

PENGETAHUAN DAN PERILAKU MASYARAKAT LEMBATA MEMANFAATKAN POTENSI NUTRISI SARDINELLA UNTUK PENCEGAHAN STUNTING

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ABSTRAK

Stunting sebagai masalah kesehatan masyarakat yang perlu penanganan inovatif dengan pemanfaatan sumber laut. Ikan sardinella adalah nutrisi kompleks perempuan dalam persiapan kehamilan, saat hamil, melahirkan dan bagi bayi untuk pencegahan stunting. Angka stunting di Lembata paling rendah menjadi indikator keberhasilan program pengentasan stunting dengan pemanfaatan sardinella. Peneliti ingin menginvestigasi pengetahuan dan perilaku masyarakat dalam pemanfaatan ikan sardinella untuk mencegah stunting. Studi ini dilaksanakan ingin mengetahui pengetahuan dan perilaku masyarakat Lembata terhadap pemanfaatan ikan sardinella di Lembata dalam kaitan dengan upaya pencegahan stunting, terutama sebagai asupan nutrisi bagi ibu hamil dan balita. Metode penelitian yang dilaksanakan yaitu deskriptif survey dengan design cross sectional, menggunakan purposive sampel dengan metode pengambilan data melalui wawancara terhadap 248 responden usia dewasa atau produktif. Data diolah menggunakan software SPSS 25. Hasil penelitian menunjukkan bahwa 89,1% responden mengetahui bahwa ikan sardinella merupakan salah satu jenis hewan laut yang mengandung zat gizi tinggi bagi pencegahan stunting. Perilaku responden terhadap pemanfaatan ikan sardinella diketahui bahwa 95,6% sampel berperilaku baik namun 4,4% responden berperilaku cukup terhadap konsumsi ikan sardinella dalam memenuhi asupan gizi keluarga. Responden mengetahui ikan sardinella sebagai salah satu hewan laut yang bergizi tinggi dan selalu mengonsumsinya untuk tindakan pemenuhan gizi, pencegahan stunting dan kecerdasan anak yang akan dilahirkan. Diharapkan masyarakat daerah lain dapat mencontoh pengetahuan dan perilaku pemanfaatan ikan sardinella sebagai protein yang murah untuk mencegah dan mengatasi stunting.

Kata kunci : lembata, pengetahuan, perilaku, sardinella, stunting

ABSTRACT

Stunting is a public health issue that requires innovative solutions through the utilization of marine resources. The researcher aims to investigate community knowledge and behaviors regarding the use of sardinella to prevent stunting. This study aims to determine community knowledge and behaviour in Lembata regarding the use of sardinella fish in the stunting prevention programme, particularly as a nutritional source for pregnant women and toddlers. The research method employed was a descriptive survey with a cross-sectional design, using a purposive sampling with through interviews with 248 adult or productive-age respondents. The results showed that 89.1% of respondents knew that sardinella fish is a type of marine animal that contains high nutrients for health and preventing stunting. Respondents' behavior towards the use of sardinella fish was known that 95.6% of respondents behaved well towards consuming sardinella fish in order to meet nutritional intake for pregnant women, family nutrition, prevent stunting in children and children's intelligence. Respondents know sardinella as a highly nutritious marine animal and always consume it to fulfill nutritional needs, prevent stunting and increase the intelligence of children who will be born..

Keywords : knowledge; behaviour; lembata; sardinella; stunting

INTRODUCTION

Stunting represents a significant public health concern, as it is associated with elevated risks of morbidity and mortality in children and exerts long-term adverse effects on cognitive development, human capital formation, and the productivity of future generations. (Haskas, 2020) The Indonesian government has intensified efforts to reduce the prevalence of stunting during the first 1,000 days of life by leveraging local resources through innovative approaches. (Peraturan Presiden No. 72 Tahun 2021, 2021) Stunting prevention can be strengthened by promoting the consumption of locally sourced nutritious foods. Nevertheless, optimizing and expanding the utilization of local potential remains essential to effectively support stunting prevention policies across broader regions. (Putri et al., 2023) Lembata Regency possesses considerable local marine potential, particularly in the abundance of sardinella fish. Various species of sardinella inhabit the waters surrounding Lembata island, and the region is well known across East Nusa Tenggara for the high quality of its fresh fish. Although sardinella has traditionally been categorized as a second-class fish—being highly perishable, scaly, and bony, with a relatively low market price remains favored by many people, not only for its delicious taste but also for its affordability across all social classes. (Husna et al., 2019) Furthermore, the availability of sardinella contributes to local employment and serves as an important source of nutrition. (Cahyaningrum et al., 2014)

