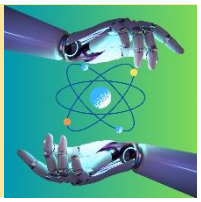
International Journal of Community Service
ISSN: 3083-9696
Journal homepage: https://e-journal.scholar-publishing.org/index.php/ijcs



Education on Clean and Healthy Living Behaviour Through Handwashing with Soap Among Elementary School Students of Gua Gajah

Lensoni[1], Zakia Ulrahmah[1]

[1]Public Health Study Program, Universitas Abulyatama, Aceh Besar 23372, Indonesia

Corresponding Author: soni@abulyatama.ac.id

Abstract

The Clean and Healthy Living Behaviour (PHBS) program in schools aims to empower elementary students to understand, adopt, and practice healthy behaviours while actively contributing to community health initiatives. This study aimed to examine the effect of health education on students' knowledge of PHBS at Gue Gajah Elementary School in Darul Imarah District, Aceh Besar, in 2026. A pre-experimental design with a one-group pretest–posttest approach was applied. The study population consisted of 23 fourth-grade students, selected using total sampling. Data were collected using a structured questionnaire and analysed using a paired-samples t-test with a significance level of 0.05. The results showed that before the intervention, most students had low knowledge of PHBS (91.3%), while only 8.7% were in the moderate category. After the health education intervention, all students (100%) demonstrated high levels of knowledge. The mean score increased from 4.43 (pretest) to 7.48 (posttest), with a statistically significant difference ($p = 0.00 < 0.05$). These findings indicate that health education significantly improves students' knowledge of clean, healthy living behaviours. The study highlights the importance of continuous health promotion in schools, supported by teachers, parents, and adequate facilities, to ensure the sustainable implementation of PHBS in daily life.

Article Info
Received: 13 March 2026
Revised: 25 March 2026
Accepted: 05 April 2026
Available online: 25 April 2026

Keywords
Clean and Healthy Living Behaviour
Health Education
Knowledge
Elementary School Students
Pre-Experimental Study

1. Introduction

Clean and Healthy Living Behaviour (CHLB) is a fundamental pillar of public health development in Indonesia, emphasising preventive and promotive efforts to improve individual and community health. PHBS refers to a set of conscious behaviours practised to maintain personal hygiene, prevent disease, and create a healthy environment. It has been widely implemented through national programs targeting households, schools, and communities to reduce morbidity and enhance quality of life [1]–[4]. In school settings, PHBS plays a critical role in shaping healthy habits from an early age, as children are in a formative period of behavioural development [5], [6].

Schools serve as strategic environments for instilling healthy behaviours through structured programs such as School Health Units (UKS), which aim to empower students to adopt lifelong healthy practices. Previous studies indicate that PHBS implementation in schools significantly improves hygiene practices, including handwashing, environmental cleanliness, and healthy lifestyle habits [7]–[10]. However, many studies also reveal that students' CHLB levels remain relatively low, highlighting the need for continuous intervention and education [11].

Knowledge and attitudes are key determinants of CHLB adoption among students. Several studies have shown that higher levels of knowledge are positively associated with better health behaviours, including hygiene practices and disease prevention [12]–[15]. Educational interventions, particularly health counselling, are effective in improving students' knowledge, attitudes, and behaviours related to CHLB [16]. Additionally, access to health information and supportive environments significantly affect behavioural outcomes.

Despite the importance of CHLB education, challenges remain in its implementation, particularly in rural and developing areas. Barriers such as limited facilities, low health literacy, insufficient teacher involvement, and limited parental support hinder the effective adoption of healthy behaviours [17]–[20]. Moreover, cultural and environmental factors influence students' habits, underscoring the need to adopt context-specific approaches to CHLB promotion [21]–[23].

Health education interventions, especially those delivered through school-based programs, are among the most effective strategies for improving CHLB among students. Evidence suggests that structured educational activities, including counselling, demonstrations, and participatory learning, can significantly enhance students' understanding and practice of hygiene behaviours [24]. These interventions not only improve knowledge but also foster long-term behavioural changes when supported by consistent reinforcement from teachers, parents, and the school environment [25], [26].

