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**Promoting health awareness through participatory education
to prevent stunting and infectious diseases**

Wiwin Dwi Astuti¹, Vaneza Klemma Sadiyah², Rekhan Jarwanto³

^{1,2,3} Budi Rahayu Regional General Hospital, Magelang, Indonesia

wiwindwi2357@gmail.com¹, vanezaema24@gmail.com², jarwanto21@gmail.com³

ABSTRACT

Public health is a crucial foundation for achieving an optimal quality of life, particularly through participatory efforts aimed at preventing stunting and controlling infectious diseases at the community level. This community service aims to improve community understanding and practice of stunting and infectious disease prevention through a participatory and collaborative approach. The activity was conducted in Mertoyudan District, Magelang Regency, with 30 housewives serving as the primary participants. The implementation method consists of three stages: planning, implementation, and follow-up evaluation. Education focuses on clean and healthy living patterns (Perilaku Hidup Bersih dan Sehat or PHBS), sanitation management, and disease prevention. The evaluation results showed a significant increase in participant understanding, as indicated by a rise in the average scores on the pre-test and post-test for the topics of stunting and infectious diseases. However, a gap remains between knowledge and the implementation of healthy behaviors due to limited access to healthcare facilities. Therefore, the recommended follow-up is a motivation-based approach and strengthening the role of women as agents of change. This program contributes to supporting sustainable national health development.

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ABSTRAK

Kesehatan masyarakat merupakan fondasi penting dalam mewujudkan kualitas hidup yang optimal, terutama melalui kegiatan pencegahan stunting dan pengendalian penyakit menular secara partisipatif di tingkat komunitas. Pengabdian kepada masyarakat ini bertujuan untuk meningkatkan pemahaman dan praktik masyarakat terhadap pencegahan stunting dan penyakit menular melalui pendekatan partisipatif dan kolaboratif. Kegiatan dilaksanakan di Kecamatan Mertoyudan, Kabupaten Magelang dengan melibatkan 30 ibu rumah tangga sebagai peserta utama. Metode pelaksanaan terdiri dari tiga tahap: perencanaan, pelaksanaan, serta evaluasi tindak lanjut. Edukasi difokuskan pada pola hidup bersih dan sehat (PHBS), pengelolaan sanitasi, dan pencegahan penyakit. Hasil evaluasi menunjukkan peningkatan signifikan pemahaman peserta, ditunjukkan oleh kenaikan skor rata-rata pre-test dan post-test pada topik stunting dan penyakit infeksi. Meski demikian, masih ditemukan kesenjangan antara pengetahuan dan implementasi perilaku sehat akibat keterbatasan fasilitas kesehatan. Oleh karena itu, tindak lanjut yang direkomendasikan adalah pendekatan berbasis motivasi dan penguatan peran perempuan sebagai agen perubahan. Program ini berkontribusi dalam mendukung pembangunan kesehatan nasional yang berkelanjutan.

Kata Kunci: edukasi partisipatif; kesehatan masyarakat; penyakit menular; stunting

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INTRODUCTION

Stunting and infectious diseases remain significant public health challenges in Indonesia. Stunting reflects a condition of chronic malnutrition that has long-term impacts on children's physical growth and cognitive development (Hadju, 2025). Meanwhile, infectious diseases such as diarrhea and Acute Respiratory Infections (ARI) often become key contributors to health deterioration, particularly among children and vulnerable groups (Chitre et al., 2024). Both conditions not only affect individuals but also hinder social and economic progress within communities. Preventing and addressing stunting and infectious diseases requires a holistic and sustainable approach (Fekadu et al., 2025; Purnama et al., 2025). Therefore, strategies that involve various societal elements, including the active role of community members in maintaining environmental health, are essential.

