



Training on making lemuru fish into healthy snacks to support stunting reduction

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ARTICLE INFO	ABSTRACT
<p>Article history Received: 2024-04-03 Revised: 2024-05-11 Accepted: 2024-05-23 Published: 2024-06-03</p> <p>Keywords Community Sardine Snacks Toddler</p>	<p>Indonesia, the country in Asia with the highest stunting rate (ranked fifth), has a program to accelerate reducing the number of cases with Banyuwangi Regency being one of the pilot projects for the Healthy Children's Movement to Prevent Stunting Toddlers and accelerating stunting prevention issued by the Regent of Banyuwangi in April 2022. On the other hand, Bangorejo District, which is close to the south coast in Banyuwangi, means that this area has a lot of marine products in the form of fish and has cheap prices. The problem is, the community, especially mothers, most of whom are housewives, do not yet have the skills to increase the use value of these marine products. This program aims to improve skills in extending the shelf life of products made from lemuru fish and increase the use value of these products. The methods used are counseling and direct practice through training. The target partners are 27 mothers/women in Padukuhan Kedungrejo, Sambirejo, and Pasembon, Bangorejo District, Banyuwangi Regency. Training activities were held on 23 and 31 August 2023. The results of this activity were that participants had knowledge of making processed fish food which increased by 29.6%, and skills in making processed fish food which increased by 33.3%. The conclusion is that people's knowledge and skills in making processed lemuru fish have increased. The target community is able to make dragon legs and nuggets from lemuru fish.</p>
<p>Kata Kunci Balita Cemilan Kelompok Sarden</p>	<p>Pelatihan menjadikan ikan lemuru menjadi jajanan sehat untuk mendukung penurunan stunting. Indonesia, negara di Asia dengan angka stunting terbanyak (rangking kelima), memiliki program percepatan penurunan jumlah kasus dengan Kabupaten Banyuwangi menjadi salah satu pilot project Gerakan Anak Sehat untuk Pencegahan Balita Stunting dan percepatan pencegahan stunting yang dikeluarkan oleh Bupati Banyuwangi pada April 2022. Di sisi lain, Kecamatan Bangorejo yang berdekatan dengan pantai selatan di Banyuwangi menjadikan daerah tersebut memiliki hasil laut berupa ikan yang banyak dan memiliki harga yang murah. Permasalahannya, masyarakat khususnya ibu-ibu yang sebagian besar sebagai ibu rumah tangga belum memiliki keterampilan untuk meningkatkan nilai guna hasil laut tersebut. Program ini bertujuan untuk meningkatkan ketrampilan dalam memperpanjang daya simpan dari produk yang diolah dari ikan lemuru serta meningkatkan nilai guna produk tersebut. Metode yang digunakan adalah penyuluhan dan praktik langsung melalui pelatihan. Mitra sasaran adalah ibu-ibu/kaum perempuan di Padukuhan Kedungrejo, Sambirejo, dan Pasembon, Kecamatan Bangorejo, Kabupaten Banyuwangi sebanyak 27 orang. Kegiatan pelatihan diselenggarakan pada 23 dan 31 Agustus 2023. Hasil kegiatan ini adalah peserta memiliki pengetahuan membuat olahan pangan ikan yang meningkat sebesar 29,6%, dan keterampilan membuat olahan pangan ikan yang meningkat sebesar 33,3%. Kesimpulannya adalah pengetahuan dan keterampilan masyarakat dalam membuat olahan ikan lemuru mengalami peningkatan. Masyarakat sasaran mampu membuat kaki naga dan nugget dari ikan lemuru.</p>

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INTRODUCTION

The global prevalence of stunting in toddlers is considerable. In 2016, 87 million stunted children lived in Asia, 59 million in Africa, and 6 million in Latin America and the Caribbean. Five subregions have child stunting rates that exceed 30%: West Africa (31.4%), Central Africa (32.5%), East Africa (36.7%), South Asia (34.1%), and Oceania (38.3%; excluding Australia and New Zealand). Both Asia and Oceania experienced slow and even zero growth in reducing child stunting.

On the other hand, Latin America and the Caribbean experienced a decline in stunting rates twice as fast as Africa between 2000 and 2016. However, the reduction in child stunting rates has not been equally distributed among all of the demographic groups. For example, from 1990 to 2013 in the Asia-Pacific, Latin America, and Caribbean regions, the reduction in child stunting was more significant in urban areas than in rural areas (Anonymous, 2018).

