FACTORS ASSOSIATED WITH HANDWASHING BEHAVIOR WITH SOAP AMONG STUDENTS AT ELEMENTARY SCHOOLS 167 IN PEKANBARU

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Abstract

Handwashing with soap is a key strategy for preventing infectious diseases in school settings. However, many elementary school students have yet to fully adopt this practice. This study aims to analyze the factors associated with handwashing with soap among students at State Elementary School 167 in Pekanbaru in 2025. This is a quantitative analytical study with a cross-sectional design. The study population consisted of 117 third-grade students, with a sample of 90 respondents selected using the Slovin formula. The research instrument was a closed-ended questionnaire covering the variables of knowledge, facilities and infrastructure, the school's role, and handwashing with soap behavior. Data analysis was performed using bivariate analysis with the Chi-Square test at a significance level of 0.05. The results showed that the majority of students had high knowledge (61.1%), adequate school facilities and infrastructure (66.7%), and that the school's supportive and non-supportive roles were equally represented (50.0%). However, the results of the statistical tests showed no significant associated between knowledge (p=0.238), facilities and infrastructure (p=0.143), and the school's role (p=0.818) with students' handwashing behavior with soap. Thus, it can be concluded that students' handwashing behavior with soap is not fully influenced by these factors. A comprehensive approach through habit formation, teacher supervision, and strengthening the role of school policies to ensure that handwashing with soap is consistently practiced in elementary school settings.

Keyword: Handwashing with Soap, Knowledge, Infrastructure, Role of Schools, Handwashing Behavior.

INTRODUCTION

Handwashing is an effective public health prevention and promotion strategy for reducing the risk of transmission of various infectious diseases such as diarrhea, acute respiratory infections, and COVID-19 [1]. Globally, the report Progress on Drinking Water, Sanitation and Hygiene in Schools 2015–2023 published by the WHO/UNICEF Joint Monitoring Programme indicates that although there has been an increase in access to basic sanitation facilities in various countries, approximately one-third of schools worldwide still lack handwashing facilities with soap and water. This situation indicates that most educational institutions have not yet fully supported the optimal implementation of hand hygiene practices [2].

At the national level, the Ministry of Health of the Republic of Indonesia, through the 2022 Indonesia Health Profile, reported that the coverage of handwashing with soap among elementary school students remains relatively low, at around 50–60%. This finding indicates that nearly half of schoolchildren have not adopted proper handwashing practices, despite the government's efforts to provide facilities and health education programs through the Clean and Healthy Living Practices (PHBS) initiative in school settings [3].

As part of implementing clean and healthy living practices in elementary school settings, the Indonesian government has launched various programs such as the School Health Program (UKS) and the Clean and Healthy Living Practices (PHBS) initiative in Elementary Schools and Madrasah Ibtidaiyah, which emphasize the habit of handwashing with soap [4].

Additionally, the National Action Plan for Handwashing with Soap (RAN-CTPS) 2022–2030 also designates schools as the primary setting for fostering sustainable handwashing with soap practices [5]. These efforts demonstrate the government's commitment to instilling hand hygiene habits from an early age within the educational environment.

Research by Berhanu in Ethiopia indicates that handwashing behavior among elementary school students in Harar is influenced by the availability of adequate handwashing facilities, ease of access to water and soap, and student participation in school hygiene clubs (WASH clubs)[6]. Similar findings were also reported by Golla in southern Ethiopia, indicating that hygiene practices, including handwashing among elementary school students, are significantly influenced by students' knowledge, participation in school hygiene and sanitation clubs, and experiences visiting model schools [7]. These factors have been shown to contribute to improved hygiene practices among students.

Salsabila's analysis indicates that handwashing with soap behavior among elementary school students in Indonesia is influenced by knowledge, attitude, and practice factors that can be improved through health education. In addition to knowledge, environmental support and the availability of handwashing facilities at school are also critical factors in fostering good handwashing with soap habits [8]. This aligns with Kusumaningtiar's findings, which indicate that facility and infrastructure conditions in schools—particularly the availability of handwashing stations with running water and soap, toilets, and adequate sanitation facilities—remain suboptimal in many elementary schools. The lack of such facilities has the potential to hinder the development of sustainable clean and healthy living behaviors (PHBS) among students [9]. Furthermore, research by Nurfauziah confirms that the successful implementation of clean living behaviors in schools depends not only on facilities and education but is also influenced by leadership and the role of the school. Strategies by school principals—such as budgeting for sanitation, standardizing facilities, providing hygiene education, and collaborating with external parties—play a key role in creating a school environment that supports sustainable hygiene behaviors [10].