Community education is a strategic approach to increasing awareness and active participation in addressing health issues (Dushkova & Ivlieva, 2024). When communities are directly involved in planning and implementing health programs, they develop a sense of ownership over the changes that take place. Empowerment can also encourage communities to become self-reliant in maintaining environmental cleanliness and adopting healthy behaviors (Olorunsogo et al., 2024). This is crucial because many cases of stunting and infectious diseases originate from poor sanitation and lack of education (Rizaldi et al., 2025). Through proper education and training, communities can gain a deeper understanding of the relationship between environmental health and physical health. Active citizen participation becomes a vital asset in building a healthy environment that supports optimal child growth (Agdal et al., 2019).

Environmental health interventions encompass efforts such as providing clean water, improving sanitation, and implementing proper household waste management. A clean and healthy environment significantly contributes to the reduction of infectious disease rates and lowers the risk of stunting (Wiedermann et al., 2024). Children living in areas with access to clean water and adequate sanitation facilities tend to have better nutritional status. Thus, environmental interventions cannot be separated from stunting and infectious disease control programs (Yu et al., 2024). Cross-sectoral collaboration, including health departments, village governments, and non-governmental organizations, is needed to achieve effective interventions (Goi et al., 2024; Setiarsih et al., 2023). Such collaboration creates synergy in delivering more equitable and sustainable health services.

Stunting and infectious diseases are commonly found in areas with low levels of education and economic status. Limited information and access to health services often lead to a lack of awareness regarding the importance of early prevention (Astiwi et al., 2024). In this context, community empowerment also involves capacity building through outreach, training of health cadres, and the use of local media. Continuous health education can shape public mindsets to be more attentive to child development and environmental hygiene (Choles et al., 2023). Moreover, the roles of community and religious leaders are crucial in influencing health-related behavior and culture (Abu-Ras et al., 2024). A community-based approach enhances the relevance and acceptance of prevention efforts.

The success of community empowerment and environmental health interventions depends on the active and continuous involvement of all stakeholders. The government must provide adequate regulations and budgetary support to sustain public health programs (Hartika & Ulumiyah, 2024). On the other hand, communities must be equipped with appropriate skills and information to carry out their roles effectively (Hyland-Wood et al., 2021). Regular monitoring and evaluation are necessary to assess the effectiveness of implemented programs. Valid data enables the refinement of intervention strategies to address local needs more effectively.

Integration of community empowerment and environmental health interventions can significantly reduce the prevalence of stunting and infectious diseases (Aqodiah & Hasanah, 2023). This indicates that strategies emphasizing participatory and contextual approaches are more effective than top-down interventions. The success of health programs is not only determined by the availability of facilities but also by community awareness and engagement. Therefore, building strong partnerships between communities, governments, and the private sector is crucial. Through such approaches, program sustainability is better ensured due to shared commitment. Systematic empowerment can be a key to creating a healthy and productive generation.

Various examples of previous community service initiatives focusing on stunting demonstrate the use of different approaches to reduce its prevalence, primarily through community empowerment and health interventions. One such program is a community empowerment initiative aimed at preventing stunting, which includes counseling on the importance of balanced nutrition and training local health cadres to provide direct education to the community. This program successfully increased nutrition knowledge and reduced stunting rates (Pratami et al., 2024). Furthermore, a training program designed to empower pregnant women has also been proven effective in lowering stunting by enhancing their knowledge and behavior related to diet and hygiene (Pratama et al., 2024).

Based on these findings, the objective of this community service activity is to raise awareness and empower the community to maintain environmental health as a preventive measure against stunting and infectious diseases. The activity focuses on providing health education through training and counseling, strengthening the capacity of local health cadres, and building cross-sectoral collaboration to create a clean and healthy environment. The participatory and contextual approach is expected to encourage sustainable behavior change within the community and foster an environment that is optimal for the growth and development of children.