Indonesia, as a part of Asia with a relatively high stunting rate and ranked fifth in the highest number of cases (UNICEF, 2013), has an acceleration program to reduce these cases. Banyuwangi Regency is one of the pilot projects of the Healthy Children's Movement to Prevent Stunting in Toddlers, which aims to improve the nutritional status of toddlers through the fulfillment of nutritional intake and family feeding practices (Rokom, 2023). This program is also supported by the previous policies related to the acceleration of stunting prevention issued by the Regent of Banyuwangi in April 2022.

The acceleration program to reduce the national stunting rate is carried out through 5 pillars, one of which is Food and Nutrition Security, which aims to expand access to nutritious food and promote food security. Some of the strategies for achieving this program involve diversification of food based on local food resources and increasing consumption of animal and plant based foods. This aligns with the not yet optimal utilization of the local marine potential of Banyuwangi Regency which supports the acceleration of the reduction in stunting rates.

Sambimulyo Village, located in Bangorejo District, Banyuwangi Regency, has a program known as Village Empowerment and Creative Economy to improve UMKM in the village. There are facilities for traders located in the Sambimulyo RTH (Urban Public Space), which seeks to accommodate the creativity of young people and boost the economy, especially in the culinary sector. Another Creative Economy program is the website pesonasambimulyo.com, which has a TarunaJek feature that is already operating and is planned to be added with TarunaFood and TarunaJasa. TarunaFood is a concept that helps UMKM sell food online. On the other hand, its location close to the south coast makes Bangorejo District have many marine products, especially fish, which are affordable. However, the community, particularly women who are mostly housewives, does not yet have the skills to increase the value of these marine products. Therefore, there is a need to improve skills to increase the value of marine products that support the acceleration program to reduce stunting rates in Banyuwangi Regency.

Based on the introductory description, the solution to the problem is education on the importance of animal and plant based foods as food choices to prevent stunting, along with training on making lemuru fish into dragon legs and nuggets. The target partners are housewives from PKK (Family Empowerment and Welfare) and Aisiyah community in the Kedungrejo, Sambirejo, and Pasembon hamlets in Bangorejo District.

So far, in Bangorejo District, lemuru fish has not been utilized as a snack with a long shelf life. After being harvested, the fish is usually sold and not processed by the local residents. Therefore, there is a great opportunity to develop snacks from fish such as galantin (Rizkia et.al., 2022) with a long shelf life as one of the products to support the acceleration of stunting prevention. In terms of quality, lemuru fish has a high protein content and is relatively affordable (Singapurwa et.al., 2022). Lemuru fish has been added to culinary products several times for character formation and to increase nutritional value. Snacks are light foods that provide little energy because they are only eaten as a side dish before the main meal. Healthy snacks also have several characteristics, such as providing sufficient calories and nutrients, containing low amounts of sugar, salt, and fat, and avoiding the use of food additives during processing (Putri, 2016).

On the other hand, Indonesia has the potential for sustainable fisheries resources of 12.54 million tons per year (Akbar, 2022). The magnitude of the potential requires good management to maintain ecosystem sustainability including ecology, economy, community and institutions that are in line with SDG's number 14. In addition, there needs to be a guarantee of sustainable production and consumption patterns that are in line with SDG's number 12 so that this large potential can have an impact on increased economic growth. Sustainable consumption patterns still have obstacles and the Nelayanku application could be one solution to integrate and distribute information regarding the number and type of fish from each region in Indonesia so that long-term use will have an impact on fish consumption figures per capita in Indonesia (Yanandhy and Christoffel, 2021). Meanwhile, production patterns can be improved by maximizing fish harvests so that they have a longer shelf life. This program aims to improve skills in extending the shelf life of products processed from lemuru fish and to increase the value of the product.

METHOD

Based on the background description, partner problems, and the goals and objectives of the activity, a community service program was developed. The program is a sequence of solutions to the problems found in the partner, including:

- a. Education on products for stunting prevention
- b. Training on making processed fish as snacks for stunting prevention

The community service activity consists of several main stages, namely the preparation stage, the community service stage, and the evaluation stage. These stages are carried out sequentially (Table 1).

