



Healthy Living Education for Preventing Childhood Infectious Diseases: A Literature Review

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ABSTRACT

The increasing incidence of infectious diseases among children highlights the urgent necessity for effective health education programs emphasizing clean and healthy behaviors. This study aims to identify the determinants influencing the effectiveness of health education in preventing infectious diseases in children. A systematic literature review was performed, analyzing 15 peer-reviewed articles retrieved from databases including PubMed, Scopus, and Web of Science, encompassing publications from 2019 to 2024. The search strategy employed keywords such as "health education," "infectious disease prevention," and "clean and healthy behavior." Inclusion criteria comprised studies focusing on health education interventions, while exclusion criteria omitted non-peer-reviewed articles and studies irrelevant to the subject matter. The findings revealed that interactive teaching approaches substantially improved children's comprehension and retention of health-related information. Furthermore, robust parental involvement demonstrated a positive association with the enhancement of children's health behaviors. The review also underscored the significance of culturally sensitive educational materials and well-trained educators in delivering effective health education. In conclusion, addressing these factors is critical to optimizing the effectiveness of health education programs designed to promote clean and healthy behaviors, thereby contributing to the prevention of infectious diseases and improved health outcomes among children.

INTRODUCTION

Infectious diseases remain a major global health concern, particularly among children. According to the World Health Organization (WHO), approximately 5.2 million children under the age of five die each year due to preventable infectious diseases through appropriate interventions (WHO, 2022). This high mortality rate underscores the urgent need for more effective prevention efforts, including health education focused on clean and healthy living behaviors (PHBS).

At the national level, Indonesia faces similar challenges, where infectious diseases such as diarrhea, pneumonia, and upper respiratory tract infections remain leading causes of child

mortality (Ministry of Health of the Republic of Indonesia, 2021). Although the government has launched various programs to raise awareness about the importance of PHBS, the effectiveness of these programs in reducing the incidence of infectious diseases requires further evaluation. Previous studies have demonstrated that effective health education can change the behaviors of children and their families in maintaining health (Dandi et al., 2019).

In the local context, many schools and communities in Indonesia have implemented PHBS education programs; however, the impact of these programs on infectious disease prevention is not yet fully understood. Some studies indicate that children exposed to health education programs have better knowledge about hygiene and health, but gaps still exist in the application of these behaviors in daily life (Sari et al., 2020). Therefore, it is essential to conduct a comprehensive literature review to evaluate the effectiveness of PHBS education in preventing infectious diseases among children.

The aim of this study is to review and analyze 15 journals related to the effectiveness of clean and healthy living behavior education in preventing infectious diseases in children. By synthesizing findings from various studies, this research is expected to provide better recommendations for the development of more effective health education programs in the future.

METHODS

The method used in this study is a Systematic Literature Review (SLR). This literature review constitutes a comprehensive analysis of various sources relevant to the research topic. The literature search was conducted using several databases, including PubMed, Scopus, and Web of Science, in addition to Google Scholar. The keywords employed in the search included "health education," "infectious disease prevention," and "clean and healthy living behavior." Boolean operators AND and OR were applied in the search strategy to both broaden and narrow the search results.

The initial number of articles retrieved was 50. After the selection process, 35 articles were excluded because they did not meet the inclusion criteria, such as irrelevance to the topic, lack of peer review, or publication date outside the range of 2019 to 2024. The selection process consisted of two stages: screening of titles and abstracts, followed by a full-text review of the selected articles.

Data obtained from the selected articles were then synthesized using thematic analysis to identify emerging themes and patterns across the studies. This approach is expected to provide a more comprehensive understanding of the impact of education on clean and healthy living behavior on child health.