Literature Review

Public Health

Public health is a branch of science that focuses on collective efforts to improve, protect, and maintain the overall health of communities (Filip et al., 2022). These efforts encompass disease prevention, promoting healthy lifestyles, and enhancing living environments. The public health approach is promotive and preventive rather than merely curative, as it aims to reduce the disease burden before it arises (Holt-Lunstad, 2022). Community service activities represent a concrete implementation of this approach. Through direct community involvement, health programs can be more accurately targeted and sustainable. Community participation also strengthens the sense of ownership over the desired changes.

Public health development strategies are greatly influenced by social, cultural, and economic factors (Lupu & Tiganasu, 2022). Therefore, cross-sector collaboration is crucial for addressing the complex issues that impact public health. For example, the involvement of the education sector, religious leaders, and government agencies is crucial in promoting clean and healthy living campaigns. Educational activities such as those carried out in Mertoyudan Subdistrict demonstrate that community-based interventions can collectively raise health awareness. The outcomes are evident in the increased knowledge scores of participants regarding stunting and infectious diseases following the educational programs. Thus, a participatory approach is key to the success of public health programs at the grassroots level (Mercy et al., 1993).

Stunting

Stunting is a condition of impaired growth in children under five caused by chronic malnutrition and recurrent infections, particularly during the first 1,000 days of life (Lestari et al., 2024). The impacts of stunting are severe, as it not only hampers physical growth but also disrupts cognitive development and future productivity. Stunting prevention must begin early through nutritional interventions, appropriate parenting practices, and adequate sanitation. Educating housewives, as the primary caregivers of children, is crucial in breaking the cycle of stunting causes. In the context of community service activities in Mertoyudan, providing information on balanced nutrition and clean and healthy living behaviors (Perilaku Bersih dan Sehat or PHBS) has proven effective in improving participants' understanding. This is evidenced by the increase in post-test scores after educational sessions (Astutik et al., 2025).

However, good understanding does not always lead to behavioral change, especially when supporting facilities such as clean water and health services are still lacking. Therefore, a follow-up approach based on motivation and mentoring is needed to ensure consistent stunting prevention practices (Akbar et al., 2023). Programs that empower women as agents of change in their communities have proven more effective in addressing nutritional issues. This empowerment not only improves the health status of families but also strengthens social solidarity in the effort to prevent stunting. Collective community awareness of the importance of optimal child growth is a fundamental basis for developing superior human resources. These efforts also support the national program aimed at reducing stunting rates in Indonesia.

Infectious Diseases

Infectious diseases are health disorders caused by microorganisms such as bacteria, viruses, parasites, or fungi that can spread from one individual to another. These diseases tend to spread rapidly in environments with poor sanitation and high population density. Therefore, promoting clean and healthy living behaviors (PHBS) is a crucial first step in prevention efforts. One effective component of PHBS is handwashing with soap, which has been proven to reduce the risk of respiratory infections and diarrhea. Through community service activities, participants gain an understanding of these simple yet impactful practices. This education has significantly increased participants' knowledge scores (Merera, 2021).

However, the success of health education is not solely dependent on the content delivered but also on the method of delivery. A participatory approach involving discussions and hands-on practice has proven more effective in internalizing health messages (Azanaw et al., 2024; Suryani et al., 2025). In Mertoyudan Subdistrict, the use of such methods successfully increased housewives' awareness of the importance of maintaining a clean environment to prevent the transmission of diseases. Nevertheless, implementation challenges remain due to limited access to clean water and sanitation facilities. Therefore, a collaborative approach involving local policymakers is essential for infrastructure improvements. The prevention of infectious diseases must become a collective movement involving all elements of society.

