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## THE ROLE OF THE FIRST 1000 DAYS OF LIFE (1000 HPK) IN STUNTING PREVENTION TO REALIZE A HEALTHY AND INTELLIGENT GENERATION IN THE PONDOK PESANTREN ENVIRONMENT

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### ABSTRACT

Stunting remains an unresolved health problem in Indonesia. The most appropriate period to meet a child's nutritional needs is during the First 1000 Days of Life (1000 HPK), from conception until the child is two years old. Initial surveys of female students at Pondok Pesantren Al Fitrah As Salafiyah indicated a low understanding of preparation for the 1000 HPK, necessitating health education. This community service activity aims to increase the knowledge and role of students regarding the 1000 HPK and balanced nutrition for preparation and during a healthy pregnancy. The methods used include counseling on stunting and the 1000 HPK, training in the form of balanced nutrition education, and demonstrations of preparing nutritious menus. Evaluation was conducted through pre-test and post-test to measure the increase in knowledge, as well as observation of the students' participation in discussions and practices. The results show a significant increase in knowledge of 81.1% based on the comparison of pre-test and post-test scores. Furthermore, the students showed high enthusiasm, reflected in their active participation in discussions and direct practice. In conclusion, the counseling and training were effective in increasing students' knowledge about the 1000 HPK and stunting prevention. The active involvement of pesantren adolescents shows great potential as health education agents. It is recommended that similar activities be carried out regularly and integrated into pesantren programs to strengthen the community's role in stunting prevention.

Keywords: 1000 HPK, Child Health, Child Nutrition, Stunting.

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## INTRODUCTION

In Indonesia, stunting remains a health problem that remains unresolved. Stunting is a condition of delayed growth and development in children due to malnutrition, particularly during the first 1,000 days of life (HPK) (Hidayah & Marwan, 2020). This results in impaired growth and development, resulting in children being shorter than their age (Muthia et al., 2020).

Data from the World Health Organization (WHO) indicates that in 2018, 21.9% of toddlers worldwide experienced stunting. The WHO ranked Indonesia as the country with the third highest number of cases in Asia. The WHO has set a target of stunting rates below 20% (UNICEF, 2020). The stunting rate in Indonesia remains quite high, at 21.6%, according to the 2022 Indonesian Nutritional Status Survey (SSGI). Although this figure has decreased from 24.4% in 2021, significant efforts are still needed to achieve the target of reducing stunting by 14% by 2024 (Ministry of Health, 2024).

Stunting is influenced by numerous factors, including direct factors such as low nutritional intake and health status, as well as indirect factors such as income and economic disparities, food systems, health systems, urbanization, and others. These diverse factors require the most crucial interventions, especially during the first 1,000 days of life (HPK). The most critical time to meet a child's nutritional needs is during the first 1,000 days of life, from conception to their second birthday. During

this period (the first 1,000 days of life), children experience increased nutritional needs to support rapid growth and development. They are more susceptible to infection, highly sensitive to biological programming, and highly dependent on others for nutritional needs, care, and social interaction (D. S. R. Anggraeni, 2023).

One of the contributing factors to stunting is nutritional deficiencies or chronic malnutrition due to a lack of knowledge, the influence of the mother's nutritional intake patterns on the child's nutritional status, the mother's knowledge of nutritional intake patterns, nutritional problems, and the nutrition that must be provided to the child to prevent stunting (Widhi, 2023). Stunting is also influenced by infectious diseases, including worms, and environmental sanitation (Kusumawati, Rahardjo, & Sari, 2015). One effort to improve parenting patterns to prevent stunting is through increasing knowledge through education. Parents' understanding, especially mothers, significantly influences parenting patterns and nutritional status. Therefore, improving family health and nutrition requires education to change behaviors that can guide and improve the health and nutrition of mothers and their children (Ministry of Health of the Republic of Indonesia, 2018).

Al Fitrah As Salafiyah Islamic Boarding School in Surabaya is an Islamic boarding school that has produced thousands of high-quality students, both academically and spiritually. According to a preliminary survey conducted among

students at Al Fitrah As Salafiyah Islamic Boarding School, many still lack understanding of the 1000 Days of Life (HPK) preparation to prevent stunting. Given this issue, the proponent will conduct a community service activity entitled "The Role of the 1000 Days of Life (HPK) in Stunting Prevention to Create a Healthy and Intelligent Generation in the Islamic Boarding School Environment." The purpose of this community service activity is to increase the knowledge of male and female students about the importance of the 1000 Days of Life (HPK) in child development, as well as to facilitate the provision of balanced nutrition for pregnancy preparation and a healthy pregnancy later in life.

## OBJECTIVES

### *General Purpose*

This community service activity aimed to increase the knowledge and role of students (*santri* and *santriwati*) regarding the First 1000 Days of Life (1000 HPK) and balanced nutrition for preparation and during a healthy pregnancy to prevent stunting.

### *Special Purpose*

The specific objectives of this activity were to:

1. Educate the female students about the concept of stunting, its risks, and the critical role of the 1000 HPK period.
2. Provide practical training on preparing balanced and nutritious menus suitable for supporting maternal and child health.
3. Measure the increase in knowledge of the participants regarding 1000 HPK and stunting prevention using pre-test and post-test instruments.
4. Motivate the young women to become health agents in their community

(*pesantren*) to disseminate knowledge about stunting prevention.

## PLAN OF ACTION

### *Strategy Plan*

The strategic plan for this community service activity focuses on an educational, demonstrative, and participatory approach to ensure effective knowledge transfer and practical skill enhancement. All activities are designed in three main, interconnected stages: (1) Preparation, which includes initial needs assessment and content development; (2) Implementation, which focuses on direct interventions to the target; and (3) Evaluation, which aims to measure the results and effectiveness of the program. This approach was chosen to not only provide theoretical information but also train practical skills for participants.

### *Implementation*

The implementation phase began with the Preparation Phase, which involved conducting an Initial Assessment (pre-test) using a survey instrument to measure the students' basic knowledge. Next, the team developed educational materials tailored to the needs and approved by the Islamic boarding school management.

Following preparation, the main intervention was carried out through three activity sessions:

1. Extension Session: Providing material through lectures and interactive discussions on the concept of stunting, its causes, impacts, and the crucial role of nutritional fulfillment during the 1000 Days of Life (HPK).
2. Balanced Nutrition Training: A training session focused on understanding the principles of balanced nutrition and practical skills such as reading nutrition labels.

3. Practical Demonstration: A hands-on demonstration of making a simple, affordable, and nutrient-rich menu, which participants can replicate.

This phase concluded with an Evaluation, which included a Final Assessment (post-test) and Participatory Observation to comprehensively measure improvements in participants' knowledge, enthusiasm, and practical skills.

#### *Setting*

The activity was conducted at Pondok Pesantren Al Fitrah As Salafiyah.

#### *Target*

The target population of this community service activity was the female students (santriwati) of the said pesantren, who represent the population of young women and future mothers needing strong foundations in health and nutrition education.

### **RESULTS AND DISCUSSION**

The results of the activity show a significant increase in knowledge of 81.1% based on the comparison of pre-test and post-test scores. Furthermore, the female students showed high enthusiasm, reflected in their active participation in discussions and direct practice.

### **CONCLUSION**

The counseling and training effectively improved students' knowledge of the 1000 HPK and stunting prevention. The active participation of pesantren adolescents highlights their potential role as health education agents. For sustainability, these activities should be implemented regularly and integrated into pesantren educational programs. Collaboration with local health centers and government health

programs is recommended to support ongoing health promotion, capacity building, and community-based stunting prevention efforts.

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## INCREASING KNOWLEDGE ABOUT STUNTING AND TRAINING CADRES IN MAKING ANTI-STUNTING PMT FROM SNAKEHEAD FISH

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### ABSTRACT

Stunting not only affects a child's physical condition but also their cognitive development and long-term performance due to suboptimal brain development. The most crucial intervention in addressing stunting occurs during the first 1,000 days of life (HPK). Providing adequate food intake and good nutrition doesn't have to be expensive. One effort that can be made is by providing a PMT (Food Supplement) made from snakehead fish. Snakehead fish is good for consumption by anyone, including toddlers and pregnant women. 100 grams of snakehead fish contains 80 calories and various beneficial nutrients needed by the body. In addition to these nutrients, snakehead fish also contains carbohydrates, iron, copper, vitamin B2, and omega-3 fatty acids. The nutrient-rich content of snakehead fish can be an alternative to high-calorie PMT ingredients. Based on the results of an initial survey conducted by the proposal team, it turns out that many male and female students at Zainul Hasan Genggong Islamic Boarding School still lack a good understanding of stunting and how to prepare anti-stunting supplementary foods. Based on these findings, the proposal team plans to conduct community service activities. The methods used in this community service activity were counseling on stunting and training in making anti-stunting PMT from snakehead fish. The results of the activity showed an 85% increase in knowledge after the counseling. In addition, the training successfully improved the skills of male and female students in processing snakehead fish into various simple and nutritious PMT preparations. The enthusiasm of the participants was evident from their active participation in discussions and direct involvement in the PMT preparation practice. Conclusion: Education on stunting combined with training in making PMT from snakehead fish has proven

effective in increasing the knowledge and skills of students. The high nutritional content of snakehead fish makes it a potential alternative to support stunting prevention in the community.

Keywords: Health Cadre Training; Knowledge; Snakehead Fish; Stunting; Supplemental Feeding.

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## INTRODUCTION

Indonesia still faces a serious nutritional problem, which is reflected in the high incidence of stunting. Stunting is a condition of failure to grow and develop in the body and brain due to prolonged malnutrition, resulting in children being shorter than normal children their age and experiencing delays in thinking. Stunting in children is caused by poor nutritional intake, infectious diseases, maternal poor nutrition during preconception, pregnancy, and lactation, genetic factors, exclusive breastfeeding, food availability, socioeconomic factors, maternal education level, maternal nutritional knowledge, and environmental factors.

Stunting not only affects a child's physical condition but also their cognitive development and long-term performance due to suboptimal brain development. The stunting rate in Indonesia remains far from the target of a 14 percent reduction by 2024. According to the 2023 Indonesian Health Survey (SKI), the national stunting prevalence was 21.5 percent, a decrease of approximately 0.8 percentage points compared to the previous year. The WHO standard for stunting prevalence is less than 20%. The Ministry of Health carries out specific interventions through two main approaches: nutritional interventions for mothers before and during pregnancy, and interventions for children aged 6 to 2 years. Stunting in toddlers can impact their growth

and intellectual development. This impact can indirectly lead to decreased productivity, an increased risk of degenerative diseases, and an increase in the birth of low-birth-weight babies in the future. These impacts can increase poverty in the future and indirectly affect family food security.

Stunting prevention and management involve a multisectoral approach, including the provision of nutritious food, nutrition education, improved sanitation and clean water, and access to adequate health services. Raising awareness and education about the importance of good nutrition is also crucial in reducing stunting rates. Stunting prevention is achieved by building community support and participation in efforts to improve nutrition understanding.

To address stunting, the Indonesian government has issued several regulations governing policies and strategies that can be tatted to address the problem of stunting in Indonesia. One example is Presidential Regulation of the Republic of Indonesia Number 72 of 2021 concerning the Acceleration of Stunting Reduction (Indonesia 2021), which states that the national target for stunting prevalence in children under 5 years of age is a step towards achieving sustainable development goals. The National Strategy for the Acceleration of Stunting Reduction is a step towards achieving this target,

encompassing five pillars containing activities to accelerate stunting reduction.

The most crucial intervention in addressing stunting is during the first 1,000 days of life (HPK). If toddlers consume insufficient nutrients during this period, it can lead to nutritional problems that impact growth and developmental disorders. Providing adequate food intake and good nutrition does not have to be expensive. With the right knowledge, existing resources can be optimally utilized to achieve good nutrition and prevent stunting in children. One such effort is the use of PMT (food supplementation) made from snakehead fish. Snakehead fish is good for everyone, including toddlers and pregnant women. 100 grams of snakehead fish contains 80 calories and a variety of beneficial nutrients needed by the body. In addition to these nutrients, snakehead fish also contains carbohydrates, iron, copper, vitamin B2, and omega-3 fatty acids. The nutrient-rich content of snakehead fish could be an alternative ingredient for high-calorie supplementary foods (PMT).

Based on the results of an initial survey conducted by the proposal team, many male and female students at Zainul Hasan Genggong Islamic Boarding School (PPZ) still lack a good understanding of stunting and how to prepare anti-stunting supplementary foods. Based on these findings, the proposal team plans to conduct a community service activity at PPZ Zainul Hasan Genggong to increase knowledge about stunting and train cadres in preparing anti-stunting supplementary foods (PMT) from snakehead fish. The purpose of this community service activity is to increase cadres' knowledge about stunting and the importance of PMT in preventing stunting, as well as to improve

their skills in preparing supplementary foods (PMT) from snakehead fish.

## **OBJECTIVES**

### *General Purpose*

To enhance the capacity and active role of health cadres in community-level efforts to prevent stunting.

### *Special Purpose*

To increase cadres' knowledge regarding:

1. The definition and impact of stunting on child growth and development.
2. The importance of Supplementary Feeding (PMT - Pemberian Makanan Tambahan) as a key strategy for stunting prevention.

To improve cadres' practical skills in:

1. Processing and preparing nutritious supplementary food (PMT), particularly those utilizing snakehead fish (ikan gabus) (as a good source of protein and albumin), for toddlers.
2. Conducting education and socialization to mothers and families in the community concerning the importance of nutrition and PMT to prevent stunting.

## **PLAN OF ACTION**

### *Strategy Plan*

It contains things that are planned by the authors before the implementation of the activity, so that the activity can be carried out properly.

An initial survey was conducted which found that many santri (male students) and santriwati (female students) at PP Zainul Hasan Genggong did not have a good understanding of stunting and how to prepare anti-stunting supplementary food.

The proposing team planned a community service (PKM) activity based on the initial survey findings.

The method for the activity was determined as:

1. Outreach on stunting and the importance of Supplementary Feeding (PMT) to prevent stunting.
2. Training on making anti-stunting PMT using snakehead fish (ikan gabus).

The outreach activity series was planned to include:

1. Providing information to caregivers and residents.
2. Preparing an attendance list for 40 participants.
3. Distributing pre-test questionnaires before the outreach.
4. Material presentation by Speakers from the UNUSA Faculty of Medicine.
5. A discussion and question-and-answer session (2 sessions, 3 questioners each).
6. Distributing door prizes to active participants.
7. Filling out the post-test via questionnaire.

The objective was set: to increase cadres' knowledge about stunting and the importance of PMT, and to improve cadres' skills in making PMT from snakehead fish.

### *Implementation*

It contains everything that is done by the author until the activities planned by the writer are carried out. This implementation can be in the form of an implementation of a strategy plan consist of:

1. The community service activity was carried out at PP Zainul Hasan Genggong.
2. The outreach on stunting and PMT was conducted offline in a meeting room.
3. The outreach and training were attended by santri and santriwati at PP Zainul Hasan Genggong.
4. Evaluation was conducted by

administering pre-test and post-test questionnaires.

5. The Training on making Supplementary Food (PMT) based on snakehead fish was held to teach health cadres how to process and make simple and nutritious supplementary food.
6. The training successfully improved the skills of the santri and santriwati in processing snakehead fish into various PMT products.
7. Participants demonstrated enthusiasm and active involvement in discussions, as well as direct participation in the PMT preparation practice.
8. The activity results showed a knowledge increase of 85% after the outreach.

### *Setting*

In the setting, the authors are expected to explain where the activities will be carried out.

### *Target*

Contains the population of the activities of the authors consist of:

1. The primary participants are the health cadres at Pondok Pesantren Zainul Hasan Genggong.
2. The total number of participants in the activity was 40 participants.
3. The participants who followed the outreach and training were the santri and santriwati at PP Zainul Hasan Genggong.

## **RESULTS AND DISCUSSION**

The community service activity, which focused on stunting education and cadre training in making anti-stunting Supplementary Food (PMT) from snakehead fish (ikan gabus), was

successfully implemented at PP Zainul Hasan Genggong. The activity was attended by 40 santri (students) and santriwati (female students).

### **Achievement of Activities (Results Evaluation)**

The activity demonstrated a highly significant increase in the participants' knowledge and skills.

#### *Increased Knowledge*

The evaluation conducted using pre-test and post-test questionnaires showed a significant improvement in knowledge among the respondents.

Prior to the intervention (pre-test), only 2.5% of respondents had a good knowledge score, while 50.0% had a poor score.

After the intervention (post-test), the number of respondents with good knowledge increased significantly to 85.0%.

The statistical analysis using the non-parametric Wilcoxon test showed a p-value of 0.000, which is less than 0.05, indicating a significant positive change in the students' knowledge after the counseling.

#### *Increased Skills*

The training successfully improved the skills of the santri and santriwati in processing snakehead fish into various simple and nutritious PMT preparations.

#### *Implementation and Process Evaluation*

The success of the activities was supported by the process implementation:

**Enthusiasm and Participation:** The participants showed great enthusiasm and active involvement in following the counseling and training activities. This enthusiasm was evident through their active

participation in discussions and direct involvement in the practical PMT preparation sessions.

**Perceived Benefit:** Post-activity interviews revealed that the santri and santriwati were very happy with the activity because they gained new insights and experiences that they could use and apply in daily life.

**Effectiveness of Materials:** The combination of education on stunting with practical PMT training using locally available, highly nutritious snakehead fish proved to be effective in simultaneously enhancing both knowledge and skills.

### **CONCLUSION**

The community service activity, which combined education on stunting with training on making Supplementary Food (PMT) from snakehead fish, was proven to be effective. The key achievements and final conclusions are:

**Effectiveness in Knowledge:** The activity successfully increased the participants' knowledge by 85%.

**Effectiveness in Skills:** The training successfully enhanced the participants' skills in preparing nutritious PMT.

**Potential of Local Ingredient:** The high nutritional content of snakehead fish makes it a potential alternative to support stunting prevention in the community.

**Recommendation:** It is suggested that this type of educational program, which is based on local potential, be integrated into the pesantren (Islamic boarding school) curriculum and carried out sustainably with active community involvement.

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## COMMUNITY EMPOWERMENT THROUGH CULTIVATION TRAINING AND HERBAL DRINK POWDER PRODUCTION IN THE LEPROSY PATIENT FAMILY COMMUNITY

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### ABSTRACT

Social stigma still attached to the families of leprosy patients in Sumber Glagah Hamlet, Pacet, Mojokerto, causes limited access to education, employment, and social interaction. This condition has led to a decrease in family income, even though leprosy is curable. To overcome this, community empowerment was carried out through cultivation training and the production of herbal drink powder as an effort to improve the economy and quality of life. The activity was conducted in Sumber Glagah Hamlet, Pacet District, Mojokerto. The methods used were counseling and training on the archipelago herbal drink (Serbat Nusantara) and the cultivation of herbal ginger plants. The total number of participants was 23 leprosy patient family members. The increase in participant knowledge was measured by giving a pre-test before the activity and a post-test after the training. The results showed a significant increase in knowledge, reaching a "Good" category score of 86.95%. Participants were very enthusiastic, demonstrated by their activeness during the discussion and question-and-answer session. This activity concludes that skill-based training, such as making herbal drink powder, can significantly increase the

knowledge and morale of leprosy survivor families in economic empowerment efforts. It is suggested that similar programs be carried out sustainably and collaboratively to reduce stigma and strengthen local economic independence.

Keywords: Ginger; Herbal Drink; Knowledge; Plant Cultivation; SIJAKUN.

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## INTRODUCTION

Social stigma remains a major challenge for the families of leprosy patients in Sumber Glagah Hamlet, Pacet District, Mojokerto. Despite the curable nature of the disease with proper treatment, the social and economic consequences persist. This stigma limits access to education, employment, and social interaction, often worsening the family's economic condition. Most families in Sumber Glagah Hamlet rely on traditional agriculture for their livelihood. The area possesses potential for high-economic-value herbal plants, particularly ginger. However, the community lacks the necessary knowledge and skills to manage and cultivate these herbal potentials effectively. Furthermore, physical limitations and social barriers hinder many family members from securing stable employment. Therefore, opening new opportunities through community empowerment based on cultivation training and herbal drink powder production is crucial to help them improve their family economy and quality of life. This training is expected not only to enhance skills but also to provide new avenues for income through the processing and marketing of herbal products. Previous similar activities in 2024 showed an 83.34% increase in knowledge among leprosy alert cadres, confirming the community's willingness to learn.

## OBJECTIVES

### *General Purpose*

The general purpose of this community service is to improve the economic independence and quality of life of the leprosy patient family community through skill-based empowerment.

### *Special Purpose*

The specific objectives of this community service are:

1. To enhance the knowledge and practical skills of families of patients with leprosy regarding the cultivation of medicinal ginger plants.
2. To increase the knowledge and skills of leprosy patient families in making herbal drink powder (Serbat Surabaya).

## PLAN OF ACTION

### *Strategy Plan*

The educational media used included PowerPoint presentations, leaflets containing brief information on leprosy and herbal cultivation, and direct demonstrations of making herbal drink powder. Interactive discussion and Q&A sessions were also provided to deepen the participants' understanding.