Table 1. Stages of Community Service Implementation

No	Activity	Time
1	Education on products for stunting prevention	31 August 2023
2	Training on making processed fish as snacks for stunting prevention	23 and 31 August 2023

This community service activity used counseling and direct practice methods through training. The target partners are housewives/women and representatives of the Aisiyah community (27 women) in Kedungrejo, Sambirejo, and Pasembon hamlets, Bangorejo District, Banyuwangi Regency. The counseling activity includes education on products for stunting prevention and product innovation. The direct practice activity is carried out through training on making processed fish products as snacks for stunting prevention.

The community service activity was conducted by lecturers from the Diploma 4 Food Service Industry Department, who possess expertise in food processing and packaging technology. In addition to lecturers, this activity also involved several undergraduate students at Universitas Ahmad Dahlan. The training activities were held in Kedungrejo, Sambirejo, and Pasembon hamlets, Bangorejo District, Banyuwangi Regency.

The target partners actively participated through in-kind funding in the form of infrastructure and utilities. In addition, another form of participation was the large number of participants who attended. As for evaluation, time management could be organized more efficiently so that the waiting time could be used for other activities. Dissemination activities by each participant in their PKK groups can serve as follow-up steps after this community service activity is completed, which aims to make the application of IPTEKS (Science and Technology) to the community more widespread and contribute quickly to reducing the stunting rate in Banyuwangi Regency.

The processing of culinary products made from lemuru fish is divided into ready-to-eat healthy snacks and processed products preserved by freezing. Ready-to-eat snacks are wet snacks that do not have a long shelf life. In contrast, processed products that are preserved by freezing have a long shelf life because of the freezing process applied to the food ingredients. The preservation method of freezing is done by freezing the semi-finished product and putting it in a freezer. Freezing technology is employed to preserve food products by lowering the temperature and water content of the product to prevent the growth of microorganisms and enzymes that damage the quality of the product (Sasongko et.al., 2016) (Nento & Ibrahim, 2017).

RESULTS AND DISCUSSION

The educational material delivered emphasized the importance of combining protein and vegetables as a source of nutrition for children, specifically in an effort to prevent or reduce stunting rates (Figure 1).



Figure 1. Education on products for stunting prevention

The educational activity was followed by training on product creation, which involved making lemuru fish into ready-to-eat culinary products and frozen food. One of the IPTEKS that has been introduced for the utilization of animal potential is the processing of tilapia fish for culinary products (Ayuningtyas et.al., 2021). Therefore, the activity conducted in Bangorejo District is important to increase the value of lemuru fish and contribute to the health plan of Banyuwangi Regency. Before the material was given, participants were asked to fill out an initial questionnaire for initial identification of the distribution of participants and their prior knowledge.

The participants were a group of women ranging from 25 to 60 years old. The majority of participants were in the 51–60 age group (Figure 2). Most participants were housewives (IRT) (Figure 3), which represents a potential group with more free time and thus has the potential to be the main force in the food processing process.

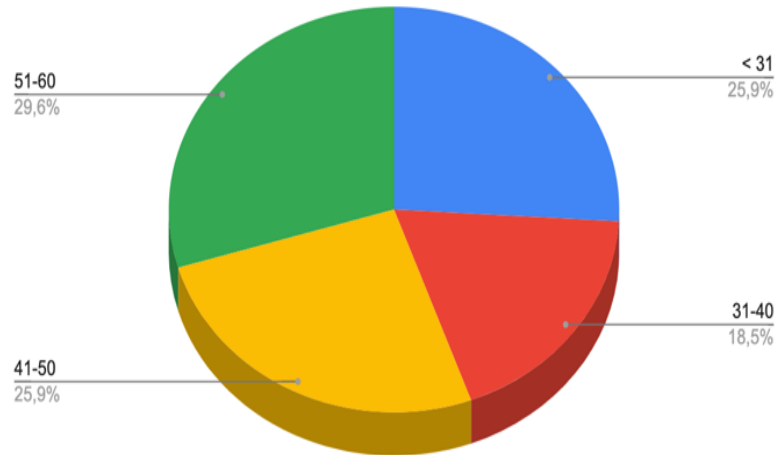


Figure 2. Age Distribution of Training Participants (years old)

