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Clean and healthy living behavior education for elementary school students in Katimbang Subdistrict, Makassar

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ABSTRACT

Infectious diseases have become a global issue with a prevalence of 18.4 percent. One of the efforts to prevent such diseases is instilling a culture of Clean and Healthy Living Behavior (CHLB). Early childhood and school-age children are crucial age groups that determine the quality of a child's growth and development. However, several health issues, such as diarrhea, which contributed to a mortality rate of 14.5 percent in 2020, affect this age group. One area facing problems related to infectious diseases in Indonesia is Katimbang Subdistrict, Biringkanaya District, Makassar City, South Sulawesi Province. Based on observations, this area is prone to flooding, with the highest health complaints being skin infections and diarrhea. This activity aims to enhance the knowledge of elementary school students in the Katimbang Sub-district regarding CHLB. The method employed is lectures utilizing leaflets, posters, and animated videos. The results of this activity show a significant increase in students' knowledge of CHLB from a pre-test score of 77.61 ± 11.77 to 90.07 ± 10.87 in the post-test, with a significant difference. The significant increase in students' knowledge indicates the success and effectiveness of this activity in improving students' understanding of CHLB.

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1. INTRODUCTION

Improving the quality of a healthy and prosperous life is the third goal of the Sustainable Development Goals (SDGs). One of the targets in the third goal of the SDGs is to reduce the prevalence of infectious diseases (WHO, 2023). Infectious diseases are illnesses caused by parasites, bacteria, viruses, fungi, or other infectious agents that can infect the body directly or indirectly through intermediaries (Hulu et al., 2020). According to the World Health Organization (WHO) data, infectious diseases have become a serious issue that remains unresolved in developing countries, with a global prevalence of 18.4 percent, contributing to a death rate of 46.8 percent in 2019 (WHO, 2022). According to the Regulation of the Minister of Health of the Republic of Indonesia Number 21 of 2020 concerning the Strategic Plan

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of the Ministry of Health for the Year 2020-2024, infectious diseases remain a strategic plan that has not been completed in Indonesia (Kementerian Kesehatan Republik Indonesia, 2020).

Efforts to reduce the prevalence of non-communicable diseases have become the responsibility of every individual and should be instilled from an early age. One of the efforts that can be implemented is promoting Clean and Healthy Living Behaviors (CHLB) (Ardinansyah et al., 2021; Khoiriah & Latifah, 2021; Kurniawati et al., 2022; Robbi et al., 2022; Umboro et al., 2022). Clean and healthy living behaviors comprise a set of actions undertaken by individuals in themselves and their environment out of personal awareness to improve health, prevent diseases, and create a healthy environment (Direktorat Sekolah Dasar Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, 2021).

Instilling a culture of CHLB from an early age can shape attitudes toward healthy lifestyles later in life and can be ingrained into subsequent developmental stages, thereby enabling the prevention of infectious diseases at the earliest possible stage (Suhendy et al., 2023). School-age children are a pivotal age group determining the quality of children in the future due to the myriad health issues that pose challenges to general health, children's behavioral disorders, learning disabilities, and child growth disorders, all of which will impact children's achievements (Puteri et al., 2021).

A common health disorder often encountered in children is diarrhea. According to WHO data, globally diarrhea holds a prevalence of up to 2 billion cases and contributes to the deaths of 1.9 million children annually. Diarrhea is an illness characterized by changes in the shape and consistency of stool, such as becoming soft or watery, and stool occurring more frequently than usual, three times or more a day. In short, diarrhea is a disease where there's a change in stool consistency and frequency of bowel movements, indicating an infection of the gastrointestinal tract which can be caused by bacteria, viruses, and parasites. The primary cause of diarrhea in children is viral infection at 60 percent, while bacterial infections account for 10 percent. Gastrointestinal infections can spread through contaminated food and drinking water or from person to person as a result of poor personal hygiene (Kementerian Kesehatan Republik Indonesia, 2022).

The Basic Health Research (RISKESDAS) data for 2018 recorded a prevalence of diarrhea in Indonesia at 8 percent for all age groups, reaching 12.3 percent for toddlers. The mortality rate from diarrhea in Indonesia contributed to a death rate of 14.5 percent in 2020 and had an impact on the increase in stunting rates in Indonesia (Kementerian Kesehatan Republik Indonesia, 2022). According to the Ministry of Health of the Republic of Indonesia, the number of diarrhea patients of all ages seeking treatment in Indonesian health facilities increased from 4,274,790 cases in 2017 to 4,504,524 in 2018, with a higher mortality rate compared to the previous year at 4.76 percent. In 2021, diarrhea became the leading cause of death among toddlers in Indonesia. Meanwhile, diarrhea cases in South Sulawesi are estimated at 236,099 cases, but only 28,228 cases (11.96 percent) are treated (Dinas Kesehatan Provinsi Sulawesi Selatan, 2021).