The community service was carried out through the following sequence of activities:

1. Counseling on Herbal Ginger Plant Cultivation: Conducted offline at the

Sumberglagah Hamlet hall by lecturers from the UNUSA Faculty of Medicine. The activity included pre-test, material presentation, Q&A, conclusion, and post-test.

2. Training on Herbal Ginger Plant Cultivation: Guided by the proposing team, demonstrating the method of ginger cultivation.
3. Counseling on the Benefits of Herbal Drink Powder (Serbat Surabaya): Conducted offline at the Sumberglagah Hamlet hall by lecturers from the UNUSA Faculty of Medicine. The activity followed the same sequence as the first counseling session.
4. Training on making Herbal Drink Powder (Serbat Surabaya): Guided by the proposing team, demonstrating the preparation of the Serbat Surabaya powder.

#### *Implementation*

It contains everything that is done by the author until the activities planned by the writer are carried out. This implementation can be in the form of an implementation of a strategy plan.

#### *Setting*

The entire community service program was conducted at the Sumber Glagah Hamlet Hall, Pacet District, Mojokerto, East Java. This location was selected for its historical significance as a former settlement for leprosy patients and its function as the central meeting point for the target community.

#### *Target*

The program successfully engaged a total of 23 participants. This group consisted of immediate family members and primary caregivers of leprosy

survivors, specifically targeting the productive age group (25–40 years old) to maximize the impact on the family's economic recovery and sustainability.

## **RESULTS AND DISCUSSION**

### *Result*

The community service activities, which comprised counseling on the benefits of Serbat Nusantara herbal drinks and hands-on training for ginger cultivation, successfully demonstrated a significant increase in the knowledge level of the 23 participants from Sumberglagah Hamlet. The evaluation was conducted using a pre-test and a post-test, with scores categorized as Good (76–100%), Sufficient (56–75%), and Less (< 55%).

Prior to the intervention (pre-test), the initial knowledge level was low. The majority of participants, specifically 12 respondents (52.51%), were categorized as having Less knowledge, and 10 respondents (43.37%) had Sufficient knowledge. Only a single respondent, representing a mere 4.34% of the group, achieved a good score.

Following the comprehensive counseling and training sessions, the post-test results showed a dramatic shift. The number of participants with Good knowledge surged to 20 respondents, representing 86.95% of the total participants. Conversely, the number of participants with Less knowledge dropped to zero, and only 3 respondents (13.5%) remained in the Sufficient category. This striking change confirms the effectiveness of the community service program in transferring knowledge and skills.

To validate this observed increase statistically, the data's normality was assessed using the Shapiro-Wilk test, which indicated that both the pre-test ( $p$ -value =

0.001) and post-test (p-value = 0.000) results were non-normally distributed ( $p < 0.05$ ). Consequently, the non-parametric Wilcoxon Signed-Rank Test was performed. The analysis yielded a highly significant p-value of 0.000. Since this p-value is substantially smaller than the conventional significance level of 0.05, the null hypothesis is rejected. This statistical finding demonstrates a significant difference between the participants' knowledge scores before and after the intervention, robustly proving the positive impact of the counseling and training activities.

#### *Discussion*

The success of the training is evidenced by the substantial leap in knowledge and skills among the 23 participants in Sumberglagah Hamlet. The selection of ginger as the primary focus is strategic, not only because of its availability but also due to its scientifically established benefits, including proven antioxidant and immunomodulatory effects. By converting locally sourced ginger into processed herbal products, the activity not only improves participants' health knowledge but also creates a valuable product with economic potential. Empowering vulnerable groups, such as the families of leprosy survivors, with productive skills like herbal drink processing, directly addresses the socio-economic barriers caused by persistent social stigma. The acquisition of these skills provides a tangible path toward income generation, which is key to fostering better social acceptance, reducing discrimination, and ultimately strengthening the economic independence of the community.

## **CONCLUSION**

This community service program, conducted in Sumber Glagah, contributed to improving the knowledge and practical skills of families of leprosy survivors in ginger cultivation and the production of herbal ginger drink powder. Through training and hands-on practice, participants gained the ability to cultivate ginger and process it into value-added products that can be utilized for household consumption and small-scale income-generating activities. The program also increased participants' confidence and motivation to engage in economic empowerment initiatives. These outcomes demonstrate the potential of community-based skill development programs to support the economic independence of families affected by leprosy. Therefore, similar programs should be implemented sustainably through collaboration among academic institutions, local governments, health services, and community members to strengthen economic resilience and reduce leprosy-related stigma.

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## IMPROVING IMMIGRANTS' PREPAREDNESS: COMMUNITY-BASED INJURY PREVENTION AND FIRST AID EDUCATION

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### ABSTRACT

Migrants represent a highly vulnerable population due to their limited access to health information, healthcare services, and emergency response mechanisms. These vulnerabilities are exacerbated by language barriers, cultural differences, socioeconomic constraints, and the unpredictability of their living environments in host countries. The absence of knowledge and basic skills in handling injuries significantly increases their risk of complications, disability, and preventable mortality. This community-engagement program aimed to strengthen the emergency preparedness of migrants under the coordination of the International Organization for Migration (IOM) by providing culturally adapted education on injury prevention and first aid. A total of 20 migrants participated in an interactive session consisting of counseling, demonstrations, and hands-on skill practice. Knowledge acquisition was assessed using pre-test and post-test questionnaires containing ten multiple-choice items. The results revealed a 38.8% improvement in average knowledge scores (pre-test: 45.2; post-test: 74.0), with a paired t-test showing statistical significance ( $p = 0.0000$ ,  $p < 0.05$ ). Participants also demonstrated enthusiasm and high engagement during the practical sessions. These findings indicate that community-based, participatory education is effective for increasing first-aid competence among vulnerable migrant groups. This initiative can serve as a replicable model for migrant shelters and humanitarian organizations seeking to strengthen public health resilience.

**Keywords:** Emergency Conditions; First Aid; Immigrants; Injury; IOM; Prevention.

## INTRODUCTION

Migration has become one of the most significant global movements of the 21st century, involving millions of individuals relocating due to conflict, economic hardship, political instability, or environmental disasters (Bhutta & Black, 2018). Migrants consistently face complex health vulnerabilities shaped by social, structural, and environmental determinants (Silove et al., 2017; Besevic et al., 2020). Limited health literacy, cultural differences, and financial barriers further impede their access to healthcare (Hargreaves et al., 2018). Moreover, many migrants reside in overcrowded shelters or temporary accommodations where injury risks are high, and timely medical support is often unavailable (Burkle, 2019).

Studies indicate that injuries—including falls, burns, wounds, and fractures—are common among displaced populations, and their outcomes worsen without immediate first aid (Abbenyi et al., 2020; Choi & Kim, 2019). For this reason, first-aid knowledge is essential for reducing morbidity and preventing complications. Basic first-aid skills allow individuals to stabilize conditions before professional help is accessible (American Red Cross, 2021). However, migrants frequently lack this knowledge due to limited access to formal training, low literacy, and language barriers (Gray & Stern, 2016; Carter et al., 2021).

The World Health Organization (2018) underscores that culturally tailored health education improves the effectiveness of learning among refugees and migrants. Visual learning tools, participatory approaches, and hands-on practice

significantly enhance comprehension and retention (Carter et al., 2021; Iserson et al., 2020). Community-based first-aid programs have also shown strong evidence in reducing preventable deaths and increasing community resilience (Bayram et al., 2017; Gerdtts et al., 2017).

Psychological factors also influence how migrants respond to first-aid situations. Trauma exposure, stress, and emotional distress may impair decision-making (Ertl et al., 2020). Therefore, interventions must strengthen self-efficacy, confidence, and readiness to act, as explained by Social Cognitive Theory (Bandura, 1986). Likewise, the Health Belief Model (Rosenstock, 1974) and Theory of Planned Behavior (Ajzen, 1991) help explain how beliefs, attitudes, and perceived control shape health behaviors.

Given these realities, structured first-aid education tailored to migrant communities is essential. This program—conducted with migrants under the International Organization for Migration (IOM)—sought to improve their knowledge, skills, and emergency readiness through culturally adapted, participatory learning methods.

## OBJECTIVES

The objective of this community-based intervention was to enhance migrants' injury-prevention awareness and first-aid competencies through culturally tailored educational strategies that emphasize active participation, hands-on practice, and long-term behavior change. The program aimed to systematically increase understanding of common injury risks, build readiness to respond effectively to emergencies, and

empower migrants to act confidently as first responders within their living environments. The initiative also sought to measure knowledge improvement, reinforce self-efficacy, reduce health disparities in migrant settings, and support sustained community capacity building through peer-supported educational approaches.

### PLAN OF ACTION

The program was implemented through three phases: preparation, implementation, and evaluation. During the preparation phase, coordination meetings were conducted with the International Organization for Migration (IOM) to identify participants' educational needs, cultural characteristics, and emergency preparedness gaps. Based on the assessment results, educational materials were developed using culturally appropriate content, simple language, visual illustrations, and practical demonstrations. The materials focused on injury prevention, basic first aid, wound management, fracture immobilization, choking response, and management of fainting episodes.

The implementation phase was conducted through a one-day workshop on 23 July 2025. The educational session consisted of a 60-minute interactive lecture and discussion on injury prevention and first-aid principles, followed by a 120-minute hands-on training session. Participants were divided into small groups and practiced first-aid procedures under facilitator supervision. Each participant was required to demonstrate key competencies, including wound dressing, fracture immobilization, choking management, and first aid for fainting, using a skills checklist developed by the training team.

The evaluation phase measured changes in participants' knowledge and skills. Knowledge was assessed using a

standardized pre-test and post-test questionnaire administered before and immediately after the training. Program effectiveness was determined by comparing the mean pre-test and post-test scores and calculating the percentage increase in knowledge. Practical skills were evaluated using an observation checklist, with participants expected to correctly perform at least 80% of the required first-aid steps. Participant satisfaction was also assessed through a post-training evaluation form. As a sustainability strategy, follow-up monitoring was planned every three months, and participants with the highest competency scores were encouraged to serve as peer educators to support the dissemination of first-aid knowledge within the migrant community.

### RESULTS AND DISCUSSION

The quantitative evaluation of the program demonstrated strong effectiveness. The average pre-test score of participants was 45.2, reflecting limited baseline knowledge of injury prevention and first-aid principles. After the intervention, the average post-test score increased to 74.0, representing a 38.8% improvement. The paired t-test showed a significant difference ( $p = 0.0000$ ), validating that the educational program produced a measurable and statistically significant impact.

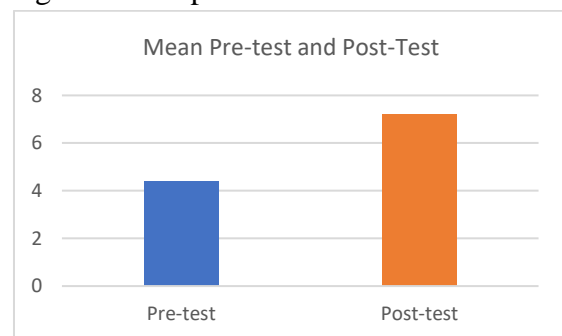


Figure 1. Mean of *Pre-test* and *Post-test*

These outcomes are consistent with findings by Eken et al. (2014), who

reported that practical, demonstration-based first-aid training significantly improved participants' knowledge and skill retention. The surge in post-test scores also aligns with studies suggesting that community-based programs that adopt a learner-centered pedagogy outperform traditional lecture-based formats (Bayram et al., 2017).



Figure 2. Community Service Activities

### **Participant Engagement and Learning Behaviors**

Observation during the sessions revealed that participants were highly engaged, asked questions openly, shared personal experiences, and actively took notes. Many migrants expressed that this was their first exposure to structured first-aid training, highlighting a critical gap in emergency preparedness among migrant populations.

The hands-on practice was especially impactful. Participants practiced bandaging, splinting, and responding to choking and fainting scenarios with evident enthusiasm. Facilitators noted that the transition from observation to active practice significantly increased participants' confidence. This finding echoes Social Cognitive Theory (Bandura, 1986), which emphasizes that learning is strengthened when individuals can observe

behaviors, attempt them, receive feedback, and gradually develop self-efficacy.

### **Cultural and Linguistic Adaptations**

One of the major strengths of this program was its culturally adapted delivery. Facilitators used simple English supplemented with visual aids, demonstrations, and peer translation when necessary. Migrants from different countries supported each other during discussions, creating a learning environment that was cooperative rather than hierarchical. This form of mutual support is crucial because migrants often trust information more when it is reinforced by peers sharing similar experiences.

Studies by WHO (2018) and Iserson et al. (2020) emphasize that culturally sensitive health education improves uptake and comprehension. This was evident in the present program, where migrants reported that they found the content easy to understand due to its visual and practical nature.

### **Behavior Change Analysis Using Theoretical Frameworks**

The program's success can be further interpreted through the lens of behavioral theories:

#### **1. Health Belief Model (HBM)**

Participants demonstrated increased perceived susceptibility after recognizing how common injuries occur in shelters. Their perceived severity increased through exposure to examples of untreated injuries leading to complications. The training enhanced participants' perceived benefits and reduced perceived barriers by offering simple, actionable steps. Thus, the HBM constructs collectively explain the participants' strong motivation to learn and apply first-aid skills.

## 2. Theory of Planned Behavior (TPB)

Attitudinal changes were observed as participants developed more positive perceptions of first-aid behaviors. Social norms shifted positively as peers supported one another, creating a collective mindset that valued emergency preparedness. Perceived behavioral control increased as participants practiced skills repeatedly, indicating that the intervention successfully enhanced self-efficacy.

## 3. Social Cognitive Theory (SCT)

The modeling provided by facilitators, coupled with hands-on practice, created a powerful environment for learning through observation and imitation. Participants who initially expressed doubt regarding their ability to perform first aid gradually showed increased confidence and accuracy after receiving supportive feedback.

### **Implications for Migrant Health Systems**

The findings underscore the urgent need for continuous, sustainable first-aid education within migrant communities. The success of this program suggests that integrating participatory health education into routine migrant support services can substantially reduce risks associated with emergency situations. Migrants who master first-aid skills can serve as first responders within their shelters, potentially saving lives in situations where medical help may not be immediately available.

Furthermore, empowering migrants with health-related knowledge fosters resilience, autonomy, and psychological well-being. Health education of this kind supports not only individual capacity building but also community-strengthening outcomes, such as peer support networks and the dissemination of life-saving information.

## **CONCLUSION**

The extended, culturally adapted community-based first-aid training program successfully enhanced migrants' knowledge, preparedness, and practical skills for responding to injuries and emergency situations. The significant improvement in test scores and the high level of engagement observed during the training underscore the effectiveness of participatory and hands-on educational methods. This program demonstrates that even short, intensive interventions can produce substantial benefits for vulnerable populations when delivered using culturally responsive and learner-centered approaches. To maximize long-term impact, similar programs should be expanded, conducted periodically, and integrated into broader migrant support systems, including the use of peer educators to sustain knowledge transfer.

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## EDUCATION ON GADGET USE FOR SCHOOL-AGE CHILDREN IN THE KALIRUNGKUT VILLAGE, RUNGKUT DISTRICT, SURABAYA CITY

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### ABSTRACT

The use of gadgets among school children in Indonesia continues to increase in line with the development of digital technology. Although gadgets can provide benefits as a medium for learning and communication, excessive use without supervision can have negative effects, such as decreased concentration on learning, health problems, and the risk of addiction. Based on these conditions, an educational activity on the healthy and wise use of gadgets was held in Kalirungkut Village, Rungkut District, Surabaya City. The method used was interactive counseling combined with question and answer sessions. There were 30 participants aged 5-10 years old. Evaluation was carried out through pre-test and post-test questionnaires. The method used was interactive counseling combined with a question and answer session. There were 30 participants aged 5-10 years old. Evaluation was carried out through pre-test and post-test questionnaires to measure the increase in knowledge. The results of the activity showed an increase in understanding of knowledge by 60%, with the initial percentage of 25% (pre-test) to 85% (post-test). This activity proves that interactive education is effective in increasing children's awareness of healthy and responsible gadget use. Parental guidance remains necessary to ensure that these positive habits can be consistently applied in daily life.

Keywords: Education; Gadgets; Kalirungkut; School Children; Surabaya.

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## INTRODUCTION

The development of digital technology has had a significant impact on everyday life, including among school children. Gadgets such as smartphones and tablets have become an integral part of learning and entertainment activities. On the one hand, gadgets provide benefits such as access to a wide range of information, interactive learning media, and means of communication. However, on the other hand, excessive use of gadgets without supervision can have negative effects, such as decreased concentration in learning, reduced social interaction, sleep disturbances, and the risk of addiction.

Supporting data includes the 2024 State of Mobile Report by Data.ai, which shows that Indonesians are the world's longest mobile device users, at 6.05 hours per day. Six hours of screen time indicates high exposure to gadgets in the daily lives of children and adults alike (AI, 2024). In 2020, the Indonesian Child Protection Commission conducted a survey which found that more than 71.3% of school-age children own gadgets, and around 55% of them spend a considerable amount of time playing games (online and offline) on their gadgets every day (Isni, 2021). Data from the Central Statistics Agency (BPS) adds to the picture that around 33.44% of early childhood (0–6 years) in Indonesia have used cell phones, where 25.5% in the 0–4 age range and 52.76% in the 5–6 age range have been exposed to gadget use (Putri, 2024).

Fitri (2022) found that more than 50% of gadget users are under the age of 25, with children (aged 7–11 years) accounting for 17% and toddlers (aged 3–6 years) accounting for around 9%. Purwadi (2023) conducted a study showing that 69.3% of

children aged 1–6 years use gadgets for more than 1 hour per day, and the majority of them show low personal-social development (52.7%). A descriptive study conducted by Rahmawati (2021) also showed that 53.3% of school-age children are addicted to gadgets, with usage durations ranging from 1–2 hours per day, the majority using their parents' gadgets.

This phenomenon is also evident in the Kalirungkut neighborhood, Rungkut subdistrict, Surabaya, where many school-aged children have become accustomed to using gadgets from an early age. This situation has created a need for appropriate education on the wise use of gadgets, both for children and their parents as guardians. Education is expected to enhance children's understanding of time limits for gadget use, appropriate content selection, and the importance of maintaining a balance between digital activities and physical and social activities.

Based on this background, this educational activity was carried out with the aim of providing knowledge and practical skills to school children in Kalirungkut Village so that they can use gadgets in a healthy, productive, and responsible manner.

## METHOD

Educational activities on gadget use for school children in Kalirungkut Village, Rungkut District, Surabaya City were carried out using a participatory outreach approach that combined interactive lectures, group discussions, and practical simulations. This method was chosen so that children would not only receive information passively, but also be able to understand, discuss, and practice the material provided.

### *Target Participants*

Early childhood to elementary school children, with a total of 30 participants. Participants must meet the inclusion criteria, namely children who reside in Kalirungkut Village, are able to participate in the activity from start to finish, and have obtained permission from their parents.

### *Educational Materials*

Educational materials are designed according to the level of understanding of school children. The materials are presented in the form of presentations, educational videos, and illustrated leaflets to make them easier to understand. The scope of educational materials includes:

1. Understanding gadgets and their benefits.
2. Risks of excessive gadget use (health problems, decline in academic performance, social-emotional impacts).
3. Rules for healthy gadget use (e.g., daily time limits, choosing educational content, using gadgets in open spaces under supervision).
4. The importance of balance between digital activities, studying, physical play, and social interaction.

Broadly speaking, the activities consist of three stages: preparation, implementation, and evaluation. The preparation stage involves coordinating with the sub-district office, schools, and community leaders to determine the participants and schedule of activities, compiling materials and evaluation instruments in the form of pre-tests and post-tests, and preparing media such as LCDs, speakers, and educational videos. The second stage, implementation, consists of administering a pre-test on basic

knowledge of healthy gadget use, followed by interactive counseling in the form of material delivery using slides, videos, and question and answer sessions, as well as administering a post-test containing the same questions to see the improvement in participants' understanding. The final stage is evaluation, which analyzes the results of the pre-test and post-test and documents the activity in the form of photos.

## **RESULTS AND DISCUSSION**

An educational activity on gadget use for school children in Kalirungkut Village, Rungkut District, Surabaya City, was held with 30 participants consisting of preschool and elementary school students. The activity was carried out with great enthusiasm, as seen from the children's active participation in the question and answer session. The enthusiasm of the participants who took part in the activity is shown in Figure 1.

The pre-test results show that children's understanding of healthy gadget use is still low. Only 25% of participants know the ideal time limit for gadget use according to age ( $\leq 2$  hours/day for school children). As many as 65% of participants use gadgets more often to play online games or watch videos, while only 15% use them for learning. Meanwhile, 70% of participants do not understand the risks of excessive gadget use on health (eye strain, lack of sleep, decreased concentration in learning). Figure 2 shows the pre-test questionnaire completed by participants.