Based on these various research findings, it can be concluded that handwashing behavior among elementary school students is influenced by factors such as knowledge, availability of facilities, and support from the school's role and environment. In line with this, this study is grounded in the PRECEDE–PROCEED health behavior theory proposed by Lawrence W. Green and Marshall W. Kreuter [11]. This theory explains that health behavior is influenced by three main factors: predisposing factors (knowledge and attitudes), enabling factors (facilities and infrastructure), and reinforcing factors (environmental support and the school's role). Based on this description, this study aims to analyze the factors associated with handwashing with soap behavior among students at State Elementary School 167 in Pekanbaru in 2025.

RESEARCH METHODS

This study is an analytical quantitative study using a cross-sectional approach. The study was conducted at State Elementary School 167 Pekanbaru in 2025. The population of this study consisted of all third-grade students at SDN 167 Pekanbaru, totaling 117 students. Sampling was performed using the Slovin formula, resulting in 90 respondents who met the inclusion criteria.

The research instrument used was a closed-ended questionnaire with 21 questions covering four aspects: knowledge, facilities and infrastructure, the school's role, and handwashing with soap behavior. The data obtained were processed and analyzed bivariately using the Chi-Square test with a significance level of. The independent variables were student

knowledge, school facilities and infrastructure, and the school's role. The dependent variable was handwashing with soap behavior.

RESEARCH RESULTS

Table 1. Frequency Distribution of Respondents Based on Students' Handwashing with Soap Behavior at SD Negeri 167 Pekanbaru in 2025

No	Variabel Test	Frequency	%
Handwashing Behavior With Soap			
1	Poor	27	30,0
2	Good	63	70,0
Total		**90**	**100**

source: primary data

Based on Table 1, it is evident that the majority of respondents have adopted the practice of handwashing with soap, totaling 63 respondents (70.0%).

Table 2. Frequency Distribution of Respondents Based on Students' Knowledge of Handwashing with Soap at SD Negeri 167 Pekanbaru in 2025

No	Variabel Test	Frequency	%
Studend Knowledge			
1	Low	35	38,9
2	High	55	61,1
Total		**90**	**100**

source: primary data

Based on Table 2, it is found that the majority of respondents have a high level of knowledge regarding handwashing with soap, totaling 55 respondents (61.1%) .

Table 3. Frequency Distribution of Respondents Based on School Facilities Regarding Handwashing with Soap at SD Negeri 167 Pekanbaru in 2025

No	Variabel Test	Frequency	%
Facilities and Infrastructure			
1	Inadequate	30	33,3
2	Adequate	60	66,7
Total		**90**	**100**

source: primary data

Based on Table 3, it is found that some respondents stated that school facilities and infrastructure are adequate, totaling 60 respondents (66.7%).

Table 4. Frequency Distribution of Respondents Based on the Role of the School Regarding Handwashing with Soap at SD Negeri 167 Pekanbaru in 2025

No	Variabel Test	Frequency	%
	Role of the School		
1	Not Supportive	45	50,0
2	Supportive	45	50.0
Total		**90**	**100**

source: primary data

Based on Table 4, it is found that the frequency of respondents who stated that the school's role does not support and those who stated that the school's role supports handwashing with soap is the same, namely 45 respondents (50.0%).

Table 5. Relationship Between Students' Knowledge and Handwashing with Soap Behavior at State Elementary School 167 Pekanbaru in 2025

No	Knowledge	Handwashing Behavior With Soap				Total		p-value
		Poor		Good				
		N	%	N	%	N	%	
1	Low	8	29,6	27	42,9	35	38,9	**0,238**
2	High	19	70,4	36	57,1	55	61,1	
Total		**27**	**100**	**63**	**100**	**90**	**100**	

source: primary data

Based on Table 5, there were 8 respondents (29.6%) with low knowledge and poor handwashing with soap behavior, and 27 respondents (42.9%) with low knowledge but good handwashing with soap behavior. Meanwhile, 19 respondents (70.4%) had high knowledge but poor handwashing behavior, and 36 respondents (57.1%) had high knowledge and good handwashing behavior. The Chi-Square test yielded a value of , so H0 could not be rejected. Thus, it can be concluded that there is no significant relationship between students' knowledge levels and handwashing with soap (CTPS) behavior among students at SDN 167 Pekanbaru.

