

Training on Making Nugget from Lemuru Fish with the Addition of Durian Seed Flour for Stunting Students Mother

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Abstract. Fish has been widely known for its usage in increasing the growth of children, due to its nutritional contents, such as protein and zinc that can accelerate the increase of children's heights and weights in the growth period. This community service activity aims to increase fish consumption in elementary school students, especially those suffering from stunting through processing fish into nugget products. The activity carried out was in the form of training on processing fish nuggets using lemuru fish with the addition of durian seed flour to mothers with stunting children at SDN 104255 Paluh Sibaji Village, Pantai Labu District, Deli Serdang Regency. This activity then was continued by offering the students to consume nuggets of lemuru fish durian seeds flour. As a result, the nuggets were considered favorable by the students. The post test involving questions about stunting was conducted to measure the knowledge of each parent in this case. The data showed that parents had high enthusiasm in solving stunting issues due to the increase on average of post test points (8.03), which was two times higher than before (4.81). The outcome of this training was to gain new skills and knowledge to students' mothers in decreasing stunting cases by serving affordable nutrient-rich food to their children.

Keyword: Training, Nuggets of Lemuru Fish, Durian Seed Flour, Stunting

Abstrak. Ikan telah dikenal luas penggunaannya dalam meningkatkan pertumbuhan anak, karena kandungan nutrisinya seperti protein dan seng yang dapat mempercepat peningkatan tinggi dan berat badan anak selama masa pertumbuhan. Kegiatan pengabdian masyarakat ini bertujuan untuk meningkatkan konsumsi ikan pada siswa sekolah dasar khususnya yang mengalami stunting melalui pengolahan ikan menjadi produk nugget. Kegiatan yang dilakukan berupa pelatihan pengolahan nugget ikan menggunakan ikan lemuru dengan penambahan tepung biji durian kepada ibu-ibu dengan anak stunting di SDN 104255 Desa Paluh Sibaji Kecamatan Pantai Labu Kabupaten Deli Serdang. Kegiatan ini kemudian dilanjutkan dengan menawarkan kepada siswa untuk mengonsumsi nugget tepung biji durian ikan lemuru. Hasil kegiatan menunjukkan, produk nugget ikan disukai oleh siswa. Post test berupa pertanyaan tentang stunting dilakukan untuk mengukur pengetahuan masing-masing orang tua tentang stunting. Data menunjukkan antusiasme orang tua yang tinggi dalam menyelesaikan masalah stunting yang ditunjukkan adanya peningkatan rata-rata nilai post test (8.03), yang dua kali lebih tinggi dari sebelumnya (4.81). Luaran dari pelatihan ini adalah meningkatnya keterampilan dan pengetahuan ibu dari siswa dalam mengurangi kasus stunting dengan menyajikan makanan bergizi yang terjangkau untuk anak-anak mereka.

Kata Kunci: : Pelatihan, Nugget Lemuru, Tepung Biji Durian, Stunting

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1. Introduction

Based on Primary Health Research in 2013, North Sumatera ranked eighth in the case of stunting, which is above the national average prevalence (37.2%) [1]. Compared to the average national prevalence (30.8%) in 2018, this data fell down by 32.4%, leading this province to rank fourteenth out of many provinces with stunting cases [2]. The North Sumatera government continues to take a strive in reducing this rate, especially on infants and elementary students.

In this community service, an initial survey was conducted at SDN 104255 Paluh Sibaji relating to stunting. This school is located on Pantai Labu District Deli Serdang Regency, North Sumatera Province. As the location of this school is near a fish auction (Tempat Pelelangan Ikan), most of the students' paternals work as fishermen, farmers, and casual employees with the average wage ≤ 2 million rupiahs per month, while the maternals work as housewives. According to the preliminary study, the condition of nutritional needs for most of SDN 104255 Paluh Sibaji students are not adequately met [3].

Survey data showed that the heights of 26 out of 100 students at SDN 104255 Paluh Sibaji were lower than the average height of children with age of 10-12 years old. This indicates that a stunting case has been found at this school. A follow up survey was conducted on students' parents to measure the knowledge of each parent about stunting and nutritional food processing for their children. As a result, the average level of knowledge relating to this issue was 4.8, which was categorized in the low level of knowledge [3].