At Gue Gajah Elementary School, preliminary observations indicate that students' knowledge of CHLB remains limited, which may affect their ability to practice healthy behaviours in daily life. Therefore, targeted health education interventions are essential to address this gap and promote sustainable behavioural change among students.

This study aims to specifically examine the effect of health education interventions on students' knowledge of CHLB using a pre-experimental approach. The novelty of this community service-based research lies in its focus on integrating structured counselling interventions with measurable pretest–posttest evaluation among elementary school students in a rural Indonesian setting. Unlike previous studies that primarily focus on general PHBS behaviour or household contexts, this study emphasises early-stage knowledge improvement as a foundation for long-term behavioural change, offering practical implications for school-based health promotion programs and policy development.

2. Methodology

This study employed a pre-experimental design with a one-group pretest–posttest design to evaluate the effect of health education on students' knowledge of Clean and Healthy Living Behaviour (CHLB). This design allows for the comparison of participants' knowledge levels before and after the intervention within the same group. The study was conducted at Gue Gajah Elementary School, Darul Imarah District, Aceh Besar, on February 23, 2026. The population consisted of all fourth-grade students enrolled in the school. A total sampling technique was used, yielding a sample of 23 students, with the entire population included as research participants.

The independent variable in this study was the health education intervention on PHBS, while the dependent variable was the students' knowledge of CHLB. The intervention was delivered through structured health counselling, including explanations, demonstrations (e.g., proper handwashing with soap), and interactive discussions to enhance students' understanding. Data were collected using a structured questionnaire consisting of 20 items assessing students' knowledge of CHLB. Each correct answer was scored as 1, and each incorrect answer was scored as 0. The total scores were then categorised into ordinal levels: low (≤10) and moderate (11–20). The questionnaire was administered twice: before the intervention (pretest) and after the intervention (posttest).

The data collection procedure began with administering the pretest to assess baseline knowledge. The health education session followed this. After the intervention, the same questionnaire was administered as a posttest to measure changes in knowledge levels. Data analysis was conducted using statistical software. Descriptive statistics were used to summarise the frequency distribution of knowledge levels before and after the intervention. To determine the effect of the intervention, an inferential analysis using a paired-samples t-test was performed with $\alpha = 0.05$ and a confidence level of 95%. A p-value

less than 0.05 indicated a statistically significant difference between pretest and posttest scores, meaning that the health education intervention had a significant effect on students' knowledge of CHLB.

3. Result & Discussion

The findings of this study demonstrate a significant improvement in students' knowledge of Clean and Healthy Living Behaviour (CHLB) following the implementation of a structured health education intervention. Before the intervention, the majority of students exhibited low levels of knowledge, indicating limited awareness and understanding of basic hygiene and healthy living practices. After the educational session, however, all participants showed substantial improvement, with their knowledge levels rising to a high level. This result suggests that health education plays a crucial role in enhancing students' cognitive understanding of CHLB, particularly in elementary school settings where foundational habits are formed.

The intervention's effectiveness is further supported by the statistical analysis, which revealed a significant difference between pretest and posttest scores. This indicates that the health counselling provided was successful in delivering relevant, understandable information to the students. The use of interactive methods, such as demonstrations and discussions, likely contributed to better knowledge retention and comprehension. These findings highlight the importance of integrating structured and continuous health education programs within school environments to promote sustainable, healthy behaviours among young students.

Table 1. Students' Knowledge Before Being Given Education

Before Counseling	f	%
Low	21	91.3
Medium	2	8.7
High	0	0%

The results presented in **Table 1** indicate that the majority of students had a low level of knowledge regarding Clean and Healthy Living Behaviour (CHLB) prior to receiving health education: 91.3% were in the low category, 8.7% in the medium, and none reached a high level. This finding suggests that students had limited prior exposure to information about CHLB, which may be influenced by several factors, such as a lack of health education programs, insufficient access to reliable health information, and minimal reinforcement of healthy practices both at school and at home. At the elementary school level, knowledge acquisition is highly dependent on guidance from teachers and parents, and without structured intervention, students may not develop adequate awareness of essential health behaviours.

