indicated that no participants experienced a decrease in their scores. A total of 89.5% of participants showed improved scores after viewing the poster. These findings demonstrate that visual poster-based education is effective in improving general understanding of proper handwashing practices.

Keywords : Clean and Healthy Living Behavior, Handwashing, Educational Media

Received: February 08, 2025
Revised: February 19, 2025
Accepted: March 20, 2025
Published: March 30, 2025

1. Introduction

Hospitals are health service facilities that not only focus on curing patients but also play a critical role in disease prevention and health promotion. One of the preventive services provided by hospitals is educating patients and their families about healthy lifestyles. Clean and healthy living behavior refers to a series of conscious health practices carried out by individuals, families, groups, or communities with the aim of improving health quality and preventing disease (Ministry of Health of the Republic of Indonesia, 2023).

The University Hospital of Geneva is recognized as a pioneer in utilizing educational media to promote clean and healthy living behavior, particularly through its hand hygiene program. This program, known as the Geneva Hand Hygiene Model, incorporates training, the use of posters and videos, alcohol-based hand rub, and regular audits and feedback. The program was reaffirmed in 2023 by the ICPIC Alcohol-Based Handrub Task Force for its effectiveness in reducing nosocomial infections by up to 50% and improving healthcare worker compliance (Voniatis et al., 2024).

In a hospital in Anhui, China, an interventional study compared an observation group (OG) and a control group (CG), involving 50 patients and caregivers. The OG received standard management and handwashing education, while the CG received routine care. The results showed a sharp decline in nosocomial infections from 48% (CG) to 8% (OG), and hand hygiene compliance among teaching staff increased from 52% to 84% (Chen X, 2023).

In Indonesia, Dr. H. Koesnadi Bondowoso Hospital conducted clean and healthy living behavior education in the General Outpatient Waiting Room. Health personnel explained handwashing techniques using soap for 40 to 60 seconds and hand rub for 20 to 30 seconds, based on the TE-PUNG-SELA-CI-PU-JUNG method. The activity was attended by patients and their families while waiting for services (RSUD Bondowoso, 2024).

Based on an initial survey conducted by researchers at Annisa General Hospital, Citeureup, on June 17, 2025, it was found that of the 12 respondents in the outpatient department, 8 individuals (66.7%) had never received direct education regarding clean and healthy living behavior in relation to handwashing, while only 4 respondents (33.3%) had received such education (Annisa General Hospital, 2025).

The Ministry of Health of the Republic of Indonesia continues to promote handwashing with soap campaigns at five critical moments: before eating, after defecation, before breastfeeding, before cooking, and after interacting with animals. These campaigns are implemented in hospitals, schools, and communities through various media, including posters, banners, and videos. These efforts aim to reduce the spread of environmentally transmitted diseases such as diarrhea and acute respiratory infections (Ministry of Health, 2023).

According to a study by Putu S and Tuti S (2022), there is a significant relationship between knowledge of the six steps of handwashing based on initial assessments and actual handwashing practices after training, with a p-value of 0.000 ($p < 0.05$). Age, gender, and type of care unit did not affect the level of knowledge or the habit of handwashing and mask-wearing.

A study by Nuha ANM et al. (2024) found that health promotion and training using leaflets significantly improved participants' knowledge. The results also showed that animated videos created using Animaker were effective in significantly changing clean and healthy living behavior. This was supported by a Pearson correlation coefficient of 0.538 at a 5 percent significance level.

Based on the above background, the researchers aimed to investigate: "The Effectiveness of Educational Media on Patients' Clean and Healthy Living Behavior in Handwashing at the Outpatient Department of Annisa General Hospital, Citeureup, in 2025".

2. Research Methods

This study employed a quantitative pre-experimental design using a one-group pretest-posttest approach. The research was conducted at Annisa General Hospital, Citeureup, from June 20 to July 20, 2025. The population consisted of all patients in the outpatient department during May 2025, totaling 5,010 individuals. The sample size of 38 participants was determined using the Lemeshow formula. The sampling technique applied was proportionate stratified random sampling. For data analysis, univariate methods were used to determine frequencies, while bivariate analysis was conducted using the Wilcoxon Signed-Rank Test.

