Journal of Indonesian Public Health Service
College of Health Science Husada Jombang

https://jurnal.stikeshusadajombang.ac.id/index.php/JIPHS/index

Journal of Indonesian Public Health Service (Volume 2, Issue 2, November 2025):
Doi: https://doi.org/10.60050/jiphs.v2i2.103

A COMMUNITY-BASED NUTRITION EDUCATION INTERVENTION WITH FUNCTIONAL FOOD DEMONSTRATION FOR CAR FREE DAY PARTICIPANTS IN JOMBANG REGENCY

Diah Pitaloka Putri [1], Alfi Rahmatillah Nur Fithriah [1*], Zerly Agrisdian [1], Puput Safitri [1], Nadia Farah Diba [1]

[1] Bachelor of Nutrition, College of Health Sciences of Husada Jombang

* Correspondence
Alfi Rahmatillah Nur Fithriah
Bachelor of Nutrition, College of Health Sciences of Husada Jombang
Nutrition Study Program, College of Health Science Husada Jombang, Indonesia, postal code: 61481 Email:
email: fifi.fithriah@gmail.com

Received: November 19, 2025; **Accepted:** December 15, 2025

ABSTRACT

The increasing consumption of low-nutrient snack foods in Indonesia underscores the need for community-based nutrition education interventions that promote healthier food choices using local resources. This community service program aimed to improve nutrition awareness and knowledge of healthy snack selection among Car Free Day participants in Jombang Regency through a media-based nutrition education approach combined with functional food demonstrations. The intervention was conducted during the National Nutrition Day event and targeted community members attending Car Free Day activities. Methods included individual nutrition counseling, the use of posters and leaflets, product demonstrations, and the distribution of bok choy sticks and rhizome-based powders made from ginger, turmeric, and Javanese ginger. Program evaluation employed descriptive methods, including observation of participant engagement, documentation of attendance, and collection of qualitative verbal feedback. The indicators assessed were participant participation, interaction during education sessions, expressed understanding of balanced nutrition messages, and acceptance of the functional food products. The activity demonstrated high participant engagement and positive acceptance of local functional foods. However, due to the absence of quantitative pre–post measurements, the findings should be interpreted as preliminary.

Keywords: Nutrition Education, Functional Foods, Local Food, Healthy Snacks, and Car Free Day.

E-ISSN
3048-1031
P-ISSN
3048-1287

INTRODUCTION

In Indonesia, the consumption of snacks and instant beverages continues to increase alongside changes in lifestyle, urbanization, and limited time for food preparation. National data indicate that snack consumption is no longer limited to children but has become common across all age groups, often replacing main meals or being consumed excessively between meals (Ministry of Health of the Republic of Indonesia, 2018). According to Mondelez (2021), more than 60% of Indonesians consume snacks or instant beverages during leisure time, with taste, convenience, and availability being the primary determinants of choice. However, many commercially available snack and instant beverage products are high in sugar, salt, and fat while being low in essential micronutrients, contributing to an increased risk of non-communicable diseases.

This situation is also reflected at the local level, including in Jombang Regency, where Car Free Day activities attract large numbers of community members from diverse age and socioeconomic groups. Observations from local health workers and previous community outreach activities indicate that public awareness of balanced nutrition and healthy snack selection remains limited. The prevalence of overweight, obesity, and hypertension in East Java, including Jombang, continues to increase, as reported in the Indonesian Basic Health Research (Riskesdas) survey (Ministry of Health of the Republic of Indonesia, 2018). These conditions highlight the need for preventive, community-based nutrition education interventions that are practical, culturally acceptable, and based on locally available food resources.

Snack products such as sticks are widely favored due to their crispy texture, affordability, and ease of consumption. Conventional stick products are typically made from wheat flour and fried at high temperatures, resulting in energy-dense foods with limited micronutrient content (Silaban & Nanlohy, 2022). The incorporation of pakcoy (Brassica rapa subsp. chinensis) into stick products represents a food-based strategy to improve nutritional quality. Pakcoy is a locally available vegetable that is rich in vitamins A, C, and E, iron, magnesium, and antioxidant compounds, which contribute to immune function and protection against oxidative stress (Novianto & Brimasri, 2018).