Furthermore, the pre-intervention dominance of low knowledge levels underscores the urgent need for targeted educational efforts to improve students' understanding of CHLB. This condition may also reflect broader systemic issues, including limited school facilities supporting hygiene practices and inadequate integration of health topics into the curriculum. Previous studies have emphasised that early childhood is a critical period for shaping health-related behaviours, and insufficient knowledge at this stage can lead to poor habits that persist into adulthood. Therefore, the baseline data from this study reinforce the importance of implementing comprehensive, continuous health education interventions in schools, not only to increase knowledge but also to build a strong foundation for future positive behavioural change.

Table 2. Student Knowledge After Being Given Education

After Counseling	f	%
Low	0	0%
Medium	0	0%
High	23	100.0

The results in Table 2 show a substantial improvement in students' knowledge of Clean and Healthy Living Behaviour (CHLB) following the implementation of health education. All respondents (100%) were categorised as having a high level of knowledge, with no students remaining in the low or medium categories. This finding indicates that the educational intervention was highly effective in increasing students' understanding of CHLB concepts. The shift from predominantly low knowledge levels before the intervention to entirely high levels afterwards reflects the strong impact of structured, targeted health counselling in delivering essential health information to elementary school students.

This significant improvement can be attributed to the use of interactive and practical learning methods during the education session, such as demonstrations, direct explanations, and active student participation. These approaches likely enhanced students' comprehension and retention of the material. Moreover, the results show that elementary students are highly receptive to new information when it is delivered in an engaging, understandable way. This finding underscores the importance of integrating regular, structured health education programs in school settings, as they not only improve knowledge but also have the potential to influence long-term behavioural changes toward healthier lifestyles.

Table 3. Differences in Students' Knowledge Levels Before and After Education

No	Variabel	Mean	SD	Sig
1.	Knowledge before counselling	4.43	1.590	0.00
2.	Knowledge after counselling	7.48	2.129	

The results in **Table 3** demonstrate a clear, statistically significant difference in students' knowledge of Clean and Healthy Living Behaviour (CHLB) before and after the educational intervention. The mean score increased from 4.43 before counselling to 7.48 after counselling, indicating a substantial improvement in students' understanding. Additionally, the standard deviation values (1.590 before and 2.129 after) suggest a wider distribution of scores following the intervention, which may reflect varying levels of knowledge absorption among students. The paired-samples t-test yielded a p-value of 0.00, which is lower than the 0.05 threshold, confirming that the observed improvement is statistically significant. This finding indicates that the health education intervention had a measurable, meaningful effect on students' knowledge of CHLB.

Furthermore, the significant increase in mean scores highlights the effectiveness of educational counselling as a strategy to improve health-related knowledge among elementary school students. This improvement can be linked to the structured delivery of information, including interactive teaching methods that facilitate better comprehension and engagement. The results are consistent with previous research indicating that health education interventions can significantly influence cognitive aspects of behaviour change. From a broader perspective, the findings emphasise the importance of implementing continuous, well-designed health promotion programs in schools, as increased knowledge is a critical first step toward developing sustainable, clean, and healthy living behaviours among students.

The findings from **Table 1** indicate that before the health education intervention, most students demonstrated low levels of knowledge regarding Clean and Healthy Living Behaviour (CHLB), with only a small proportion reaching a moderate level. This variation suggests that students had different baseline levels of understanding, which may be influenced by factors such as education, age, experience, and access to information. Limited exposure to health-related information during early childhood can lead to insufficient awareness and understanding of proper hygiene and healthy living practices. This condition underscores the importance of early, structured health education to build foundational knowledge among elementary school students.

Following the intervention, the results in **Table 2** show a significant improvement in students' knowledge, with all respondents reaching a high level. This indicates that health education has a strong positive impact on students' understanding of CHLB. The improvement from low to higher knowledge levels demonstrates that educational interventions, particularly those delivered through counselling and interactive methods, are effective in enhancing students' comprehension. This finding is consistent with previous studies, which state that CHLB is a preventive and promotive effort to improve health status and should be introduced from an early age, especially among school-aged children.