Protein, zinc, and magnesium are needed for the skeletal growth and bone homeostasis by stimulating IGF-1 receptor expression, especially on the second growth period of children with the age of 10-12 years old [4]. North Sumatera is known for its abundant durian source which has been used to make various processed food products, including the seeds. Durian seeds can be processed into durian seed flour, diversifying wheat flour as a primary material used for processed food products. Nutritious contents in durian seeds such as energy (388 kcal), protein (8.97%), carbohydrate (85.4%), fat (1.14%), calcium (98 mg), and phosphorus (13 mg) are good for children's height growth [5].

Lemuru fish or tamban fish can be found easily at Paluh Sibaji - Pantai Labu Kabupaten Deli Serdang North Sumatera. Nuggets of Lemuru fish with durian seeds flour has been known for its contents [6]. Nevertheless, nuggets of Lemuru fish with durian seeds flour production remain unknown by local communities. Therefore, community service program needs to be carried out to increase the knowledge of students' parents at SDN Paluh Sibaji Village Pantai Labu District, Deli Serdang Regency– North Sumatera Province about stunting by providing a training in making nuggets of Lemuru fish with durian seeds flour. Furthermore, students' parents are expected to make nuggets of Lemuru fish with durian seeds flour on their own for family needs or put up for sale in the future, which could grow local economies.

2. Method

In this community service, students' parents participating in the training will be recorded. Materials and equipment were provided by the research team. The training was divided into two different sections, such as theory presentation and practical learning. Theory presentations were carried out twice to provide information about stunting, the benefits of fish consumption, and the process to make nuggets of Lemuru fish. The group of people involved then were given a chance to discuss and ask questions. Practical learnings in making nuggets of Lemuru fish were accomplished four times by giving on site training and assisting students' parents in making nuggets of Lemuru fish with durian seeds flour. By the end of practical learning, the evaluation was carried out by inquiring students' parents to demonstrate the process of making nuggets of Lemuru fish with durian seeds flour. Children then were required to taste the nuggets.

2.1 Durian Seed Flour Processing

Before processing into durian seeds flour, durian seeds need to be washed to separate the seeds and the remaining flesh of the fruit. Durian seeds then were boiled in boiling water for 10 until 15 minutes and the seed coats were separated from durian seeds. The white durian seeds were cut to a thickness of 2-3 mm. Sliced durian seeds then were rewashed to take out mucus content by adding salts. The durian seeds were then placed in bamboo tray and were dried under the sun. Dried durian seeds were mashed using a blender and filtered to obtain fine durian seeds flour [7].

2.2 Nuggets of Lemuru Fish Durian Seed Flour Production

Materials used to make nuggets of Lemuru fish were 300 g of Lemuru fish (including the heads and spines), two chicken eggs, 120 g of wheat flour, 120 g of durian seeds flour, four garlic cloves, ten cloves onion, bay leaves and spring onions, 180 g of tofu, 150 g of carrots, and bread crumb. Fish were washed and boiled in a pressure cooker for 1 hour. The cleaned fish were then mashed and mixed with other ingredients, such as carrots, tofu, onion, and garlic. Wheat flour, durian seeds flour, ground pepper, bay leaves and spring onions were then added to the mixture. Nuggets of Lemuru fish mix were steamed and cooled. To serve the nuggets of Lemuru fish, the steamed nuggets with bread crumb coating were fried [8].

2.3 Implementation of Activities

Community service conducted at SDN Paluh Sibaji Village Pantai Labu District, Deli Serdang Regency– North Sumatera Province was well-designed. The program was divided into three steps, such as 1) Initial survey, including reading research result and community characteristics, 2) training, 3) monitoring and evaluation. The principal and school administrators of SDN Paluh Sibaji Village Pantai Labu District, Deli Serdang Regency– North Sumatera Province also supported the program by providing a classroom to conduct the program and coordinating the participants.

3. Results and Discussion

In the initial survey, a research team was introduced to the 36 participants. Each participant was then asked to do a pre-test to measure their knowledge about stunting. The distribution of age, profession, and level of knowledge of SDN 104255 Paluh Sibaji students is shown in Figure 1.