One of the areas in Indonesia that still faces issues regarding infectious diseases, particularly diarrhea, is the Katimbang Subdistrict, which is one of the eleven sub-districts in Biringkanaya District, Makassar City, South Sulawesi Province. According to data from the Central Statistics Agency (*Badan Pusat Statistik*) in 2022, Katimbang Subdistrict has a population of 15,664 people spread across 7 neighborhood associations (RW) and 31 community units (RT) (Badan Pusat Statistik Kota Makassar, 2023). The high population correlates with the high incidence of infectious diseases in this neighborhood. Data from the Community Health Center (Puskesmas) Paccerakkang recorded that 4 out of 10 most common diseases in 2023 were infectious diseases, including acute respiratory infections (ISPA) with 2,203 cases (29 percent), skin infections with 795 cases (11 percent), otitis media with 515 cases (7 percent), and dental and periapical diseases with 402 cases (5 percent). Additionally, there were 1,562 cases of diarrhea found

in this area in 2022 (Puskesmas Paccerakkang, 2023). This data is supported by the results of focused group discussions (FGD) with the head of the Paccerakkang hospital, the head of the sub-district, and the residents of Katimbang Subdistrict, revealing several health complaints among the local community, such as diarrhea, respiratory diseases, and skin diseases like itching due to increasing skin infections, mainly due to frequent flooding during the rainy season.

Based on the results of FGD and observations with the school authorities of UPT SPF Public Elementary School (SD) Sipala I and UPT SPF Public Elementary School Sipala II in Katimbang Subdistrict, it was found that students' understanding of CHLB is still low, such as some not maintaining personal hygiene when going to school. Based on the above description, there is a need for educational outreach and socialization regarding CHLB culture for students of UPT SPF Public Elementary School Sipala I and II. This community service aims to improve the knowledge and understanding of students of UPT SPF Public Elementary School Sipala I and II in Katimbang Subdistrict, Biringkanaya District, Makassar City, regarding CHLB. Through this program, it is hoped that the prevalence of infectious diseases will decrease and there will be an increase in the quality of health and well-being of the Indonesian community, especially in Katimbang Subdistrict, Biringkanaya District, Makassar City.

2. METHODS

The method employed in this community service activity is health promotion through lectures, discussions, and demonstrations. The detailed activities conducted are as follows:

Location and Time

The community service activity for CHLB education was conducted at UPT SPF Public Elementary School (SD) Sipala I and UPT SPF Public Elementary School Sipala II, Katimbang Subdistrict, Biringkanaya District, Makassar City, South Sulawesi Province. This program was implemented in January-February 2024. The map of the Katimbang sub-district area can be seen in Figure 1.

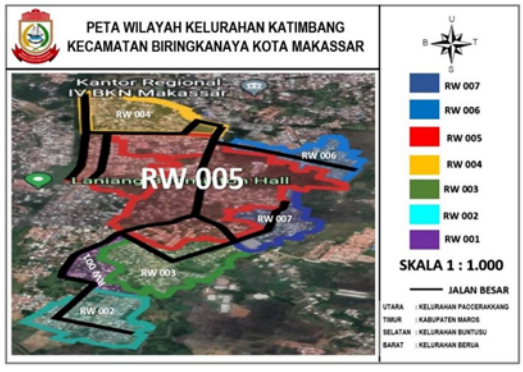


Figure 1. Map of Katimbang Subdistrict

Program Targets

The target of this community service activity for CHLB education is primary school students in grades 3, 4, 5, and 6 at UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II, Katimbang Subdistrict, Biringkanaya District, Makassar City, South Sulawesi Province. The number of students involved in this activity is 138 people, determined using an accidental sampling technique.

Tools and Materials

In this community service activity, tools such as cognitive questionnaires are needed to measure the cognitive ability or knowledge of the participating students. Additionally, the materials used include posters, leaflets, and educational videos related to CHLB, educating about personal hygiene and proper handwashing with soap. Participants are given 10 cognitive questions referring to previous CHLB programs, as outlined in Table 1 (Suhendy et al., 2023).

