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Research Article

Making Additional Food to Prevent Stunting from Sago Flour (Metroxylon sp), Sea Grapes (Caulerpa sp), and Mackerel (Rastrelliger sp.) in Hoat Sorbay District, Southeast Maluku Regency

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Abstract

This community service activity aims to empower mothers in Hoat Sorbay District, Southeast Maluku Regency, in preventing stunting in children through the production of additional food based on local food ingredients, namely sago flour (Metroxylon sp), sea grapes (Caulerpa sp.), and mackerel (Rastrelliger sp.). The methods used include interactive counseling and practical training in making additional food to prevent stunting with an educational and participatory approach. Participants are actively involved in direct practice in making nutritious additional food using easily obtained local ingredients. The main results of the activity showed a significant increase in the knowledge and skills of participating mothers about the importance of balanced nutrition and the use of local food as an effort to prevent stunting. Pre-test and post-test evaluations showed a decrease in the low knowledge category from 60% to 12%, and an increase in the high knowledge category from 20% to 40%. In addition, this activity encourages the use of economical local resources, strengthens social solidarity among mothers, and opens up opportunities for food diversification and small businesses based on local products. The positive impact of this activity is increasing public awareness of nutrition, independence in providing nutritious food, and contribution in reducing the risk of stunting in the target area. This activity is expected to be a model for developing a sustainable stunting prevention program and can be replicated in other areas with similar conditions.

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Keywords: Stunting, Additional Food, Sago Flour, Sea Grapes, Mackerel, Community Empowerment

INTRODUCTION

Stunting problem in Indonesia and especially in Hoat Sorbay District, Southeast Maluku Regency. Data from UNICEF (2024), WHO (2022), and the Indonesian Ministry of Health's Research and Development Agency (2024) show that the prevalence of stunting is still high in Indonesia and the world, with the figure in Indonesia reaching 21.5% in 2024, exceeding the government's target of 14%. In Southeast Maluku, the stunting rate is also quite worrying, reaching 21.6% in 2021, with several districts/cities in Maluku having much higher prevalence rates.

Stunting has serious long-term impacts on children's health, education, and economic productivity. The causes of stunting are multifactorial, including malnutrition, recurrent infections, poor sanitation, and inappropriate feeding practices. Deficiencies in protein, zinc, and other micronutrients, as well as a lack of dietary diversity, are direct causes of stunting. Research shows a link between low dietary diversity and the incidence of stunting in children.

The low level of knowledge of mothers about balanced nutrition and the use of local food to prevent stunting is also a significant problem. This limited knowledge results in the provision of food that is less diverse and does not meet children's nutritional needs. This is exacerbated by high poverty in Hoat Sorbay District, with 21.22% of the population being poor in 2024. This condition is indicated by the number of toddlers with poor and poor nutritional status in the district.

Field observations show low knowledge of mothers about the use of local food as complementary foods for breast milk (MP-ASI). Mothers tend to provide a single food menu and provide less animal protein to toddlers due to lack of knowledge about how to process and the importance of animal protein in children's menus.

The main problems faced by partners (mothers in Hoat Sorbay District) include minimal knowledge about the nutritional value of local food as complementary feeding, minimal knowledge and family support in using local food as an alternative to complementary feeding, minimal number of nutrition cadres, habits of using instant complementary feeding, minimal socialization of integrated health post cadres about providing complementary feeding according to calorie value, and lack of effective promotional media about complementary feeding that is appropriate for the child's age.

Therefore, this study aims to address these issues through counseling and training in making additional food to prevent stunting from easily accessible local ingredients, namely sago flour, sea grapes, and mackerel. This program is expected to improve the knowledge and skills of mothers in providing nutritious food for their children, as well as increasing public awareness of the importance of preventing stunting.

This program is planned to improve mothers' knowledge about stunting and nutrition, as well as their skills in processing additional food from local ingredients. Thus, it is expected to contribute to reducing stunting rates in Hoat Sorbay District and improving community welfare.

METHOD

The educational and participatory approach used in this community service activity focuses on direct counseling and training for mothers and health cadres in Hoat Sorbay District to empower them in making additional food to prevent stunting.
Counseling is done through interactive lectures with presentation media, posters, and leaflets. Group discussions are also conducted to explore obstacles and answer participant questions. Counseling materials include the importance of preventing stunting and the nutritional benefits of local ingredients (sago flour, sea grapes, and mackerel).