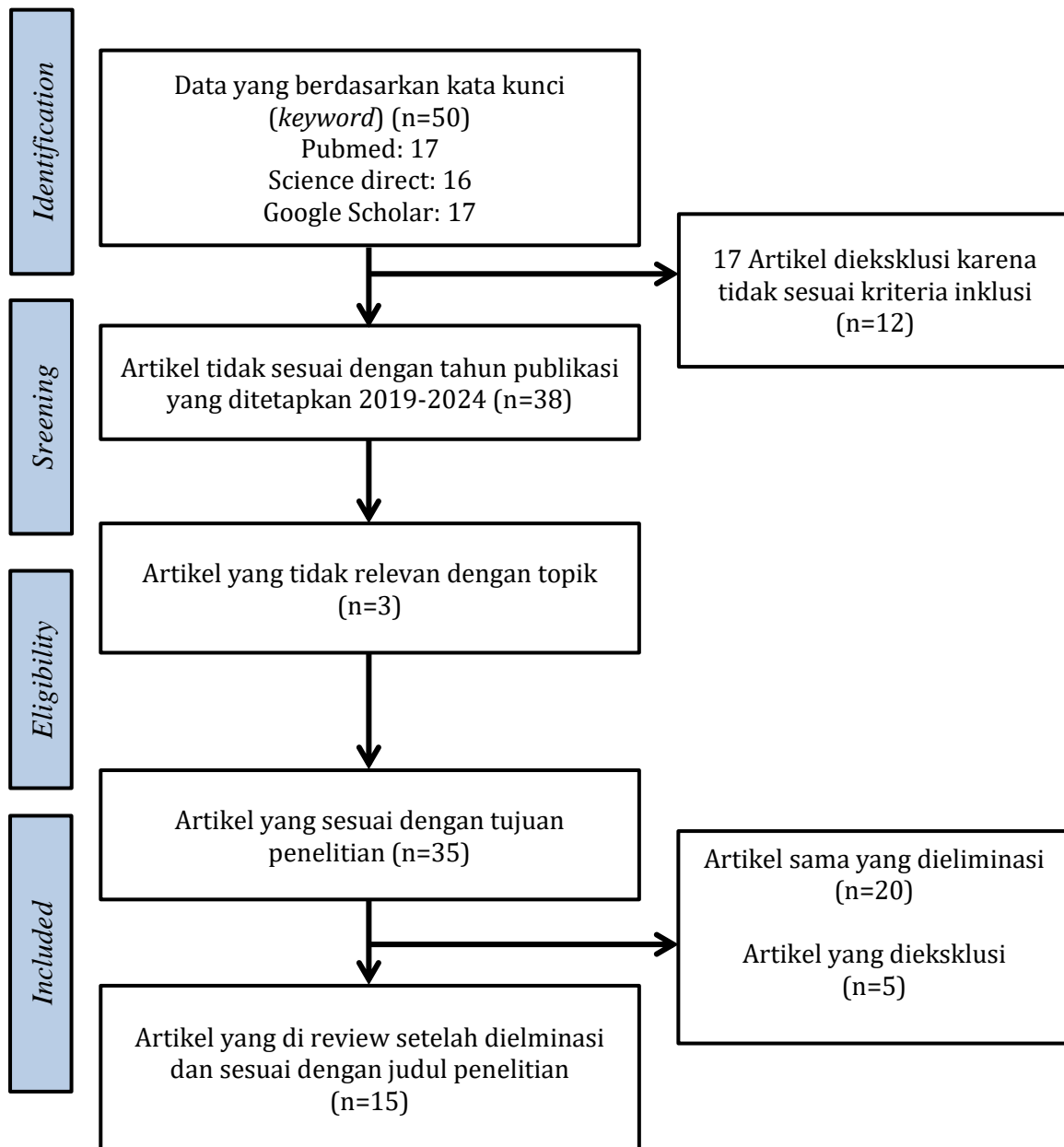


Figure 1. Flow Diagram of the Literature Review Data Search

RESULTS

Table 1. Summary of Literature Review from Selected Journals

No	Author's	Title	Method	Research Findings
1	(T. Nasiatin et al., 2021)	The roles of health-promoting media in the clean and healthy living behavior of elementary school students	This study employed an analytical quantitative approach with a cross-sectional design. The sample consisted of 170 fifth-grade students from all elementary schools in the northern area of Kramatwat Subdistrict. Data analysis was conducted using bivariate analysis with the Chi-square test.	The study results showed that 5.3% of respondents exhibited good clean and healthy living behavior (CHLB). There was a significant association between exposure to health promotion media, parental role, and teacher role with CHLB among fifth-grade students.