In addition to solid snacks, instant powdered beverages are commonly consumed by the community due to their convenience and long shelf life. Rhizome-based powders made from ginger, turmeric, and temulawak are traditional Indonesian products with well-documented functional properties. Scientific studies have shown that these rhizomes possess anti-inflammatory, antioxidant, and immunomodulatory effects and may support metabolic health and digestive function (Pramudyo, 2018; World Health Organization, 2019). Utilizing rhizomes in powdered beverage form aligns with local dietary practices while offering a healthier alternative to sugar-sweetened instant drinks.

From a theoretical perspective, community-based nutrition education emphasizes participatory approaches, the use of locally available foods, and practical demonstrations to facilitate behavior change (Contento, 2016). The integration of nutrition education with direct food product introduction has been shown to

enhance knowledge, increase acceptability, and promote intention to adopt healthier eating practices (FAO, 2020). Therefore, introducing nutrient-dense snacks and functional beverages during a public community event provides an effective platform to enhance nutrition awareness.

College of Health Science of Husada Jombang, through the implementation of the Tri Dharma of Higher Education—education, research, and community service—actively engages in addressing local public health challenges. In response to the need for improved nutrition awareness in Jombang Regency, the Bachelor of Nutrition Program implemented a community service activity entitled "A Community-Based Nutrition Education Intervention with Functional Food Demonstration for Car Free Day Participants in Jombang Regency." This program aimed to address the identified gap in community knowledge regarding healthy snack choices by combining nutrition education with practical exposure to locally sourced, nutritious food alternatives.

OBJECTIVES

General Purpose

Improving community knowledge regarding the selection of nutritious snacks by providing pakcoy sticks and rhizome powders (ginger, curcuma, and turmeric).

Special Purpose

Introducing a nutritious snack product by providing pakcoy sticks and rhizome powders (ginger, curcuma, and turmeric). Collaborating with PERSAGI Jombang.

PLAN OF ACTION

Strategy Plan

Steps for Implementing a Nutrition Education and Health Screening Program for Car-Free Day Participants in Commemoration of National Nutrition Day.

1. Preparation
   - Target identification: Determine the number of Car Free Day participants who will be the target for health screening and nutrition education during the National Nutrition Day event.
   - Development of educational materials:
     Prepare materials related to:
     - The importance of balanced nutrition
     - The benefits of consuming nutritious local foods
     - The role of rhizomes (such as ginger, turmeric, and curcuma) in improving health
     - Disease prevention through healthy eating patterns
   - Preparation of media: Create leaflets, booklets, nutrition education posters, and visual materials to facilitate participants' understanding.
   - Preparation of rhizome-based products: Prepare rhizome formulations in the form of powder, beverages, or ready-to-drink samples to be distributed to participants.
   - Coordination with stakeholders: Coordinate with the Car Free Day committee, the Health Office, health cadres, and nutrition workers to ensure smooth implementation of the activity.

2. Opening of the Activity
   - Opening remarks: Invite Car Free Day participants to gather at the

education and screening point, while providing a brief explanation of the purpose of the activity in commemoration of National Nutrition Day.

- Registration and flow arrangement: Organize the activity flow starting from health screening, nutrition education, and distribution of rhizome-based sample products.

3. Health Screening

- Conduct basic health checks for Car Free Day participants, including:
  - Blood pressure measurement;
  - Body mass index (BMI) assessment or simple anthropometric measurement;
  - Simple fitness assessment as needed.
- Provide the examination results directly to the participants.

4. Nutrition Education Session

- Brief counseling: Provide education on balanced nutrition, choosing healthy snacks, and the benefits of nutritious local foods.
- Education on the benefits of rhizomes: Explain the benefits of rhizomes (ginger, turmeric, curcuma, kencur, etc.) as health beverages that help boost the immune system.
- Short demonstration: Show how to prepare a simple rhizome-based drink that participants can easily make at home.
- Distribution of educational materials: Provide leaflets or booklets so participants can review the information again at home.

5. Distribution of Rhizome-Based Preparation

- Provide samples of rhizome-based preparations to participants as a form of promoting healthy, locally sourced foods.
- Explain the method of consumption, benefits, and recommended frequency of use based on health standards.

6. Distribution of Rhizome-Based Preparations

- Provide samples of rhizome formulations to participants as a form of promoting healthy foods made from local ingredients.
- Explain the method of consumption, benefits, and recommended frequency of use according to health standards.

7. Evaluation of the Activity

- Conduct observations on participant engagement and responses to the nutrition education and distribution of rhizome-based products.
- Collect brief feedback from participants regarding the usefulness of the activity.