The implementation of PHBS can be effectively supported through habituation and daily practices within the school environment. Activities such as maintaining personal hygiene, properly disposing of waste, following school rules, and practising respectful behaviour contribute to the development of healthy habits. Teachers play a crucial role in modelling and reinforcing these behaviours, not only through instruction but also through consistent practice and real-world application. The use of visual aids and adequate facilities further supports students' understanding and encourages the adoption of healthy behaviours in their daily lives.

Statistical analysis using a paired-samples t-test showed a significant difference in knowledge levels before and after the intervention ($p < 0.05$), indicating that the health education program had a meaningful effect on students' knowledge. This confirms that structured counselling interventions are effective in improving awareness and understanding of CHLB. The increase in knowledge reflects the intervention's success in delivering relevant and accessible information to students.

Overall, the findings suggest that students initially had limited knowledge of CHLB, but after receiving health education, their understanding improved significantly. This emphasises the important roles of schools, families, and communities in promoting healthy behaviours among children. Continuous education, supported by appropriate facilities and active involvement from teachers and parents, is essential to ensure that students not only understand but also consistently practice clean, healthy living behaviours in their daily lives.

The novelty of this community service-based study lies in its integration of a structured health education intervention with a measurable pretest–posttest evaluation specifically targeting elementary school students in a rural setting. Unlike previous studies that primarily focus on general CHLB behaviour or broader community populations, this study emphasises early-stage knowledge acquisition as a critical foundation for long-term behavioural change. Additionally, a simple yet effective counselling approach, combined with direct assessment via statistical analysis (paired-samples t-test), provides clear empirical evidence of the intervention's impact. This approach offers practical value for schools by demonstrating that low-resource, school-based health education programs can significantly enhance students' knowledge, thereby supporting the sustainable implementation of CHLB in daily life.

4. Conclusion

This study demonstrates that health education interventions significantly improve elementary school students' knowledge of Clean and Healthy Living Behaviour (CHLB). Before the intervention, most students exhibited low levels of knowledge, indicating limited awareness of basic hygiene and healthy practices. Following the implementation of structured counselling, students' knowledge improved substantially, with all participants attaining high levels of knowledge. Statistical analysis confirmed a significant difference between pretest and posttest results ($p < 0.05$), indicating the effectiveness of the intervention. These findings highlight the importance of integrating continuous, structured health education programs into school settings as a strategic approach to promote early awareness and understanding of healthy behaviours. Schools, supported by teachers, parents, and adequate facilities, play a crucial role in reinforcing these behaviours and ensuring their sustainability. Future studies are recommended to explore the long-term impact of such interventions on behavioural outcomes and to examine the role of family and school environments in strengthening the implementation of CHLB in daily life.

Acknowledgement

The authors would like to express their sincere gratitude to all parties who contributed to the successful implementation of this study. Special thanks are extended to the principal, teachers, and students of Gue Gajah Elementary School, Darul Imarah District, Aceh Besar, for their cooperation and active participation throughout the research process. The authors also appreciate the support from the Public Health Study Program at Abulyatama University, which facilitated this community service activity. In

addition, heartfelt thanks are extended to all individuals who assisted with data collection, the implementation of the health education intervention, and the completion of this study.