Practical training involves live demonstrations of supplementary food preparation by facilitators, followed by hands-on practice by participants in groups. Recipe modules and guides are provided to be studied and applied at home. Discussions and sharing of experiences are also an important part of the training.
Monitoring is carried out to monitor the consumption and acceptance of additional food by toddlers at risk of stunting, as well as to collect feedback from participants for program evaluation and improvement. Evaluation is carried out through observation, questionnaires, and interviews to measure improvements in knowledge, skills, and changes in additional food consumption patterns. The report on the results of the community service will include recommendations for the sustainability of the program.

The implementation stages include preparation (coordination, initial survey, preparation of materials, and logistics), socialization and counseling, practical training, and evaluation. The evaluation results show high enthusiasm of participants, easy understanding of the material, increased ability and knowledge in managing family nutrition, and savings in the cost of making additional food. Follow-up includes adaptation of training materials, advanced training, formation of discussion groups, use of more interactive methods, cooperation with related parties, periodic monitoring, and campaigns in the community.

RESULT AND DISCUSSION

Results of Community Service Activities

Hoat Sorbay District is one of the 11 districts in Southeast Maluku Regency located on the small Kei Island. Based on statistical data in Southeast Maluku in 2025 figures, this district has 13 villages with a population of 10,832 people. This district also has 3 kindergartens (TK) with 9 teachers and 144 students, 9 elementary schools (SD) with 107 teachers and 885 students, 3 junior high schools (SMP) with 63 teachers and 329 students, 1 (one) senior high school (SMA) with 17 teachers and 153 students, 1 (one) vocational school (SMK) with 12 teachers and 60 students.

Hoat Sorbay District has 1 (one) health center and 3 (three) assistant health centers, with health workers consisting of 2 medical personnel, 8 nursing personnel, 6 midwifery personnel, 1 pharmaceutical personnel, 1 public health personnel, 1 environmental health personnel, 1 nutrition personnel. The number of integrated health posts is 15. The nutritional status in this district is 1 (one) person with malnutrition, 23 people with undernutrition. Based on data in 2024, the number of babies born in Southeast Maluku Regency was 1,882 people, with 41 babies with low birth weight (BBLR), 10 babies with malnutrition status. During 2024 to 2025, no health education was ever carried out in this district. This sub-district has a population

of 3,891 Muslims, 3,668 Protestants, and 2,868 Catholics (Southeast Maluku in Figures 2025)

The majority of the population in Hoat Sorbay sub-district work as farmers, fishermen, service/hunters. In addition, the average education level of mothers of toddlers is elementary and junior high school graduates. Based on the results of interviews with mothers of toddlers in several villages in this sub-district, they are very enthusiastic and really hope for health education from both health workers and universities that socialize health products from local food to them.

Based on the results of observations conducted, the level of knowledge of mothers of toddlers about stunting is still low, especially the use of local food for stunting purposes is not yet well known by mothers of toddlers. Providing counseling materials aboutunderstanding stunting, causes of stunting, impacts of stunting and prevention of stunting, as well as the use of local food as a stunting prevention and the nutritional content of local food, were carried out in the hall (meeting hall) of the village protestant church (ohoi) wab watngil by the head of the service team and assisted by members and activity assistants. The delivery of the material was through lectures using powerpoint and continued with the practice of making products from local food ingredients whose basic ingredients had been provided by the service team. In this activity, many participants also asked questions both during the lecture session (material delivery) and during the practical activities. After each practice group (3 groups) made MP-ASI products, they were immediately accompanied by representatives of participants from the health center and assistants/cadres of the integrated health post to provide the food to several toddlers who came with their mothers. All mothers looked very participatory, especially in practice until the trial on their babies.

Discussion

This activity began with a prayer together according to each religion, then before the delivery of the material by the head of the service team, participants were asked to fill out a questionnaire or pre-test to measure how much or the level of knowledge of the participants of the activity. Furthermore, the team leader delivered the material in the form of a power point.

Opening Ceremony

Delivery of Material

Delivery of Material

Question and Answer Session

After the counseling, the team leader together with team members and assistants prepared all the basic ingredients for MP-ASI in the form ofSago Flour (Metroxylon sp), Sea Grapes (Caulerpa sp./sea grape) and Mackerel (Rastrelliger sp.)

Fish meal

Sago flour

Sea Grape Flour

After all the basic ingredients and all the containers are prepared, each participant is divided into 3 (three) practice groups, starting with each group determining 2 people to weigh the basic ingredients for MP-ASI according to the measurements that have been given according to the standards they have received.