METHODS

This community service activity is carried out through counseling, which combines community empowerment and environmental health. The method used consists of three main stages, namely planning, implementation, and evaluation follow-up. Each stage involves active participation from the community, community leaders, and support from related institutions such as the health office and village government. The focus of this activity is in the Mertoyudan District area, Magelang Regency. The selection of target locations is based on data obtained from health centers or local government agencies to ensure

that the program is precisely targeted. The program is implemented collaboratively, involving health cadres, housewives, and village youth as agents of change. The following are the stages of the community service process:

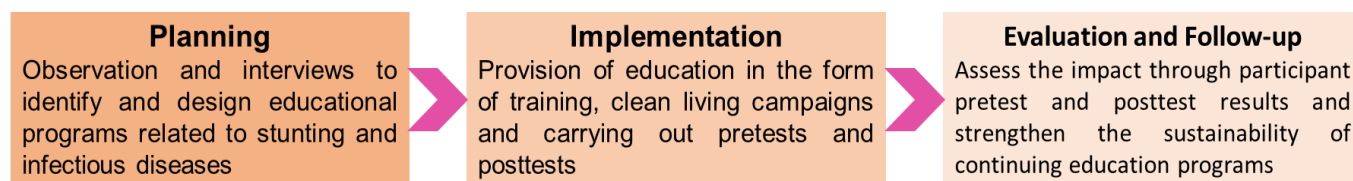


Figure 1. Devotion Stage
Source: Community services 2025

Based on **Figure 1**, this method makes community service not merely temporary, but also builds a system that can stand independently within the community. The synergy between education, environmental intervention, and social empowerment is the primary force in comprehensively addressing public health problems. Strengthening community participation will encourage the realization of collective awareness about the importance of maintaining environmental health as part of efforts to create a healthy generation. Close collaboration with the government, private sector, and educational institutions will increase the effectiveness and sustainability of the program. Through this approach, empowerment and intervention can work in tandem to build a healthy, resilient, and independent community. This program represents a significant step in supporting the national health development agenda in a sustainable manner.

RESULTS AND DISCUSSION

Planning

In the initial stage, participatory observations and interviews were conducted to identify environmental health issues and community behaviors that pose risks related to stunting and infectious diseases. Data was gathered through focus group discussions and field visits to assess access to clean water and healthy living habits. This information served as the basis for designing interventions tailored to the local needs and conditions. This was further supported by social mapping, which identified local potentials and institutions that could be involved. This stage was carried out in collaboration with community leaders to foster a sense of ownership and responsibility for the program's success, while also laying the foundation for implementing activities. Following this, a community service program focused on health education was designed. Additionally, pre-test and post-test instruments were developed to assess the program's impact.

Implementation

The activity was implemented on February 9, 2025, in Mertoyudan District, Magelang Regency. This initiative aimed to improve community awareness regarding stunting and infectious diseases through an educational and participatory approach. A total of 30 participants took part in the activity, all of whom were local housewives. The involvement of housewives was considered highly important as they play a central role in childcare and managing the household environment. Before the educational session began, participants were given a pre-test to assess their initial knowledge of the topics to be discussed. The pre-test consisted of 10 statement-based questions using a five-point Likert scale, covering fundamental aspects of stunting, its causes, prevention strategies, and common types of infectious diseases in the community.

Following the pre-test, the session continued with a presentation by a competent public health expert. The material covered the definition and impacts of stunting, early prevention methods, and the importance of a healthy diet and environmental hygiene. Participants were also informed about various infectious diseases, such as ARI, which commonly affect children. The session was delivered using accessible language and included real-life examples relevant to local conditions. The session was designed to be interactive, with a question-and-answer segment to ensure participant comprehension. It is hoped that through this activity, housewives can become agents of change within their families and communities, helping to prevent stunting and infectious diseases.

Evaluation and Follow-up

The community empowerment program, which utilized health education in Mertoyudan Subdistrict, successfully increased public awareness of the importance of a healthy lifestyle, proper sanitation, and balanced nutrition. This achievement is also reflected in the results of the pre-test and post-test, as shown below.