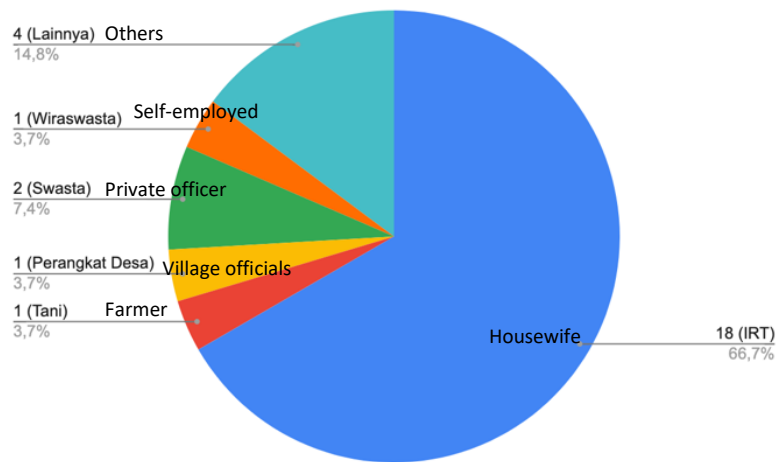


Figure 3. Distribution of Participants' Occupations

The training was conducted in groups, and participants could read the recipes and manufacturing methods that were provided in the training modules that have been distributed to them (Figure 4).



Figure 4. Training on Making Processed Fish

Community service activities through training and counseling have an influence on changing the knowledge of the target community. Although most participants were familiar with frozen food, where one product would be made on that day, many participants had not yet known about or made frozen food (Figure 5).

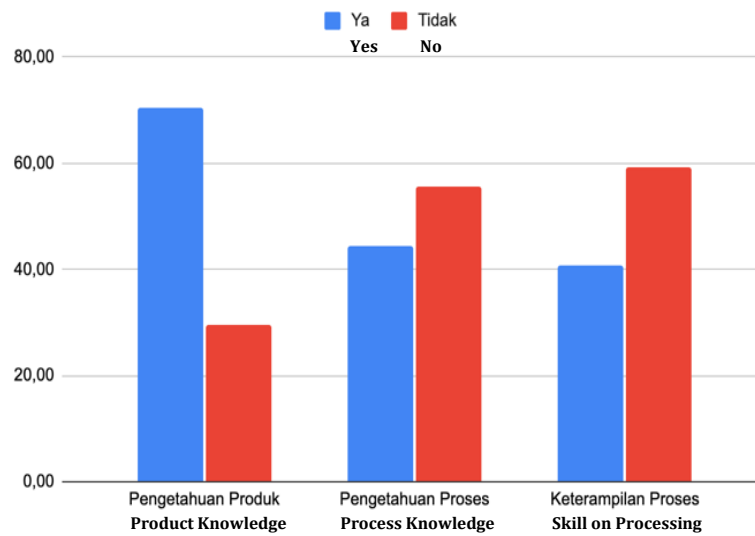


Figure 5. Participants' Prior Knowledge and Skills

After participating in this education and training, the community became aware and understood the process of making fish into nuggets and chicken legs. Based on the observations, there was an increase in the knowledge and skills of the community in making the product (Table 2).

Table 2. Changes in Community Knowledge and Skills After Training

Activity	Before Training (%)	After Training (%)
Knowledge in making fish processed was still low	44.44	74.07
Skills in making fish processed were still low	40.74	74.07

The training provided to the community can increase individuals' knowledge and skills. This increase was also seen in similar activities given to the community in Kalurahan Pengkok, Patuk District, Gunung Kidul Yogyakarta in the form of training on processed cassava, plantain, and ginger (Rahmadewi & Wahyuningsih, 2020) (Lukviana, et al., 2023) (Daima, et al., 2022). In addition to lemuru fish, to support the reduction of stunting rates, there is an addition of vegetables as ingredients in making nuggets and dragon legs. The next step, the fulfillment of nutrition from vegetables can be done through the vegetable garden movement which has been developed in Dusun Gumulan, Caturharjo Village, Pandak District, Bantul Regency and the SKM Vegetable House Group (Suka Karya Makmur), Somongari Village, and other processed products such as chips and sauces (Ayuningtyas et.al., 2021) (Utami et.al., 2022).

Additionally, this making process will produce by-products, one of which is lemuru fish skin. Fish skin can be processed into food products such as fish skin chips, as done in one region in Aceh (Handayani et al., 2022). Furthermore, these community service activities can contribute to supporting the achievement of the goals set forth in the Sustainable Development Goals (SDGs) No. 12, ensuring sustainable production and consumption patterns.

CONCLUSION

The community's knowledge and skills in making processed lemuru fish have increased. The target community is able to make dragon legs and nuggets from lemuru fish. Residents have knowledge of making processed fish food that has increased by 29.6%, and residents have skills in making processed fish food that have increased by 33.3%.

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