Figure 1. Enthusiasm of activity participants



Figure 2. Participants filling out the pre-test questionnaire

The counseling process was interactive. The children looked enthusiastic when they watched educational videos about the positive and negative impacts of gadgets. During the question and answer session, most of the children admitted that it was difficult for them to limit their time playing games because they found it “exciting” and “didn't feel like time

was passing.” Documentation of the activities during the question and answer session is shown in Figure 3. After the counseling session, the post-test results showed an increase in knowledge, with 85% of participants able to correctly answer questions about the rules for healthy gadget use, 80% of participants able to name at least 3 negative impacts of excessive gadget use, and able to name tips for maintaining a balance between digital and physical activities. The increase in the average score from the pre-test (25%) to the post-test (85%) indicates a positive impact of education on children's understanding. Visually, the increase in knowledge understanding is shown in Figure 4. Figure 5 shows a group photo taken after the activity was carried out.



Figure 3. Question and answer session with participants

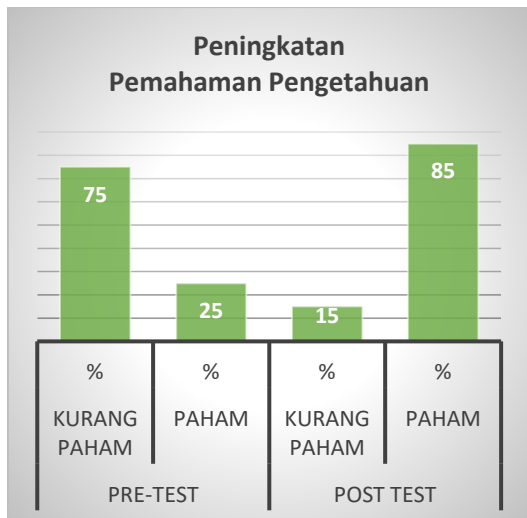


Figure 4. Graph of increased understanding of knowledge



Figure 5. Group photo with participants

## CONCLUSION

Education on gadget use among school children in Kalirungkut Village, Rungkut District, Surabaya City, successfully improved children's knowledge and skills regarding healthy and responsible gadget use. Participants' knowledge increased by 60%, from 25% before the intervention to 85% after the intervention, as demonstrated by the pre-test and post-test results. These findings indicate that interactive educational approaches, including counseling and group discussions, are effective in increasing children's awareness of both the benefits and potential risks of gadget use.

To sustain these positive outcomes, schools are encouraged to integrate digital literacy and healthy gadget use education into regular learning activities and school

health programs. Schools may also establish guidelines for appropriate gadget use during school hours and collaborate with parents to monitor students' digital behavior. In addition, parents are encouraged to provide consistent supervision, set clear rules regarding screen time, promote balanced daily activities, and serve as positive role models in responsible gadget use. Continuous collaboration between schools and parents is essential to reinforce healthy digital habits and prevent excessive gadget use among children.

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## TUBERCULOSIS EDUCATION: INTRODUCTION, EFFECTIVE TREATMENT, AND SIDE EFFECTS AS AN EFFORT TO MAINTAIN INDIVIDUAL AND ORPHANAGE ENVIRONMENT HEALTH

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### ABSTRACT

Indonesia still ranks second as the country with the most tuberculosis (TB) cases in the world. The increasing number of pulmonary TB patients in Indonesia is caused by unhealthy behaviors, such as families still using the same eating or drinking utensils, lack of lighting in the house, or patients spitting carelessly. One strategy is to find all TB cases and treat them until cured, to stop TB transmission. TB control efforts require the involvement of all sectors, including non-health. The behavior of caregivers in orphanages plays a very important role in reducing the risk of pulmonary TB transmission in children. On the other hand, orphanage residents, consisting of children and adolescents, often lack sufficient access or information about TB prevention and treatment. Based on this, this community service activity was conducted in the form of socialization about tuberculosis, including introduction, effective treatment, and side effects. The method used was counseling on TB disease, effective tuberculosis treatment, and how to avoid drug side effects. The number of participants was 16 people. The results showed a good increase in knowledge of 81.25%. Participants were very enthusiastic during the question and answer discussion session. Conclusion: The counseling activity successfully increased participants' knowledge and showed high enthusiasm, indicating that targeted education is very important in raising awareness about TB prevention and treatment.

Keywords: Anti-Tuberculosis Drugs (OAT); Knowledge; Side Effects; Treatment; Tuberculosis

## INTRODUCTION

Indonesia still ranks second as the country with the most tuberculosis (TB) cases in the world. Based on the World Health Organization (WHO) in 2019, Tuberculosis (TB) is one of the infectious diseases that causes the highest mortality in the world. According to the Global TB Report 2024, Indonesia is the second country with the most tuberculosis cases, with 1,060,000 cases and a death rate reaching 134,000. The Head of the Surabaya Health Office stated that as of November 31, 2024, there were 10,741 TB cases (73.89%) found in Surabaya out of a target of 14,537 for 2024, including more than 1,300 cases in children aged 1-14 years.

The increasing number of pulmonary TB patients in Indonesia is caused by unhealthy behaviors. For example, families still using the same eating or drinking utensils, lack of lighting in the house, or patients spitting carelessly. Myths related to pulmonary TB transmission are also common, such as the belief that the cause is not direct contact with an infectious TB patient but is related to smoking, alcoholism, eating fried foods, sleeping on the floor, and sleeping late at night. Furthermore, there is a significant relationship between physical environmental factors (temperature, humidity, lighting, ventilation area, occupancy density) and health behaviors (knowledge, attitudes, and actions) with the incidence of pulmonary tuberculosis.

TB is a chronic, infectious, and deadly disease, with about 17 people per hour dying from TB. One strategy is to find

all TB cases and treat them until cured, so that TB transmission can be stopped. TB control efforts are a task for all parties, and the non-health sector must also be involved. The behavior of family or closest people, such as orphanage caregivers, in prevention plays a very important role in reducing the risk of pulmonary TB transmission in children. Orphanage residents, often children and adolescents, frequently lack sufficient access or information about TB, both in terms of prevention and treatment. Based on this, the proposing team conducted a community service activity in the form of socialization about tuberculosis, including introduction, effective treatment, and side effects.

## OBJECTIVES

### *General Purpose*

The general purpose of this community service activity is to equip the children and caregivers of the orphanage with the correct understanding of tuberculosis and its prevention and treatment methods.

### *Special Purpose*

The specific purposes of this activity are:

1. To increase the knowledge of all orphanage residents regarding the introduction to Tuberculosis (TB) disease, effective treatment, and drug side effects.
2. To educate and train caregivers on how to detect TB disease early.
3. To equip caregivers with the knowledge and skills necessary to support the complete treatment of residents and manage potential drug side effects.

## PLAN OF ACTION

### *Strategy Plan*

The community service activity was divided into two main components:

1. Caregiver Education: This component was designed to train caregivers on:
  - a. Methods for early detection of Tuberculosis (TB).
  - b. Characteristics of TB disease.
  - c. How to handle residents infected with TB.
  - d. Assisting and supporting complete treatment completion.
  - e. Recognizing and managing potential Anti-Tuberculosis Drug (OAT) side effects.
2. General Counseling: This component provided counseling to all orphanage residents on TB disease, effective tuberculosis treatment, and how to prevent drug side effects. The resource person for the counseling was a lecturer from the Faculty of Medicine, UNUSA.

### *Implementation*

The activity was a community service program focusing on early detection education for caregivers and a counseling program for all residents. The counseling focused on TB disease, effective tuberculosis treatment, and ways to avoid drug side effects. The activity was conducted offline in the meeting room, lasting approximately 1 hour. The resource person was a lecturer from the Faculty of Medicine, UNUSA.

A pre-test questionnaire was distributed before the counseling, and a post-test questionnaire was filled out after the session to measure knowledge improvement. The data from the pre-test and post-test values of the 16 student

participants were analyzed using Microsoft Excel and SPSS 21 statistical software. Knowledge scores were categorized into Good (76–100%), Sufficient (56–75%), and Poor (< 55%).

### *Setting*

The activity was carried out at the Arrohyati Orphanage, which is under the auspices of the Arrohyati Foundation of Al Furqon Islamic Boarding School. The orphanage is an active social institution located on Jalan Kedurus IV Jambu, Surabaya. The distance from the Nahdlatul Ulama University of Surabaya Campus B to the Arrohyati Orphanage is 8.4 km.

### *Target*

The target population of the orphanage consists of 15 foster children and 7 administrators/caretakers, totaling 22 individuals. The participants in the counseling/educational activity were 16 orphanage students/residents (santri).

## RESULTS AND DISCUSSION

After the counseling, the orphanage residents showed a specific increase in knowledge. The evaluation results, based on the pre-test and post-test scores, were analyzed using the knowledge categories (Good, Sufficient, Poor).

### **Summary of Pre-test and Post-test Results (N=16):**

#### *Pre-test:*

Good (76–100%)	: 1 respondent (6.25%)
Sufficient (56–75%)	: 5 respondents (31.25%)
Poor (< 55%)	: 10 respondents (62.5%)

#### *Post-test:*

Good (76–100%)	: 13 respondents
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(81.25%)  
Sufficient (56–75%) : 3 respondents  
(18.75%)  
Poor (< 55%) : 0 respondents (0%)

The results show a clear increase in knowledge before and after the material presentation. To test for significance, the data was analyzed using the Shapiro-Wilk test, which indicated that both the pre-test (p-value = 0.002) and post-test (p-value = 0.000) data were not normally distributed ( $p < 0.05$ ). Therefore, the non-parametric Wilcoxon Signed Ranks Test was used for further analysis.

The Wilcoxon test result showed a p-value of 0.000. Since the p-value is less than the significance level of 0.05, it indicates a significant influence and a positive difference between the variables before and after the intervention. This positive change is interpreted as an increase in the knowledge level of the orphanage residents regarding TB disease, effective treatment, and how to avoid drug side effects, compared to before the counseling.

## CONCLUSION

The tuberculosis education program at Arrohyati Orphanage, Surabaya, proved effective in increasing the residents' knowledge about disease introduction, appropriate treatment, and understanding of drug side effects. The participants' high enthusiasm, active involvement in discussions, and the significant increase in pre-test and post-test results demonstrate the success of this activity in building health awareness.

For sustainability, it is recommended that health education, particularly concerning tuberculosis, be integrated as a routine program within the orphanage, supported by cooperation with local health service

facilities. This continuous effort will ensure that knowledge and vigilance against tuberculosis are maintained, thus better protecting the health of both individuals and the orphanage environment.

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## INTRODUCTION TO DIABETES MELLITUS RISK FACTORS AS AN EARLY PREVENTION EFFORT AND UNDERSTANDING OF DIABETES AT ARROHYATI ORPHANAGE SURABAYA

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### ABSTRACT

Diabetes mellitus is a chronic metabolic disease whose prevalence continues to rise globally, including in Indonesia, and is often triggered by unhealthy lifestyle habits starting from a young age. Early prevention efforts through education about risk factors are crucial to reducing future incidence. This community service activity aimed to improve the knowledge of children and adolescents at Arrohyati Orphanage regarding diabetes mellitus risk factors. The method used was health education delivered through interactive lectures, discussions, and Q&A sessions. Knowledge evaluation was conducted through pre-test and post-test assessments. There were 16 participants with diverse characteristics, consisting of 9 females and 7 males, aged 6–18 years, with educational levels ranging from kindergarten to senior high school. The results showed an improvement in participants' understanding after the educational intervention. In the pre- test, 7 participants were categorized as having good knowledge, 4 were in the fair category, and 5 were in the poor category. After the educational session, the number of participants with good knowledge increased to 9, while fair and poor categories decreased to 3 and 4, respectively. These findings indicate a positive shift towards better understanding. The discussion confirms that health education significantly contributes to improving knowledge among children and adolescents, although repetition and environmental support are required to sustain the outcomes. In conclusion, education on diabetes mellitus risk factors effectively enhanced participants' understanding, and follow-up actions such as monitoring and caregiver involvement are needed to reinforce healthy lifestyle practices.

**Keywords:** Diabetes Mellitus; Early Prevention; Health Education; Risk Factors.

## INTRODUCTION

One of the major global health concerns is diabetes mellitus (DM), which is recognized as a leading cause of morbidity and mortality worldwide (Hossain et al., 2024). The prevalence of DM has continued to increase significantly, with an estimated 19 million Indonesians affected by diabetes in 2021, and this number is projected to grow in the coming years (IDF, 2021). The increasing incidence of diabetes is closely associated with lifestyle changes, including high consumption of sugar and fat, as well as low levels of physical activity (Sun et al., 2022). Diabetes mellitus not only affects individuals' quality of life but also imposes significant economic and social burdens. Its complications include retinopathy, nephropathy, neuropathy, and cardiovascular diseases (ADA, 2023). Early prevention through health education and screening plays a crucial role in reducing both the risk of diabetes and its complications (Zhou et al., 2021).

Orphanages with school-aged children are a strategic target for diabetes education, considering that healthy lifestyle habits should be introduced early in life. Knowledge of risk factors, including unhealthy diet, lack of physical activity, and sedentary behavior, can help children make wiser dietary choices and adopt healthy lifestyles (Fitria & Sari, 2020). In addition, the free health screening conducted as part of the community service program also served as early detection of non-communicable disease risks among the children and caregivers.

Arrohyati Orphanage, located at Jl. Kedurus 4 Gang Jambu No. 2, Surabaya, is a social institution that supports orphans and underprivileged children, totaling 16 individuals currently pursuing education from elementary to senior high school. While the orphanage has previously received visits from various institutions, based on interviews, it has not yet hosted health-focused activities. This is particularly important as health is a fundamental aspect supporting children's growth and development, especially among school-aged children prone to communicable and non-communicable diseases.

Therefore, the implementation of a community service activity at Arrohyati Orphanage focusing on diabetes mellitus education, risk factors, complications, and free health screening was a relevant and necessary initiative to enhance awareness and preventive efforts against this chronic disease.

## OBJECTIVES

### *General Purpose*

To increase knowledge and awareness of children and adolescents at Arrohyati Orphanage regarding diabetes mellitus, particularly the understanding of its risk factors, symptoms, complications, and early prevention strategies through health education.

### *Special Purpose*

To introduce the concept of diabetes mellitus, including its definition, causes, symptoms, and potential complications.

1. To educate participants about lifestyle-related risk factors such as unhealthy eating habits, lack of physical activity, and sedentary lifestyle.
2. To evaluate the improvement in participants' understanding using pre-test and post-test assessment methods.
3. To encourage the adoption of healthy behaviors as an early preventive strategy against diabetes mellitus.
4. To engage caregivers in supporting and reinforcing healthy lifestyle practices among children in the orphanage.

## PLAN OF ACTION

### *Strategy Plan*

This program adopted a participatory and practical health education strategy aimed at increasing knowledge regarding diabetes mellitus. The approach focused on early prevention through interactive learning, including lectures, discussions, and knowledge assessments. Educational content covered the definition of diabetes mellitus, risk factors, symptoms, and complications, designed to improve awareness and promote healthy habits.

### *Implementation*

The program began with an introductory session using PowerPoint-based presentations tailored to various age levels. Interactive lectures were delivered to simplify complex medical information. Engagement was enhanced through question-and-answer sessions and educational mini-quizzes to encourage active participation. Knowledge evaluation was conducted using pre-test before the educational session and post-test afterward, categorized into good (76-100%), fair (56-75%), and poor ( $\leq 55\%$ ) based on Arikunto (2013).

### *Setting*

The activity took place at Arrohyati Orphanage, located in Surabaya, serving as a community-based environment that fosters the learning process. The orphanage provided a conducive setting for informal health education, allowing both children and caregivers to be actively involved in the program.

### *Target*

The primary target participants were children and adolescents aged 6–18 years, ranging from elementary to senior high school levels, along with caregivers. The program aimed to improve their knowledge and awareness of diabetes mellitus and encourage the adoption of healthy lifestyle practices as an early prevention effort.

## RESULTS AND DISCUSSION

The community service activity titled “Introduction to Diabetes Mellitus Risk Factors as an Early Prevention Effort and Understanding of Diabetes” was successfully carried out at Arrohyati Orphanage with 16 participants. They consisted of 9 females and 7 males aged 6-18 years. Their educational levels varied: 1 kindergarten student, 6 elementary school students, 5 junior high school students, and 4 senior high school or vocational students. This diversity posed challenges in delivering material, especially since the participants' initial knowledge about diabetes mellitus was very limited. The characteristics of the participants are presented in Table 1.

The pre-test results showed that 5 participants were categorized as poor ( $\leq 55\%$ ), indicating insufficient knowledge of diabetes mellitus risk factors. Four participants were in the fair category (56-

75%), meaning they had basic but limited understanding. Meanwhile, 7 participants were in the good category (76-100%), which indicated adequate prior knowledge. Overall, the pre-test results demonstrated that participants' baseline understanding was relatively low and needed improvement, especially among younger participants with lower educational levels.

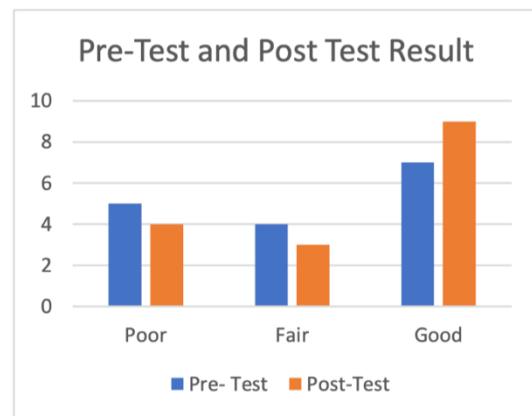
After the educational session, participants demonstrated improved knowledge. The number of participants in the good category increased to 9, while the fair and poor categories decreased to 3 and 4, respectively. This indicates a positive shift in understanding following the educational intervention.

**Table 1.** Characteristic of Participants

Characteristic	n	f (%)	Mean (years)
Age			12.5
Gender			
Male	7	43.75	
Female	9	56.25	
Education Level			
Kidergarten	1	6.25	
Elementary School	6	37.5	
Junior High School	5	31.25	
Senior High School/Vocational	4	25	

Understanding diabetes risk factors from an early age is vital, given that lifestyle changes in children and adolescents greatly influence the prevention of chronic diseases later in life (WHO, 2022). Education in orphanages holds strategic value, as children tend to mimic behaviors from caregivers and peers. Providing the right knowledge is expected to help them implement healthy behaviors such as reducing sugar consumption, increasing physical activity, and maintaining ideal body weight.

The increase in post-test scores confirmed the effectiveness of health education in improving participants' understanding of diabetes mellitus risk factors. This aligns with Notoatmodjo (2012), who explained that knowledge is a fundamental domain in health behavior change and can be enhanced through proper health education. This finding is also consistent with the study by Wahyuni et al. (2020), which demonstrated that game-based and group discussion health education is effective in improving children's knowledge of chronic diseases.



**Figure 1.** Pre- and Post-Education Knowledge Comparison on Diabetes Mellitus

However, participants with lower educational levels (kindergarten and elementary school) still faced challenges in grasping medical terminology; thus, using simpler and more visual-based approaches, such as posters or simulations, would be beneficial.

In addition to age and education, motivation also plays a role in the successful improvement of knowledge. Green and Kreuter (2005) emphasized that behavior change is influenced not only by knowledge, but also by predisposing factors (age, education, motivation), enabling factors (available facilities), and reinforcing factors (caregiver and environmental support). Therefore, follow-

up involving orphanage caregivers is crucial to help children sustain healthy lifestyle habits.



**Figure 2.** Community Outreach Program on Diabetes Mellitus Introduction at Arrohyati Orphanage, Surabaya

The results of this activity indicate that the diabetes mellitus risk factor awareness program at Arrohyati Orphanage successfully improved the participants' knowledge. However, follow-up strategies such as ongoing monitoring, repeated education, and the integration of healthy behaviors into daily activities at the orphanage are still needed. Through these efforts, early prevention of diabetes mellitus can be carried out sustainably, enabling the children at the orphanage to grow with healthier lifestyle habits.

## CONCLUSION

The community service program on diabetes mellitus risk factors at Arrohyati Orphanage successfully improved participants' knowledge. There was an increase in the number of participants in the good knowledge category after the educational intervention, while those in the fair and poor categories declined. This indicates that the educational program effectively enhanced the understanding of diabetes prevention among children and adolescents.

However, a small number of participants still showed inadequate understanding, thus requiring follow-up actions such as repeated education, the use of more varied learning methods, and active involvement of caregivers to sustain healthy behavior. Early education in orphanage settings is expected to become a strategic effort in reducing future diabetes incidence.

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## HUMAN RESOURCE CAPACITY IMPROVEMENT OF CANTEEN VENDORS AT SMPN 1 BANGKALAN

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### ABSTRACT

School canteens play an important role in providing safe, nutritious, healthy, and halal food for students. SMPN 1 Bangkalan still faces obstacles in the low capacity of canteen vendors regarding balanced nutrition, food safety, and sanitation hygiene. This activity aimed to increase the knowledge of canteen vendors about healthy canteens and food safety. The target of the activity was all canteen vendors at SMPN 1 Bangkalan. The activity method included socialization of canteen vendors and education on healthy canteens and food safety. Educational media used modules, presentations, and flyers. Evaluation was carried out with pre-tests and post-tests. The results of the activity showed an increase in participants' knowledge about healthy canteens and food safety, especially in choosing healthy snacks, storing food ingredients, and maintaining cleanliness. This program can be concluded as effective in encouraging the implementation of sustainable healthy canteen standards at SMPN 1 Bangkalan.