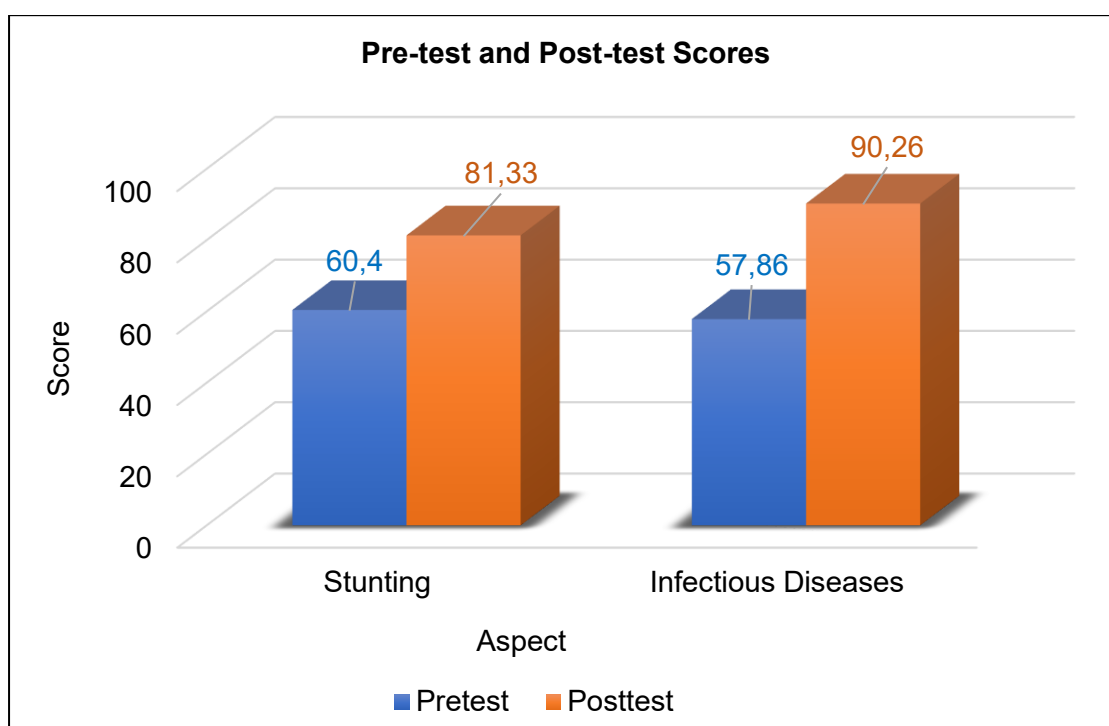


Figure 2. Pre-test and Post-test Scores

Source: Community services 2025

Based on the data presented in Figure 2, there was an increase in participant learning outcomes after participating in educational interventions on two topics: stunting and infectious diseases. Regarding stunting, the average pre-test score of 60.4 increased to 81.33 on the post-test, resulting in a 20.93-point increase. Meanwhile, on the topic of infectious diseases, the average pre-test score of 57.86 increased significantly to 90.26 on the post-test, representing a 32.4-point increase. This indicates that the learning activities conducted were able to significantly increase participants' understanding of the two topics. The achievements of each participant are as follows.