Table 1. Cognitive questionnaire regarding clean and healthy living behaviors

Questions
Is CHLB an abbreviation for Clean and Healthy Living Behavior?
Is the benefit of behaving CHLB can be a good example?
Is washing hands part of CHLB?
Can hand washing only be done at school?
Can hand washing be done at home?
Is it necessary to wash hands before and after eating?
Is it necessary to wash hands after shaking hands with others?
Can hand washing be done without soap?
Can hand washing be done using stagnant water?
Is being free from the disease a benefit of CHLB at home?

Preparation Stage

The preparation stage was conducted from January 22 to 31, 2024, including environmental observation activities, focused group discussions (FGD), and socialization with the community health center, village head, and local residents, as well as coordination with the school authorities, administrative licensing procedures, health data review, and preparation of educational materials and media.

Implementation Stage

The implementation stage was carried out on February 2, 2024, through the administration of a cognitive pre-test questionnaire to measure students' initial knowledge of CHLB with 10 true or false questions. Subsequently, education on CHLB, especially personal hygiene and proper handwashing with soap, was provided using leaflets, posters, and educational video screenings. To achieve the objectives, students were educated using interactive learning methods and provided with quizzes related to CHLB materials. After receiving the materials, students were given a cognitive post-test questionnaire to measure their knowledge after receiving CHLB education.

Monitoring and Program Evaluation

The evaluation stage is conducted through the collection, tabulation, and analysis of implementation data. The method used to evaluate this community service is by utilizing the paired T-test if the data are normally distributed. If the data do not meet the assumptions of the paired T-test, then the Wilcoxon test is used for non-normally distributed data, with a significance value (p-value <0.05) from the analysis of pre-test and post-test data to observe an increase in students' knowledge of CHLB. This community service is considered successful if there is an improvement in students' knowledge of CHLB from the statistical analysis.

The success indicators of this community service in educating CHLB are seen in the increase in students' knowledge of CHLB as observed through the comparison of pre-test and post-test results analyzed using statistical approaches.

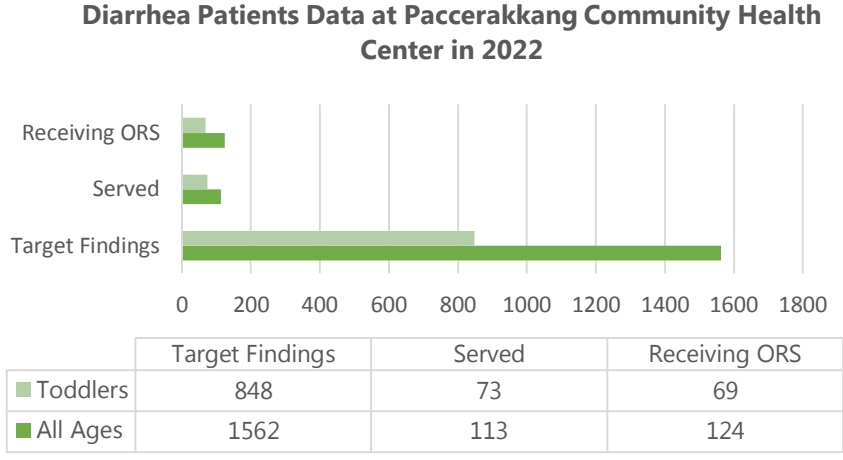
3. RESULTS AND DISCUSSION

Results

The community service activity in the form of Clean and Healthy Living Behavior (CHLB) education for elementary school students in Katimbang Subdistrict, Makassar City, aimed at improving the quality of healthy and prosperous life has been successfully conducted, with the detailed results of the activity.

Preparation stage

During the preparation stage conducted from January 22 to 31, 2024, several results were obtained, including environmental observation results indicating that students at UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II inadequately practice clean and healthy living behaviors within the school environment. Additionally, based on discussions with the school authorities, it was found that many students still do not practice personal hygiene and handwashing when going to school. This is supported by data from the Paccerakkang Community Health Center, which is responsible for health services in the local area, recording 1,562 cases of diarrhea in 2022 in the local area, mostly affecting toddlers and elementary school-aged children, as depicted in Figure 2. During this preparation stage, permissions were also obtained from the Paccerakkang Community Health Center, Katimbang Subdistrict, and UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II to carry out the program, which was deemed highly necessary by the partners.