Sardinella contains essential nutrients that vital for human health, including omega-3 (linoleic acid) and omega-6 (linolenic acid) fatty acids. (Cynthia, 2023) It also provides a comprehensive range of nutrients such as protein, calcium, iron, phosphorus, and vitamins A, C, and B1, which are critical for fetal organogenesis. Moreover, omega-3 and omega-6 fatty acids play an important role in fulfilling maternal nutritional needs during pregnancy. (Pandiangan et al., 2023) According to the Dietary Reference Intakes for pregnancy, the recommended daily protein intake ranges from 70 to 100 grams. (Nenogasu Yeri Delsia, 2020) Nutritional components in sardinella fish, such as vitamin D, palmitic acid (C16:0), stearic acid (C18:0), and myristic acid (C14:0), are easily digested and beneficial for infants during the first two years of life—a period when their digestive systems are not yet fully capable of hydrolyzing complex proteins. (Wibowo A, 2021) Fish serves as a rich source of high-quality protein and contains substantial levels of iodine, selenium, choline, vitamin D, and long-chain n-3 fatty acids, which are essential not only for pregnant women but also for fetal brain development and the growth and health of young children. (Taylor et al., 2018)

One of the processed products of sardinella is Lemuru or sardinella flour, which is recognized for its potential in addressing stunting. (Martony et al., 2022) The high calcium content in sardinella plays a significant role in supporting children's growth. Furthermore, as a protein source, sardinella contains essential amino acids, omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), which are easily absorbed due to the fish's minimal connective tissue structure. (Munna et al., 2020) According to the Badan Pusat Statistik Indonesia (Central Bureau of Statistics), in 2024 the prevalence of stunting among children under five years old in Lembata was 7.9%. (BPS Provinsi NTT, 2023) This study aims to assess the knowledge and behavior of the Lembata community, particularly reproductive-age couples, regarding their efforts to prevent stunting through the consumption of sardinella fish during pregnancy and to fulfill their family's nutritional needs

METHOD

The study employed a descriptive survey design, it is using interviews to assess the knowledge and behavior of the Lembata community regarding the depletion of sardinella as a nutritional source during pregnancy for stunting prevention. Data collection was conducted in

June 2025. The study population comprised members of the Lembata community, including pregnant women, breastfeeding mothers, young families, husbands, health professionals, and community leaders. A purposive sampling technique was applied to select adult participants aged 18–59 years, both male and female. The general characteristics of the participants included residential address, age, educational level, occupation, monthly income, and family role. The total sample consisted of 248 respondents.

RESULTS

General Characteristics

A total of 248 participants were interviewed across nine sub-districts in Lembata Regency, as presented in Table 1. The table shows that 33.8% of the participants resided in Nubatukan Sub-district, which serves as the economic and administrative center of Lembata Regency and also functions as its capital (Wikipedia, n.d.). Furthermore, participants were distributed across the following age groups: 18–28 years (25%), 29–39 years (33.5%), 40–50 years (27.8%), and 51–60 years (13.7%), respectively. The majority of participants were within the reproductive age group, predominantly between 29 and 39 years old.

Table 1. General Characteristics

Participants Characteristics	f	%	
Residential address in the regency	Nubatukan	83	33.5
	Lebatukan	26	10.5
	Ile Ape	27	10.9
	Ile Ape Timur	15	6.0
	Omesuri	27	10.9
	Buyasuri	24	9.7
	Nagawutung	19	7.7
	Atadei	15	6.0
	Wulandoni	12	4.8
Age	18-28 Years old	62	25.0
	29-39 Years old	83	33.5
	40-50 Years old	69	27.8
	51-60 Years old	34	13.7
Educational Level	Elementary	50	20.2
	Junior High School	75	30.2
	High School	69	27.8
	Three Years Dioloma	10	4.0
	Bachelor	44	17.7
Job	Civil Servants/Indonesian Armed Forces/Indonesian National Police	49	19.8
	Private Employers	34	13.7
	Farmers	57	23.0
	Fishermen	6	2.4
	Traders	12	4.8
	Labourer	18	7.3
	Temporary employers	72	29.0
Monthly average income	≤ Rp.2.186.826	153	61.7
	≥ Rp.2.186.826	95	38.3
Role in the family	Husband	57	23.0
	Wife	191	77.0