Keywords: Balanced Nutrition, Food Safety, Healthy Canteen, Hygiene-Sanitation.

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## INTRODUCTION

The school canteen is a crucial facility that plays a role in supporting a healthy learning environment. The canteen's function extends beyond providing food and beverages to students, but also serves as an educational tool for fostering good eating habits. A canteen that meets health standards is expected to provide safe, nutritionally balanced, hygienic, and affordable food, thereby supporting students' nutritional needs and contributing to improved health and academic achievement (Hikmah, 2017).

SMPN 1 Bangkalan is an A-accredited public junior high school strategically located in the center of Bangkalan City. One of the school's efforts to support student health is by implementing the Free Nutritious Meal Program (MBG) as part of a government program. This program aims to meet students' daily nutritional needs and improve their health. However, efforts to improve nutrition do not depend solely on the MBG program, but are also influenced by students' overall consumption behavior. Given that students spend most of their time at school and their habit of purchasing snacks from the canteen, the existence of a school canteen is a strategic factor in providing nutritious, safe, and halal food.

National data shows that only around 43.5% of school canteens are classified as healthy (Hadi, 2022). The presence of canteen managers who have received formal training has been shown to increase the chances of achieving healthy canteen standards. However, the reality on the ground shows that around 76% of snacks consumed by students are ultra-processed foods with low nutritional content and potentially harmful to health

(Sulistiyani, 2018). Furthermore, as many as 35% of snacks sold in school environments are categorized as unhealthy or do not meet requirements, including those that are not halal (Handayani, 2023). The majority of students (91.1%) purchase snacks at school, and these snacks contribute around 21.7–31.6% of their total daily energy intake. Even more concerning, 45% of snacks sold in or around schools contain hazardous ingredients such as formaldehyde, borax, rhodamine, or excessive preservatives (Khomsan, 2022).

Observations by the School Health Unit (UKS) team at SMPN 1 Bangkalan show that almost all canteen stalls still sell ultra-processed foods such as sausages, nuggets, fried foods with instant seasonings and sauces, and high-sugar packaged drinks. This situation has the potential to negatively impact students' health, especially in the long term. Furthermore, canteen hygiene and sanitation facilities are still inadequate, for example, there are no handwashing facilities for customers, a limited number of trash bins, and no separation between organic and inorganic waste.

To achieve a comprehensive healthy school status, SMPN 1 Bangkalan requires specialized support regarding healthy canteen management. To date, the school has no experience implementing a healthy canteen program. Therefore, increasing the human resource (HR) capacity of canteen vendors is a necessary strategic step. By improving the knowledge, skills, and awareness of canteen vendors, it is hoped that the quality of food and beverages provided will meet food safety, balanced nutrition, and hygiene standards, thus supporting the realization of a healthy school at SMPN 1 Bangkalan.

## **OBJECTIVES**

### *General Purpose*

The purpose of this community service activity is to assist SMPN 1 Bangkalan in establishing a healthy school canteen to support the nutritious meal program.

### *Special Purpose*

More specifically, the activity aims to improve the knowledge of canteen vendors regarding food safety, balanced nutrition, and hygiene standards in food and beverage preparation. This objective focuses on strengthening cognitive understanding as a foundation for supporting safe and healthy canteen practices.

## **PLAN OF ACTION**

### *Strategy Plan*

Activities include outreach, education, application of science and technology, mentoring and evaluation, and program sustainability. The activity stages include outreach on the importance of healthy canteens, education with materials on healthy canteens and food safety, and food safety testing, including testing for formalin, borax, rhodamine B, methyl yellow, and water quality.

The method used is participatory education using tools such as the Food Safety in School Canteens book, PowerPoint presentations, and educational posters. The material presented focuses on hygiene, food safety, food presentation, and service aspects that comply with the healthy canteen guidelines issued by the Ministry of Health of the Republic of Indonesia.

### *Implementation*

The activity began with a preparatory phase, compiling educational materials

based on a literature review and official guidelines. This was followed by a face-to-face educational phase using PowerPoint presentations to systematically present the material, the Food Safety in School Canteens book, and educational posters to reinforce the visual message. To gauge participants' understanding, a pre-test was administered before and a post-test was administered after the activity.

This method was chosen because the combination of visual and interactive media has proven effective in improving the target audience's understanding and skills, particularly in the context of health promotion and canteen management. Education was conducted face-to-face using presentation media and educational posters. As a form of implementation support, canteen vendors received hygiene and sanitation equipment such as aprons, gloves, masks, trash cans, and handwashing stations. This equipment is expected to be used sustainably to maintain cleanliness during food preparation and serving in the school canteen.

### *Setting*

This community service activity was held at SMPN 1 Bangkalan, one of the best junior high schools in the city. The school is located in the city center and has 821 students.

### *Target*

The target of the activity was 15 canteen vendors. Before the activity was carried out, they had received socialization and they made a written statement to support the establishment of a healthy canteen.

## RESULTS AND DISCUSSION

To assess the effectiveness of educational activities regarding canteen management, a pre-test and post-test were conducted on 15 canteen vendors as respondents. The pre-test was administered before the educational activities were carried out, while the post-test was administered after the activities were completed. The pre-test and post-test data are presented in Table 1.

**Table 1.** Pre-Test and Post-Test Data

	Pre-Test	Post-Test
Minimum	50	60
Maximum	90	100
Mean	70.67	80.67

The descriptive analysis results showed an increase in participants' understanding of food safety in the canteen. The average pre-test score was 70.67 with a score range of 50-90. After the education, the average score increased to 80.67 with a score range of 60-100. This indicates that the educational intervention was able to strengthen the target's knowledge regarding food safety in the school canteen. Although the increase in the average score was not very large, these results indicate a shift in understanding towards the better, where most of the targets were able to achieve the maximum score after being provided with assistance.

**Table 2.** Knowledge Parameters of Canteen Vendors at SMPN 1 Bangkalan

Questions	Correct Answer	
	Pre-Test (%)	Post-Test (%)
What is meant by PJAS?	6.6	33.3
What temperature is the zone prone to germ growth in food?	40.0	86.7

Questions	Correct Answer	
	Pre-Test (%)	Post-Test (%)
What are examples of dangerous chemicals that are often misused in food?	93.3	93.3
Why shouldn't food cans that are dented or bloated be used?	93.3	73.3
What should be done when taking food?	93.3	86.7
Why should brightly colored drinks be restricted for school children?	100.0	93.3
What is the minimum distance for storing raw materials from the floor and walls?	6.7	80.0
What should consumers do before eating at the school canteen?	100.0	80.0
What food additives should be used?	73.3	100.0
One of the characteristics of safe food to choose is?	100.0	80.0

Judging from the percentage of correct answers to each question, several indicators showed significant improvements. For example, understanding of germ-prone zones increased from 40.0% to 86.7%, and knowledge regarding the distance between raw material storage and the floor/wall increased from 6.6% to 80.0%. Furthermore, understanding of the use of Food Additives (BTP) also increased from 73.3% to 100.0%. This indicates that education has improved respondents' knowledge of technical aspects that were previously poorly understood.

However, there were still a decrease in the percentage of correct answers in the post-test, such as questions about

dented/bloated cans, washing hands before eating, and characteristics of safe food. This was likely due to respondents' confusion in understanding the material or a lack of emphasis on these points during the education. Therefore, further intensive support is still needed. This condition aligns with research by Prasetyaningrum and Kadaryati (2020), which states that although education can improve the knowledge of canteen managers, behavioral change still requires continued support and repeated reinforcement of the material.

Overall, the results of this activity indicate that education regarding healthy canteen safety has proven effective in increasing respondents' knowledge, particularly regarding hygiene, food storage, and the safe use of additives. However, some materials that experienced a decline in performance require further evaluation to prevent misconceptions among participants. Given the increase in average scores and the presence of respondents achieving maximum scores, it can be concluded that the educational intervention positively contributed to strengthening respondents' understanding of healthy canteen safety in the school environment (Suyanto, 2025).



**Figure 1.** Education of School Canteen Traders Through Participatory Education



**Figure 2.** Food Safety Test Simulation

## CONCLUSION

Participatory education based on visual media has been proven to be effective in increasing the knowledge and skills of canteen managers at SMPN 1 Bangkalan regarding healthy canteens, balanced nutrition, food safety, and sanitation hygiene, so that it can support the implementation of healthy canteen standards in a sustainable manner.

Schools should establish a dedicated team tasked with overseeing food quality and safety in the canteen, while ensuring the implementation of standardized management procedures. Canteen vendors are expected to undergo regular training on hygienic food processing, selecting healthy ingredients, and implementing balanced nutrition principles. Relevant agencies are expected to provide support through training programs, providing hygiene and sanitation facilities, and providing ongoing educational materials.

Gratitude is expressed to Universitas Nahdlatul Ulama Surabaya as the funding provider and activity partner, UPTD SMPN 1 Bangkalan, which has been willing to collaborate in this community service.

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## PROMOTING PHYSICAL AND SPIRITUAL WELL-BEING AMONG ISLAMIC BOARDING SCHOOL STUDENTS THROUGH OPTIMIZED REPRODUCTIVE HEALTH EDUCATION AND WATER CONSERVATION INITIATIVES

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### ABSTRACT

**Background:** The well-being of Islamic boarding school students (*santri*) is particularly important during puberty, a period characterized by significant hormonal, emotional, and psychological changes. Adequate understanding of reproductive health is therefore essential. This activity aimed to identify reproductive health from multiple perspectives, including psychological and spiritual dimensions, in order to prepare *santri* to independently maintain their reproductive health. In addition, a demonstration of water-saving faucet installation was conducted to promote water conservation practices.

**Methods:** The participants were 22 *santri* serving as health cadres (*kader husada*). Data were collected through focus group discussions (FGDs), guided by key questions regarding the students' experiences and perceptions of well-being (psychological and spiritual) in relation to reproductive health, as well as their efforts to conserve water within the Islamic boarding school environment.

**Results and Discussion:** Overall, the participants demonstrated readiness and potential to become independent individuals who are physically and mentally healthy, while also showing concern for responsible water use. The

well-being of the *santri* was reflected in their initiative, discipline, and problem-solving abilities. They also played an active role in providing reproductive health education to their peers, supported by adequate facilities and appropriate mentoring. These findings suggest that strengthening reproductive health education alongside environmental awareness programs can contribute to the holistic development and well-being of *santri*.

Keywords: Health; Islamic Boarding School Students (*Santri*); Reproductive Health; Water Conservation; Well-Being.

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## INTRODUCTION

According to the World Health Organization (WHO) and the Law of the Republic of Indonesia Number 17 of 2023 on Health, health is defined as a state of physical, mental, and social well-being that enables individuals to live productive lives and achieve overall well-being. Well-being is a general term used to describe a positive psychological condition. Adolescents who experience well-being are more likely to become well-functioning and prosperous adults in the future, a concept referred to as *well-becoming* (Ben-Arieh, Casas, Fronès, & Korbin, 2014, as cited in Abidin et al., 2020).

Physical health is reflected by the absence of complaints and can be objectively verified through health examinations, whereas psychological health is achieved when individuals experience inner peace and emotional tranquility. These conditions are essential for all individuals in navigating life, including *santri* (adolescents) living in Islamic boarding schools (*pesantren*). Well-being among *santri* contributes to their development into adults who can function optimally in society. Maintaining health begins with adopting healthy lifestyles, including balanced nutrition, adequate rest, and religious commitment. Although *santri* reside in boarding schools

and live apart from their parents, their education does not depend solely on the institution. It is also strongly influenced by the support provided by parents (Damayanti, 2023). One important form of support involves education and access to information regarding reproductive health.

Numerous studies and expert opinions have emphasized the crucial role of parents in supporting the education of *santri* in Islamic boarding schools. Despite the evolution of *pesantren* and the challenges posed by modern education, parents continue to bear significant responsibility in guiding, supporting, and motivating adolescents. Such support encompasses emotional support, financial assistance, and help in addressing challenges that *santri* may encounter during their educational journey. However, limited attention has been given to these aspects. Therefore, it is necessary to explore strategies for fostering the well-being of *santri*, particularly in maintaining reproductive health and promoting efficient use of clean water, which is a fundamental resource for maintaining health within the boarding school environment.

Psychological well-being during adolescence is a critical component of development, influenced by family interactions, peer relationships, and the surrounding environment (Danyalin &

Tantiani, 2022; Fatimah & Laeli, 2024). In addition, exposure to negative media influences within society may adversely affect adolescents (Scull et al., 2022). Reproductive health is defined as a state of complete physical, social, and mental well-being in all matters relating to the reproductive system, its functions, and processes among adolescents (Muharrina et al., 2023).

Several issues have been identified among *santri*, including: (1) limited understanding of reproductive organ health, indicating that adolescents still require substantial information regarding reproductive health; (2) insufficient awareness of reproductive rights appropriate to their age; and (3) inadequate concern for maintaining personal hygiene and collective well-being, particularly regarding the responsible use of clean water. Therefore, it is essential to implement programs that enhance awareness and foster collaboration among relevant stakeholders. One such initiative involves cooperation between higher education institutions, particularly Public Health study programs, and Islamic boarding school stakeholders, including parents and *santri*, to strengthen awareness of reproductive health through the *Pesantren Development Program (Program Bina Pesantren)*, which is conducted throughout the year.

## OBJECTIVES

### *General Purpose*

This program aims to implement holistic reproductive health education encompassing psychological and spiritual perspectives in order to enhance the independent reproductive well-being of *santri* and promote sustainable clean water conservation practices.

### *Special Purpose*

1. To assess the availability and utilization of health-supporting facilities for *santri* through a collaborative approach involving the Islamic boarding school (*pesantren*) as a community institution
2. To examine the water conservation practices adopted by *santri* within the boarding school environment
3. To explore the psychological and spiritual well-being of *santri* as an initial assessment of factors supporting reproductive health and overall well-being

## PLAN OF ACTION

### *Strategy Plan*

Prior to the implementation of the program, the partner institution (Islamic boarding school) had established a group of student health cadres known as “Bersahaja” (Bersih, Sehat, Sejahtera), consisting of 22 *santri* (13 male students and 9 female students) who served as the target participants. These cadres were divided into four groups, comprising two groups of male *santri* and two groups of female *santri*.

The primary method employed was a Focus Group Discussion (FGD). Each discussion session lasted approximately 30 minutes, during which all participants were given equal opportunities to express their opinions. A respectful and supportive discussion environment was maintained, where every viewpoint was valued and criticism or disparagement of others' opinions was not permitted.

The discussions were conducted in the meeting hall of Pondok Pesantren Burhanul Hidayah through two site visits. The first visit was conducted on 16 July 2025, from 08:00 to 12:30 WIB, focusing on the implementation of holistic reproductive health education from psychological and spiritual perspectives.

The second visit was conducted on 9 August 2025, during which participants received hands-on training in the use of sensor-activated water faucets as part of an initiative to promote a culture of clean water conservation. This session also included an assessment of changes in participants' skills and behaviors related to reproductive health promotion and healthy living practices.

### Implementation

Details of all FGD activities are provided in Table 1.

Table 1. Program Activities

Activities	Duration (minutes)	Description
Registration and Icebreaker Session	20	Group Discussion (5–6 Santri per Group)
Introduction and Opening Remarks	10	Didactic
Experience Sharing on Health Services in the Islamic Boarding School	15	Sistem pelayanan kesehatan yang ada di pondok pesantren
Diskusi kelompok kecil	40	Group Work and Discussion
Interaction and Identification of Reproductive Health Service Needs	15	Moderator's Comments
Evaluation	10	Finalizing the Discussion Outcomes
Closing Session	10	Presentation of Group Discussion Results

The discussion was guided by the following trigger questions:

1. What does “independence” mean to you as a *santri* living in an Islamic boarding

school?

(Does independence only mean being able to live on your own, or does it encompass broader aspects of personal responsibility and self-management?)

2. Why is it important for *santri* to understand and maintain reproductive health during adolescence?

(Consider issues related to puberty, personal hygiene, and appropriate social boundaries)

3. How can you achieve psychological well-being as a *santri* within the boarding school environment?

(For example, through emotional regulation, choosing supportive friendships, and coping with social pressures)

4. Whom would you approach if you experienced a reproductive health concern, and why?

(Discuss issues of trust, safety, and the importance of seeking support rather than keeping problems to yourself)

5. Clean water is essential for maintaining personal hygiene. How can *santri* conserve water without compromising cleanliness?

(For example, by limiting shower time, turning off the tap while performing ablution (*wudu*), and adopting other water-saving practices)

### Setting

This program was conducted in partnership with an Islamic boarding school attended primarily by adolescents who have limited access to health information and healthcare services. Adolescent-friendly health services through the Youth Care Health Services Program (PKPR) remain insufficient, as interventions are largely restricted to school-based education, while

students' academic commitments limit their access to community health centers (*Puskesmas*). Moreover, cross-sectoral collaboration has not been fully implemented (Friskarini & Manalu, 2016, as cited in Afridah et al., 2024). This initiative also contributes to the promotion of gender equality through improved access to reproductive health education and support services (Sumaryani & Purwaningsih, 2024).

### *Target*

The anticipated outcomes of this program are: (1) enhanced openness and confidence among *santri* in discussing reproductive health-related matters; and (2) the cultivation of independent behaviors in maintaining personal hygiene and health, alongside a sustained commitment to responsible water conservation practices within the boarding school setting.

## **RESULTS AND DISCUSSION**

The health facilities available at Pondok Pesantren Burhanul Hidayah include a School Health Unit (UKS) that functions as a clinic in collaboration with a midwife, the Bersahaja Pesantren Health Post under the supervision of the East Java Provincial Health Office, and mentoring provided over the past two years by the Public Health Study Program, Faculty of Health Sciences, Universitas Nahdlatul Ulama Surabaya (UNUSA) as part of a formal partnership agreement (MoU).

The boarding school has established student health cadres (*Kader Husada Santri*) who assist their peers in understanding health-related issues by providing information and conducting health promotion activities. Through these initiatives, students have developed a

strong awareness of the importance of maintaining health alongside their religious commitments. Psychological and spiritual well-being among *santri* is reflected in a life that functions positively, characterized by satisfaction in academic performance, life skills, social support, spiritual fulfillment, and physical health. Adolescent well-being is a crucial developmental stage that lays the foundation for future personality formation, as it represents a critical period during which values, life goals, and personal direction are established.

The discussions revealed that *santri* perceive independence as the ability to perform daily activities without relying excessively on others. Independence was reflected in activities such as washing clothes, managing personal schedules, and solving problems independently. Participants emphasized responsibility, initiative, discipline, and environmental awareness as important aspects of independence. They also viewed independence as the courage to seek clarification when facing difficulties and the ability to uphold personal principles while living in the boarding school environment.

Although *santri* reside in boarding schools away from their parents, their educational success is not determined solely by the institution. Parental support remains highly influential (Damayanti, 2023). Such support includes emotional assistance, financial support, and guidance in addressing educational and personal challenges encountered during the learning process. Parents are encouraged to actively participate in their children's education and maintain open communication with boarding school caregivers in order to

provide comprehensive support. Emotional support, active monitoring of children's development, and involvement in educational problem-solving are important factors in achieving optimal educational outcomes (Utama & Jauhari, 2024).

Participants considered reproductive health knowledge to be highly important because it affects their future well-being, including the prevention of sexually transmitted infections such as HIV/AIDS and the avoidance of risky sexual behaviors. Reproductive health education was perceived as an investment for the future that could also be shared with others. Most *santri* reported feeling more comfortable discussing reproductive health concerns with peers. However, some preferred consulting parents, older sisters, boarding school midwives, or teachers. Common barriers included limited reproductive health education, social taboos surrounding discussions of reproductive issues, feelings of embarrassment, and insufficient engagement from health personnel within the boarding school. Despite these challenges, participants recognized the importance of seeking advice from knowledgeable individuals, such as healthcare providers or members of the school health committee.

The presence of *Kader Husada Santri* is expected to help reduce these barriers. As noted by Layzer et al. (2014), peer education programs are effective because adolescents often learn more comfortably from their peers, thereby improving reproductive health literacy among adolescent populations. Such programs also foster mutually beneficial community relationships (Son et al., 2017, as cited in Afridah et al., 2024). Furthermore, active

student involvement in health-related activities, such as health clubs, can improve adherence to healthy practices among peers (Kwon et al., 2021, as cited in Safarina et al., 2025). Integrating reproductive health education into the Islamic boarding school curriculum is therefore essential. Consistent with the Health Promoting Schools (HPS) framework, educational institutions can create environments that support students' health and well-being (Kwon et al., 2021; Moynihan et al., 2016).