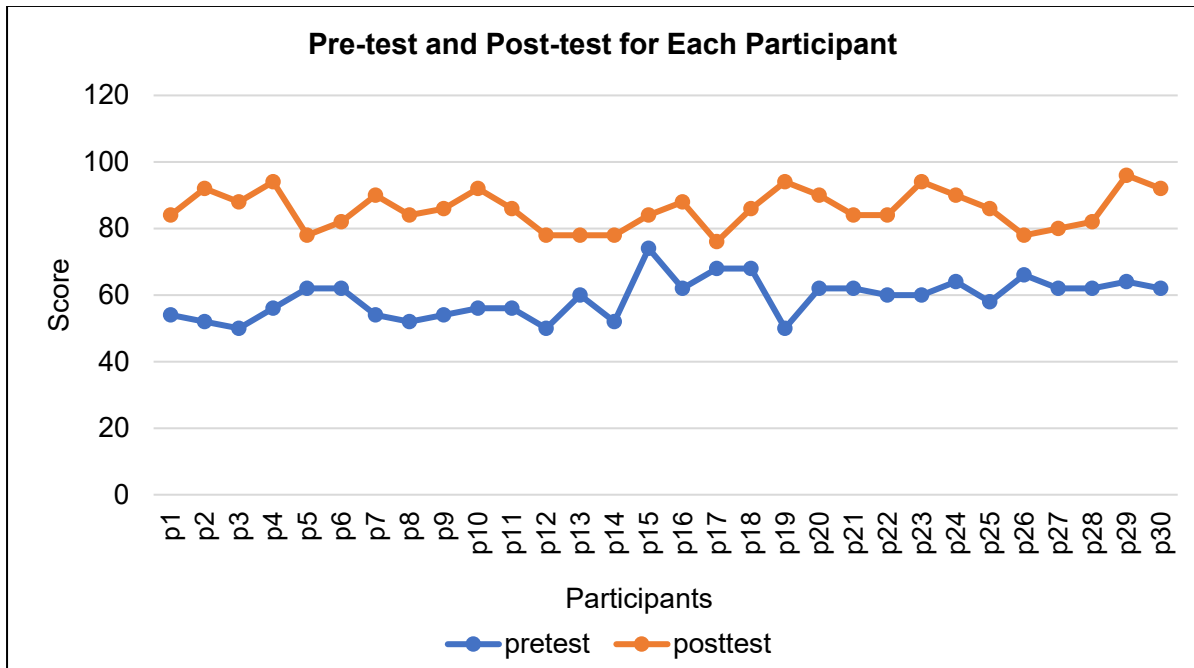


Figure 3. Pre-test Score for Each Participant's Post-test
 Source: Community services 2025

Based on the pre-test and post-test data from 30 participants in **Figure 3**, it was found that the pre-test scores ranged from a maximum of 74 to a minimum of 50, with a mean score of 59.13 and a median of 60. The total cumulative score for the pre-test was 1,774. Meanwhile, in the post-test results, the maximum score was 96 and the minimum was 76, with an average score of 86.07 and a median of 86. The total cumulative post-test score reached 2,582. These data indicate a significant increase from the pre-test to the post-test, demonstrating the effectiveness of the intervention or learning strategy applied in improving participants' understanding.

The community has become more aware of the negative impacts of poor sanitation, unbalanced nutrition, and unhealthy lifestyle habits on stunting rates and the spread of infectious diseases such as ARI. However, despite the improvement in knowledge, a significant gap remains between what is known and the actual implementation of healthy behaviors in daily life. Limited access to healthcare facilities in remote areas remains a significant barrier to achieving the desired behavioral changes. Cross-sector collaboration is also not yet optimal in addressing these issues, particularly in improving environmental sanitation and enhancing access to healthcare services. Therefore, a comprehensive evaluation of this program is essential to strengthen the aspects that require improvement, especially in motivation-based interventions to foster more sustainable behavioral change.

Follow-up actions should focus on enhancing motivation-based approaches to ensure that the community's knowledge is translated into sustainable behavioral changes. Programs that emphasize changes in daily habits, such as promoting hand washing, healthy eating, and improved household sanitation management, are crucial to enhancing the community's quality of life. In addition, it is essential to increase the availability and accessibility of affordable healthcare facilities, particularly in remote areas, so that healthcare services are reachable for all community members. Strengthening collaboration among community health centers (Puskesmas), village governments, and civil society organizations is also necessary, along with empowering women, particularly housewives, as key agents of change within families and the wider community.