Table 6. Relationship Between Facilities and Infrastructure and Handwashing with Soap Behavior Among Students at SDN 167 Pekanbaru in 2025

No	Facilities and Infrastructure	Handwashing Behavior With Soap				Total		p-value
		Poor		Good				
		N	%	N	%	N	%	
1	Inadequate	12	44,4	18	28,6	23	33,3	**0,143**
2	Adequate	15	55,6	45	71,4	68	66,7	
Total		**27**	**100**	**63**	**100**	**90**	**100**	

source: primary data

Based on Table 6, it is known that out of 90 respondents, 12 respondents (44.4%) rated the facilities and infrastructure as inadequate and had poor HWBP behavior, while 18 respondents (28.6%) rated the facilities and infrastructure as inadequate but had good HWBP behavior. Meanwhile, 15 respondents (55.6%) rated the facilities as adequate but had poor handwashing behavior, and 45 respondents (71.4%) rated the facilities as adequate and had good handwashing behavior. The Chi-Square test yielded a p-value of [value], so H0 could not

be rejected. Thus, it can be concluded that there is no significant relationship between school facilities and handwashing with soap (CTPS) behavior among students at SDN 167 Pekanbaru.

Table 7. Relationship Between the School's Role and Handwashing with Soap Behavior Among Students at SDN 167 Pekanbaru in 2025

No	School's Role	Handwashing Behavior With Soap				Total		p-value
		Poor		Good				
		N	%	N	%	N	%	
1	Not Supportive	14	51.9	31	49,2	45	50,0	**0.818**
2	Supportive	13	48,1	32	50,8	45	50.0	
Total		**27**	**100**	**63**	**100**	**90**	**100**	

source: primary data

Based on Table 7, 14 respondents (51.9%) rated the school's role as unsupportive with poor handwashing with soap behavior, and 31 respondents (49.2%) rated the school's role as unsupportive with good handwashing with soap behavior. Meanwhile, 13 respondents (48.1%) assessed the school's role as supportive but with poor handwashing behavior, and 32 respondents (50.8%) assessed the school's role as supportive with good handwashing behavior. The Chi-Square test yielded a value of , so H0 could not be rejected. Thus, it can be concluded that there is no significant relationship between the school's role and handwashing with soap (CTPS) behavior among students at SDN 167 Pekanbaru.

DISCUSSION

The Association Between Students' Knowledge and Handwashing with Soap Behavior Among Students at State Elementary School 167 in Pekanbaru

The results of the bivariate analysis indicate that there is no significant associated between knowledge levels and handwashing with soap behavior among students at State Elementary School 167 in Pekanbaru ($p = 0.238$; $p > 0.05$). This indicates that although most students possess good knowledge regarding the importance of handwashing with soap, their behavior does not fully reflect this understanding in daily practice.

These results align with Sharma's study in Nepal, which found that high knowledge does not always lead to good handwashing practices [12]. However, these findings differ from those of Amar in Tanjung Morawa, who demonstrated a significant association between knowledge and handwashing habits [13].

According to Green and Kreuter's PRECEDE–PROCEED theory in [11], health behavior is influenced by three main factors: predisposing factors (knowledge and attitudes), enabling factors (availability of facilities and infrastructure), and reinforcing factors (environmental support and the school's role). In the context of this study, although the predisposing factor—knowledge—was adequate, the enabling and reinforcing factors were not yet optimal.

According to the researchers' hypothesis, students at SDN 167 Pekanbaru already understand the importance of handwashing with soap; however, this knowledge has not been accompanied by consistent practice and supportive school environments. Lack of teacher supervision, suboptimal PHBS activities, and a scarcity of educational materials such as posters or routine group handwashing activities may be the primary causes of the failure to establish good handwashing with soap behavior. Therefore, improving handwashing with soap behavior is not sufficient through knowledge enhancement alone but must also be supported by a conducive school environment and the school's role. Thus, other factors such as infrastructure

and the role of the school need to be further analyzed to comprehensively understand the determinants of handwashing with soap behavior..

