

## Stunting Prevention through Training and Assistance in Making Moringa Noodles in Bancaran Village, Bangkalan Regency

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### ABSTRACT

Stunting is a condition in the nutritional status of toddlers who have shorter heights compared to their age. One of the villages in Bangkalan that has a high rate of stunting is Bancaran Village. With the majority of Madurese people having Moringa plants near their homes and gardens, Moringa leaves are used as a source of nutrition at an economical price by being processed into Moringa noodles in an effort to prevent and accelerate the reduction in stunting. The purpose of this activity is a form of community service to prevent and reduce stunting rates in Bancaran Village. The methods used are discussion, practice of making moringa noodles, and training assistance. The result is that community service activities, including discussion, practice, and assistance in making Moringa noodles as an effort to prevent and reduce stunting rates for 2 weeks in Bancaran Village, have gone well and received a positive response.

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## **INTRODUCTION**

Indonesia is realizing its sustainable development goals, namely ending hunger, achieving food security and better nutrition and supporting sustainable agriculture. Adequacy of nutrition is one of the important factors in developing the quality of human resources, especially in toddlers. To end hunger and promote better nutrition, one of the problems that must be addressed is stunting which is expected to decrease by 2025. Stunting is still a major nutritional problem in Indonesia with a percentage of 21.6% based on the results of the Indonesian Nutrition Status Survey (SSGI) in 2022. The stunting rate is still higher than the target of the National Medium Term Development Plan (RPJMN), which is 19% in 2024[1]. In addition, Indonesia is still the country with the second highest prevalence of stunting in Southeast Asia (after Timor Leste) at 31.8% based on the 2020 Asian Development Bank Report.

Stunting is a condition of nutritional status in toddlers who have shorter height compared to their age. In other words, stunting refers to a condition of failure to thrive in toddlers caused by chronic malnutrition where this malnutrition can occur when the baby is in the womb and in the early stages of the baby being born. However, stunting tends to appear when children are 2 years old [2]. This period of 0-2 years is a sensitive period because the impact on toddlers is permanent, so it requires the fulfillment of balanced nutrition. Apart from nutritional factors, children who are stunted are also influenced by several other factors, especially the economic conditions of their parents and poor parenting styles. If not handled properly, the impact that can be caused in the short term is disruption of brain development, intelligence, physical growth disorders and metabolic disorders in the body. Meanwhile, the impact that can be caused in the long term is that it can reduce cognitive ability, learning achievement and reduce immunity [3]. As adults, it can reduce the opportunity to get education, work opportunities, and better income so that the cycle of stunting can occur again in their children.

According to Presidential Regulation of the Republic of Indonesia Number 72 of 2021 concerning Accelerating the Reduction of Stunting, the Indonesian government is supported by ministries/agencies, Provincial Governments, Regency/City Governments and Village Governments that have endeavored to increase the convergence of specific interventions and sensitive interventions by increasing behavior change communication and implementing community empowerment to accelerate the process of reducing stunting, especially in areas with high stunting rates. The government also conducts routine measurements and monitoring of the growth of children under five to identify areas with high stunting rates and uses this data to design and implement more targeted government programs such as conducting training and assisting rural communities.

Bangkalan is a district located on the north coast of Madura Island, East Java Province, Indonesia. In terms of the economic sector, the Bangkalan people's economy is supported by several main sectors, namely fisheries, industry and agriculture. One of the plants in the agricultural sector which is the typical food of the Madurese people and is always served in every house to

guests, especially up to the seven days of the month of Shawwal, is food from Moringa leaves. In fact, the majority of Madurese people have Moringa trees which have been planted since childhood near their homes and gardens or are easy to find [4]. In fact, Moringa leaves have the potential for quite high nutritional content where Moringa leaves contain 4 times the beta-carotene of carrots, 3 times the potassium, 25 times the iron of spinach, 7 times the vitamin C of oranges, 4 times the calcium of milk and 2 times the protein of yogurt so it is very suitable for consumption. used in adequate nutrition in stunting sufferers [5]. One of the villages in Bangkalan which has a high rate of stunting sufferers is Bancaran Village. Based on this, community empowerment by way of community service is carried out for the people of Bancaran Village with the aim of accelerating the reduction of stunting rates through discussion, practice and assistance in making Moringa noodles.