2	(Widyana Lakshmi Puspita <i>et al.</i> , 2020)	Health Education to Reduce Helminthiasis: Deficits in Diets in Children and Achievement of Students of Elementary Schools at Pontianak, West Kalimantan	This study employed an observational design with pre-posttest and cross-sectional approaches. The sample consisted of 60 students from grades 3 and 4, drawn from five elementary schools in North Pontianak, West Kalimantan. Data were collected through stool examinations to detect helminth infections, blood tests to identify anemia, and assessments of students' academic performance. Additionally, health education was conducted to improve clean and healthy living behaviors.	The study found a prevalence of helminthiasis of 16.7% among students. Additionally, 55% of the respondents were anemic, and the majority of students (55%) had academic achievement scores below the class average.
3	(Ruhu A'yunil Mumtazah Elfany, 2023)	Pengembangan Kapasitas Siswa Melalui Edukasi Dan Sosialisasi Serta Penerapan Phbs Dalam Upaya Pencegahan Penyakit Menular	The study employed a quantitative research design, involving data collection through questionnaires and statistical analysis to measure changes in students' knowledge and understanding before and after the educational intervention. The sample consisted of 25 kindergarten students and 29 elementary school students. Data were analyzed using frequency distribution calculations.	There was an increase in students' understanding from 60% to 80% after the implementation of the PHBS education and socialization program.
4	(Eva Oktaviani <i>et.al</i> , 2022)	Permainan Edukatif <i>Quarted Flash Card (QFC)</i> Sebagai Media Promosi Kesehatan Penyakit Menular dan Tidak Menular pada Anak Sekolah Dasar	This study employed a health education intervention using a play-based learning approach. The activity was conducted with 25 sixth-grade students at SD IT An-Nida, Lubuklinggau City.	The research results indicate an increase in knowledge: the average pretest score of students was 42.40, which improved to 80.40 after the intervention. Regarding score categories, before the intervention, 80% of the students were classified in the poor category, whereas after the intervention, 72% of the students fell into the good category.
5	(Indriati Andolita Tedju <i>et al.</i> , 2021)	Edukasi Kebiasaan Cuci Tangan Dengan Penerapan Metode Bernyanyi Sebagai Upaya Pencegahan Penyakit Menular Pada Murid Sd Negeri	This study employed a community service approach focusing on handwashing habit education. The activities were directed at 11 second-grade students and 2 teachers at Tuadale Public Elementary School, Kupang.	Before the intervention, participants' knowledge and skills were only 5%. After the counseling using the lecture method, these increased to 76%. Following the counseling employing singing and movement methods, the levels further improved to 98%.