The participants reported that psychological well-being can be achieved by understanding the boarding school environment, building positive relationships, and maintaining a positive mood through activities such as resting, socializing with friends, or engaging in enjoyable activities. Intentional activities also contribute to psychological well-being (Widyawati et al., 2022). Stress management strategies mentioned by participants included *dhikr* (remembrance of God), Qur'anic memorization, and spending time alone in a comfortable environment. They emphasized the importance of understanding school regulations, increasing self-awareness and social awareness, and preventing bullying as essential components of mental well-being.

To maintain psychological health, participants suggested: (1) identifying and developing personal potential; (2) obtaining sufficient rest to prevent stress; (3) consulting trusted individuals when facing difficulties; and (4) strengthening religious values (Rima Qoriah, Susanti, & Indah Nur Haliza, 2020).

Students who adopt healthy lifestyles are more likely to achieve overall well-being. Well-being encompasses cognitive

and emotional dimensions that influence life satisfaction, happiness, peace, and fulfillment. According to Ryff's model, psychological well-being consists of six dimensions: self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth (Widyawati et al., 2022). These dimensions provide a useful framework for understanding and promoting adolescent well-being within the boarding school context.

Regarding water conservation, participants reported several practices, including turning off taps when not in use, using water only as needed, and bathing during non-peak hours to reduce excessive consumption. They also regularly cleaned water storage tanks and drained water containers to prevent mosquito breeding. Although water scarcity was not perceived as a major issue in some boarding schools, participants demonstrated awareness of the importance of avoiding water wastage and maintaining water quality. Such practices support more equitable and locally responsive approaches to health and environmental sustainability (Wolff, 2024).

## CONCLUSION

The findings indicate that *santri* have developed an understanding of the importance of independence as a fundamental aspect of life in an Islamic boarding school. Independence is perceived not only as the ability to perform tasks without relying on others but also as the capacity to take initiative, maintain discipline, and solve problems autonomously.

Participants recognized the importance of reproductive health knowledge and practices as essential for their future well-

being, disease prevention, and the avoidance of risky or inappropriate behaviors. Although discussions surrounding reproductive health are often considered sensitive and may evoke feelings of embarrassment, the *santri* demonstrated increasing awareness of the importance of early education and the availability of safe and trusted sources of support, including peers, healthcare providers, and boarding school caregivers.

The well-being of *santri* was associated with effective emotional regulation, supportive social relationships, and engagement in positive activities such as *dhikr* (remembrance of God), personal reflection, and informal conversations with peers. Water conservation practices were also implemented effectively through behaviors such as turning off taps when not in use, using water responsibly, and maintaining the cleanliness of water sources. These practices reflect students' awareness of the importance of maintaining clean and healthy lifestyles within the boarding school environment.

Overall, the participants demonstrated readiness and strong potential to become independent individuals who are physically healthy, psychologically resilient, and environmentally responsible, particularly in relation to the sustainable use of clean water. These outcomes can be further strengthened through continuous support, guidance, and collaboration among boarding schools, families, healthcare providers, and educational institutions.

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## IMPACT OF EXCESSIVE GADGET USE AWARENESS EDUCATION ON ELEMENTARY STUDENTS LEARNING MOTIVATION

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### ABSTRACT

Excessive gadget use may negatively affect learning motivation and academic engagement among elementary school students. This study aimed to determine the effect of Excessive Gadget Use Awareness Education on students' learning motivation. This study aimed to evaluate the effectiveness of health education on the dangers of excessive gadget use in improving learning motivation among elementary school students. The intervention was conducted at SDIT Elhaq Sidoarjo, involving 64 respondents selected from a population of 87 students. A quasi-experimental design with a pre-test and post-test approach was employed using a researcher-developed Learning Motivation Questionnaire consisting of 20 items. The findings revealed that prior to the intervention, 62% of participants had limited understanding, while 38% demonstrated a moderate level of understanding. Following the intervention, 78% of participants showed improved understanding, whereas 22% continued to exhibit limited comprehension. The results indicate that health education significantly enhances students' awareness of the negative impacts of excessive gadget use and fosters more positive attitudes toward learning. In conclusion, structured and age-appropriate educational interventions are effective strategies for promoting responsible gadget use and improving learning motivation among elementary school children. These findings highlight the importance of integrating digital health education into school-based programs to optimize students' academic engagement and developmental outcomes.

Keywords: Gadget Use, Health Education, Learning Motivation

## INTRODUCTION

The proliferation of digital technology over the past decade has transformed children's daily activities, including learning behaviors and social interactions. In Indonesia, the increasing accessibility of smartphones and tablets has contributed to a growing trend of gadget use among elementary school children. Although these technologies can serve as valuable educational tools, excessive and unregulated use has been associated with adverse effects on children's cognitive, social-emotional, and academic development, including decreased concentration, reduced social interaction, and lower learning achievement (Buhaerah & Lathifah, 2025; Fadhila et al., 2025).

Previous studies have consistently demonstrated that excessive gadget use is associated with cognitive and emotional disturbances. Afidah, Fakhriyah, and Oktavianti (2022) reported that overexposure to gadgets negatively affects children's concentration and logical thinking abilities. Similarly, Saoqillah and Patmah (2021) found that prolonged gadget use contributes to dependency behaviors and decreased social interaction among children.

Gadget use can directly affect academic motivation also has a direct impact on academic motivation. Hidayati and Nurhayati (2024) identified a significant decline in students motivation and engagement in learning activities due to prolonged screen exposure. Furthermore, Ramadhan and Sari (2025) emphasized that structured digital health education

interventions can effectively increase children's awareness and promote responsible gadget use, thereby improving academic performance.

Excessive gadget use can reduce learning motivation through increased digital stimulation and instant gratification, leading children to become more interested in entertainment activities than academic tasks. This condition may disrupt concentration, impair self-regulation abilities, and decrease sleep quality, thereby reducing engagement in the learning process and diminishing confidence in academic capabilities. Consequently, students' learning motivation declines and may negatively affect their academic achievement (Hidayati & Nurhayati, 2024; Ramadhan & Sari, 2025).

Learning motivation is a fundamental determinant of academic success, as it influences students' engagement, persistence, and academic performance. Students with low learning motivation often demonstrate reduced attention, limited participation in classroom activities, and lower academic achievement. Recent studies have consistently reported a positive relationship between learning motivation and academic outcomes, indicating that motivated students tend to achieve better learning results than their less motivated peers. In addition, excessive gadget use has been associated with decreased concentration, reduced learning engagement, and poorer academic performance among school-aged children. Preliminary observations

conducted at SDIT Elhaq indicated that a substantial proportion of students exhibited excessive gadget-use behaviors, which may contribute to decreased learning motivation and academic engagement (Basileo et al., 2024; Terong et al., 2024; Fadhila et al., 2025).

Gadget use awareness education has the potential to enhance students' learning motivation by increasing their knowledge and awareness of the negative consequences associated with uncontrolled gadget use. A better understanding of these risks promotes self-regulation in gadget usage, enabling students to reduce screen time and digital distractions that may interfere with the learning process. More controlled gadget use contributes to improved concentration, greater academic engagement, and positive learning behaviors, which ultimately lead to increased learning motivation among students (Fadhila et al., 2025).

Previous research has mainly examined the negative effects of excessive gadget use on children's academic performance and learning motivation. The novelty of this study lies in the implementation of an Excessive Gadget Use Awareness Education intervention that focuses not only on reducing gadget-related risk behaviors but also on enhancing learning motivation among elementary school students. This approach integrates digital health awareness with educational outcomes, providing a practical and context-specific strategy to promote responsible gadget use and positive learning behaviors in school settings.

## **OBJECTIVES**

### *General Purpose*

This study aims to conduct community service regarding the dangers of excessive gadget use among elementary school children.

### *Special Purpose*

The specific objectives of this community service activity are:

1. To improve knowledge about the impact of excessive gadget use on children's willingness to learn.
2. To increase knowledge regarding prevention efforts for excessive gadget use.

## **PLAN OF ACTION**

### *Strategy Plan*

The strategy used in this community service program was educational counseling for sixth-grade elementary school students. The program was conducted from December 2025 beginning with proposal preparation, team coordination, communication with partners, obtaining official permits, program implementation, and preparation of the final report.

### *Implementation*

The implementation process consisted of three stages:

#### 1. Pre-activity

The planning meeting was led by the team leader to discuss the program plan. The site survey was conducted to determine the location of the activity, while facility arrangements included arranging tools and materials needed for the activity

#### 2. Implementation

The counseling session on the dangers of excessive gadget use on children's willingness to learn was delivered by the program leader using lecture and discussion methods. The pre-test was administered

prior to the session using a questionnaire to assess participants' baseline knowledge. The post-test was conducted to evaluate improvements in participants' knowledge after the activity.

### 3. Post-activity

Evaluation was implemented before and after the counseling session. The pre-assessment aimed to assess prior knowledge, while the post-evaluation aimed to measure changes in understanding. The instrument utilized for evaluation was a questionnaire assessing knowledge of gadgets and their impacts, learning motivation, and the influence of gadget use on learning motivation.

#### *Setting*

This social service initiative took place at SDIT Elhaq Buduran Sidoarjo."

#### *Target*

The participants in this activity were 64 sixth-grade elementary school students."

## RESULTS AND DISCUSSION



Figure 1. Result of community service activities

#### *Results*

The result findings revealed a substantial improvement in participants' understanding following the educational intervention. Prior to the intervention, 62% of participants had limited understanding, while 38% demonstrated a moderate level

of understanding. After the intervention, 78% of participants showed improved understanding, whereas only 22% continued to exhibit limited comprehension. These results indicate that the educational program was effective in enhancing participants' awareness and knowledge regarding the topic being addressed.

From a structural perspective, minor adjustments in the activity schedule were required due to school routines. However, these changes did not significantly affect the overall implementation of the program.

In terms of process evaluation, participants exhibited high levels of engagement and active participation throughout the educational sessions. The interactive approach contributed to a conducive learning environment, enhancing knowledge transfer effectiveness.

#### *Discussion*

Gadget use can lead to decreased concentration and increased distraction, ultimately affecting academic performance. Furthermore, without proper regulation, gadget use may result in addiction, reduced social competence, and impaired cognitive functioning (Holifah et al., 2024; Fadli et al., 2025).

Excessive gadget use awareness education increases children's knowledge and awareness of the negative effects of uncontrolled gadget use. This improved understanding encourages better self-regulation in managing gadget usage, leading to reduced screen time and fewer digital distractions. As a result, children experience improved attention, better sleep quality, and greater engagement in learning

activities. These positive changes enhance their self-efficacy and promote constructive learning behaviors, which ultimately contribute to increased learning motivation (Fadli et al., 2025; Holifah et al., 2024).

This study further demonstrates that educational interventions can serve as preventive strategies by equipping students with the knowledge necessary to regulate their behavior. The improvement in students' understanding indicates that age-appropriate and interactive educational methods are crucial in influencing children's attitudes and behaviors.

However, this study is limited by the absence of a control group and reliance on short-term evaluation. Future studies are recommended to employ longitudinal designs and incorporate parental involvement to achieve more comprehensive outcomes.

## CONCLUSION

Health education on the dangers of excessive gadget use has been proven effective in improving elementary school students understanding and learning motivation. The intervention successfully enhanced students awareness of the negative impacts of gadget use and encouraged more positive learning behaviors.

These findings underscore the importance of integrating digital health education into school curricula as a preventive and promotive strategy. By fostering awareness, self-regulation, and responsible technology use, educational institutions can support optimal academic development among students.

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## **EMPOWERING THE ELDERLY THROUGH THE IMPLEMENTATION OF ERGONOMIC EXERCISES TO IMPROVE THE QUALITY OF LIFE**

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### **ABSTRACT**

The increasing number of elderly people in Indonesia is accompanied by an increasing prevalence of degenerative diseases, one of which is gout, which has an impact on reducing the quality of life. Non-pharmacological efforts such as physical activity are one effective approach in addressing this problem. This community service activity aims to improve the quality of life of the elderly through the implementation of ergonomic exercises as a non-pharmacological effort that aims to improve physical function, increase mobility, and reduce musculoskeletal complaints in a sustainable manner. This activity involved 15 elderly people. The results showed that before the intervention only 28% of elderly people were able to perform the exercise movements correctly, after the intervention there was an increase of 84% who were able to perform ergonomic exercises independently and according to procedures, the attendance rate of the elderly was 88%. Furthermore, there was a significant decrease in pain levels; specifically, the average score dropped from 6.2 (moderate category) before the intervention to 3.8 (mild category) post-intervention. Thus, ergonomic exercises are effective in improving the quality of life of the elderly.

Keywords: Elderly, Ergonomic Exercise, Gout, Quality of Life.

## INTRODUCTION

The increase in the elderly population, driven by increasing life expectancy, is one indicator of successful health development. However, this condition is also accompanied by an increase in the prevalence of non-communicable diseases, particularly degenerative diseases. One health problem frequently encountered in the elderly is gout (hyperuricemia), the prevalence of which tends to increase with age and changes in lifestyle (Ministry of Health of the Republic of Indonesia, 2018). The tendency of the elderly to consume foods high in purines contributes to the high prevalence of gout in the elderly.

Globally, musculoskeletal conditions affect approximately 1.71 billion people, establishing them as a leading cause of disability worldwide. Among the aging population, chronic musculoskeletal pain is particularly prominent, with global prevalence estimates ranging from 40% to 60%. Specifically, degenerative conditions such as lower back pain have reached a prevalence of 45.6% in individuals aged 65 and older. In the context of hyperuricemia, the global prevalence of gout is estimated at 1–4%, and epidemiological studies indicate that this incidence steadily increases alongside advancing age. These musculoskeletal alterations directly trigger chronic pain, functional disability, and a progressive loss of physical independence. Consequently, the high severity of musculoskeletal pain is strongly associated with a severe decline in the Health-Related Quality of Life (HRQoL) among older adults, often accompanied by emotional distress. Furthermore, recent literature

confirms a significant correlation where physical inactivity drastically exacerbates the severity of these musculoskeletal disorders, underscoring the critical need for active physical interventions to preserve the elderly's quality of life.

The tendency of the elderly to consume foods high in purines contributes to the high prevalence of gout in the elderly. Pathophysiologically, gout is a purine metabolism disorder characterized by elevated blood uric acid levels (hyperuricemia), which can lead to the deposition of monosodium urate crystals in the joints and surrounding tissues. This condition causes inflammation, joint pain, and limited mobility, which impacts quality of life (Smeltzer and Bare, 2017). It also significantly impacts the independence of the elderly due to the pain experienced in the joint area.

Management of gout not only focuses on pharmacological therapy but also requires a non-pharmacological approach through regular physical activity. Physical activity has been shown to increase joint flexibility, improve blood circulation, and reduce pain in the elderly (WHO, 2020). One suitable form of activity is ergonomic exercise, which is an exercise designed to improve musculoskeletal function and movement efficiency. This exercise is relatively easy to perform, safe, and effective in helping reduce musculoskeletal complaints in the elderly (Suharjono, 2019). Light exercise movements can help the elderly reduce complaints related to the musculoskeletal system, thereby increasing their independence.

However, the level of knowledge and skills of the elderly in performing

ergonomic exercises is still limited due to a lack of education and support. This condition also occurs in the UPT Pesanggrahan PMKS Majapahit Mojokerto which is a social institution under the Social Service of Mojokerto Regency (Jl. Raya Brangkal No.862) which has been handling neglected elderly (elderly) since 1968. Ergonomic exercise activities for the elderly in this social institution are not carried out regularly. Many elderly complain of pain in the joints, especially the knee joints, so that many elderly experience mobility disorders to walk and stand alone and use assistive devices for activities. The results of uric acid level examinations conducted by the community service team on 30 elderly who did not experience total care obtained an average uric acid level of 7 in elderly women and an average uric acid level of 8.1 in elderly men. Therefore, community service activities are needed as promotive and preventive efforts to improve the ability of the elderly to do ergonomic exercises.

## **OBJECTIVES**

### *General Purpose*

Improving the quality of life of the elderly through the application of ergonomic gymnastics as a non-pharmacological effort aimed at improving physical function, increasing mobility, and reducing musculoskeletal complaints in a sustainable manner.

### *Special Purpose*

The specific objectives are to improve the skills of the elderly in performing ergonomic exercise movements correctly and safely, to increase the participation of the elderly in carrying out physical activities regularly through ergonomic exercise, to reduce complaints of joint pain

related to gout in the elderly after carrying out activities, to increase the mobility and ability of the elderly in carrying out daily activities.

## **PLAN OF ACTION**

### *Strategy Plan*

The strategic plan implemented in this community service activity includes:

1. Conducting a situation analysis based on an initial case study using secondary data and interviews with partners.
2. Drafting an activity proposal.
3. Coordinating with the LPPM (Research and Community Service Agency) of Sunan Gresik University.
4. Coordinating with the Pesanggrahan PMKS Majapahit Mojokerto Technical Implementation Unit (UPT).
5. Preparing materials and standard operating procedures (SOPs) for ergonomic gymnastics.
6. Coordinating with the activity implementation team.
7. Preparing tools and materials (mats, sound system).

### *Implementation*

I Community service activities with the theme of empowering the elderly through the application of ergonomic exercises to improve their quality of life were implemented after obtaining permits from the relevant parties. The community service activities included the following activities:

1. Preparing the committee and the activity location
2. Conducting health education on gout
3. Providing feedback from participants
4. Demonstrating ergonomic exercises
5. Practicing ergonomic exercises

6. Assisting and monitoring the exercises
7. Evaluation of exercise skills
8. Closing

#### *Setting*

This activity was carried out at the UPT Pesanggrahan PMKS Majapahit Mojokerto on March 1-31, 2026 every Saturday and Sunday.

#### *Target*

There are 15 elderly residents of the Pesanggrahan PMKS Majapahit Mojokerto UPT.

## **RESULTS AND DISCUSSION**

### **1. Improved ergonomic exercise skills**

Based on observations using a checklist, before the intervention, only 28% of elderly people were able to perform the movements correctly. After the intervention, this increased to 84% of elderly people who were able to perform ergonomic exercises independently and according to procedures.

### **2. Increased elderly participation**

The elderly's attendance rate during the activity reached 88%, indicating high enthusiasm and involvement of participants in the program.

### **3. Reduction in joint pain complaints**

Pain measurements using a numeric scale (0-10) showed that the average pain level before the intervention was 6.2 (moderate category), while after the intervention it decreased to 3.8 (mild category). This average decrease of 2.4 points indicates an improvement in the elderly's physical condition.

The results of this community service activity indicate that the implementation of ergonomic exercises significantly

contributed to improving the quality of life of the elderly, as reflected in improved skills and a decrease in joint pain levels. This improvement in skills indicates that a participatory educational approach, through a combination of lectures, demonstrations, and hands-on practice, is effective in improving health literacy in the elderly population. This aligns with the theory of health behavior change, which states that active participant involvement in the learning process will enhance information retention and adoption of healthy behaviors.

Physiologically, the reduction in joint pain levels observed after the intervention can be explained by mechanisms such as improved blood circulation, decreased joint stiffness, and increased muscle flexibility resulting from structured physical activity. Ergonomic exercises, as a form of low-impact exercise, have the advantage of being safe and appropriate for the elderly, thus enabling continued implementation. These findings are consistent with research by Amin E.S. (2024), which reported a significant relationship between physical activity and uric acid levels in the elderly ( $p < 0.05$ ), where individuals with higher levels of physical activity demonstrated better uric acid control.

Furthermore, these results are supported by research by Ali M.I.F. et al. (2023), which identified a significant relationship between physical activity and uric acid levels. However, the approach used in that study was correlational, thus unable to explain a direct causal relationship. In contrast, this activity implemented a direct intervention in the form of ergonomic exercises, thus providing more applicable empirical evidence.

On the other hand, research by Sintia N.L.A. (2023) confirmed that physical activity is associated with reduced pain intensity in elderly people with gouty arthritis. The consistency of these findings suggests a converging pattern that physical activity plays a crucial role in pain modulation through physiological mechanisms, such as increased blood flow, decreased inflammatory mediators, and increased elasticity of musculoskeletal tissue.

From a public health perspective, the implementation of ergonomic exercises in this activity also reflects an empowerment approach that emphasizes increasing the capacity of individuals and communities to manage their own health. The high level of elderly participation suggests that this intervention has good potential for sustainability. This aligns with the World Health Organization's (2020) recommendations, which emphasize the importance of regular physical activity as part of promotive and preventive strategies to improve the quality of life for older adults.

However, this activity has several limitations, including the relatively short duration of the intervention and the lack of a control group. Overall, however, this activity provides scientific and practical contributions by demonstrating that ergonomic exercise is an effective, feasible, community-based non-pharmacological intervention for improving the quality of life for older adults, particularly in reducing pain. These findings reinforce physical activity as a crucial component of degenerative disease management strategies in the elderly population.

## CONCLUSION

Overall, this activity has had a positive impact on improving the quality of life for the elderly. It also contributes to supporting the fourth goal: strengthening human resource development (HRD), science, technology, education, health, sports achievements, gender equality, and strengthening the roles of women, youth, and people with disabilities. Sustainable program activities, regular monitoring, and collaboration with various parties are necessary to ensure long-term sustainability of behavioral changes.