3. Results and Discussion

Univariate Analysis

Table 1. Frequency Distribution of Respondents' Characteristics in the Outpatient Department of Annisa General Hospital, Citeureup, in 2025

Variable	Measurement Result	Frequency (F)	Percentage (%)
Pretest Knowledge	1. Low	18	47,4%
	2. Moderate	16	42,1%
	3. High	4	10,5%
Posttest Knowledge	1. Low	1	2,6%
	2. Moderate	4	10,5%

	3. High	33	86,8%
Age	1.<20 years	2	5,3%
	2.20-35 years	8	21,1%
	3.>35 years	28	73,7%
Occupation	1. Employed	13	34,2%
	2. Unemployed	25	65,8%
Education	1. No Formal Education	2	5,3%
	2. Primary/Junior High School	12	31,6%
	3. Senior High School/Higher Ed.	24	63,2%
Total		38	100,0%

Source: SPSS Data Processing (Version 24)

Based on Table 1, the total number of respondents was 38. Prior to the intervention, 18 respondents (47.4%) were categorized as having low knowledge. After the intervention, the number in this category decreased significantly, with only 1 respondent (2.6%) remaining. Among all participants, 28 individuals (73.7%) were over the age of 35, and 25 individuals (65.8%) were unemployed. Additionally, only 2 respondents (5.3%) had never received formal education.

Table 2. Descriptive Analysis of Knowledge Scores

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Pretest	38	10%	100%	42.11%	21.705%
Posttest	38	30%	100%	80.53%	14.695%

Source: SPSS Data Processing (Version 24)

Table 2 presents the descriptive statistical analysis of the pretest and posttest scores for 38 respondents. In the pretest, the minimum score was 10%, the maximum was 100%, with a mean of 42.11% and a standard deviation of 21.705%. In the posttest, the minimum score was 30%, the maximum remained at 100%, with a mean of 80.53% and a standard deviation of 14.695%.

Bivariate Analysis

Table 3. Results of the Wilcoxon Signed-Rank Test: Mean Rank and Sum of Ranks

		N	Mean Rank	Sum of Ranks
postest - pretest	Negative Ranks	0[a]	.00	.00
	Positive Ranks	34[b]	17.50	595.00
	Ties	4[c]		
	Total	38		

a. postest < pretest
b. postest > pretest
c. postest = pretest

Source: SPSS Data Processing (Version 24)

Based on Table 3, the results of the Wilcoxon Signed-Rank Test show that 34 respondents (89.5%) experienced an increase in posttest scores compared to their pretest scores (positive ranks), with a mean rank of 17.50 and a total rank sum of 595.00. No respondents showed a decrease in score (negative ranks = 0), while 4 respondents (10.5%) had the same score in both the posttest and pretest (ties). These findings indicate that the intervention contributed positively and uniformly to participants' score improvements.

Table 4. Wilcoxon Signed-Rank Test Statistics

Test Statistics[a]

	postest - pretest
Z	-5.108[b]
Asymp. Sig. (2-tailed)	.000

Source: SPSS Data Processing (Version 24)

As shown in Table 4, the Wilcoxon Signed-Rank Test results confirm that 34 respondents (89.5%) experienced higher posttest scores compared to their pretest scores, with a mean rank of 17.50 and a total rank sum of 595.00. No decrease in scores was observed,

and 4 respondents (10.5%) had the same scores in both tests. These results demonstrate that the intervention had a statistically significant and consistent positive effect on all participants.

Discussion

Univariate Analysis

Based on Table 1, the total number of respondents was 38. Prior to the intervention, 18 respondents (47.4%) were classified as having low knowledge. After the intervention, the number in this category dropped significantly to only 1 respondent (2.6%). A total of 28 respondents (73.7%) were over the age of 35. There were 25 respondents (65.8%) who were unemployed, and 2 respondents (5.3%) had never attended school.