		Tuadale Kabupaten Kupang		
6	(Aschale A. <i>et al.</i> , 2021)	Water, sanitation, and hygiene conditions and prevalence of intestinal parasitosis among primary school children in Dessie City, Ethiopia	This study employed a school-based cross-sectional design. The research was conducted among 407 elementary school children who were stratified sampled from five elementary schools in Dessie City, Ethiopia. Data analysis was performed using a binary logistic regression model to identify factors associated with intestinal parasitosis.	This study demonstrated the prevalence of intestinal parasitosis: 16.0% of children were found to be positive for at least one intestinal parasite. Among these cases, 50.8% tested positive for protozoa, 32.2% for helminth infections, and 16.9% for multiple infections.
7	(Farhana Sultana, <i>et al.</i> , 2022)	Pilot of a Low-Cost Elementary School Handwashing Intervention in Bangladesh: Acceptability, Feasibility, and Potential for Sustainability	This study employed an intervention trial design to evaluate the acceptance, feasibility, and potential sustainability of a handwashing intervention in primary schools. The participants included fourth and fifth grade students from eight primary schools in Bangladesh. Direct observations were conducted to assess students' handwashing practices before eating, after using the toilet, and after cleaning the toilet.	The research results showed an improvement in handwashing practices. After 30 days of intervention, there was a significant increase in handwashing before eating (from 0% to 46%) and after using the toilet (from 0.7% to 82%). At the 14-month follow-up, 9.4% of students washed their hands before eating, and 37% washed their hands after using the toilet.
8	(Asep Fithri Hilman <i>et al.</i> , 2022)	Increasing Knowledge of Elementary Student about PHBS Through Modified Snakes and Ladders Media	The study employed a quasi-experimental design with a one-group pretest-posttest without control design. The research was conducted on 21 students of Cibeureum I Public Elementary School, Bandung Regency, aged 9 to 10 years.	The mean knowledge score before the education intervention was 16.65, whereas after the intervention, it increased to 22.13. The results of the paired sample t-test showed a p-value of 0.000, indicating that the use of a modified snakes and ladders game media was effective in improving the knowledge of school-aged children regarding Clean and Healthy Lifestyle Behaviors (PHBS).
9	(Sevia Rexamawati <i>et al.</i> , 2021)	Pengaruh Peran Keluarga Terhadap Perilaku Hidup Bersih Dan Sehat (PHBS) Pada Anak Sekolah Dasar Usia 10 Sampai 12 Tahun Di Kampung Baru Pondok	This study employed a quantitative approach. The research location was RW 10, Kampung Baru Pondok Cabe Udik, which consists of three neighborhood units (RT 01, RT 02, and RT 03). Data analysis was conducted using simple regression analysis with a significance level of 0.05.	The analysis results indicate that the role of the family has a significant influence on children's Clean and Healthy Behavior (PHBS), with a significance value of 0.000, which is less than the 0.05 threshold.

Cabe Udik				
10	(Syavira Anas Takim <i>et al</i> , 2021)	Analisis Kejadian Diare pada Balita di Wilayah Kerja Puskesmas Tanah Sareal Tahun 2021	This research is an analytic descriptive study. The study design employs a survey method with data collection conducted through questionnaires and observations.	The study demonstrated a strong association between the incidence of diarrhea in toddlers and poor implementation of clean and healthy living behaviors (PHBS) by their caregivers. The priority problem analysis indicated that inadequate application of PHBS, lack of exclusive breastfeeding, and contaminated wells were the primary issues.
11	(Irsa Gul Andleeb <i>et al</i> , 2025)	Impact Of Environmental Education on Knowledge and Hygiene Practices Among School Children in The Potohar Region: A Step Towards Sustainable Environmental Change	This study employed a mixed-methods approach. Mixed methods combine quantitative and qualitative data to provide a more comprehensive understanding of the phenomenon under investigation. The sample consisted of 70 students aged 12 to 16 years (grades 7 to 10). Quantitative data collected through questionnaires were analyzed using descriptive statistics, while qualitative data obtained from focus group discussions (FGDs) were analyzed thematically to identify emerging themes and patterns from the discussions.	The research findings indicate that 60% of students practice hand hygiene, 71% regularly trim their nails, 45% brush their teeth twice a day, 72% use a handkerchief or tissue to wipe a runny nose, 58% cover their mouth when coughing or sneezing, and 96% bathe regularly. Regarding environmental knowledge, 60% of students are aware of pollution, 47% understand climate change, 59% recognize deforestation, 50% are familiar with global warming, and 96% know the meaning of the environment.
12	(Muhammad El Kautsar <i>et al</i> , 2021)	Clean And Healthy Lifestyle Behaviors and Healthy Housing Influenced the Incident of Acute Respiratory Infection in Childhood	This study employed a cross-sectional design with an observational analytic approach.	The findings of this study revealed a significant correlation between family members' smoking behavior (p-value = 0.021) and the level of household crowding (p-value = 0.03).
13	(Roisah <i>et al</i> . (2024)	Maintaining Health from an Early Age: Building PHBS Awareness among PMI Children in Malaysia	This study is an action research. The research design employs a qualitative approach involving direct interaction between volunteers and PMI children through various educational and interactive activities.	This study demonstrates that the implemented program not only yielded positive outcomes but also established a strong foundation for improving the health and well-being of migrant worker children in the future.
14	(Sukmawati Sukmawati <i>et al</i> , 2025)	Health Education Using Puzzel Media About Hand Washing Behavior with	This study employed a health education method using puzzle media and demonstrations. It is a quantitative study with a pre-test and post-test design to measure	The study results showed that the average knowledge score of respondents before the educational intervention was 59, which increased to 70 after the