### IMPLEMENTATION AND METHODS

Community empowerment to accelerate the reduction of stunting in the Bangkalan area is carried out in Bancaran Village, Bangkalan District. The activity was carried out for 6 month and started from 11 March 2023 to 24 August 2023. The place for the discussion was in one of the residents' houses in Bancaran Village. This activity includes lecturers as resource persons, students as assistants and 25 people from the Bancaran Village community. The timeline for this activity is shown in Table 1.

Table 1. Activity Timeline

Timeline	Activity in detail
05 - 11 Juni 2023	Site survey, familiarization with the people of Bancaran Village (especially those who will take part in the training), identifying and mapping various problems and efforts to prevent stunting in Bancaran Village.
12 July 2023	Coordinate with Bancaran Village government
12 - 20 July 2023	Develop a plan for implementing activities related to increasing knowledge and changing attitudes of participants including education on stunting nutrition and training on making moringa noodles as an effort to reduce stunting rates
20-30 July 2023	Prepare educational media such as leaflets and banners related to stunting. Prepare tools and material for the practice of making moringa noodles.
1 - 5 August 2023	The implementation of stunting nutrition education activities includes: ✓ Resource persons presented the advantages and benefits of using Moringa leaves as a source of nutrition for preventing and reducing stunting

	<p>sufferers.</p> <ul style="list-style-type: none"> <li>✓ Assistant helps prepare equipment, needs and materials related to stunting education.</li> </ul>
6-20 August 2023	<p>Implementation of training on making moringa noodles as an effort to prevent and reduce stunting rates includes:</p> <ul style="list-style-type: none"> <li>✓ Practice where the resource person teaches how to make Moringa noodles using ingredients that are usually in the kitchen</li> <li>✓ Assistants and resource persons also provide assistance (assistance in the manufacturing process) if there are difficulties while demonstrating in front of the participating community.</li> <li>✓ Assistance in making moringa noodles for each participant</li> </ul>
21-25 August 2023	<p>Making packaging for Moringa noodles where resource persons teach how to package Moringa noodle products in accordance with regulations, attractive and how to market them to be able to increase family income.</p>
26 August 2023	<p>Discussions with all stakeholders and continued with the closing of activities, accompanied by saying goodbye to the local village government and parties related to stunting management and the people of Bancaran Village who participated in the training and assistance.</p>

The method used in community service with the theme "Stunting Prevention through Training and Assistance in Making Moringa Noodles in Bancaran Village, Bangkalan District" is discussion, practice of making Moringa noodles and training assistance which was attended by 25 people from the Bancaran Village community and the local government regarding stunting such as cadres or representatives of the health office. This activity was carried out in collaboration with the local health office to convey information to the people of Bangkalan, especially Bancaran Village and take action to prevent or reduce stunting rates in this area.

The equipment used to make moringa noodles are 3 medium basins/containers (for the process of mixing ingredients, press rollers (noodle printing machine), containers/tampah for drying process, stove, cups and pots for boiling. Then, the materials used for Making Moringa noodles is high protein wheat flour, salt, chicken eggs, oil and juice from Moringa leaves.