8. Closing

- Deliver a thank-you message to participants, health cadres, and the Car Free Day committee.
- Encourage participants to continue practicing a healthy lifestyle and maintaining a balanced, nutritious diet.

Implementation

The implementation of the community service activity in commemoration of

National Nutrition Day was carried out through the following stages:

1. Coordination and Licensing

The community service team coordinated with:

- The Car Free Day committee at the district/city level
- The Health Office
- The local Community Health Center (Puskesmas)
- Health cadres and nutrition volunteers

This coordination aimed to determine the activity booth location, participant flow, and the necessary facilities such as examination tables, health equipment, and the education area.

2. Preparation of Tools and Materials

The team prepared the necessary equipment, including:

- Blood pressure measurement devices
- Weight scale and height measuring tool
- Health screening record forms
- Nutrition education leaflets/ booklets
- Samples of rhizome preparations (ginger, turmeric, curcuma, etc.)
- Drinking water and sample cups
- Banners or educational posters for National Nutrition Day

3. Implementation of Health Screening

On the day of the Car Free Day event, the team conducted health screenings for willing participants following these steps:

1. Brief registration, where participants recorded their name and age.
2. Blood pressure measurement conducted by health professionals.
3. BMI (anthropometric) measurement to determine nutritional status.
4. Direct delivery of screening results, including a brief explanation of the participant's health status.

This screening aimed to increase public awareness of the importance of early detection of risk factors for non-communicable diseases, particularly hypertension and obesity.

4. Implementation of Nutrition Education

After the health screening, participants were directed to the education area to receive:

- Counseling on the importance of balanced nutrition, healthy food choices, and reducing sugar, salt, and fat intake.
- Explanations of the benefits of rhizomes such as ginger, turmeric, and curcuma in maintaining immunity and as daily health beverages.
- Brief education on local foods as nutritious and economical food alternatives.

The methods used included interactive lectures, posters, and leaflets distributed to participants.

5. Distribution of Rhizome-Based Samples

Participants who had completed the health screening and education received samples of rhizome-based health products in the form of:

- Instant rhizome powder
- Ready-to-drink rhizome beverages
- Ready-to-brew rhizome ingredient packages

During sample distribution, the team explained:

- The benefits of the preparation

- Brewing or preparation methods
- Recommended consumption timing

The purpose of providing these samples was to introduce healthy beverage alternatives made from local food ingredients that are easy to prepare and offer multiple health benefits.

6. Brief Nutrition Discussion and Consultation

Participants were given the opportunity to:

- Consult about dietary patterns
- Ask questions about maintaining family health
- Discuss home-based rhizome processing

These consultations were conducted individually to provide solutions tailored to each participant's condition.

7. Documentation and Data Recording

The team carried out:

- Photographic documentation of the activities
- Recording the number of participants who underwent health screening
- Recording the number of participants who received nutrition education
- Recapitulation of rhizome sample distribution
- Brief analysis of community participation

This documentation served as the basis for compiling the activity report.

8. Evaluation and Closing

After the activity concluded, an internal evaluation was conducted to assess:

- The smoothness of the activity implementation
- Participant enthusiasm
- Areas for improvement for similar activities in the future

The event was closed with expressions of gratitude to all participants, the Car Free Day committee, and the involved health workers.

Setting

The target of the nutrition education program was all Car Free Day participants in Jombang Regency who were willing to take part in the National Nutrition Day event.

Target

The target of the nutrition education program was all Car Free Day participants in Jombang Regency who were willing to take part in the National Nutrition Day event.

RESULTS AND DISCUSSION

1. Implementation of Activities and Initial Acceptance

This community service activity focused on nutrition education, utilizing posters and leaflets, complemented by the provision of innovative products, namely bok choy sticks and rhizome powder. The primary goal of this intervention was to enhance public understanding and awareness regarding the importance of healthy eating patterns based on local food sources (Pakpahan et al., 2021). The approach was holistic, integrating direct education, interactive discussions, observation, and experiential learning (product tasting experience) as a relevant teaching method for daily life.

This method aligns with research demonstrating the effectiveness of media-based education and training. For instance, a study by Rusilanti & Riska (2021) found

that training on healthy food selection to prevent stunting significantly improved the knowledge of adolescent girls. Further research supports this, indicating that education involving audio-visual media, such as video screenings and visual sharing, impacts awareness of food selection. Educational background also influences nutritional knowledge, particularly concerning the quality of daily dietary intake. Furthermore, environmental factors that affect food choice awareness include the roles of custom tradition, family influence, peer group dynamics, and an individual's moods (Syawitri & Sefrina, 2022).