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## STRENGTHENING PRIMARY HEALTH CARE MANAGEMENT THROUGH COMMUNITY- BASED HEALTH PROBLEM ANALYSIS AND PARTICIPATORY INTERVENTIONS AT PADANG TAROK PRIMARY HEALTH CENTER

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### ABSTRACT

Community-based primary health care remains a strategic approach to improving population health outcomes, particularly in strengthening health service management at the primary level. This community service activity was conducted at Padang Tarok Primary Health Center and its surrounding community through a field-based learning and community engagement program involving public health students. The activity aimed to analyze health service management, identify priority health problems, and implement community-oriented interventions in collaboration with health workers and local stakeholders. The program involved 40 participants and was implemented through four community engagement sessions focusing on environmental sanitation, health promotion, and community participation. The program was carried out through several stages, including situation analysis, problem identification, priority setting, intervention planning, implementation, and evaluation. Community members and health personnel actively participated in health education, environmental health activities, and service management discussions. Situational analysis identified environmental sanitation problems and limited preventive health behaviors as the main priority health issues. The activities encouraged active participation from community members and facilitated collaboration between health workers, students, and local stakeholders. The program contributed to increased community awareness of health promotion practices and supported the identification of priority health issues requiring further intervention. Community-based participatory approaches can serve as an effective strategy for strengthening primary health care management and community engagement.

Keywords: Community Empowerment, Community Service, Primary Health Care, Public Health Management.

## INTRODUCTION

Primary health care plays a crucial role as the frontline of the health system in improving population health status and ensuring equitable access to essential health services. In Indonesia, Primary Health Centers (*Puskesmas*) serve as the main providers of promotive, preventive, curative, and rehabilitative services at the community level. (Id, Id, Id, & Wolka, 2023; Michener, Williams, Oto-kent, & Aguilar-gaxiola, 2023). The effectiveness of *Puskesmas* services is strongly influenced by health service management, community participation, and cross - sectoral collaboration.

Padang Tarok Primary Health Center faces various challenges related to health service delivery and community health conditions, including environmental health issues, maternal and child health concerns, communicable disease prevention, and health behavior practices. (Mbaegbu, Agwu, Etiaba, & Onwujekwe, 2025). These challenges require systematic analysis and collaborative interventions involving health professionals, academic institutions, and the community.

Higher education institutions, particularly public health study programs, have a responsibility to contribute to community development through community service activities (Id et al., 2023). Field-based learning and community engagement programs provide opportunities to integrate academic knowledge with real-world public health practice while simultaneously supporting

health service improvement at the primary care level (Gabriel et al., 2024). Through this approach, students and lecturers collaborate with health workers and community members to identify health problems, develop appropriate solutions, and implement sustainable health interventions (Michener et al., 2023).

This community service activity was designed as an integrated program conducted at Padang Tarok Primary Health Center and its surrounding community (Kemenkes, 2020). The program emphasizes participatory approaches, health service management analysis, and community empowerment to support the achievement of better health outcomes and strengthen the role of primary health care.

## OBJECTIVES

### *General Purpose*

To strengthen primary health care management and community empowerment through participatory community service activities conducted at Padang Tarok Primary Health Center and its working area.

### *Specific Objectives*

1. To analyze the health service management system and community health status in the working area of Padang Tarok Primary Health Center.
2. To identify priority health problems affecting the community based on situation analysis and stakeholder discussions.
3. To design and implement community-based health interventions in

collaboration with health workers and local stakeholders.

4. To enhance community awareness and participation in promotive and preventive health activities.
5. To improve students' competencies in public health management, community engagement, and problem-solving through field-based learning.

## **METHODS**

The community service program was conducted from January to February 2025 in the working area of Padang Tarok Primary Health Center. A total of 40 participants were involved in the activity, consisting of community members and health workers from the Primary Health Center service area. Participants represented different age groups and demographic backgrounds. Data were collected through direct observation, document review, semi-structured interviews, and focus group discussions with health workers and community representatives. Observation checklists and interview guides were used to identify community health problems and assess local health service conditions.

Priority health problems were determined through participatory discussions involving health workers, community leaders, lecturers, and students. The prioritization process considered the magnitude of the problem, its potential impact on community health, and the feasibility of intervention within the available resources and timeframe. The intervention was implemented through four community engagement sessions conducted over four consecutive weeks. Each session lasted approximately 90–120 minutes and included health education,

environmental health promotion, community discussions, and collaborative problem-solving activities. Monitoring and evaluation were carried out throughout the program to assess participation and activity implementation.

## **PLAN OF ACTION**

A preliminary assessment was conducted before the implementation of the community service activities to better understand the characteristics of participants and the health conditions within the community. A total of 40 community members and health workers participated in the assessment and subsequent activities. Participants consisted of adults from different age groups and occupational backgrounds who resided within the working area of Padang Tarok Primary Health Center.

The initial assessment identified several concerns related to environmental sanitation, preventive health behaviors, and community participation in health promotion programs. Discussions with health workers also indicated that community involvement in routine health activities remained suboptimal. These findings highlighted the need for educational and empowerment-based interventions that could strengthen community engagement and support ongoing health promotion efforts at the Primary Health Center.

### ***Strategy Plan***

The community service program was designed using a participatory and collaborative approach involving academic staff, public health students, health workers, and community representatives. Prior to implementation, a structured strategy plan was developed to ensure that

activities were aligned with community needs and the operational context of Padang Tarok Primary Health Center. The strategy focused on situation analysis, identification of priority health problems, formulation of intervention plans, and coordination with relevant stakeholders. Emphasis was placed on promotive and preventive health efforts, strengthening health service management, and community empowerment.

**Implementation:**

**Table 1**  
**Characteristic participant**

Characteristic	N (40)	%
Gender		
Male	8	20
Female	32	80
Age		
< 40 years old	12	30
≥ 40 years old	28	70
Participant		
Community member	38	95
Health worker	2	5

The implementation phase consisted of several sequential activities. Initial activities included field orientation and data collection through observation, document review, and discussions with health center staff. This was followed by situation analysis to identify key health problems and service management gaps. Based on the analysis, priority issues were determined collaboratively with health workers and community representatives. Community-based interventions were then implemented, including health education sessions, environmental health activities, and support for health service management practices. Monitoring and simple evaluations were conducted throughout the implementation to assess participation and activity progress.

**Setting**

The community service activities were conducted at Padang Tarok Primary Health Center and its working area, including surrounding communities within the service coverage of the health center. The setting was selected to support direct engagement with primary health care services and community members.

**Target**

The targets of this community service program included health workers at Padang Tarok Primary Health Center, community members within the health center’s working area, and public health students involved in field-based learning activities. Community members participating in the activities represented various age groups and social backgrounds.

**RESULTS AND DISCUSSION**

Prior to the implementation of community service activities, a situational analysis was conducted through direct observation, discussions with health workers, review of health center reports, and interactions with community members in the working area of Padang Tarok Primary Health Center. The assessment revealed several health-related concerns within the community, including inadequate environmental sanitation practices, limited public awareness regarding disease prevention, and low participation in health promotion activities.

During discussions with health center personnel and community representatives, these issues were further explored to determine their relevance and potential impact on community health. Among the identified problems, inadequate environmental sanitation and limited community engagement in

preventive health activities emerged as the most frequently reported concerns. These findings became the basis for planning and implementing community-based interventions aimed at improving health awareness, encouraging community participation, and supporting the ongoing health promotion efforts of the Primary Health Center.

**Table 2. Summary of Identified Community Health Issues**

Health Issue	Source of Information	Priority Level
Environmental sanitation	Observation and community discussion	High
Limited preventive health behavior	Community consultation	High
Low participation in health promotion activities	Health Centre report	Moderate
Need for health education	Community consultation	High

A total of 40 participants were involved in the community service activities, consisting predominantly of female participants (80%) and individuals aged 40 years and above (70%). The situational analysis identified environmental sanitation problems, limited preventive health behaviors, low participation in health promotion activities, and the need for health education as the main concerns within the community. Environmental sanitation and limited preventive health behaviors were prioritized due to their potential impact on community health and their frequent occurrence during observations and community consultations.

Four community engagement sessions were subsequently conducted, focusing on health education, environmental sanitation promotion, and

community participation in preventive health activities. Active participation was observed throughout the program, particularly during group discussions and problem-identification sessions. Health workers and community members collaboratively discussed local health challenges and proposed feasible solutions that could be implemented within the Primary Health Center service area. These activities contributed to increased awareness of environmental health issues and strengthened collaboration between community members, health workers, and academic institutions

The implementation of the community service program at Padang Tarok Primary Health Center demonstrated positive outcomes in terms of community participation, health service management support, and student competency development (Id et al., 2023; Michener et al., 2023). Active involvement of health workers and community members facilitated effective communication and mutual understanding of local health issues (Mbaegbu et al., 2025; Paramita, Isnayati, Ikrawan, & Adialita, 2019). Health education activities increased community awareness regarding health promotion, disease prevention, and environmental health practices (Mosteiro Miguéns et al., 2024; Sara Intiaz., Nadia Khaleeg, 2026).

From a service management perspective, the situation analysis and discussions contributed to improved identification of priority health problems and encouraged collaborative problem-solving (Margolang, 2018). The integration of academic support with primary health care services strengthened partnerships between the educational institution and the health center (Mursyaf,

2018). Students gained practical experience in public health management, community engagement, and intersectoral coordination, which are essential competencies for future public health professionals (Grifoni, D'Onofrio, & Sargolini, 2017).

These findings highlight the importance of structured community service programs that are integrated with primary health care settings (Putri, Rekawati, & Wati, 2021). Participatory approaches enable communities to take an active role in addressing health problems while supporting health centers in improving service delivery (Erkal-Aksoy, Akin, & Değirmenci, 2024). Similar studies have emphasized that community engagement and collaboration are key elements in strengthening primary health care systems and achieving sustainable health improvements.

The findings indicate that participatory community engagement can support the improvement of primary health care management by facilitating communication between health workers and community members (Leyns et al., 2025). The identification of priority health problems through collaborative discussions enabled stakeholders to better understand local health needs and develop context-specific solutions (Saif-Ur-Rahman, Sultana, Afrin, & Islam, 2022). Similar findings have been reported by Michener et al. (2023), who highlighted that community participation contributes to stronger partnerships and more responsive health services (Bloch & Rozmovits, 2021; Daniel Erku, Resham Khatri, Akillu Endalamaw., 2023). In the present program, the involvement of community members in problem identification and health promotion

activities strengthened local ownership of health initiatives and supported community empowerment efforts.

## CONCLUSION

The community service program conducted at Padang Tarok Primary Health Center successfully identified environmental sanitation issues and limited preventive health behaviors as priority community health concerns. Through participatory community engagement activities involving health workers and community members, the program supported community empowerment, strengthened collaboration between academic institutions and primary health care services, and facilitated the identification of locally relevant health solutions. Community-based participatory approaches can serve as an effective strategy for strengthening primary health care management and promoting sustainable community involvement in health promotion activities.

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## HEALTH EDUCATION FOR IMMIGRANTS: IMPROVING AWARENESS OF EARLY CANCER SCREENING THROUGH A PARTICIPATORY APPROACH

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### ABSTRACT

Immigrants are a vulnerable population with substantial barriers to accessing health information and medical services, including early detection of chronic diseases such as cancer. Low health literacy among immigrants may be caused by linguistic and cultural differences, uncertain legal status, and financial limitations. These conditions lead to delayed diagnosis and increased risk of cancer-related complications. Early detection through screening has been proven effective in reducing cancer mortality. For instance, colorectal cancer screening may reduce mortality risk by 35%, while mammography can decrease breast cancer mortality by 41%. However, screening coverage among immigrant populations remains low. Studies suggest that sociocultural barriers, limited knowledge, and lack of physician recommendations contribute to poor participation in cancer screening programs. This community service activity aimed to increase immigrants' knowledge of early cancer screening and health education using an interactive and participatory community-based counseling approach. A pre-experimental one-group pre-test and post-test design was employed. The program involved 14 immigrants residing in temporary shelters under the coordination of the International Organization for Migration (IOM). Participants attended a counseling session accompanied by pre- and post-intervention knowledge assessments. Results showed a 37.3% improvement in mean knowledge scores, and the paired t-test produced  $p = 0.0000$  ( $p < 0.05$ ), indicating a statistically significant difference between pre-test and post-test scores. These findings demonstrate that the counseling intervention effectively improved participants' understanding of cancer and the importance of early detection. The activity also highlights the importance of cross-sector collaboration, especially with IOM, in developing sustainable health promotion and disease prevention programs for immigrant communities.

**Keywords:** Cancer, Community Service, Early Screening, Health Education, Immigrants, IOM.

## INTRODUCTION

Cancer is one of the leading causes of global mortality and poses a tremendous burden on individuals, families, and healthcare systems. According to the World Health Organization (WHO), approximately 10 million deaths were caused by cancer in 2020, and this number is projected to reach 13 million by 2030 without effective intervention (World Health Organization, 2020). In Surabaya, a considerable population of immigrants resides in temporary shelters. Data from the International Organization for Migration (IOM) show that around 1,000 refugees and asylum seekers were living in shelters throughout East Java in 2023, including Surabaya. Immigrants face significant limitations in language, healthcare access, and legal status. These conditions contribute to low health literacy and delayed cancer diagnosis. One of the most important strategies to reduce cancer mortality is early detection through screening, which allows identification of cancer at early stages when treatment success rates are higher (National Cancer Institute, 2022).

However, access to cancer screening is not equally distributed among all populations. Vulnerable groups such as immigrants and refugees experience multiple barriers to healthcare, including language difficulties, limited health information, legal uncertainty, and sociocultural stigma (Guerra et al., 2021). Many immigrants originate from countries with low health literacy and insufficient healthcare infrastructure, resulting in low awareness of the importance of cancer screening. Consequently, cancer is often

detected at late stages, leading to poorer prognosis and higher treatment costs (Van der Meer et al., 2013).

Based on the Social Determinants of Health framework (Marmot & Wilkinson, 2006), health outcomes are influenced not only by biological factors but also by socioeconomic and environmental conditions. As a marginalized community, immigrants have limited control over these determinants, increasing their vulnerability to chronic diseases such as cancer. Therefore, interventions aimed at improving health literacy among immigrants are urgently needed.

Community-based health education is an effective method for increasing public awareness and knowledge about disease prevention. This approach is supported by the Health Belief Model (Rosenstock, 1974), which states that behavioral change occurs when individuals recognize their susceptibility to disease, understand its severity, and acknowledge the benefits of preventive action. Communicative and culturally appropriate health counseling can strengthen these perceptions and encourage health-seeking behavior.

This community service activity aimed to educate immigrants living under IOM protection in Surabaya regarding early cancer screening. The program sought to enhance participants' knowledge and awareness through simple, visual, and culturally adapted educational materials. It is expected that this activity will not only increase understanding but also serve as a foundation for preventive behavior related to cancer among immigrant communities.

## OBJECTIVES

The main objective of this community service program was to improve the knowledge and awareness of immigrants regarding early cancer screening through culturally adapted health education. This activity aimed to introduce common cancer types, identify risk factors, recognize early warning signs, and explain recommended screening methods such as mammography, Pap smear, HPV testing, fecal occult blood tests, colonoscopy, and lung cancer screening for high-risk groups. In addition, the program sought to increase health literacy using simple language, visual materials, and interactive discussions. To measure effectiveness, participants were assessed using a pre-test and post-test design to evaluate whether the counseling intervention led to a measurable improvement in understanding, with the expectation that increased knowledge would contribute to better preventive behavior among immigrant communities.

## **PLAN OF ACTION**

This community service program was implemented using a pre-experimental one-group pre-test and post-test design, involving 14 immigrants living in temporary shelters coordinated by the International Organization for Migration (IOM) in Surabaya. The plan of action consisted of three sequential stages: preparation, implementation, and evaluation, all of which were designed to ensure that the educational intervention could be delivered in a structured, culturally adapted, and scientifically measurable manner. During the preparation stage, the team conducted coordination meetings with IOM officers to determine the appropriate location, identify eligible participants, and ensure that translators

were available to overcome language barriers. A set of educational materials was developed in a communicative and visual format, including posters, pictures of cancer symptoms, and anatomical diagrams that would help participants understand information despite differing language backgrounds. Pre-test and post-test instruments containing structured multiple-choice questions were prepared to objectively measure changes in knowledge before and after the intervention.

The implementation stage was conducted face-to-face at the IOM shelter. Participants were first gathered and provided with a brief explanation of the activity's purpose, followed by completion of the pre-test to assess their baseline knowledge related to cancer screening. Afterward, the counseling session was delivered using simple verbal explanations supported by visual media, while translators assisted to ensure bilingual comprehension for participants who did not speak Indonesian. The session covered the definition of cancer, common cancer types, risk factors, early symptoms, and recommended screening procedures. The educational approach was intentionally interactive; participants were encouraged to ask questions, share their personal experiences, and clarify myths or misunderstandings regarding cancer. This interactive model was chosen to foster trust, reduce fear, and improve participants' motivation to adopt preventive health behaviors.

At the end of the educational session, participants completed the post-test containing the same questions as the pre-test. The comparison between pre-test and post-test scores served as a direct indicator of knowledge improvement resulting from

the intervention. The evaluation stage included data entry, scoring, and statistical analysis using a paired t-test to determine whether the observed difference in knowledge scores was statistically significant. In addition to quantitative measurement, informal qualitative feedback was collected through short discussions with participants and IOM facilitators to assess their satisfaction with the activity, perceived usefulness, and suggestions for future programs. This multi-step approach ensured that the intervention was not only educational but also measurable, culturally sensitive, and aligned with real-world health needs of immigrant communities. The involvement of IOM was a critical factor in the success of this plan, as it helped provide logistical support, ensured participant attendance, and created a safe learning environment that encouraged active participation.

## RESULTS AND DISCUSSION

The results of this community service program demonstrated that the educational intervention was effective in improving participants' knowledge regarding early cancer screening. Statistical analysis using a paired t-test indicated a significant difference between pre-test and post-test scores ( $p = 0.001$ ), with a 37.3% increase in average knowledge.



Figure 1. Community service activity at IOM

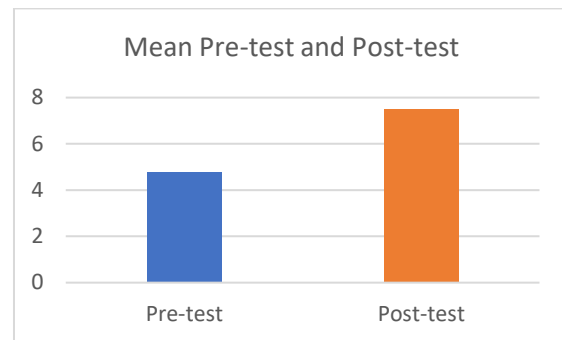


Figure 2. Mean of Pre-test and Post-Test

This finding supports the notion that culturally adapted and visually supported health education is highly beneficial for vulnerable populations with limited literacy and language skills. Previous studies have shown that educational interventions can significantly improve understanding of cancer risks and motivation to seek screening, especially in marginalized groups (Nguyen et al., 2019). The use of visual materials, translations, and simplified explanations contributed to better comprehension, aligning with evidence that visual and bilingual health communication enhances learning outcomes among migrant communities (García et al., 2021).

The interactive nature of the session also played a critical role in knowledge improvement. Participants were encouraged to ask questions, clarify misconceptions, and share previous experiences related to illness and healthcare. This participatory strategy aligns with the principles of adult learning and community-based health promotion, which emphasize communication, relevance, and shared experience as key elements of successful behavioral change (Knowles et al., 2011). Similar interventions targeting refugees in Europe found that interactive counseling significantly increased willingness to

undergo cervical and breast cancer screening (Thomas et al., 2020). In the present activity, translators and IOM facilitators minimized communication barriers, built trust, and increased participants' comfort in discussing sensitive topics. Trust is a crucial determinant of healthcare engagement in migrant communities because refugees often come from backgrounds where medical systems are inaccessible or distrusted (Viswanath & Emmons, 2018).

The increase in knowledge can also be interpreted through a public health perspective in which early screening is regarded as an essential component of secondary prevention. Screening allows detection of disease before symptoms appear, improving survival rates and reducing treatment costs (World Health Organization, 2022). Research has consistently demonstrated that mammography reduces breast cancer mortality by up to 41%, while colorectal cancer screening can reduce mortality by 35% (National Cancer Institute, 2021). However, immigrants often underutilize these services due to structural and cultural barriers such as legal insecurity, low income, lack of transportation, and cultural stigma surrounding cancer (Akhter et al., 2020). In several cultures, discussing cancer is considered sensitive or taboo, leading to avoidance of health checks until symptoms become severe (Thomas et al., 2020). By addressing these misconceptions and normalizing discussion of screening, this program served as an important step in reducing stigma and encouraging preventive health behavior.

