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ORIGINAL ARTICLE

Factors associated with clean and healthy living behavior among elementary school students

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ABSTRACT

Background: Clean and Healthy Living Behavior (PHBS) in schools is a government program implemented through community health centers to improve public health status. Elementary school-aged children are a vulnerable group for various diseases associated with PHBS. This study aimed to identify factors associated with PHBS among students at public elementary schools in Banda Aceh City.

Methods: A quantitative study with a cross-sectional design was conducted from November 2023 to January 2024. The population comprised 192 students, with a sample of 85 fourth and fifth grade students selected through purposive sampling. Data were collected using questionnaires and checklists and analyzed using the Chi-Square test.

Results: Results showed that most respondents were male (51.8%) and aged 5-11 years (61.2%). More than half of respondents (56.5%) demonstrated poor PHBS, 65.9% had low knowledge levels, 45.9% reported unavailable PHBS facilities and infrastructure, and 60.0% perceived teacher roles as poor. Bivariate analysis revealed significant associations between knowledge level (p=0.024) and availability of facilities and infrastructure (p=0.004) with PHBS; however, no significant association was found between teacher role and PHBS (p=0.562).

Conclusion: In conclusion, knowledge level and availability of facilities and infrastructure were significantly associated with PHBS among public elementary school students in Banda Aceh City. It is recommended that community health centers conduct regular PHBS education in schools and that schools complete necessary facilities while strengthening supervision of student PHBS implementation.

Keywords: knowledge, facilities, teacher role, PHBS, elementary school students

Introduction

In 1995, the World Health Organization launched the Global School Health Initiative aimed at improving the health of children, adolescents, and communities.[1] School health promotion has proven effective in enhancing various aspects of student health.[2,3] Globally, more than 90% of primary school-aged children and over 80% of lower secondary school-aged children are enrolled in schools. Promoting healthy behaviors early in childhood through school settings benefits not only the children themselves but also their families, peers, and the broader community.[1,4] Health status constitutes a critical component in efforts to improve Indonesia's Human Development Index. Health status is determined not only by health services but more dominantly by environmental conditions and community behavior. Efforts to modify community behavior to support improved health status are implemented through the Clean and Healthy Living Behavior (PHBS) development program.[5,6]

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PHBS comprises a set of behaviors practiced based on individual awareness to prevent health problems. Behavioral change toward PHBS must begin early, and the government also encourages communities to implement the Healthy Living Community Movement (GERMAS).[7] PHBS represents one of the government's priority programs implemented through community health centers and serves as an outcome measure in health development implementation. Minister of Health Regulation No. 2269/Menkes/Per/X/2011 regulates guidelines for implementing PHBS in various settings, including educational institutions.[8]

Schools are educational institutions targeted for PHBS implementation. Among elementary school-aged children, various diseases that commonly affect this age group (6-10 years) are generally associated with PHBS. Research on PHBS implementation in elementary schools in Denpasar, which shows that schools are used as the main setting for PHBS-tatanan-sekolah activities (handwashing, healthy snacks, waste disposal, etc.) and that schools play an important role in disseminating PHBS information.[9] A community-service article stating that schools are educational institutions that can act as leaders in improving community health by prioritizing preventive and promotive efforts, including PHBS.[10] Inadequate PHBS implementation in the school environment can result in uncomfortable learning conditions due to dirty classrooms, decreased student achievement and learning motivation, and poor school image. A quantitative study at an elementary school in Medan that found low levels of knowledge, attitudes, infrastructure, and teacher involvement in PHBS are associated with poor PHBS behavior, which contributes to unhygienic and less comfortable school conditions.[11] Another PHBS-implementation study concluding that most elementary-school students show poor PHBS behavior, which underlines the need for school-based interventions to prevent disease transmission and to improve the overall school environment and image.[12]