Throughout the sessions, participants exhibited active and enthusiastic responses, reflected in their numerous questions and comments, which signaled a high interest in the material. The dialogical educational approach, tailored to everyday needs, proved effective. Participants generally agreed that the explanations provided were "easy to understand" and "more applicable" compared to conventional nutrition counseling. Comments such as: "*Usually, when listening to nutrition material, it feels heavy, but this is easier to digest because it involves direct practice*," and "*I feel I understand nutritious food better after it was explained step by step*," confirm that experience-based education holds significant potential for fostering deeper understanding, especially for previously perceived abstract topics.

2. Acceptance of Innovative Products and Public Perception

Recognizing the necessity of promoting healthier food choices, this community service project engaged the public in the Jombang area to introduce and distribute functional food products, specifically bok choy sticks and rhizome powder (derived from ginger, turmeric, and Javanese ginger), as viable examples of wholesome and nutritious snack options.

These products demonstrated a positive initial acceptance from the participants. Enthusiasm was evident during the tasting session, with most participants rating the products as "*light, not nauseating, and easily accepted by children.*" Emerging comments, such as "*I just learned that bok choy can be made into a snack*," and "*I thought the rhizome flavor was strong, but it tastes good after being made into a drink*," indicate a positive shift in the perception of utilizing local foods. Furthermore, participants considered the products safer compared to high-oil and high-sodium fried snacks, which is consistent with efforts to raise awareness regarding factors influencing food choices (Yugharyanti et al., 2024).

The acceptance of these products is crucial, as it aligns with literature emphasizing that food selection is influenced by motivation and support from the surrounding environment (Ayu et al., 2022). Contributing factors include the role of family, socioeconomic status, as well as the awareness, motivation, and knowledge of the younger generation (Indarwati & Sefrina, 2023). Moreover, the rhizomes utilized, such as Javanese ginger, possess strong pharmacological properties as an antioxidant (Kustina et al., 2020; Suprihatin et al., 2020), making the positive reception of these products a promising initial step in promoting the utilization of functional foods within the community.

Picture 1. Documentation of the distribution of bok choy sticks and rhizome powder products in the Jombang area

3. Analysis of Methodological Limitations and Initial Impact

Qualitative analysis suggests that this intervention successfully increased participant engagement and sparked interest in healthy eating. Direct interaction during the consultation sessions also helped facilitators identify common misconceptions, such as the belief that healthy snacks must be expensive. However, claims regarding increased knowledge or changes in public behavior cannot be robustly substantiated because the activity lacked systematic evaluation instruments, such as pre-post measurements or structured questionnaires. The feedback received, although positive, was spontaneous and subjective. Therefore, these findings must be interpreted as an initial overview, rather than evidence of measurable impact.

4. Implementation Challenges and Contextual Factors

The implementation of the activity faced several challenges, both logistical and socio-cultural. Logistical hurdles included the uncoordinated arrival of participants, which reduced the effectiveness of material delivery, and time constraints that limited the depth of individual consultation sessions. Socio-culturally, participants' initial reluctance to taste the products due to unfamiliarity with rhizome ingredients and varying levels of comprehension affected the pace at which the material was absorbed. Cultural and economic factors also played a role; the community's ingrained preference for savory/oily snacks, coupled with the perception that certain local ingredients might be more expensive than conventional snacks, acted as barriers. These challenges demonstrate that the success of the intervention is highly influenced by cultural context, food availability, and deeply rooted consumption habits.

CONCLUSION

Overall, the community service program that integrated dialogic, media-based nutrition education (posters and leaflets) with the distribution of innovative functional food products (bok choy sticks and rhizome powder) demonstrated effectiveness in enhancing participant engagement and in shifting initial community perceptions in Jombang regarding local foods as safe, healthy snack options acceptable to children. This experiential learning approach contributed to increased awareness and motivation toward healthier food choices. However, due to limitations in the availability of systematic evaluation instruments, particularly the absence of pre–post intervention measurements, the findings should be interpreted as preliminary evidence of the intervention's potential. Future implementation should address cultural, logistical, and economic challenges to achieve measurable outcomes

and ensure the sustainability of dietary behavior change.

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