In addition, the involvement of IOM proved to be a major contributing factor to program success. Previous literature

confirms that collaboration with trusted community partners improves health promotion outcomes among migrant groups because participants feel safer, more respected, and more willing to engage (Wallerstein & Duran, 2010). Participants responded positively to the educational model, stating that the use of pictures, plain language, and translators made the topic easier to understand. According to Miller et al. (2020), improved health literacy is strongly associated with better health-seeking behavior, including willingness to attend screening. Therefore, beyond short-term knowledge improvement, this intervention carries potential for long-term behavioral impact, such as increasing participants' readiness to undergo screening, recognizing early symptoms, and sharing information with peers within the shelter environment. This ripple effect is valuable because peer-to-peer education has been proven to spread health information more effectively within migrant communities than formal messaging alone (García et al., 2021).

Overall, the significant increase in knowledge, combined with strong participant engagement and positive feedback, indicates that the intervention was both meaningful and impactful. The program demonstrates that community-based health education that is simple, visual, interactive, and culturally sensitive can successfully bridge the knowledge gap experienced by immigrants. In future implementations, combining education with direct onsite screening may yield even greater public health outcomes.

## CONCLUSION

This community service activity effectively improved immigrants'

understanding of early cancer screening, as shown by a 37.3% increase in knowledge and a statistically significant difference between pre-test and post-test results. The use of visual media, simple language, and translator assistance helped overcome communication barriers and encouraged active participation. Collaboration with IOM was also essential for gaining participant trust and ensuring smooth implementation. Although this program focused on health education, it provides a foundation for future activities that may combine counseling with direct screening or follow-up mentoring to further strengthen preventive behavior. Overall, this intervention proves that culturally adapted health education can support early cancer detection efforts in vulnerable populations.

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**A COMMUNITY-BASED MODEL FOR STRENGTHENING  
SMES THROUGH ENTREPRENEURSHIP TRAINING FOR  
AISYIYAH CADRES: A SOCIAL CAPITAL–DRIVEN  
COMMUNITY EMPOWERMENT APPROACH**

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**ABSTRACT**

This study aims to develop a community-based model to strengthen Micro, Small, and Medium Enterprises (MSMEs) through entrepreneurship training for Aisyiyah cadres in the Sukodono Branch, Sidoarjo. The key problems identified include a weak entrepreneurial mindset, limited product innovation, and low business sustainability, with most MSMEs operating at a survival level. Using a community-based empowerment approach, the program was implemented through three stages: needs assessment, participatory training, and systematic evaluation using pre- and post-tests. The results indicate a significant improvement in participants' capacity across all performance indicators, with all outcomes categorized as "high." The most substantial increase was observed in understanding legal aspects (PIRT and halal certification) at 66%, followed by product innovation and marketing at 59%, and entrepreneurial mindset transformation at 57%. Beyond individual capacity building, the program also strengthened social capital by enhancing trust, collaboration, and support networks among community members. In conclusion, the community-based MSME empowerment model is more effective and sustainable than individual approaches, as it leverages organizational networks to promote women's economic empowerment and business development.

Keywords: Aisyiyah, Community-Based Empowerment, Entrepreneurship, SMEs, Social Capital.

## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a highly strategic role in the local economy, particularly in creating jobs, increasing household income, and supporting family economic resilience (Andika A Kawulur et al., 2025; Parluhutan Sinaga & Sitorus, 2023; Supriyadi et al., 2023). Within the context of a community-based economy, women-led SMEs, specifically those run by Aisyiyah cadres from the Sukodono branch in Sidoarjo, also fulfil a strong social function, as they contribute not only to family income but also to children's well-being and household economic stability (Shafwatullah & Arquisola, 2024). Nevertheless, the majority of SMEs run by women remain at the microscale and are survival-based, operating solely to meet daily needs without long-term development planning. This situation indicates that women-led SMEs still require strengthening not only economically but also in entrepreneurial capacity (Annisaturrahmi, 2023; Masyitoh et al., 2025).

One of the main challenges faced by women SME operators, particularly Aisyiyah cadres in the Sukodono branch of Sidoarjo, is the still-weak entrepreneurial mindset. Many business owners still view their business as a side activity, rather than as an opportunity that can be developed professionally and sustainably (Riantoputra & Muis, 2020). This mindset leads business owners to be less willing to take risks, lack a growth orientation, and have no long-term vision for their business. Furthermore,

some SME entrepreneurs still traditionally run their businesses without clear business planning, a specific target market, or a business development strategy. This situation indicates that strengthening SMEs is not sufficient through technical training alone, but must begin with a shift in entrepreneurial mindset (Lestari Kadiyono & Yuliafitri, 2023).

Apart from business mindset issues, limited product innovation is also a significant obstacle to the development of women-led SMEs. Many business owners still produce generic products with low levels of differentiation, making it difficult to compete in an increasingly competitive market (Khoru Pujianto et al., 2025). Limited innovation is evident not only in products but also in packaging, branding, and product presentation to consumers. On the other hand, some SME operators also still face limitations in accessing broader markets, particularly digital markets. A lack of understanding of marketing strategies, social media use, and customer management means the products produced cannot yet reach consumers effectively. This indicates that the strengthening of SMEs must encompass both product innovation and improved market access (Karamoy et al., 2024).

Another equally important issue is the low sustainability of businesses run by female SME operators who are members of the Aisyiyah branch in Sukodono, Sidoarjo. Many businesses fail midway because they lack clear business planning, are unable to adapt to market changes, and lack the support of a strong business network

(Aprilian et al., 2025). Individual businesses tend to be more vulnerable to failure compared to those supported by a community or social network. Therefore, strengthening SMEs is not sufficient through financial assistance alone, but must be achieved through a sustainable approach to enhancing entrepreneurial capacity, particularly through training that fosters a business mindset, encourages product innovation, expands market access, and enhances long-term business sustainability (Herlita, 2025; Luthfia et al., 2025; Sulaeman et al., 2024).

A wide range of training programmes for Micro, Small, and Medium Enterprises (MSMEs) have been implemented by the government, universities, and social organisations in recent years. These training programmes generally aim to enhance business owners' capabilities in business management, marketing, and product development (Hairudinor et al., 2024; Noor et al., 2024). However, the majority of training remains short-term and is delivered as one- or two-day events without follow-up mentoring. This training model tends to provide only theoretical knowledge but fails to ensure that participants apply the material to their business operations. Consequently, the changes resulting from the training are often only temporary and do not have a significant impact on the development of participants' businesses (Soniawan, 2023).

Furthermore, the majority of SME training programmes are not community-based. Training is typically conducted by gathering participants from diverse business backgrounds, regardless of their social connections. This situation leaves participants lacking sufficient social support once the training concludes.

However, in the context of SME empowerment, the existence of a community plays a vital role in fostering an environment of mutual support, shared experiences, and motivation to develop their businesses. Without a strong community foundation, training tends to be a short-term activity and fails to build the collective strength required to sustainably strengthen SMEs (Jannah et al., 2025; Mukti Diapepin et al., 2024).

Another common issue is the lack of programme sustainability after training concludes. Many training programmes stop at the stage of delivering content without any monitoring, evaluation, or ongoing support for participants (Ikhwan et al., 2024). Consequently, SME operators often revert to their old business patterns because they lack guidance and support after the training ends. This situation indicates that a training approach focused solely on enhancing individual knowledge has not been able to create sustainable SME strengthening. Therefore, a training approach is needed that is not merely short-term, but also community-based and has clear sustainability mechanisms.

Women's communities have immense potential to drive community-based economies, particularly through micro-enterprise empowerment. Women's organisations such as Aisyiyah serve not only as platforms for social and religious activities but also as spaces for social interaction and the development of strong, sustainable networks. Community members know one another well, share emotional bonds, and maintain a high level of mutual trust. This strong social network is a crucial asset in SME development because entrepreneurs do not operate in isolation but within a mutually supportive

environment. From the perspective of Social Capital Theory, social networks, trust, and community norms are factors that can strengthen the sustainable success of small businesses (Br. Purba et al., 2025; Widia & Octafia, 2023).

In addition to its strong social network, the Aisyiyah community has active female cadres who play a strategic role in society. Aisyiyah cadres do not merely act as organisational members but also as agents of change involved in various social, educational, and community empowerment activities. The cadres' regular and structured activities demonstrate that this community has great potential to serve as a driving force in SME strengthening programmes (Eko Waluyo et al., 2022; Wijayanti et al., 2022). Active cadres are more receptive to training programmes, better able to disseminate information to other members, and more capable of ensuring programme sustainability due to their sense of responsibility towards their community.

These conditions make women's communities, such as Aisyiyah, highly suitable as a foundation for community-based SME strengthening programmes. With a strong social network and active cadres, entrepreneurship training not only impacts individual participants but can also spread to other community members. Furthermore, organised communities facilitate business collaborations, joint promotion, and social support, thereby enhancing business sustainability (Suharto et al., 2025). Therefore, utilising women's communities as a foundation for economic empowerment is not only practically relevant but also has a strong theoretical basis within the fields of Community Development and Entrepreneurship.

Most community service articles on strengthening SMEs still focus on technical training, such as digital marketing, basic financial record-keeping, or standard operating procedure (SOP) training for product manufacturing. Although such training is important, the approaches used generally remain individual-oriented and have not yet addressed collective community empowerment (Chakim et al., 2025). Consequently, many community service programmes yield only short-term improvements in technical knowledge and have not created sustainable change. Therefore, an approach to community service is required that not only focuses on improving individual skills but also builds a community-based entrepreneurship training model that utilises organisational networks as the primary factor in programme success.

The key innovation highlighted in this article is the use of a women's community-based approach to strengthen SMEs. In this approach, training is not only provided to individuals as business operators but also to community cadres who play a strategic role within their social environment. Aisyiyah cadres do not merely serve as training participants but also as agents of social change, capable of encouraging other community members to develop businesses collectively. This approach ensures that the training has a broader impact, as the knowledge and skills acquired do not remain confined to individual participants but can be disseminated to other community members over time. Furthermore, this article offers a novel approach by integrating entrepreneurship with community social capital. The community engagement approach employed focuses not only on

developing business skills but also on utilising social networks, trust, and community norms to support the programme's success. The integration of Entrepreneurship, Community Development, and Social Capital Theory makes this article not only practical but also offers a stronger academic contribution than community engagement articles that merely report on training activities.

Another innovation worth highlighting is the focus on value-based entrepreneurship for MSMEs, which is highly relevant to the characteristics of faith-based women's organisations such as Aisyiyah. The training provided is geared not only towards increasing business profits but also towards strengthening values such as women's economic independence, community cooperation, and business sustainability that benefit families and society. This approach ensures that the community service programme focuses not only on economic aspects, but also on the sustainable strengthening of social values and women's empowerment.

## OBJECTIVES

### *General Purpose*

The general objective of this article is to develop a model to strengthen community-based Micro, Small, and Medium Enterprises (MSMEs) by providing entrepreneurship training to Aisyiyah cadres as part of community service activities (Eko Waluyo et al., 2022). Conceptually, this community service activity aims not only to provide entrepreneurship training to participants but also to build a community-based and sustainable approach to MSME empowerment (Syafei et al., 2025). By

targeting Aisyiyah cadres as the primary focus of the activities, this community service programme is expected to produce a training model that not only impacts individual participants but can also be extended to other community members through existing social networks. Therefore, the general objective of this article is to develop a community-based SME-strengthening model that can serve as an alternative approach to community economic empowerment programmes, particularly for female SME operators.

### *Special Purpose*

The specific objectives of this article are to analyse in greater depth the impact of community-based entrepreneurship training on several key aspects of SME strengthening. More specifically, the specific objectives of this study include:

1. Analysing the improvement in the entrepreneurial mindset of Aisyiyah cadres following the training.
2. Analysing the improvement in business skills, including product innovation, marketing, and basic business management.
3. Analysing the strengthening of the community's social networks that support the sustainability of participants' businesses. Furthermore, this article aims to identify how women's communities can support the sustainability of training programmes and create a broader impact on the development of community-based SMEs. Thus, these specific objectives are expected to provide both academic and practical contributions toward the development of a more effective and sustainable SME empowerment model.

## PLAN OF ACTION

### *Strategy Plan*

The strategic plan for this initiative began with a needs assessment conducted through focus group discussions, interviews, and direct observation to understand the real challenges faced by female MSME entrepreneurs at the Aisyiyah Sukodono Branch. Based on these findings, the author designed a structured entrepreneurship training programme that covered topics such as mindset development, product innovation, business legalities (PIRT and Halal certification), and marketing strategies tailored to the participants' characteristics. Additionally, evaluation tools in the form of pre-tests and post-tests were prepared, alongside interactive, participatory learning methods, to ensure the material is absorbed effectively and to create a sustainable impact for the community.



Figure 1. Focus group discussion

### *Implementation*

This activity was implemented systematically through a Community-Based Empowerment approach, actively involving cadres of the Aisyiyah Sukodono Branch at every stage. The stages began

with an opening session and a presentation of the programme's objectives, followed by entrepreneurship training that covered mindset development, product innovation, legal aspects (PIRT and Halal certification), and basic marketing strategies. The learning process was carried out in a participatory manner through interactive lectures, group discussions to share experiences, and practical simulations such as exercises in applying for business permits and determining product advantages. Throughout the activity, participants engaged in interactions and simulations, with simple guidance from the community service team to ensure the material could be directly implemented in their respective micro-enterprises.

The training methodology in this community service activity was designed using a participatory learning approach that emphasises active participant involvement throughout the training process (Ikhwan et al., 2024; Mukti Diapepin et al., 2024). The methods used were not merely lectures but interactive sessions that provided participants with opportunities to ask questions, share business experiences, and discuss the challenges they faced. Furthermore, the training included group discussions to enable participants to share experiences and propose solutions to the business challenges they encountered, ensuring that participants not only gained knowledge from the trainers but also learned from fellow business owners facing similar circumstances. This training also includes simple simulations directly related to the participants' businesses, such as business idea development, applying for PIRT licences, obtaining halal certification, devising simple marketing strategies, and identifying product advantages, ensuring

participants not only understand the material theoretically but can also apply it directly. Furthermore, the outreach team guides the training, particularly for participants who struggle to understand the material or relate it to their business circumstances. Through a combination of interactive lectures, group discussions, simulations, and guidance, it is hoped that participants' understanding will improve significantly and that their confidence in developing their businesses will be boosted following the training.

### *Setting*

The participants in this community service programme were members of Aisyiyah who either operated micro-enterprises or had an interest in starting one. A total of 35 participants took part in the programme and completed both the pre-test and post-test assessments.

The participants had diverse backgrounds in terms of age, type of business, and entrepreneurial experience. Some were engaged in small-scale businesses such as home-based food production, simple handicrafts, and other household-based enterprises, while others were at an early stage of entrepreneurship with limited business experience.

In terms of entrepreneurial experience, the participants ranged from beginners to more experienced entrepreneurs who had been operating their businesses for several years but still faced challenges in business development. This diversity reflects the heterogeneous profile of female MSME entrepreneurs within the Aisyiyah branch in Sukodono, Sidoarjo, and confirms that the programme was designed to align with their actual needs and conditions.



Figure 2. Entrepreneur seminar

### *Target*

The target population for this initiative is the Aisyiyah Sukodono Branch in Sidoarjo, comprising women who are micro-entrepreneurs and members interested in starting a business. Participants have diverse characteristics, including age, business types such as home-based food businesses and simple handicrafts, and varying levels of experience, from beginners to those who have been running a business for several years. This population was selected due to their presence within an organised and active community, thereby possessing strategic potential as agents of change in strengthening a social capital-based economy.

## **RESULTS AND DISCUSSION**

The community service activities were carried out in a structured manner through several stages: the opening ceremony, entrepreneurship training, and basic mentoring for participants. At the outset of the activities, an opening ceremony was held, followed by a presentation of the programme's objectives and an explanation of the training's benefits for participants. This stage aimed to build participants'

understanding and readiness prior to undertaking the training. Thereafter, the activities continued with entrepreneurship training covering several key topics, including strengthening an entrepreneurial mindset, business idea development, product innovation, PIRT licence processing, halal certification, and simple marketing strategies. The entire series of activities was carried out systematically and tailored to the characteristics of the participants, the majority of whom were micro-entrepreneurs requiring a training approach that was simple yet practical.

**Table 1.** Key Performance Indicators

Indicator	Pretest	Post Test	Difference	Percentage %	Category
<b>Mindset</b>	2.76	4.32	1.56	57	Height
<b>Skills</b>	2.68	3.72	1.04	39	Height
<b>Business Ideas</b>	2.52	3.64	1.12	44	High
<b>Innovation</b>	2.72	4.32	1.6	59	High
<b>PIRT</b>	2	3.32	1.32	66	High
<b>Halal</b>	2	3.32	1.32	66	High
<b>Marketing</b>	2.72	4.32	1.6	59	High

Source: Author's data analysis 2026

The data demonstrate the significant effectiveness of the capacity-building programme for MSME operators across all indicators, ranging from Mindset to Marketing. All indicators achieved a high category in the post-test assessment, reflecting substantial improvements in participants' knowledge, skills, and entrepreneurial readiness. The PIRT and Halal indicators recorded the highest percentage increase (66%), indicating a remarkable enhancement in understanding of business legality and certification requirements despite their relatively low

initial baseline scores. Furthermore, the highest post-test scores were observed in the Mindset, Innovation, and Marketing dimensions (4.32), suggesting that participants developed stronger entrepreneurial attitudes, greater innovation capabilities, and improved marketing competencies to support business growth.

Throughout the programme, participants demonstrated a high level of enthusiasm and actively engaged in all training sessions. This was reflected in their active participation in discussions, willingness to share business experiences, and involvement in the simulation activities provided. Furthermore, the Aisyiyah cadres from the Sukodono branch in Sidoarjo played a notably active role in supporting the programme's implementation, both in coordinating participants and in encouraging them to take the training seriously. The active involvement of participants and Aisyiyah cadres demonstrates that the community service activity was not merely a formal exercise but also created a participatory learning environment that effectively supported the achievement of the training objectives.

One of the main outcomes of this community service activity is the improvement in participants' entrepreneurial mindset following the training (Mursita et al., 2024; Zulaika et al., 2025). Prior to the training, the majority of participants still viewed business as a supplementary activity undertaken solely to help meet family needs. Business was not yet seen as an economic activity that could be developed in a planned and sustainable manner. However, after attending the training, participants began to understand that the businesses they ran had the

potential to be developed more seriously if managed properly. Participants also began to realise the importance of having business objectives, simple planning, and a long-term desire to develop their businesses. This shift in mindset demonstrates that the training not only provided knowledge but also fostered a change in participants' entrepreneurial mindset.

In addition to a shift in how they view their businesses, participants also began to demonstrate the courage to think more creatively and innovatively in developing the businesses they run. Participants began to understand that business success is not determined solely by the products sold, but also by the entrepreneur's ability to identify market opportunities, innovate products, and develop appropriate marketing strategies. Some participants have begun proposing ideas to develop product variations, improve packaging, and reach a wider consumer base. This demonstrates that the training not only enhances participants' theoretical understanding but also fosters changes in their attitudes and self-confidence as they develop their businesses more sustainably.

An improvement in the entrepreneurial mindset is already emerging; this community service initiative also demonstrates improved business skills among participants following the entrepreneurship training. Before the training took place, the majority of participants were still running their businesses in a rudimentary manner, without paying attention to product differentiation and added value that could enhance competitiveness. However, after attending the training, participants began to understand the importance of distinguishing their products from similar

products, whether through product variation, the quality of materials used, or the way the products are presented to consumers. Furthermore, participants began to understand the importance of product packaging in enhancing consumer appeal, particularly for homemade food products that had previously been packaged in a very basic manner. This improved understanding indicates that the training provided not only focused on theoretical aspects of entrepreneurship but also effectively enhanced participants' practical skills in developing their businesses.



Figure 3. Fruit juice packaging before and after the training.

In addition to product differentiation through attractive packaging, the acquisition of PIRT licences and halal certification, and improvements in participants' business skills, there is also a growing understanding among participants of simple marketing strategies applicable to micro-scale businesses. Some participants began to understand the importance of PIRT licences, which serve as a guarantee of product safety and legality in the eyes of consumers; the importance of halal certification as legal and moral proof that the product meets Islamic sharia standards, from raw materials to the production process; identifying target consumers; determining appropriate promotional methods; and utilising social media as an easy and cost-effective marketing tool. Indeed, some participants began promoting

their products independently on social media following the training.

This indicates that the training not only enhanced participants' theoretical knowledge but also encouraged them to apply the acquired skills directly to their business activities (Mursita et al., 2024; Zulaika et al., 2025). Consequently, the improvement in participants' business skills indicates that the community service activities have a tangible impact on the development of women-led SMEs within the community.

One key finding in this community service initiative is the strengthening of community social networks (social capital) among participants following the entrepreneurship training. The training not only enhances individual capabilities but also strengthens social bonds among community members (M. Masrukhan, 2025). Throughout the programme, participants not only received training materials but also actively engaged in discussions and shared business experiences. Through this process, participants began to learn about the businesses run by other members, understand the challenges faced by fellow business owners, and started to build more intensive communication. This situation demonstrates that community-based training has a broader impact compared to training that focuses solely on individuals, as it fosters social interactions that support collective business development.