According to Lawrence Green's theory, health behavior is influenced by three main factors: predisposing factors (knowledge, attitudes, beliefs, and demographic factors), enabling factors (facilities and infrastructure), and reinforcing factors (support from teachers, parents, and health workers).[13] Previous research on PHBS conducted by Yuandra and Ginting[14] at SD Negeri 046579, Lau Peranggunen Village, Karo Regency, revealed that 72% of students had low knowledge levels regarding PHBS and 63% demonstrated poor PHBS practices, with a significant association between knowledge and PHBS practices ($p=0.046$). Nasiatin and Hadi[15] at elementary schools in Deringo Village, Citangkil District, Cilegon City, found that 42.1% of teacher roles were poor and 49.5% of PHBS implementation was poor, with a significant association between teacher role and PHBS ($p=0.000$). Santoso (2022) at SDN Mekarjaya 7 Depok reported that 49.4% of PHBS facilities and infrastructure were unavailable and 49.4% of PHBS implementation was poor.

Data from the 2020 School Sanitation Profile indicated that one in five elementary education units lacked adequate water facilities (20.09%), six in ten lacked adequate sanitation facilities (13.60%), and one in two lacked handwashing facilities with running water and soap (22.94%). Based on preliminary surveys and previous research, this study aimed to examine factors associated with PHBS among students at public elementary schools in Banda Aceh City. The objective was to determine the associations between knowledge level, availability of facilities and infrastructure, and teacher role with PHBS among public elementary school students in Banda Aceh City.

Method

This quantitative study employed a cross-sectional design. The research was conducted at public elementary schools in Banda Aceh City from November 2023 to January 2024. The study population consisted of 192 students from public elementary schools in Banda Aceh City. The sample comprised 85 fourth and fifth grade students selected through purposive sampling. Inclusion criteria included willingness to participate as respondents with signed informed consent, ability to communicate effectively, and status as active fourth or fifth grade students. Exclusion criteria included absence during data collection, illness at the time of data collection, or prior participation as respondents in preliminary surveys.

Research instruments included questionnaires and checklists containing items related to the variables under study. Primary data were collected through interviews using questionnaires administered to respondents, while secondary data were obtained from annual reports of community health centers in Banda Aceh City. Data processing procedures included editing, coding, entry, and cleaning. Data were analyzed using univariate analysis to determine the frequency distribution of each variable and bivariate analysis using the Chi-Square test with a 95% confidence level ($\alpha=0.05$) to examine associations between variables.

Results

This study involved 85 students from public elementary schools in Banda Aceh City as respondents. The frequency distribution of respondent characteristics and research variables is presented in Table 1. As shown in Table 1, most respondents were male (44 respondents, 51.8%) and aged 5-11 years (52 respondents, 61.2%). A total of 48 respondents (56.5%) demonstrated poor PHBS implementation, 56 respondents (65.9%) had low knowledge levels, 39 respondents (45.9%) reported unavailable PHBS facilities and infrastructure, and 51 respondents (60.0%) perceived teacher roles as poor.

Table 1. Respondent characteristics

Characteristics	Frequency (n)	Percentage (%)
Sex		
Male	44	51.8
Female	41	48.2
Age		
5-11 years	52	61.2
12-16 years	33	38.8
Clean and Healthy Living Behavior (PHBS)		
Poor	48	56.5
Good	37	43.5
Knowledge Level		
Low	56	65.9
High	29	34.1
Availability of Facilities and Infrastructure		
Unavailable	39	45.9
Available	46	54.1
Teacher Role		
Poor	51	60.0
Good	34	40.0

The results of analyses examining associations between independent variables (knowledge level, availability of facilities and infrastructure, and teacher role) and the dependent variable (PHBS) are presented in Table 2. Table 2 shows that the proportion of respondents with poor PHBS was higher among those with low knowledge levels (66.1%) compared to those with high knowledge levels (37.9%). Statistical analysis yielded a p-value of 0.024 (<0.05), indicating a significant association between knowledge level and PHBS.

