

Alleviation Strategies Of Stunting In Infants' Problems Using Tilapia Fish Farming In Sukodono District, Lumajang Regency

Yuni Kilawati¹, Yunita Maimunah¹, Ardyah Ramadhina Irsanti Putri^{2*}

Yuliezar Perwira Dara³

¹ Faculty of Fisheries and Marine, University of Brawijaya

² Faculty of Animal Science, University of Brawijaya

³ Faculty of Social and Political, Universitas Brawijaya

Abstract

Various programs to fulfill community nutrition by the government in Sukodono District have been actively implemented to alleviate the problem of stunting. However, multiple factors in the field cause the program's sustainability is not optimal. Our service activities are based on strategic issues faced in Sukodono District, consisting of education regarding the causes and solutions to the stunting problem as well as socializing one of the efforts to eradicate stunting by implementing a good, healthy, and environmentally friendly tilapia fish farming system. Supported by the Lumajang Regency Government, it has made various efforts to handle and alleviate stunting in Lumajang, so this outreach activity provides insight to the community, especially posyandu cadres, prospective brides, and mothers from various villages in Sukodono District. This activity aims to help the communities in the Sukodono District, Lumajang Regency, to eradicate the problem of stunting by socializing the tilapia fish farming model and the benefits of tilapia fish. The activity carried out is community service through socialization, training, mentoring, and evaluation for the community in Sukodono District, which can increase public understanding before and after the presentation of material on tilapia program activities to prevent stunting.

Keywords: fish farming, prevention, stunting, tilapia.

INTRODUCTION

One of the most essential factors in developing the quality of human resources as an indicator of the success of a nation's development is the fulfillment of adequate nutrition and food. Indonesia is still facing nutritional problems that severely impact the quality of human resources (HR). One of the problems that is still relatively high in Indonesia is stunting. Stunting is delayed growth due to a lack of nutrition in infants (Ejaz MS, 2010). Stunting prevents children from reaching their physical and cognitive potential at the right time.

Stunting that occurs in Indonesia is not only experienced by poor and underprivileged households or families. Above 40% of the social and economic welfare level is due to mothers' lack of knowledge and interest (Beal T, et al., 2018). Young mothers and limited socialization of the importance of adequate nutrition in children. In 2013, stunting under five contributed to 1.5 million (15%) under-five deaths worldwide and caused 55 million children to lose their healthy lives each year. The results of the

research stated that the food consumption conditions of pregnant women and toddlers in 2016-2017 showed that in Indonesia 1 out of 5 pregnant women was malnourished, 7 out of 10 pregnant women lacked calories and protein, and 7 out of 10 under-fives lacked

calories and 5 out of 10 under-fives lacked protein (Pusat Data dan Informasi Kementerian Kesehatan RI. (2016). With the support of the local regional government in Sukodono District, this community service activity can provide education to the community about the importance of preventing and overcoming the dangers of stunting through counseling, mentoring, practice, and evaluation activities for groups of the local community and workers in the Integrated Healthcare Center in Sukodono District about good, healthy, and environmentally safe Tilapia fish farming in Sukodono District, Lumajang Regency

MATERIALS AND METHOD

Located at the Sukodono District Office, Lumajang Regency, East Java, this community service activity was carried out in July 2023 in two sessions.

The first session was material from a nutritionist's expert regarding the importance of preparing our children for growth and development from the first 1,000 days, namely pre-pregnancy to 2 years of age. The second session was about tilapia fish farming methods by utilizing minimalist land in the environment with various benefits and advantages of tilapia nutrition compared to the other fish. To determine the success of this activity, a pretest and posttest were carried out to measure participants' understanding before and after the presentation from the presenter. The analysis was carried out using the Wilcoxon test to conclude the level of success of the material about the importance of preventing and overcoming the dangers of stunting.

RESULT AND DISCUSSION

A series of service activities in coordination with regional leaders starting from Level 1 Regional Headship or Regent to Village level in education activities for the community about the importance of preventing and overcoming the dangers of stunting through counseling activities and aiding, practice, and evaluation to groups of the local community.

Stunting prevention socialization was carried out in July 2023 following the activity timeline specified in the preparation. Welcomed by the Head of Sub-District, Mr. Dian Nurwi Kurniawan Hadi Kamujo, S.Psi, MM, and Head of Karang Sari Village, Mr. Sugiantoro. Also, the Head of Strategic Community Service Programs, Dr. Yuni Kilawati, S.Pi., M.Sc. from the Faculty of Fisheries, Brawijaya University, provides a tilapia fish farming program as a good educational method for stunting reduction. In 2015 tilapia production increased globally by 6.4 million metric tons with an estimated market value of US\$ 9.8. The increase continues every year because tilapia is a fish with high protein, grows fast, and has a high tolerance for high stocking densities (Putri, S. M., A. H. C.2016). The first material was delivered by Rina Widharnarini, S.KM., M.Kes (Advisor to the Situbondo DPC nutritionist association) to the community and posyandu cadres in Karang Sari village and village representatives and students. This material is related to the importance of preparing for child growth and development from the first 1000 days (the pre-pregnancy period to the age of 2). There are four factors of concern, namely

parenting style, healthy lifestyle, and diet or composition on my plate (Aryastami, N.K. 2015.) During the preconception period, important nutrients include macronutrients such as carbohydrates, especially polyunsaturated fats or omega-3 and omega-6, and protein. For micronutrients, there are vitamins A, B, C, D, E, folic acid, and minerals such as iron, calcium, iodine, zinc, and selenium (Sartijo, M. Nanda.,2021) The substances needed can be obtained from consuming tilapia fish, which contain these important minerals, but with the right way of processing the fish.