Furthermore, the strengthening of social networks is evident in the emergence of simple collaborations among participants following the training. Some participants began promoting each other's products, sharing information on raw materials, and offering mutual encouragement to develop

their businesses. From a Social Capital perspective, this indicates that the community has significant potential to support SME sustainability, particularly through trust, social networks, and cooperation among members (Widia & Octafia, 2023). Consequently, the results of this community service initiative demonstrate that community-based entrepreneurship training not only enhances individual capacity but also strengthens the community's social capital, a crucial factor in the sustainability of women-led SMEs.

Based on the results of the community service activities, a community-based SME-strengthening model can be formulated, emphasising that the development of micro-enterprises cannot be achieved solely through individual-focused training. This model demonstrates that the success of SME strengthening is significantly influenced by community involvement, which provides a supportive social environment for business development (AlGhifary et al., 2025; Mukhsinuddin & Efendi, 2025; Winda Jubaidah et al., 2025). In this model, entrepreneurship training serves as the initial stage to enhance participants' entrepreneurial mindset and business skills; however, the sustainability of its impact largely depends on the presence of a strong social network within the community. Therefore, the SME empowerment model developed in this initiative integrates entrepreneurship training with the utilisation of social networks, mutual trust among members, and simple forms of collaboration that emerge within the community.

This model also demonstrates that women's communities, such as Aisyiyah, play a strategic role in strengthening

community-based SMEs. Cadres who have undergone training not only act as participants but also serve as agents of economic empowerment, encouraging other community members to develop businesses collectively. With a strong social network in place, the processes of sharing business information, promoting products, and providing mutual social support among members can occur sustainably. Therefore, the community-based SME strengthening model developed in this community service activity not only provides practical contributions through applicable training programmes but also makes an academic contribution to research on Community Development and Entrepreneurship, particularly in the context of community-based women's SME empowerment.



Figure 4. Community-Based SME Strengthening Model

Figure 4 illustrates the strategic flow within the Community-Based SME Strengthening Model, structured hierarchically to achieve business sustainability. This process begins with the utilisation of Community Social Capital as the primary foundation, followed by Entrepreneurship Mindset Training to instil a strong entrepreneurial spirit among business operators. The next stage focuses on Business Skill Development to equip them with robust technical and operational

capabilities, culminating in Collective Empowerment within the community. Here, individuals within the community develop not only personally but also collectively through strengthening group capacity, business cooperation, and mutual support. By integrating all these stages, this model aims to create Sustainable SMEs that not only survive but also develop independently and competitively in the long term.

## CONCLUSION

Based on the results of the community service activities conducted, it can be concluded that community-based entrepreneurship training significantly enhances participants' entrepreneurial capacity across cognitive, affective, and practical skills. This training not only enhances participants' understanding of entrepreneurial concepts but also fosters a more positive entrepreneurial mindset, particularly regarding the courage to develop a business, the ability to identify market opportunities, and a focus on business sustainability. Furthermore, the training has been shown to improve technical business skills, such as product innovation and differentiation, packaging, and an understanding of simple, practical marketing strategies applicable to micro-enterprises. Furthermore, the community-based approach used in the Aisyiyah cadre training demonstrates a comparative advantage over individual approaches, as it not only enhances individual capacity but also strengthens social capital through networks, social support, collective motivation, and the exchange of experiences among members. Thus, strengthening MSMEs through a community-based approach can be viewed as a more effective and sustainable strategy

for supporting the development of micro-enterprises, particularly for female MSME entrepreneurs, who benefit significantly from social support in their business development.

This article makes an academic contribution to the development of a community-based women's entrepreneurship training model as an alternative approach within community service programmes, offering a perspective distinct from most previous studies, which tend to focus on short-term technical training and are individual-oriented. The model developed not only emphasises improving participants' individual skills but also systematically harnesses the strength of the community as the primary determinant of the programme's success, thereby enriching the conceptual contribution to entrepreneurship studies, particularly in the context of women-centred community-based entrepreneurship training. Furthermore, this article also contributes to the development of a new approach to strengthening SMEs through structured social communities by integrating entrepreneurship training, strengthening social networks, building trust among members, and fostering collaboration within the community, which simultaneously broadens the academic relevance not only in the field of entrepreneurship but also within the realms of Community Development and Social Capital Theory. Thus, this article not only provides a practical contribution in the form of a training model applicable to various women's communities but also offers a theoretical contribution toward developing a more comprehensive and sustainable community-based SME empowerment model.

This article has important practical implications for universities, community empowerment institutions, and social organisations in designing community service programmes in the field of SME strengthening, emphasising that community-based entrepreneurship training models are more effective when designed based on participants' real needs and implemented through communities with clear organisational structures, thereby serving as an alternative to individual training approaches that tend to be short-term. This approach enables the creation of a broader and more sustainable impact because, in addition to enhancing knowledge and skills, participants also receive social support from their community; moreover, this model is adaptive and can be applied to various women's communities, social organisations, and SME groups across different regional contexts, both urban and rural, thus serving as a reference for developing participatory, contextual, and sustainable entrepreneurship training programmes for diverse community groups.

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**FOOD DIVERSIFICATION TO IMPROVE THE  
NUTRITIONAL STATUS OF CHILDREN AGED 6-24  
MONTHS THROUGH COLLABORATION BETWEEN  
HEALTH WORKERS AND THE COMMUNITY IN  
SUKAMAJU VILLAGE, TAMBELANG DISTRICT**

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**ABSTRACT**

Nutrition problems in children aged 6–24 months remain a public health challenge, especially during the period of complementary feeding. Lack of food variety, limited knowledge among mothers, and the suboptimal role of health workers are risk factors for nutrition problems. This community service activity aims to improve children's nutritional status through a food diversification program based on collaboration between health workers and the community in Sukamaju Village, Tambelang District. The methods used in this activity included identifying nutritional problems, providing education on complementary feeding based on local foods, training on menu diversification, health worker assistance, and evaluating the nutritional status of children aged 6–24 months. A total of 26 mothers and health workers were involved in this activity, which lasted for one day. The evaluation was conducted through weight measurements, knowledge assessments, and observations of complementary feeding practices. The results of the activity showed proportion of mothers with good knowledge increased from 23,1% to 61,5%, while the proportion with poor knowledge decreased dramatically from 38,5% to 7,7%. This collaborative program effectively raised community awareness about the use of local foods as a source of nutrition for children. It was concluded that collaboration between cadres and the community through a participatory approach can improve the quality of complementary feeding.

Keywords: Complementary Feeding, Food Diversification, Health Workers, Nutritional Status.

## INTRODUCTION

Nutrition problems in children aged 6–24 months remain a major challenge in public health, especially during the period of complementary feeding (Mufida, Widyaningsih, and Maligan 2020). Naccuracies in the variety, quality, and frequency of complementary feeding can lead to suboptimal nutrient intake, which in turn affects child growth (Huddina 2024). Many mothers do not understand the principles of food diversification according to the age and developmental needs of children. Monotonous feeding practices, dominated by carbohydrates and low in animal protein, are still commonly found at the community level. In addition, the role of health cadres in nutrition education has not been maximized in a systematic and sustainable manner. This condition has the potential to increase the risk of malnutrition and growth and development disorders in children (Muflih et al. 2025).

According to the WHO, in 2019 there were 144 million toddlers (21.3%) worldwide who were stunted, and this number rose to 148.1 million (22.3%) in 2022. The majority of cases occur in Asia, with the largest proportions in South Asia (58.7%) and Southeast Asia (14.9%) (Indonesian Ministry of Health, 2018; Mutingah & Rpkhaidah, 2021). UNICEF et al. (2021) reported that the prevalence of stunting in Indonesia reached 31.8%, making Indonesia the country with the second-highest rate in Southeast Asia after Timor-Leste (48.8%). According to the Indonesian Nutrition Status Survey (SSGI), the national prevalence of stunting in 2022 reached 21.6%, while the national target for

2024 is 14% (Indonesian Ministry of Health, 2024).

Data from SSGI show that in 2022, the stunting rate in West Java Province reached 20.2% (Yasinta et al., 2023). The stunting rate in Bekasi Regency was 1.7%, while the service area of the Cikarang Community Health Center recorded a rate of 3.6%. Children aged 6–24 months are the most vulnerable group because they are in the transition period from exclusive breastfeeding to family foods (Marfuah, Pertiwi, and Kusudaryati 2022). At the community level, the variety of foods consumed by children often fails to meet the principles of minimum dietary diversity (Muflih et al., 2025) (Suminar, 2024). Preliminary findings in Sukamaju Village indicate that there are still children whose weight-for-age (WFA) falls into the category at risk of malnutrition. Interviews with mothers also revealed a low diversity of complementary foods provided daily. This illustrates that nutrition issues are not only a national concern but also a reality at the village level.

Based on field observations, most mothers have provided complementary foods, but have not paid attention to the principles of balanced nutrition and age-appropriate texture. Feeding patterns tend to be influenced by family habits and limited information. Previous education has been sporadic and unstructured, so mothers' understanding has not been optimal. On the other hand, health cadres have great potential as agents of change, but have not received specific training on diversifying complementary foods based on local foods. Discussions with village officials indicate a need for programs that are not only

educational in nature, but also involve hands-on practice and ongoing assistance. These conditions form the basis for the need for community empowerment-based interventions.

To address these issues, community service activities were carried out using a community empowerment approach through participatory education and cadre assistance. This strategy was chosen because it actively involved mothers and cadres in the learning process and food diversification practices (Pomalango, Hutuba, and Purwanto 2025; Suminar 2024). The program focused on increasing knowledge, skills in creating menus based on local foods, and strengthening the capacity of cadres in nutrition counseling (Sayur and Kendal 2025; Weyai and Winarti 2025).

A demonstration on how to prepare complementary foods based on the “four-star menu” concept was held to improve mothers’ practical understanding. Ongoing guidance was provided so that public health workers could continue their learning independently within their respective communities. The demonstration followed the guidelines set forth in the Complementary Feeding Recipe Book published by the Ministry of Health of the Republic of Indonesia. Evaluation through pre- and post-tests and monitoring of nutritional status is conducted to assess the effectiveness of the intervention in improving complementary feeding practices and children's nutritional status.

## OBJECTIVES

Community service activities began with an assignment from the Rector of Medika Suherman University, as stated in assignment letter number.....

### *General Purpose*

The main objective is to increase the knowledge of cadres and the community about improving the nutritional status of children aged 6-24 months through food diversification.

### *Special Purpose*

We evaluated knowledge about food diversification for improving the nutritional status of children aged 6-24 months through collaboration between cadres and the community.

## PLAN OF ACTION

### *Strategy Plan*

1. Coordinate the community service team.
2. Organize the implementation and distribute team tasks.
3. Prepare health education materials and presenters.
4. Develop modules on improving nutritional status.
5. Coordinate with village cadres and communities.
6. Prepare the seminar location.

### *Implementation*

The detailed implementation of these activities is as follows:

1. Form an event committee consisting of a catering team, speakers, moderators, and a documentation team.
2. Conduct a pre-seminar test for youth seminar participants on the seminar topic to determine their level of knowledge before the seminar begins.
3. Open the seminar with an opening speech by the activity leader, delivered by the head of community services.
4. Present seminar material on the topic of

improving the nutritional status of children aged 6-24 months, including how to diversify food in Sukamaju Village through collaboration between cadres and the village community.

5. Conducting a post-seminar test for seminar participants on the topics presented to determine their level of knowledge after the seminar.
6. Conducting training with demonstrations on how to prepare foods that improve nutritional status.
7. Seminar participants, consisting of cadres and the village community, are able to implement and understand food diversification to improve the nutritional status of children.

#### Setting

That event was held in a village hall in Sukamaju, Tambelang District, Bekasi Regency.

#### Target

26 mothers and children attended the seminar.

## RESULTS AND DISCUSSION

**Tabel 1. Respondent Characteristics (Mother and child) (n = 26)**

Karakteristik	Frekuensi(n)	Persentase (%)
<b>Mothers age</b>		
< 20 years old	3	11,5
20–35 years old	18	69,2
> 35 years old	5	19,3
<b>Mothers Education level</b>		
Elementary School	6	23,1

Junior High School	9	34,6
High School	8	30,8
High Education Institution	3	11,5
<b>Childs age</b>		
6–12 months	12	46,2
13–24 months	14	53,8
<b>Childs gender</b>		
Male	14	53,8
Female	12	46,2

Most mothers were in the productive age range of 20–35 years (69.2%), with educational levels dominated by junior high school graduates (34.6%) and high school graduates (30.8%), indicating that the majority of respondents had a secondary education background. Based on the characteristics of the children, the proportion of those aged 13–24 months is slightly higher (53.8%) than those aged 6–12 months (46.2%), and the number of boys (53.8%) is slightly higher than girls (46.2%). This condition illustrates that the target of the activity is mothers of productive age with children in the critical period for complementary feeding.

**Tabel 2. Average Score of Mothers' Knowledge about Complementary Feeding Before and After Education**

Variabel	Mean	SD	Min–Max
Pre-test	6,85	2,31	2–11
Post-test	10,12	2,05	6–14
Increasing differences	3,27	1,42	–

The results of the analysis show that the average score of mothers' knowledge about complementary feeding increased from 6.85 (SD = 2.31) in the pre-test to 10.12 (SD = 2.05) in the post-test. The

range of scores also shifted upward, from 2–11 before education to 6–14 after the intervention. The average increase of 3.27 (SD = 1.42) indicates that the education provided was effective in improving mothers' understanding of complementary feeding.

**Tabel 3. Changes in Mothers' Knowledge Categories about Complementary Feeding**

Knowledge	Pre n (%)	Post n (%)
Good	6 (23,1%)	16 (61,5%)
Sufficient	10 (38,5%)	8 (30,8%)
Insufficient	10 (38,5%)	2 (7,7%)

The distribution of knowledge categories showed significant changes after the educational intervention. The proportion of mothers with good knowledge increased from 23.1% to 61.5%, while the proportion with poor knowledge decreased dramatically from 38.5% to 7.7%. These results indicate that the complementary feeding diversification education program was effective in shifting mothers' knowledge levels from low and adequate categories to better categories.

**Tabel 4. Average Score for MP-ASI Diversification Practices**

Variable	Mean	SD
Before intervention	7,92	0,56
After intervention	8,65	0,48
Improvement	0,73	0,22

The average score for MP-ASI diversification practices increased from 7.92 (SD = 0.56) before the intervention to 8.65 (SD = 0.48) after the intervention. The difference of 0.73 (SD = 0.22) indicates a positive change in MP-ASI feeding practices by mothers. These findings indicate that the education and guidance

provided were able to encourage improvements in mothers' behavior in applying food variety to their children.

**Tabel 5. Changes in Children's Nutritional Status (BB/U)**

Nutritional status	Before n (%)	After n (%)
Good nutrition	15 (57,7%)	19 (73,1%)
Poor nutrition	9 (34,6%)	6 (23,1%)
Malnutrition	2 (7,7%)	1 (3,8%)

There was an improvement in children's nutritional status after the intervention, as indicated by an increase in the proportion of children in the good nutrition category from 57.7% to 73.1%. At the same time, the percentage of children with poor nutrition decreased from 34.6% to 23.1%, and malnutrition also decreased from 7.7% to 3.8%. These results indicate that education and the practice of diversifying complementary foods contributed positively to improving children's nutritional status based on the weight-for-age indicator.

**Tabel 6. Paired t-Test for Knowledge Improvement Among Mothers**

Variable	Mean	S D	t hitung	Sig. (p)
Pre-Post Knowledge	3,27	1,42	8,214	0,000

The results of the paired t-test showed a significant increase in mothers' knowledge after receiving education, with an average score difference of 3.27 (SD = 1.42). The t-value was 8.214 with a significance level of  $p = 0.000$  ( $p < 0.05$ ), indicating that the difference between the

pre-test and post-test was statistically significant. These findings indicate that the educational intervention was effective in increasing mothers' knowledge about complementary feeding.

**Tabel 7. Testing the Effect of MP-ASI Diversification on Children's Nutritional Status**

Variable	R	R Square	Sig
Praktik Diversification Practices → Nutritional Status	0,412	0,170	0,032

The results of the analysis show a significant relationship between MP-ASI diversification practices and children's nutritional status, with a correlation value of 0.412, which is classified as a moderate relationship. The R Square value of 0.170 indicates that MP-ASI diversification practices contribute 17% to changes in children's nutritional status. The significance value of  $p = 0.032$  ( $p < 0.05$ ) confirms that this effect is statistically significant.

**Tabel 8. The Role of Cadres in Improving Mothers' Knowledge**

Variable	R	R Square	Sig
Cadre Education → Mother's Knowledge	0,389	0,152	0,049

The results of the analysis show a relationship between the education provided by cadres and an increase in mothers' knowledge, with a correlation

value of 0.389, which is classified as a moderate relationship. The R Square value of 0.152 shows that the role of cadres contributes 15.2% to the increase in mothers' knowledge about MP-ASI. The significance value of  $p = 0.049$  ( $p < 0.05$ ) indicates that the effect of cadre education on mothers' knowledge is statistically significant.

**Figure 1. Provision of Food Diversification Materials**



**Figure 2. Collaboration assistance between cadres and the community of Sukamaju village**



The results show that the majority of mothers are of productive age, between 20 and 35 years old (69.2%), with most having a junior high school or high school education, indicating that the target group is at an optimal stage to receive health information. The increase in mothers' knowledge about complementary feeding was clearly seen from the increase in the average score from 6.85 to 10.12, with an increase of 3.27. Categorically, good knowledge increased from 23.1% to 61.5%, while poor knowledge decreased

dramatically from 38.5% to 7.7%. MP-ASI diversification practices also improved, with the average score increasing from 7.92 to 8.65 after the intervention. This change was in line with improvements in children's nutritional status, where the proportion of good nutrition increased from 57.7% to 73.1%, and poor nutrition decreased from 7.7% to 3.8%. Statistical test results showed a significant increase in knowledge with a t-value of 8.214 and  $p=0.000$ . In addition, the practice of diversifying complementary foods was associated with the nutritional status of children ( $R=0.412$ ;  $p=0.032$ ) and the role of cadres contributed to increasing mothers' knowledge ( $R=0.389$ ;  $p=0.049$ ).

Theoretically, the age of mothers in their productive years affects their ability to receive and process health information, making it easier for behavioral changes to occur (Dąbek et al. 2024). The secondary education of most respondents also supports the process of understanding the educational material provided. The theory of health behavior change states that increasing knowledge is an important first step in forming better attitudes and practices (Ryan, 2009). Appropriate diversification of complementary foods can increase the intake of energy, protein, and micronutrients needed by children during their rapid growth period between 6 and 24 months of age. The four-star menu concept, which combines carbohydrates, animal protein, plant protein, and vegetables and fruits, is a recommended approach to achieving balanced nutrition (Sary 2024). The role of health cadres as community educators is also supported by community empowerment theory, which emphasizes the importance of local agents of change in improving health status (Rahma et al. 2025;

Wandira 2025; Zalianty 2025). The relationship between feeding practices and children's nutritional status is also explained in nutritional determinant theory, which places diet as a direct factor influencing growth.

The results of this activity show that collaboration between cadres and the community is an effective strategy for improving knowledge and practices related to complementary feeding. The significant increase in knowledge indicates that the participatory education approach is able to respond to mothers' contextual information needs. Changes in food diversification practices, although not particularly large in terms of numbers, indicate a developing process of behavioral adaptation. The improvement in children's nutritional status that is beginning to be seen is an indicator that community-based interventions have a real impact even when carried out in a relatively short period of time. The contribution of diversification practices to nutritional status of 17% shows that there are still other influencing factors, such as economic conditions, sanitation, and parenting patterns. The role of cadres, who contributed 15.2% to the increase in mothers' knowledge, reinforces the importance of strengthening the capacity of cadres as the spearhead of health education in villages. Therefore, sustainable assistance programs involving cadres, families, and the wider community need to be continuously developed so that behavioral changes can be sustained and have a long-term impact on children's nutritional status.

## CONCLUSION

This study shows that the complementary feeding diversification

program conducted through collaboration between cadres and the community has a positive impact on improving mothers' knowledge, complementary feeding practices, and the nutritional status of children aged 6–24 months. The education provided proved effective in significantly improving mothers' knowledge scores, as indicated by a significant difference between pre- and post-intervention scores. This increase in knowledge was followed by changes in mothers' behavior in MP-ASI diversification practices, as seen in the increase in average practice scores after assistance. Improvements in feeding practices also contributed to improved child nutritional status, marked by an increase in the proportion of children in the good nutrition category and a decrease in the number of children with poor and malnourished nutrition. The results of the analysis showed that MP-ASI diversification practices had a significant relationship with child nutritional status, although their contribution was not entirely dominant as it was still influenced by other factors. In addition, the role of cadres has been proven to have a real contribution in improving mothers' knowledge through structured and continuous education.

Overall, a collaborative approach between health workers and the community can be an effective strategy for supporting improvements in children's feeding practices and enhancing nutritional status in early life. Community members, health volunteers, and breastfeeding mothers can receive early training on how to properly prepare complementary foods at Posyandu clinics, starting from the first day of pregnancy, so that they are prepared when the baby is ready to begin eating complementary foods.

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