According to Table 2, the descriptive analysis of the pretest and posttest results from 38 respondents showed that for the pretest, the minimum score was 10 percent, the maximum was 100 percent, the mean was 42.11 percent, and the standard deviation was 21.705 percent. For the posttest, the minimum score increased to 30 percent, the maximum remained at 100 percent, the mean increased to 80.53 percent, and the standard deviation decreased to 14.695 percent.

According to Notoatmodjo (2020), the theory of behavior change explains that the cognitive domain, specifically knowledge, is the first and most essential element in shaping attitudes and healthy behavior. Becker (1974), through the Health Belief Model (HBM), emphasizes that a person's perception of four main dimensions influences preventive health behavior: perceived susceptibility to illness, perceived severity of the disease, perceived benefits of preventive action, and perceived barriers to taking action. The model also incorporates two additional components, namely cues to action and self-efficacy.

A study conducted by Yoyon SH et al. (2024) showed that the proportion of individuals with good knowledge increased from 67.5 percent to 87.5 percent after receiving the intervention, while those with low knowledge decreased from 32.5 percent to 12.5 percent. Furthermore, the practice of handwashing with soap among respondents significantly improved, increasing from 45 percent before the educational session to 75 percent afterward. By delivering information in a way that is easy to understand and applicable, posters served as a motivational tool that encouraged respondents to adopt the recommended behaviors.

Bivariate Analysis

Based on Table 3, the results of the Wilcoxon Signed-Rank Test showed that 34 respondents (89.5 percent) experienced an increase in their posttest scores compared to their pretest scores. These are referred to as positive ranks. The mean rank was 17.50, and the total sum of ranks was 595.00. No respondents experienced a decrease in score, indicating that negative ranks were zero. In addition, 4 respondents (10.5 percent) had identical scores on both the posttest and pretest, referred to as ties. These results indicate that the intervention had a consistently positive and significant impact on the participants' scores. The Z-score was -5.108, with a significance level (Asymptotic Significance, two-tailed) of 0.000. Since this value is smaller than the alpha level (p-value < 0.05), it can be concluded that there was a statistically significant difference between the pretest and posttest scores. These findings reinforce the previous results, which showed a general increase among all participants, confirming that the intervention improved respondents' knowledge and abilities.

This study is in line with the findings of Yoyon SH et al. (2024), which demonstrated that providing an educational video intervention influenced handwashing with soap knowledge among patients' families. This was evidenced by an increase in scores after the intervention, with a p-value of 0.002. The results are also consistent with the study by Putu S and Tuti S (2022), which found a significant relationship (p-value 0.000) between knowledge of the six steps of handwashing based on initial assessment and practice after receiving education. These findings support the idea that teaching through media such as posters and videos can effectively build better knowledge and directly influence actual practice.

Research conducted by Heni F et al. (2024) showed that the significance values for providing handwashing poster reminders in pretest and posttest were 0.006 and 0.084, respectively, both of which were greater than 0.05. However, the Wilcoxon Signed-Rank Test results indicated that after the reminder poster was introduced, 30 participants showed increased compliance with handwashing. The significance value (two-tailed) for the pretest and posttest was 0.001, indicating that the result was less than or equal to 0.05. Therefore, the null hypothesis (H0) was rejected and the alternative hypothesis (H1) was accepted, suggesting that the use of handwashing reminder posters had a significant effect on handwashing compliance. These findings further support the conclusion that visual media such as posters are highly effective in changing public behavior regarding preventive actions in the context of hand hygiene.

4. Conclusion

The results of the study showed that respondents' knowledge increased significantly when instructions were delivered through a poster illustrating the six steps of handwashing with soap. The Wilcoxon Signed-Rank Test indicated that none of the participants experienced a decrease in score compared to their pretest results. A total of 89.5 percent of participants demonstrated an increase in posttest scores compared to their pretest scores. There was a statistically significant difference between the pretest and posttest results of the intervention, with a significance level of 0.000 ($p < 0.05$).

5. Limitation

The limited sample size of this study ($n = 38$) may affect the external validity of the findings, thereby restricting the extent to which the results can be generalized to the wider outpatient population.

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