Figure 1. FGD with the community of Sukodono District

The material in the second session was delivered by Dr. Yunita Maimunah, S.Pi, M.Sc. a lecturer at the Faculty of Fisheries, Brawijaya University, who said that tilapia is considered more economical than other types of fish. This fish also has resistance to many diseases and is more adaptive to the environment with the level of salinity. Besides that, it is also taught to the audience how to process tilapia better by steaming or sautéing properly along with herbs (Almatsier S. 2001). Before delivering the material, participants completed a pretest regarding their initial understanding of the material.

Tilapia *Oreochromis niloticus* is a freshwater fish that is widely cultivated in Indonesia and is a cultivated fish that is an export commodity. The Department of Fisheries and Aquaculture of the Food and Agriculture Organization (FAO) places tilapia in third place after shrimp and salmon as an example of successful global aquaculture. Tilapia is a freshwater fish that has high economic value, has high potential protein content, and has the advantage of growing quickly (Cahyono. B., 2000.) The nutritional content of tilapia is 16-24% protein, the fat content ranges from 0.2-2.2% and contains carbohydrates, minerals, and vitamins.



Figure 2. Tilapia fishponds in Klanting Village, Sukodono District

The success with an increase in understanding among some of the socialization participants was due to the lecturing method and the existence of 2-way communication between the speakers and the participants. Interaction can attract respondents' attention and interest in listening to health messages conveyed through education. The presentation is supported by a PowerPoint display, making it easier for participants to understand the material. The question-and-answer session can also analyze participants' knowledge.



Figure 3. The scene of community service activities in Sukodono District

Based on the results of the Wilcoxon test, the pre and post-test results show that 10 data show a decrease from the Pretest score to the post-test score, There are 18 data that show an increase from the Pretest score to the post-test score, There are 7 data that show the similarity of the Pretest score and Posttest score, The conclusion of the Wilcoxon test that was carried out can be seen from its significance value $(0.257) > \text{significance level}/\alpha (0.05)$, then it failed to reject the initial hypothesis. However, the results of the discussion at the time the counseling was carried out, as well as the enthusiasm of the community in general, the community were greatly helped by this activity.

IMPACT OF ACTIVITIES

Based on the level of achievement obtained from this community service activity, it was successfully implemented and received positive appreciation

from stakeholders and related communities. From these activities.

CONCLUSION AND SUGGESTION

From these activities, it can be concluded that based on the test results of the pretest and posttest scores, although there is no difference in participants' understanding before and after the material exposure, this can be caused by many factors, among others on average,

participants in stunting prevention outreach activities in the community are village health centers and community health center people who already have initial knowledge and good field practices. Secondly, the limited number or segment/variety of participants who cannot represent/are not yet representative also influences the processing results. The data to determine changes in participants' understanding. So, it is recommended to continue the program by increasing the variety of participant segments and increasing the number of socialization participants. The material is equipped with tips and tricks for processing food made from tilapia so that participants can practically implement it in their daily lives.

ACKNOWLEDGEMENT

We would like to express our thanks to the Regional Government of Sukodono District, Lumajang Regency, and Brawijaya University for funding this community service activity through strategic community service grants.

REFERENCES

1. Ejaz MS, Latif N. Stunting and micronutrient deficiencies in malnourished children. *J Pak Med Assoc.* 2010 Jul;60(7):543-7. PMID:20578603
2. Beal T, Tumilowicz A, Sutrisna A, Izwardy D, Neufeld LM. A review of child stunting determinants in Indonesia. *Matern Child Nutr.* 2018 Oct;14(4): e12617. doi: 10.1111/mcn.12617. E-pub 2018 May 17. PMID: 29770565; PMCID: PMC6175423
3. Pusat Data dan Informasi Kementerian Kesehatan RI. (2016). *Situasi Balita Pendek.* Jakarta: Kementerian Kesehatan RI
4. Putri, S. M., A. H. C. Haditomo., & Desrina. 2016. *Infestasi monogenea pada ikan*

konsumsi air tawar di kola budidaya Desa Ngerajek Magelang. Journal of Aquaculture Management and Technology. 5 (1) : 162-170.

5. Aryastami, N.K. 2015. *Pertumbuhan usia dini menentukan pertumbuhan usia pra-pubertas (studi longitudinal IFLS 1993-1997-2000) (Longitudinal study, secondary data analysis).* Jakarta: Universitas Indonesia
6. Sartijo, M. Nanda., Salisyningrum., A. H. C. Haditomo., Desrina., & S. B. Prayitno. 2021. *Seleksi bakteri yang berasosiasi dengan kematian ikan nila (Oreochromis niloticus) di Kabupaten Magelang. Journal of Aquaculture Management and Technology. 17 (1) : 15-24.*
7. Almatsier S. 2001. *Prinsip dasar ilmu gizi.* Jakarta: PT. Gramedia Pustaka Utama
8. Cahyono. B 2000. *Budidaya ikan air tawar (Gurame, Nila, Mas).* Kanisius, Yogyakarta