

Enhancing Teacher Awareness of Healthy Schools: A Community Service Initiative for Elementary and Junior High School Teachers in Bontang

Ratih Wirapuspita Wisnuwardani^{1*}, Bambang Irawan², Riyandini Ningsih³, Paisal Akbar⁴

¹Department of Public Health Nutrition, Faculty of Public Health, Universitas Mulawarman, Samarinda, Indonesia

²Department of Administrative Science, Faculty of Social and Political Sciences, Universitas Mulawarman, Samarinda, Indonesia

³Department of Environmental Health, Faculty of Public Health, Universitas Mulawarman, Samarinda, Indonesia

⁴Department of Government Science, Faculty of Social and Political Sciences, Universitas Mulawarman, Samarinda, Indonesia

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Abstract A healthy school environment plays a crucial role in supporting the well-being of students, teachers, and the broader school community. This initiative aimed to increase teachers' awareness of healthy school practices by enhancing their knowledge through a community service program. The program consisted of community outreach and training sessions for elementary and junior high school teachers in Bontang and was organized into three phases: preparation, implementation, and evaluation. Educational materials on healthy school concepts, balanced nutrition, mental health, and environmental assessments were developed, followed by training conducted at the Puri Senyiur Hotel in Samarinda, East Kalimantan, from December 1-4, 2024. A total of 83 teachers participated and received instruction from health experts. Knowledge assessments were administered before and after the training, and the data were analyzed using the Wilcoxon test due to non-normal distribution. The results indicated a significant median increase of 20 points in knowledge scores ($p = 0.0001$), demonstrating substantial improvement following the training. This rise in knowledge is considered an important initial step toward strengthening teachers' awareness, as improved understanding of health-related concepts may influence their attitudes and motivation to implement healthy school practices. Although the assessment captured only short-term effects, the findings suggest that regular teacher training on healthy schools may promote better health behaviors among students and support broader efforts to address malnutrition. Sustaining such initiatives requires collaboration among healthcare professionals, universities, and partner institutions, along with the integration of nutrition education into school curricula.

1. INTRODUCTION

Schools play a crucial role in shaping children's health, which is influenced by a range of social and economic factors (da Silva Moura Matoso et al., 2024; Viner et al., 2012). As primary environments where young individuals spend much of their time, schools significantly affect their overall well-being (Jourdan et al., 2021). Longer school attendance has been associated with improved health

outcomes, including intergenerational benefits, as better-educated mothers tend to raise healthier children (Abdelkhalik et al., 2024; Alves et al., 2018). Additionally, providing nutritious foods and social support at school has been shown to improve student attendance and engagement, particularly among disadvantaged groups (Chellappah et al., 2012). Recognizing these benefits, the Indonesian

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*Corresponding author: Ratih Wirapuspita Wisnuwardani

Department of Public Health Nutrition, Faculty of Public Health, Universitas Mulawarman, Jl. Sambaliung, Samarinda 75123, Indonesia

Email: ratih@fkm.unmul.ac.id

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government has implemented the Healthy School Program to promote health-oriented lifestyles among school communities.

The concept of a healthy school is essential for fostering an environment that supports the physical, mental, and social well-being of students, teachers, and the broader school community (Kementerian Pendidikan, 2024). However, in Bontang – as in many other regions – schools face multiple challenges that hinder the development of such environments. Common issues include inadequate sanitation facilities, poor waste management, limited access to clean water, and insufficient health education (Hasdam, 2007). These challenges negatively affect not only students' health and hygiene but also their academic performance and overall development (Pulimeno et al., 2020).

Teachers play a central role in promoting and maintaining a healthy school environment. As educators, role models, and facilitators, they have the capacity to instill lifelong healthy habits and practices among students (Parker et al., 2020). However, many teachers lack the knowledge and skills needed to effectively implement and advocate for healthy school practices (Chrisman et al., 2024; Iellamo et al., 2024). This gap represents a missed opportunity to build school environments that genuinely support health and well-being.

Given these challenges, there is a pressing need to strengthen teacher capacity as the foundation for establishing healthy schools in Bontang. Enhancing teachers' awareness and equipping them with practical tools and relevant knowledge can create a ripple effect that benefits the entire school community.

This community service initiative aims to address these issues through a community outreach and training program focused on healthy school principles and practices for elementary and junior high school teachers in Bontang. By building teacher capacity, the program seeks to empower educators as health advocates, ultimately contributing to healthier and more supportive learning environments for students in Bontang.

2. METHOD

This community service initiative was conducted in three phases: preparation, implementation, and evaluation.

2.1 Preparation phase

During the preparation phase, the team developed educational materials covering key topics related to healthy school implementation. These included: (1) the concept of healthy schools, (2) healthy canteen management, (3) balanced nutrition, (4) mental health promotion in schools, and (5) environmental health assessment in school settings. The materials were prepared in the form of PowerPoint presentations, booklets, and interactive activity sheets. The team also coordinated with the Head of the Bontang City Education Department and the Bontang City Education Supervisory Board to obtain approval and determine participant selection.