Table 2. Associations between knowledge level, availability of facilities and infrastructure, and teacher role with PHBS

Variable	Poor PHBS		Good PHBS		Total		p
	n	%	n	%	n	%	
Knowledge Level							
Low	37	66.1	19	33.9	56	100	0.024
High	11	37.9	18	62.1	29	100	
Availability of Facilities and Infrastructure							
Unavailable	29	74.4	10	25.6	39	100	0.004
Available	19	41.3	27	58.7	46	100	
Teacher Role							
Poor	27	52.9	24	47.1	51	100	0.562
Good	21	61.8	13	38.2	34	100	

The proportion of respondents with poor PHBS was higher among those reporting unavailable facilities and infrastructure (74.4%) compared to those reporting available facilities (41.3%). Statistical analysis yielded a p-value of 0.004 (<0.05), indicating a significant association between availability of facilities and infrastructure and PHBS. The proportion of respondents with poor PHBS was higher among those perceiving poor teacher roles (52.9%) compared to those perceiving good teacher roles (61.8%). Statistical analysis yielded a p-value of 0.562 (>0.05), indicating no significant association between teacher role and PHBS.

Discussion

The study findings revealed that a majority of students demonstrated poor Clean and Healthy Living Behavior (PHBS) implementation. This finding aligns with previous research, all of whom reported widespread poor PHBS among elementary school students.[11,12] Interviews and observations with students

revealed several concerning issues regarding daily school life. School canteens often sell uncovered, unhealthy foods, and students skip handwashing or utensils. Classrooms lack trash bins, and waste separation fails due to missing bins for organic/inorganic types.[12,16] PHBS comprises behaviors practiced based on individual awareness to prevent health problems. The low PHBS levels observed in public elementary schools warrant attention from school authorities. Implementation can be enhanced through regular educational sessions, reminders about the importance of PHBS indicators, and the installation of reference posters to help protect students from disease.[12,17]

The study results indicated that a significant portion of students had low knowledge levels regarding PHBS. This low knowledge was reflected in a poor understanding of basic hygiene practices. Specifically, students lacked awareness regarding handwashing with soap before or after meals, purchasing clean and healthy snacks, and identifying appropriate locations for defecation and urination. They also demonstrated a poor understanding of the importance of nail cutting and proper waste disposal locations. Conversely, higher knowledge levels were attributed to prior participation in PHBS education at school or community health centers, receiving brochures, or exposure to PHBS posters.[11,17–19]

Analysis reveals a significant correlation between student knowledge and Clean and Healthy Living Behavior (PHBS), as low knowledge levels substantially increase the likelihood of poor hygiene practices. While knowledge serves as a foundational domain for behavior formation, ingrained habits can cause even knowledgeable students to lapse, necessitating intensified school-led education. However, cognitive understanding alone is insufficient without enabling factors; the lack of essential infrastructure—such as handwashing stations, healthy canteens, and waste management—significantly impedes PHBS implementation regardless of a student's awareness.[11,20]

Despite the theoretical importance of teachers as role models, this study found no significant statistical association between teacher roles and student PHBS, likely because physical facilities and personal knowledge exert a more dominant influence. Observations suggest that teacher inconsistency and a high tolerance for hygiene violations further dilute their impact. Nevertheless, because behavior is reinforced by social modeling, schools must ensure teachers consistently demonstrate and enforce these practices to support long-term character development and behavioral change.[21,22]

Conclusion

Most public elementary school students in Banda Aceh City demonstrated poor Clean and Healthy Living Behavior (PHBS) (56.5%) and low knowledge levels (65.9%). More than half of respondents reported available PHBS facilities and infrastructure (54.1%), yet perceived teacher roles as poor (60.0%). Significant associations were found between knowledge level (p=0.024) and availability of facilities and infrastructure (p=0.004) with PHBS; however, no significant association was found between teacher role and PHBS (p=0.562) among public elementary school students in Banda Aceh City. It is recommended that community health centers conduct regular PHBS education in schools, including handwashing with soap activities. Schools should enhance student PHBS by completing facilities and infrastructure such as separate waste bins, handwashing stations with soap, and healthy canteens, while strengthening supervision of PHBS implementation. School authorities should remind all teachers not to overlook student violations of PHBS indicators, as this can weaken character development efforts related to PHBS. Future researchers are encouraged to examine other factors associated with PHBS among junior high school students.

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