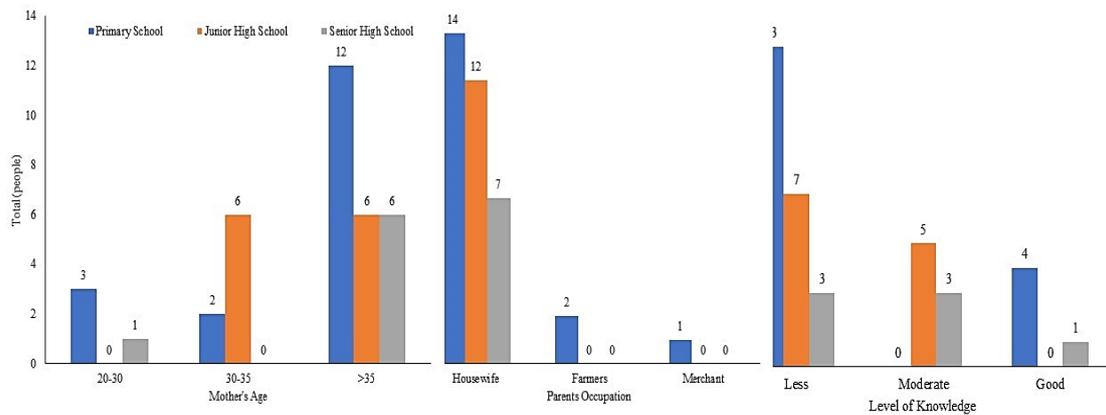


Figure 1. Distribution of parental characteristics and level of knowledge in SDN 104255 Paluh Sibaji Village, Pantai Labu District, Deli Serdang Regency before being given training on making nuggets of Lemuru fish durian seed flour

The community service team inquired some questions about stunting, such as the symptoms of stunting, the impact of stunting, the handling of stunting, and the benefits of eating fish. Pre-test results showed that each participant's knowledge about stunting was categorized in the low level with an average of 4.81. After pre-testing, the community service team presented slides about stunting, the symptoms, the impact, the handling of stunting, and the benefits of eating fish for 45 minutes. This activity is shown in Figure 2.



Figure 2. Presentation session (left) and demonstration on making lemuru fish nuggets with durian seed flour (right)

Evaluation was conducted after presentation and discussion of the materials. The participants were given some questions relating to the materials that had been explained to them. After evaluation, the research team then continued the presentation and training about how to make nuggets of Lemuru fish with durian seeds flour. This activity is shown in Figure 3.



Figure 3. Training on making nuggets of Lemuru fish with durian seed flour

After the training, each participant was asked to taste the nuggets and give the rating for the flavor as shown in Figure 4.



Figure 4. Students' parents took a taste of Lemuru fish nuggets with durian seeds flour

The results showed that both 85% of participants and the students considered the taste of nuggets of Lemuru fish with durian seeds flour favorable. Figure 5 showed the nuggets of Lemuru fish appearance before and after the frying process.



Figure 5. Unfried (left) and Fried (right) Nuggets of Lemuru fish with durian seeds flour

The remaining participant reviewed that there was a lack of saltiness in the nuggets of Lemuru fish. Furthermore, some participants stated that the color of the nuggets was darker than nuggets in general due to usage of durian seeds flour. The color difference between nuggets of Lemuru fish with durian seeds flour and chicken nuggets is shown in Figure 6.



Figure 6. The color difference between nuggets of Lemuru fish with durian seeds flour (right) and chicken nuggets (left)

Another point to review the nuggets of Lemuru fish was the thickness. Because of determining nutritional value (100 g) on the food, the nuggets are intentionally made slightly thick, which was considered to have a hard texture by some participants.

Before training ended, participants were asked to fill the questionnaire to re-measure their knowledge about stunting after training. The result showed that the level of knowledge of each participant increased with an average of 8.03. This average point was considered as having good knowledge about stunting.

The community service team assumed that the materials given to participants relating to stunting was understable. This has proven by the fact that 72% of participants answer the questions correctly with the value ≥ 8 . Some participants stated that they would redo the nuggets of Lemuru fish with durian seeds flour production in their house and introduce the recipe to their neighbor. The active participant gained 250 g of durian seeds flour as souvenir.

This community service is expected to continue to decrease stunting cases in North Sumatera, especially at SDN 104255 Paluh Sibaji – Pantai Labu. Similar activities need to be carried out continuously to increase parents' and students' knowledge and awareness about stunting. Coordination with related agencies, such as the head of urban village and sub-district is needed to socialize the production of Lemuru fish nuggets with durian seeds flour, so that it could be a home industry, additional food at Posyandu, and snack at school, which is expected to grow local economy.

4. Conclusion

Training activities for making nugget from the edges of durian seeds and lemuru fish have been carried out at SDN 104255 Paluh Sibaji Pantai Labu, Deli Serdang Regency - North Sumatra. Training participants, namely parents of students who have stunted children, get increased knowledge in terms of making nuggets and provide good feedback on the training activities

provided. Nuggets made from durian seed flour and lemuru fish can be used as an alternative snack for stunted children.

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