References

[1] N. E. Oktafia, "Implementation of Clean and Healthy Living Behavior (PHBS) Policies in Schools," Jurnal Kesehatan Masyarakat Indonesia, vol. 18, no. 2, pp. 101–109, 2025.
[2] E. Puspita, "Improving Student Health Behavior Through PHBS Programs," Jurnal Promosi Kesehatan, vol. 13, no. 1, pp. 45–53, 2025.
[3] E. Candrawati and E. Widiani, "Implementation of School Health Unit (UKS) with Clean and Healthy Living Behavior (PHBS) in Elementary Schools," Jurnal CARE, vol. 3, no. 1, pp. 80–89, 2015.
[4] R. Julianti, H. M. Nasirun, and Wembrayarli, "Implementation of Clean and Healthy Living Behavior (PHBS) in School Environment," Jurnal Ilmiah Potensia, vol. 3, no. 2, pp. 76–82, 2018.
[5] H. Anggraini, "Determinants of Clean and Healthy Living Behavior Among Students," Jurnal Kesehatan Lingkungan, vol. 17, no. 1, pp. 22–30, 2025.
[6] D. Setiawan, "Clean and Healthy Living Behavior Among Elementary School Students," Jurnal Pendidikan Kesehatan, vol. 12, no. 2, pp. 120–128, 2024.
[7] D. Rosmala, S. Hidayat, and M. Kurniawan, "School-Based Health Promotion and Its Impact on Student Hygiene Behavior," Jurnal Kesehatan Masyarakat, vol. 15, no. 3, pp. 201–210, 2020.
[8] N. Ningsih, R. Yanti, and A. Saputra, "Effectiveness of School Health Education Programs on PHBS," Jurnal Ilmu Kesehatan, vol. 9, no. 2, pp. 134–142, 2021.
[9] L. Laili and N. Lestari, "Health Education Intervention on Clean and Healthy Living Behavior," Jurnal Keperawatan, vol. 10, no. 1, pp. 55–63, 2019.
[10] D. Nurhanifah, "Implementation of PHBS Education Program in Elementary Schools," Jurnal Kesehatan Indonesia, vol. 14, no. 1, pp. 33–40, 2024.
[11] W. Herawati, "Relationship Between Knowledge and PHBS Behavior Among Students," Jurnal Ilmu Kesehatan Masyarakat, vol. 16, no. 2, pp. 150–158, 2025.
[12] I. Nasiatin and I. Hadi, "Determinants of Clean and Healthy Living Behavior in School Settings," Jurnal Kesehatan Lingkungan Indonesia, vol. 18, no. 1, pp. 45–52, 2019.
[13] R. Yuandra and C. Ginting, "Knowledge and Sanitation Behavior in Elementary School Students," Jurnal Kesehatan Lingkungan, vol. 13, no. 2, pp. 99–107, 2021.
[14] J. Usoh and G. Kandou, "The Relationship Between Knowledge and PHBS Practices," Jurnal e-Biomedik, vol. 8, no. 1, pp. 23–30, 2020.
[15] N. Sasmitha, "The Effect of Health Education on Students' Knowledge of PHBS," Jurnal Ilmu Keperawatan, vol. 8, no. 2, pp. 89–96, 2020.
[16] N. Rahmawati, A. Wibowo, and T. Santoso, "Barriers in Implementing PHBS Programs in Schools," Jurnal Kesehatan Masyarakat Nasional, vol. 14, no. 3, pp. 167–175, 2019.
[17] C. R. Titaley, M. J. Dibley, and K. Agho, "Determinants of Hygiene Practices Among School Children," BMC Public Health, vol. 22, no. 1, pp. 1–10, 2022.
[18] R. Hidayat and S. Utami, "Challenges in School-Based Health Promotion Programs," Jurnal Promosi Kesehatan Indonesia, vol. 15, no. 2, pp. 120–128, 2020.
[19] A. Rahman and B. Nugroho, "Digital-Based Health Promotion for PHBS Improvement," Jurnal Teknologi Kesehatan, vol. 6, no. 1, pp. 44–52, 2022.
[20] A. N. Putri and B. Prasetyo, "Cultural Approach in Promoting Clean and Healthy Living Behavior," Jurnal Sosial Kesehatan, vol. 11, no. 1, pp. 77–85, 2020.
[21] M. Sari and A. Hidayat, "Multisectoral Collaboration in PHBS Implementation," Jurnal Kesehatan Masyarakat, vol. 16, no. 1, pp. 90–98, 2021.
[22] P. Sari and D. Yuliana, "Community Empowerment Through PHBS Program," Jurnal Pengabdian Masyarakat, vol. 5, no. 2, pp. 101–110, 2021.
[23] A. Widiyanto, "Health Promotion Intervention: A Systematic Review," Jurnal Kesehatan Global, vol. 8, no. 1, pp. 1–10, 2025.

[24] H. Susanto, R. Pratama, and L. Dewi, "Digital Health Education and Its Impact on Student Behavior," International Journal of Public Health Science, vol. 10, no. 3, pp. 456–463, 2021.
[25] N. Nurjanah, S. Rahman, and D. Fitriani, "Health Literacy and Clean Living Behavior Among Students," Jurnal Kesehatan Masyarakat, vol. 17, no. 2, pp. 134–142, 2021.