	Target Findings	Served	Receiving ORS
Toddlers	848	73	69
All Ages	1562	113	124

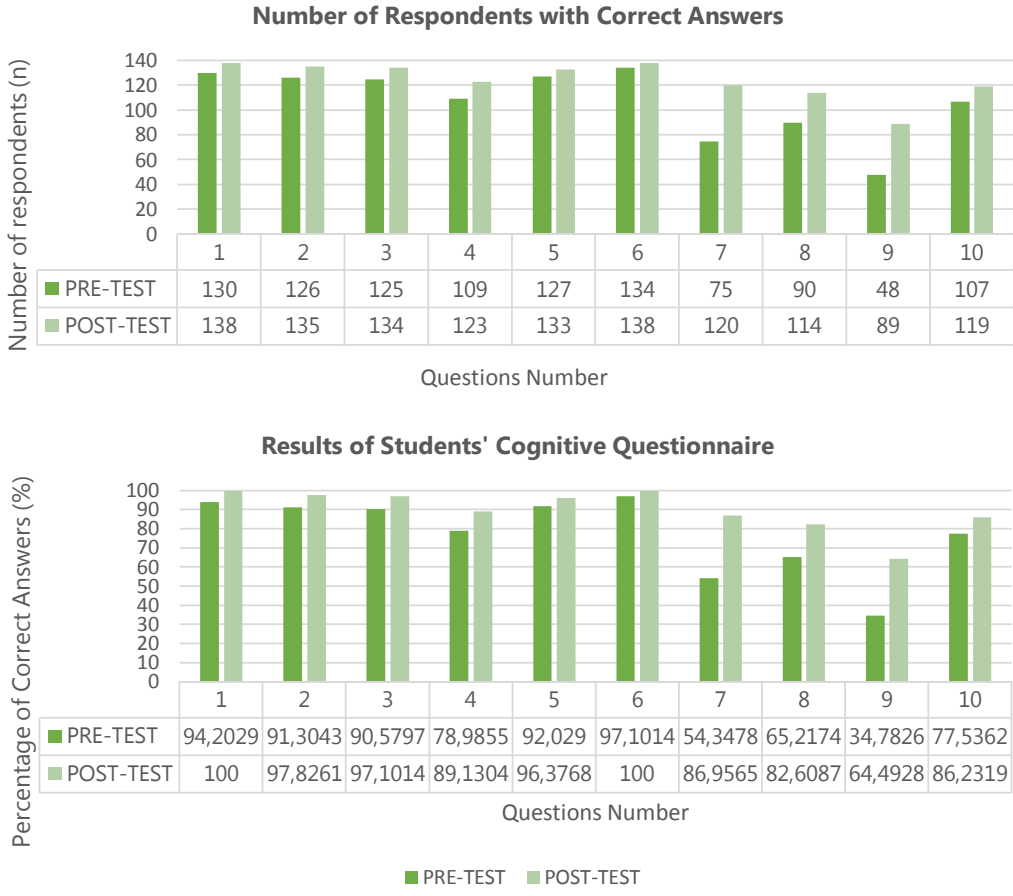
Figure 2. Diarrhea patients' profile at Paccerakkang Community Health Center in 2022
(Primary data from Paccerakkang Community Health Center)

Implementation stage

The community service activity regarding education on clean and healthy living behaviors for students of UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II in Katimbang Subdistrict, Biringkanaya District, Makassar City, South Sulawesi Province, was conducted

on Saturday, February 2, 2024, from 08:00 to 12:00 WITA. This activity was attended by 138 students, consisting of 75 from UPT SPF Public Elementary School Sipala I and 63 from UPT SPF Public Elementary School Sipala II. This community service activity can be seen in Figure 3.

Figure 3. Education activity on Clean and Healthy Living Behaviors (CHLB) for students of UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II



	1	2	3	4	5	6	7	8	9	10
PRE-TEST	130	126	125	109	127	134	75	90	48	107
POST-TEST	138	135	134	123	133	138	120	114	89	119

	1	2	3	4	5	6	7	8	9	10
PRE-TEST	94,2029	91,3043	90,5797	78,9855	92,029	97,1014	54,3478	65,2174	34,7826	77,5362
POST-TEST	100	97,8261	97,1014	89,1304	96,3768	100	86,9565	82,6087	64,4928	86,2319

Figure 4. Number of respondents with correct answers and results of cognitive questionnaire (pre-test and post-test) for students of UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II regarding CHLB (n= 138)

Monitoring and program evaluation

The monitoring and evaluation of the program were conducted through the review of pre-test and post-test results from the cognitive questionnaires given before and after the material was provided. The evaluation results of the program can be seen in Figure 4.

During the evaluation stage, data analysis was carried out using statistical approaches to determine the success of this program. The measurement of the results of this activity used the one-group pre-test post-test design method, which was then statistically analyzed by comparing students' knowledge before and after receiving CHLB education. The results of the pre-test and post-test can be seen in Figure 4.