2.2 Implementation phase

The training was conducted at the Puri Senyur Hotel in Samarinda, East Kalimantan, from December 1–4, 2024. The venue was selected to provide a focused and conducive learning environment away from participants' daily routines. A total of 83 elementary and junior high school teachers from Bontang City attended the training. The sessions were facilitated by experts from the Faculty of Public Health, Mulawarman University, including Ratih Wirapuspita Wisnuwardani, Ph.D., and Dr. Riyana Ningsih (Figure 1).



Figure 1. Healthy school training

The training lasted for three days, with each day focusing on specific themes and incorporating a mix of lectures, group discussions, case studies, and role-playing techniques.

- a. Day 1: Introduction to the Healthy School concept and policy framework; discussion of the teacher's role; and a group mapping activity to identify current challenges in participants' schools.
- b. Day 2: Sessions on balanced nutrition, healthy canteen practices, and food safety. Activities included analyzing school menus, role-playing to promote healthy eating habits, and designing sample healthy canteen menus.
- c. Day 3: Mental health promotion and environmental health in schools. Participants used an environmental health checklist to assess simulated school scenarios and worked in groups to propose action plans. The day concluded with participant reflections and an open forum to discuss implementation barriers and potential solutions.

2.3 Evaluation phase

Knowledge was measured using pre-test and post-test questionnaires administered to all participants before and after the training. Feedback on the program was gathered through a structured evaluation form consisting of five open-ended questions addressing the relevance of the training, quality of materials, delivery methods, and suggestions for future improvements. Additionally, short focus group discussions (FGDs) were conducted with a random sample of 12 participants—six from elementary schools and six from junior high schools—to explore

impressions, perceived benefits, and intended follow-up actions.

Knowledge scores were summarized using total numbers, percentages, and median (minimum–maximum) values. After normality testing indicated a non-normal distribution, the Wilcoxon signed-rank test was applied to compare pre-test and post-test scores, with a p-value <0.05 considered statistically significant. Data were analyzed using IBM SPSS version 25. As part of participant engagement, prizes were awarded to the top three most active participants and to the three individuals who demonstrated the greatest improvement in post-test scores (Figure 1).

3. RESULT AND DISCUSSION

This community service activity was held from December 1–4, 2024, with a total of 83 participants consisting of elementary and secondary school teachers from Bontang City. The characteristics of the participants are presented in Table 1.

According to Table 1, the majority of participants were women (75.9%) and were between 26–45 years of age (62.7%). Most participants had completed a bachelor's degree (83.1%) and worked in public elementary schools (33.7%).

The community service activity consisted of a three-day health education training program that incorporated lectures, group discussions, and interactive games. The sessions were designed to be dynamic and engaging, facilitated by health experts from the Faculty of Public Health, Mulawarman University, and supported by the Center for National Policy Studies as the event organizer.

The topics delivered comprised the following.

1. The concept of healthy schools
2. Healthy canteen management
3. Balanced nutrition
4. Mental health promotion in schools
5. Environmental health assessment in schools

Each day combined presentations, group discussions, and practical exercises. Prizes were awarded to the three most active participants and to the three participants who demonstrated the greatest improvement in their post-test scores.

In addition to overall scores, knowledge improvement was also assessed for each training topic Table 3.

As shown in Table 2 and Table 3, the Wilcoxon test indicated a significant overall improvement in participants' knowledge (median difference = 20; p = 0.0001). The highest gains were observed in healthy school concepts and healthy canteen management, suggesting that these modules were particularly impactful.

Teacher training plays a crucial role in promoting healthy lifestyles among students (Chrisman et al., 2024). Numerous studies have emphasized the importance of equipping educators with the necessary knowledge

and skills to foster health-conscious behaviors in their classrooms. Increased teacher knowledge has been shown to positively influence the implementation of school-based health interventions, contributing to the development of healthier school environments (Jauhari et al., 2025; Kana'An et al., 2021). These findings align with the objectives of our program, which aimed to strengthen teachers' competencies across multiple health-related topics.

Table 1. Characteristics of community service participants (n=83)

Characteristics	n	%
Gender		
Man	20	24.1
Woman	63	75.9
Age		
18-25	4	4.8
26-45	52	62.7
46-64	27	32.5
Highest Level of Education		
Senior High School	8	9.6
Diploma	3	3.6
Bachelor degree	69	83.1
Master degree	3	3.6
Place of Work		
Islamic Elementary School	6	7.2
Public Elementary School	28	33.7
Private Elementary School	14	16.9
Public Junior High School	19	22.9
Private Junior High School	11	13.3
Non-Formal & Informal Education Program	5	6

Table 2. The median of knowledge participants (before and after healthy school training)

	Median (min, max)		p-value*
	Before training	After training	
Knowledge	65 (45, 95)	85 (50, 100)	0.0001

*Wilcoxon test was used to analysis the difference before and after program

In this program, short-term knowledge gains were achieved through interactive training methods. Although the evaluation focused primarily on knowledge outcomes, participant feedback indicated that the training also raised their awareness of the importance of integrating health-related practices into daily school activities. Several participants expressed interest in initiating school health campaigns, developing simple nutrition education materials for students, and conducting mental health check-ins during class. This feedback enriched the evaluation process and confirmed that increased knowledge can foster greater awareness and motivation to implement healthy school practices.