Discussion

The issues of stunting and ARI in Mertoyudan Subdistrict demonstrate that socio-economic and environmental factors greatly affect community health conditions. In Mertoyudan, children affected by stunting generally come from low-income families living in areas with inadequate sanitation. Nutritional imbalance and lack of access to healthcare services exacerbate the situation. Low family income and poor environmental conditions are the leading causes of stunting cases. Interventions through community service activities focusing on environmental and health education approaches are concrete steps in addressing these problems (Arieffiani & Ekowanti, 2024; Pisriwati et al., 2025).

Unhealthy environmental conditions further worsen public health issues in Mertoyudan. Households without proper latrines, open sewage systems, and the habit of littering contribute to high rates of diarrhea and skin infections. Research indicates that poor sanitation is closely linked to an increase in infectious diseases. The interventions implemented include training on waste management, provision of community-based sanitation facilities, and education on clean and healthy living behaviors. These efforts align with the importance of environmental improvements in reducing stunting rates (Astuti et al., 2025).

The high number of ARI cases in Mertoyudan reflects the adverse effects of environmental conditions. ARI is more common in areas with poor ventilation and inadequate waste management. Interventions such as improving natural ventilation, utilizing pollutant-absorbing plants, and training on household composting have been implemented. These programs have proven not only to reduce disease risks but also to increase public awareness about maintaining air quality and sanitation. The results demonstrate that small-scale community interventions can have a significant impact on public health (Telesford et al., 2024).

Although health education has been carried out intensively, the results have not yet been fully effective in changing public behavior. While post-test scores increased compared to the pre-test, daily practices have not consistently shown behavioral change. Increased knowledge does not always translate into changes in attitudes and practices without continuous support. Therefore, health education must be accompanied by stronger and more sustainable behavioral change strategies. Strategies such as reinforcing handwashing habits and managing household sanitation need to be developed more intensively (Ginja et al., 2021; Parvez et al., 2021).

The role of housewives as primary caregivers for family health is vital in preventing stunting and infectious diseases. In Mertoyudan, training for housewives in nutrition and waste management has yielded positive results, although the impact is not yet comprehensive. Empowering women through nutrition and sanitation education accelerates the adoption of healthy behaviors (Caruso et al., 2022). Additionally, collaboration between Puskesmas, village governments, and NGOs plays a crucial role in expanding the impact of the intervention. However, barriers such as limited access to adequate healthcare facilities still exist (Hussein et al., 2024; Ssemata et al., 2024).

Strengthening cross-sector collaboration is a strategic step in overcoming existing limitations. Enhancing networks and improving healthcare service facilities in remote areas are necessary to support the effectiveness of the program. With synergy among various stakeholders, interventions can run more optimally and sustainably. It is hoped that the prevalence of stunting and ARI in Mertoyudan District can be significantly reduced. The sustainability of the program will highly depend on active community involvement and strong cross-sector commitment to solving these issues.

CONCLUSION

The community health education program implemented in Mertoyudan District has proven effective in increasing participants' understanding, particularly among housewives, regarding stunting and infectious diseases such as ARI. This success is reflected in a significant improvement in post-test scores compared to the pre-test. The interventions, which were carried out in a participatory manner and tailored to local conditions, included training on clean and healthy living behaviors, sanitation management, and nutrition counseling. These interventions have been effective in raising public awareness about the importance of healthy living. However, challenges remain, particularly the lack of actual behavioral changes, which limits the influence of health facilities and suboptimal cross-sector coordination. Therefore, further efforts are needed, including motivation-based approaches, improved access to healthcare services, and the active involvement of housewives and local institutions to ensure the sustainability and effectiveness of the program in reducing stunting and infectious diseases. Moreover, in-depth studies are necessary to identify effective models of cross-sector collaboration among the government, healthcare workers, educational institutions, and community organizations, thereby supporting the availability and equitable distribution of healthcare facilities.

AUTHOR'S NOTE

The author declares that there is no conflict of interest regarding the publication of this article. The author confirms that the data and content of the article are free from plagiarism.

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