Discussion

During the implementation stage, the education activities regarding CHLB were enthusiastically participated by the attendees in engaging with the materials, answering questions, and engaging in discussions using interactive learning techniques. Participants were provided with materials related to understanding CHLB, maintaining personal hygiene, the importance of handwashing with soap, and proper handwashing techniques. In this activity, participants received educational materials on CHLB related to personal hygiene using leaflets. Based on previous community service programs, it was found that the use of leaflets could significantly increase knowledge in both children and adults (Angraini et al., 2022; Antari et al., 2020; Fadmi & Saifullah, 2020). Additionally, to optimize the improvement of students' knowledge and skills regarding CHLB, these materials were combined with posters and educational videos, which have been proven to significantly enhance knowledge on the given topics (Burhannuddin et al., 2023; Dewi & Titrayani, 2023; Hasibuan et al., 2023).

To commence and conclude the implementation stage, elementary school students were given a pre-test before conducting CHLB education and a post-test after CHLB education to measure the student's knowledge before and after receiving CHLB education, each lasting for 5 minutes and consisting of 10 true or false cognitive questions. The analysis of the influence of CHLB education on students' knowledge was based on the pre-test results, with a mean score of 77.61 ± 11.77, and the post-test results, which showed an average score of 90.07 ± 10.87 regarding CHLB knowledge on a scale of 0-100. According to Suhendy et al. (2023), a score is considered good if it falls within the range of 81-100, indicating a good understanding by the participants; it is considered fair if it falls within the range of 61-80, and it is considered poor if it is less than 61. Therefore, this CHLB education can improve the knowledge of students from UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II, which was initially fair, to become good.

Based on the data in Figure 4, the post-test scores for all questions indicate an improvement compared to the pre-test. Additionally, bivariate analysis results in Table 2 show that there was an increase in student's knowledge by 16.05 percent after receiving CHLB education, as evidenced by the average knowledge score before the education, which was 77.61 ± 11.77, becoming 90.07 ± 10.87 after the education. The results of the normality test for the pre-test and post-test indicate a p-value <0.05, indicating that the data is not normally distributed and does not meet the assumptions of a paired sample T-test. Therefore, analysis was conducted using the Wilcoxon test.

Table 2. The influence of CHLB education on the knowledge of students from UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II

Variable(s)	n	Mean ± Standard Deviation (SD)	p-value
Pre-test	138	77.61 ± 11.77	0.000
Post-test	138	90.07 ± 10.87	

The Wilcoxon test result shows a p-value <0.05, specifically 0.000, indicating that the null hypothesis (H0) is rejected. Thus, it can be concluded that the provision of CHLB education significantly increases the knowledge of students from UPT SPF Public Elementary School Sipala I and UPT SPF Public Elementary School Sipala II. This significant improvement in knowledge among students is consistent with previous community service efforts. Therefore, this increase in knowledge can contribute to improving the quality of healthy and prosperous living among elementary school students and have an impact on the community and its surrounding environment (Jannah & Djannah, 2020; Umboro et al. 2022).

4. CONCLUSION AND RECOMMENDATIONS

The community service activity regarding education on clean and healthy living behavior (CHLB) through personal hygiene and proper handwashing with soap among elementary school students in Katimbang Subdistrict, Biringkanaya District, Makassar City, South Sulawesi Province, has been successfully implemented. The program implementation consisted of 3 (three) main stages: preparation, implementation, and evaluation. The outcome of this activity is a significant increase in knowledge and understanding of CHLB (p-value <0.05), from a pre-test score of 77.61 ± 11.77 to a post-test score of 90.07 ± 10.87 among the participants. The significant improvement in knowledge indicates the success and effectiveness of this community service activity. Therefore, with the success of this activity, it is hoped that it can contribute to improving the quality of healthy and prosperous living in Indonesia, especially in Katimbang Subdistrict, Biringkanaya District, Makassar City.

The suggestion from this activity is to conduct further health promotion that is more comprehensive, such as proper tooth brushing techniques and more detailed aspects of personal hygiene covering each part of the body, with direct application or implementation that has not been carried out through this program. There is a need for partnerships and collaboration with healthcare centers or local health cadres, extending beyond just activity permits, to ensure the sustainability of the program. Additionally, there should be mentoring and monitoring for these partners to become activity cadres for continuous implementation. In the monitoring and evaluation phase, long-term evaluations and evaluations of participants' attitudes toward the activities provided, besides knowledge analysis, are necessary. It would be advisable to implement similar programs for parents or guardians to become the primary educators within their households, promoting good understanding and sustained application beyond just the school environment but also within the community at large.

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