## RESULTS AND DISCUSSION

Before starting the community service program through activities themed "Prevention of Stunting through Training and Assistance in Making Moringa Noodles in Bancaran Village, Bangkalan District", the lecturer and his assistant first came to the location where Bancaran Village is located by introducing the purpose and purpose of arrival to the village government and people who will take part in this training. The people who choose are pregnant women, parents who have stunted toddlers and women who are of childbearing age in the village. After being well received, coordinating regarding the schedule of activities and determining this activity was carried out, namely in one of the houses of the Bancaran Village community. Then, lecturers and assistants began to prepare presentation materials and equipment needed during discussions and stunting nutrition education activities by informing them of Moringa leaves as a source of nutrition for preventing and reducing stunting sufferers. This activity was carried out in two sessions. Discussion sessions were carried out with resource persons and their assistants regarding the use of Moringa leaves to make Moringa noodles as an economical alternative source of nutrition accompanied by health cadres or representatives of the relevant village government. Then, it was followed by a question and answer session if there were people who did not understand so that the participants played an active role in the discussion. The practical session was carried out by making Moringa noodles directly by the people of Bancaran Village accompanied by resource persons and assistants.

In the agricultural cycle in the Bangkalan area, Moringa plants, especially Moringa leaves, are very easy to find in the yards of people's houses or in gardens because the majority of the people of Bangkalan, especially Bancaran Village, make Moringa leaves as a typical Madurese soup which is generally consumed and served on special days. Meanwhile, noodles are a popular food in Madura with a high enough intensity to be consumed daily. To implement a nutritious diet for the prevention and reduction of stunting, the practice of making moringa noodles is aimed at incorporating the nutritional benefits of moringa leaves into this frequently consumed food. In practice, the ingredients prepared for making Moringa noodles are high protein wheat flour, salt, chicken eggs and extract from Moringa leaves and the equipment used is a basin/medium container of 3 pieces (for the process of mixing ingredients, press roller (noodle printing machine) , containers/tamp for the drying process, stoves, cups and pots for boiling. If you don't have a noodle making machine, then you can use a knife by learning precision cutting skills. How to make Moringa noodles is done by mixing flour and salt in a container, adding eggs , kneading and adding Moringa leaf extract little by little. Knead the dough until it is smooth and integrated. Then, cut it into several pieces and grind it in a noodle making machine or using a knife with precision skills. After that, boil for 3 minutes and add a little oil so it doesn't stick. Then, the noodles from the juice of Moringa leaves are ready to be cooked according to taste. After the practice of making noodles is finished, the resource person teaches how to make attractive packaging using applications such as Canva or others. In addition, the

resource person also taught how to market it so that it can become a side income for the people of Bancaran Village. With the practice and packaging that has been done, the resource persons and assistants are ready to say goodbye to the local government and the people of Bancaran Village who have participated in the activity. Thus, this community service activity ran smoothly.

During the implementation of the stunting nutrition education activities, the people of Bancaran Village were not familiar with the use of Moringa leaf extract for making Moringa noodles, so they needed in-depth knowledge to better accept this new information. Then, the people of Bancaran Village were very enthusiastic about this training activity for making Moringa noodles because Moringa leaves which are economical and easy to find contain benefits as a high source of nutrition in an effort to prevent and reduce stunting rates. This is also supported by the image of improving nutrition, often using expensive ingredients. Some of the documentation related to the process of stunting nutrition education activities is shown in Figure 1.





Figure 1. Documentation of the Educational Activity Session for Making Moringa Noodles as an Effort to Prevent and Reduce Stunting Rates for the Bancaran Village Community  
(Source: Personal Document. 2023)

## CONCLUSIONS AND RECOMMENDATIONS

Community service activities include discussion, practice and assistance in making moringa noodles as an effort to prevent and reduce stunting rates for 2 weeks in Bancaran Village starting from the introduction stage, preparation of educational equipment, implementation of educational activities, implementation of practice of making moringa noodles, packaging and marketing as well the closure went well and received a positive response from 25 representatives of the Bancaran Village community and related local government. It is hoped that the relevant government will provide more routine education and training to support efforts to prevent and reduce stunting rates using more communicative methods.

Based on the results of the activities and discussions, it is hoped that this training in making Moringa noodles will be the forerunner to the formation of village MSMEs to sell and market Moringa noodles as an alternative food that is economical and beneficial in preventing and reducing stunting rates so that the people of Bancaran Village will have a side income. In addition, there is a follow-up program from the local village government in collaboration with local entrepreneurs to advance Bancaran Village.

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