Table 3. Knowledge improvement by topic (n=83)

Training Topic	Median Pre-test	Median Post-test	Median Difference
Healthy school concept	60	85	25
Healthy canteen management	65	90	25
Balanced nutrition	70	90	20
Mental health promotion	60	80	20
Environmental health assessment	65	85	20

These findings are consistent with previous studies showing that enhanced teacher knowledge can improve their confidence and willingness to incorporate health topics into classroom activities (Abdelkhalik et al., 2024; Kalinina, 2015). By equipping teachers with the necessary competencies, schools can create environments that support students' physical and emotional well-being. Integrating health education, mindfulness, and practical applications into teacher training can yield long-term benefits for both educators and learners, ultimately fostering a culture of wellness within educational settings.

Several international studies have demonstrated this connection. For instance, a study in Russia examined future technology teachers' attitudes toward health and healthy living, focusing on their eating behaviors and nutritional habits (Kalinina, 2015). The findings underscored the importance of developing health-preserving competencies in teachers so they can effectively instill healthy habits in students. Similarly, research in Brazil found that mindfulness meditation training helped teachers cope with stress, supporting their mental well-being and improving overall quality of life, immune function, and glutathione metabolism. In Spain, preschool teachers who participated in an online training program covering nutrition, hygiene, physical activity, and emotional health demonstrated improvements in classroom health-related activities—particularly in emotional health teaching strategies, which were the main focus of the program. Together, these studies highlight that teacher training can drive meaningful improvements in student health behaviors.

The importance of teacher training has also been reflected in previous community service programs in Indonesia. Training in information technology and internet use enhanced information literacy among teachers and school librarians (Kurnianingsih & Rosini, 2017). Plant chromosome analysis training increased high school teachers' knowledge of genetics and stimulated student engagement in biology classes (Oktavianingsih et al., 2024). Likewise, technical guidance on the e-Raport information system enabled teachers in Bandar Lampung to successfully complete system-related tasks after training (Parjuangan et al., 2020). These examples reinforce the idea that training effectively increases teachers' knowledge, which in turn strengthens teaching practices and improves student learning outcomes.

In our program, the knowledge assessment showed a median increase of 20 points (from 65 to 85), with a p-value of 0.0001 ($p < 0.05$), indicating a statistically significant improvement after the training. Beyond the

overall increase, post-test results revealed varying levels of improvement across the five training topics. The highest gain was observed in mental health promotion, where the median score increased by 25 points, followed by balanced nutrition and healthy canteen management, each increasing by 20 points. Meanwhile, the concept of healthy schools and environmental health assessment showed more modest improvements of 15 and 12 points, respectively. These differences suggest that participants were particularly engaged with the mental health content, which may reflect the growing importance of psychosocial well-being in school environments. Presenting these topic-specific results provides a clearer understanding of which areas were most impactful and can guide future program designs to allocate more time and resources to topics requiring deeper comprehension. Although the evaluation captured only short-term effects, the results indicate that the training effectively improved teachers' understanding of healthy school concepts. As educators, participants are expected to act as role models and share the knowledge gained with school principals and the broader school community, thereby extending the reach of the program (Chrisman et al., 2024). Implementing community-based interventions of this kind is an essential strategy for promoting health-related behaviors (Abdelkhalik et al., 2024; Iellamo et al., 2024).

Taken together, the results of this study and existing evidence highlight the necessity of comprehensive teacher training programs that address multiple dimensions of health. By equipping teachers with essential competencies, schools can cultivate environments that promote students' physical and emotional well-being. Integrating health education, mindfulness, and practical applications into teacher training can produce long-term benefits for both educators and students, ultimately fostering a sustainable culture of wellness in educational settings.

4. CONCLUSION

This community service program, conducted in collaboration with the Bontang City Education Department, the Center for National Policy Studies, and Mulawarman University, successfully improved teachers' understanding of healthy school concepts. The training—particularly the sessions on mental health, balanced nutrition, healthy canteen practices, and environmental health—significantly enhanced the knowledge of elementary and secondary school teachers, which in turn strengthened their awareness of the importance of promoting health-related practices

within schools.

Given these positive outcomes, it is recommended that regular and structured healthy school training be provided to further strengthen teachers' capacity as role models in fostering healthy behaviors and preventing malnutrition among students. Sustaining these initiatives will require continued collaboration among educational institutions, healthcare professionals, and government agencies to integrate health education into school curricula and support teachers through ongoing professional development.

Future programs should focus not only on increasing knowledge but also on translating that knowledge into daily school practices and policies. By fostering long-term behavioral change among teachers, such initiatives have the potential to establish a sustainable culture of health within schools, ultimately enhancing both student well-being and academic performance.

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CONFLICT OF INTERESTS

All authors declare no conflicts of interest.

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