	Soap	changes in participants' knowledge.	intervention, indicating a positive effect of the provided health education.
15.	(Yudi Adnan <i>et al</i> , 2024) Evaluation of Understanding of Clean Living Behavior in Diarrhea Prevention Efforts in Elementary School Students	This study employed an evaluation method using the Asset-Based Community Development (ABCD) approach, which is a participatory approach.	The statistical analysis results showed a significance value of 0.050 ($p > 0.05$), indicating no statistically significant difference in knowledge about diarrhea prevention counseling with Clean and Healthy Living Behavior (PHBS) between the periods before and after 8 months of counseling. In both post-test I and post-test II, 100% of respondents were categorized as having good knowledge, demonstrating no decline in knowledge regarding diarrhea prevention with PHBS after 8 months.

DISCUSSION

Results of the review of 15 journal articles indicate that health education focusing on clean and healthy living behavior (CHLB) has a significant impact on preventing infectious diseases among children. Most studies reported consistent improvements in CHLB-related knowledge and behaviors following the intervention. For example, a study by Mumtazah Elfany (2023) noted an increase in students' understanding from 60% to 80%, while Oktaviani et al. (2022) reported an improvement in the average pre-test score from 42.40 to 80.40. However, variations in outcomes were observed across studies. Puspita et al. (2020), for instance, found that the reduction in the prevalence of helminth infections was not necessarily accompanied by an improvement in academic achievement, suggesting that the context and type of intervention may influence the effectiveness of health education outcomes.

Differences in findings among studies may be influenced by several factors, one of which is the method used in the intervention. Some studies, such as that by Tedju et al. (2021), employed more interactive approaches—such as singing and movement-based activities—which were shown to significantly enhance students' knowledge and skills. In contrast, studies utilizing less engaging methods may not yield similar outcomes. Additionally, the age of the children plays an important role; younger children may respond better to playful and enjoyable methods, whereas older children may require a more serious and informative approach to achieve meaningful learning outcomes.

Another critical factor affecting the success of health education interventions is parental involvement and community support. A study by Sultana et al. (2022) emphasized the importance of sustaining handwashing interventions in schools, which is highly influenced by parental engagement. Involving parents in the education process can reinforce the health messages delivered at school and help promote CHLB practices at home. Therefore, to achieve better and more sustainable outcomes, it is essential to develop integrated educational

programs that engage multiple stakeholders, including parents and the community, in promoting children's health.

CONCLUSION

The review of various studies indicates that health education focusing on clean and healthy living behaviors (PHBS) significantly contributes to the prevention of infectious diseases among children. The findings highlight that interactive methods—such as the use of promotional media and educational games—are effective in improving students' understanding and adoption of healthy behaviors. Based on these findings, it is recommended that school-based health education programs be more integrated and actively involve parents and the broader community to create a supportive environment. Furthermore, the development of new theoretical frameworks regarding the effectiveness of diverse teaching methods within local contexts is needed to strengthen the scientific foundation for program implementation. Future research should explore the factors influencing the success of health education programs and identify the challenges encountered, in order to provide more effective solutions for sustainably improving children's health.

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