Product Making Practice (Group 1)

Product Making Practice in Groups (2)

Product Making Practice in Groups (3)

Product Weighing Practice

After each group has done the weighing which is continued with direct practice to make MP-ASI from the ingredients, then the MP-ASI that is made is directly given to toddlers brought by their mothers, the provision of MP-ASI is directly given by health center personnel and integrated health post cadres who also participate as participants in this activity.

Practical Product Trial (1)

Practical Product Trial (2)

After all the practical activities of making MP-ASI were carried out, in order to obtain responses and comments from the participants regarding the products they practiced, the service team asked 3 (three) representatives of the participants to deliver the results directly in front of all participants with the service team.

Participant Representative Delivers Opinions about activities

Group Photo of All Participants with the PkM Team and Representative of UPPM Polikant

Before all events were closed, participants were asked to fill out a questionnaire (post-test) and continued with a group photo, as well as a closing event and eating together. The questionnaires for both the pre-test and post-test can be seen in the attachment. Based on the results of knowledge measurement of participating mothers both before and after the counseling was conducted using a questionnaire instrument (pre-test and post-test), the summary results are as shown in table 1 below.

Table 1. Level of Knowledge of Mothers participating in Community Service Activities

Level of Knowledge	Pre-test	Post-test
Low	15 (60%)	3 (12%)
Currently	5 (20%)	12 (48%)
Tall	5 (20%)	10 (40%)
Total	25 (100)	25 (100%)

In table 3 above, it can be seen that there was a very significant increase in the knowledge of the participating mothers, where there was an increase from the low 15 people or 60% to 3 (three) people or 12%, the medium 5 (five) people or 20% increased to 12 people or 48%, and in the high category from 5 (five) people or 20% there was an increase to 10 people or 40%. This is becauseproviding structured and relevant information where community service activities are designed toprovide systematic education on the causes, impacts, and prevention of stunting, the information provided is adjusted to the needs and understanding of mothers, so that it is easy to digest and practice. In addition,interactive counseling methods can involve discussions, questions and answers, demonstrations, and the use of visual media, and interactive approaches increase the involvement of mothers so that they understand the material better and remember the information more easily. On the other hand, counseling and direct practice methods not only provide information, but also empower mothers to take an active role in preventing stunting, and can motivate them to learn more deeply and apply knowledge in everyday life (Sari and Putri, 2024; WHO, 2023; Nugroho and Fitriani, 2023)

Babies aged 6-23 months should consume at least 4 of the 7 food groups or 5 of the 8 food groups. This indicates that the more food groups consumed in a day, the more diverse the baby will consume and can prevent various nutritional problems (Keno et al. 2021).

At around 6 months of age, the baby's nutritional needs begin to increase significantly. This is due to increasingly rapid physical growth, the baby begins to actively move (crawl, sit), the need for energy and micronutrients such as iron, zinc, and vitamins begins to exceed what can be met by breast milk alone. Therefore, WHO and UNICEF recommend providing MPASI (Complementary Foods for Breast Milk) starting at 6 months of age, while continuing to breastfeed until the age of 2 years or more. After 6 months,Breast milk remains important as a source of nutrition and antibodies. However, breast milk alone is not enough to meet the needs of iron and energy. Therefore, providing complementary foods is needed to meet the increasing nutritional needs. Adequate breast milk can still be maintained by breastfeeding frequently and correctly, but complementary foods must be given to complete nutritional needs. (WHO, 2023; UNICEF, 2024; American Academy of Pediatrics (AAP), 2023).

CONCLUSION

Counseling and training activities for making additional food to prevent stunting from sago flour, sea grapes, and mackerel for mothers in Hoat Sorbay

District, Southeast Maluku Regency have been successfully implemented and have provided positive benefits. There has been an increase in the knowledge and skills of mothers in providing nutritious food for their families. The enthusiasm and active participation of mothers show a strong desire to prevent stunting in children. The use of local food ingredients has the potential to increase food independence and create business opportunities. The evaluation showed a significant increase in the level of knowledge of mothers after participating in the activity. This activity also contributes to increasing competitiveness through food diversification, the application of science and technology in the community, and improving community values in the fields of health and education.

1. Periodic Monitoring and Evaluation:Conduct regular monitoring and evaluation of the implementation of mothers' knowledge and skills to measure the effectiveness of long-term programs and identify areas for improvement.
2. Advanced Training in Local Food Diversification:Conduct specific follow-up training on local food diversification, especially making healthy snacks for toddlers, based on participant suggestions.
3. Expansion of Training Coverage:Involve integrated health post and community health center cadres to expand the reach of the program and its sustainability at the community level.

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