The Association Between School Facilities and Infrastructure and Handwashing with Soap Behavior Among Students at State Elementary School 167 in Pekanbaru

The results of the bivariate analysis showed a p-value of 0.143 ($p > 0.05$), indicating no significant associ between facilities and infrastructure and handwashing with soap behavior among students at SDN 167 Pekanbaru. These findings suggest that although facilities such as clean water, soap, and handwashing stations are available, their use by students has not been optimal.

These research results align with those of Appiah-Brempong in Ghana, who found that the availability of handwashing facilities was not significantly associated with students' handwashing with soap practices, as behavior is more influenced by habit formation, teacher supervision, and school hygiene culture [14]. However, this differs from Berhanu's study in Ethiopia, which showed that the availability of clean water and soap is significantly associated with handwashing with soap practices. Students with access to adequate facilities are more likely to wash their hands properly compared to those without such access [6]. These findings suggest that adequate facilities can enhance hygiene behavior when supported by education and supervision from school authorities.

According to the PRECEDE–PROCEED theory by Green and Kreuter in [11], facilities and infrastructure are classified as enabling factors that support the development of healthy behaviors; however, their presence must be balanced with predisposing factors (knowledge) and reinforcing factors (environmental support and the school's role).

Based on the researcher's assumptions, the handwashing facilities with soap at SDN 167 Pekanbaru have not been utilized to their full potential due to the less-than-ideal location of the handwashing stations, soap frequently running out, and a lack of teacher supervision. Therefore, consistent practice and routine supervision are necessary to ensure that the available facilities can effectively support the implementation of handwashing with soap among students.

The Association Between the Role of the School and Handwashing with Soap Behavior Among Students at State Elementary School 167 in Pekanbaru

Based on the results of a bivariate analysis using the Chi-Square test, a p-value of 0.818 ($p > 0.05$) was obtained, indicating that there is no significant associated between the school's role and handwashing with soap behavior among students at SDN 167 Pekanbaru. This suggests that although the school has established rules and programs supporting handwashing with soap—such as providing facilities, handwashing schedules, or teacher supervision—their implementation has not been optimal in fostering the habit of routine handwashing among students.

These results align with Wichaidit's study in Kenya, which showed that school hygiene interventions—including the provision of facilities and promotion of handwashing with soap—did not significantly improve handwashing behavior unless accompanied by teacher supervision and habit formation [15]. However, this study does not align with Simorangkir's research, which demonstrated a significant association between the school's role and handwashing behavior with soap among elementary school students, where teachers' support and active involvement contribute to the development of good handwashing habits [16]. Both findings suggest that the school's role will be effective only if supported by active teacher involvement and the cultivation of hygiene behaviors within the learning environment.

According to the PRECEDE–PROCEED theory by Green and Kreuter in [11], the school's role falls under reinforcing factors, which play a crucial role in shaping and maintaining health behaviors. However, this factor is only effective if supported by predisposing factors (knowledge) and enabling factors (facilities and infrastructure).

According to the researchers' assumptions, the practice of handwashing with soap at SDN 167 Pekanbaru has not been consistently implemented. Teacher supervision remains limited; there are no routine group handwashing activities; and educational materials such as posters or hygiene reminders are still scarce. Therefore, the school's role must be strengthened through scheduled activities, teacher modeling, and routine evaluations to ensure that the behavior of handwashing with soap is established and sustained among elementary school students.

CONCLUSION

Based on the results of a study of 91 respondents regarding "Factors Associated with Handwashing with Soap Behavior among Students at State Elementary School 167 in Pekanbaru in 2025," it can be concluded that:

1. The Chi-Square test yielded a p-value of 0.238 > 0.05; therefore, H_0 cannot be rejected, leading to the conclusion that there is no significant associated between knowledge and handwashing with soap behavior among students at State Elementary School 167 in Pekanbaru.
2. The Chi-Square test yielded a p-value of 0.143 ($p > 0.05$); therefore, H_0 cannot be rejected, and it can be concluded that there is no significant associated between facilities and infrastructure and handwashing with soap behavior among students at State Elementary School 167 in Pekanbaru.
3. The Chi-Square test yielded a p-value of 0.818 ($p > 0.05$); therefore, H_0 cannot be rejected, leading to the conclusion that there is no significant associated between the school's role and handwashing with soap behavior among students at State Elementary School 167 in Pekanbaru..

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