The distribution of participants based on their highest educational attainment was dominated by those who completed junior high school (30.2%), followed by senior high school graduates (27.8%), while the lowest proportion was among elementary school graduates

(20.2%). This finding suggests that educational level is strongly associated with employment status, as participants with lower education tend to have fewer opportunities for permanent employment compared to those with higher educational attainment. The data indicate that 29.0% of participants had temporary jobs, followed by farmers (23.0%), whereas traders, laborers, and fishermen each accounted for less than 10%. In addition, a higher proportion of participants had a lower average monthly income (AMI) compared to those with higher AMI, accounting for 61.7% and 38.3%, respectively. In terms of gender characteristics, the proportion of female respondents (77.0%) was considerably higher than that of males, indicating that wives were more actively involved in the study than husbands.

Respondents' Knowledge Of Sardinella As One Of The Sources Of Nutrition

Lembata Regency is one of the regions in East Nusa Tenggara with abundant marine resources, producing an average of 7,623 tons of fish over the past decade (BPS Provinsi NTT, n.d.). A wide variety of fish species inhabit the surrounding waters, which has influenced the local community's knowledge of marine biodiversity. This condition also shapes the preferences and decision-making of the Lembata people in selecting fish for daily consumption. The community's knowledge of sardinella fish as one of the marine-based nutritional sources for stunting prevention is presented in Table 2.

Table 2. Distribution of Participants' Knowledge on the Utilization of Sardinella for Stunting Prevention

Knowledge categories	f	%
Good	221	89.10
Moderate	11	4.40
Poor	16	6.50
Total	248	100

According to table 2, the majority of participants understood that sardinella is one of the marine species rich in essential nutrients that can be consumed to meet community nutritional needs, particularly during pregnancy, for stunting prevention, and to support fetal brain development. Participants were also aware of the variety of fish species available in Lembata's traditional markets and recognized that sardinella is a nutritious option for family consumption. Furthermore, the affordability and availability of sardinella make it a regular component of the community's daily dietary intake. The participants' level of knowledge regarding sardinella was acquired from multiple sources, including other community members, family traditions, social media platforms, health education provided by professionals, and nutrition information delivered by religious leaders within the community.

Behaviour Of The Utilization Of Sardinella Fish For Stunting Prevention

Table 3. Distribution of Participants' Behavior in Consuming Sardinella for Stunting Prevention

Kategori pendapat responden	f	%
Good	237	95,56
Moderate	9	3,63
Poor	2	0,81
Total	248	100

Based on table 3, participants' perceptions regarding the utilization of Sardinella as an alternative source of nutrition are noticeable. The data indicate that 95.6% of participants reported choosing and consuming Sardinella (locally known as Lemuru) as a primary protein source for their families, particularly during pregnancy and for stunting prevention. Although

various fish species are caught by local fishermen and sold in traditional markets, the majority of participants preferred Sardinella over other species due to its affordability and accessibility. Furthermore, the study revealed household purchasing behaviors in traditional markets, where both husbands and wives tended to buy Sardinella not only because it is inexpensive and readily available but also because it is considered delicious. Most family members favored consuming Sardinella when fried. To prevent monotony in daily meals, some households alternated the preparation methods by baking, steaming, or boiling the fish. The summarized data are presented in Table 4.

Table 4. Preferred Cooking Methods of Sardinella Among Participants

Cooking Methods	f	%
Grilled/Baked	93	37.5
Fried	120	48.4
Boiled	9	3.6
Steamed	26	10.5
Total	248	100

DISCUSSION

Based on the data on educational attainment, the highest proportion of respondents were junior high school graduates, followed by those who completed senior high school. Respondents with a junior high school education are considered capable of understanding and applying factual and procedural knowledge at a technical level, as well as demonstrating curiosity about knowledge, technology, arts, and culture. Meanwhile, respondents who graduated from senior high school possess more advanced competencies, enabling them to understand, apply, analyze, and evaluate factual, conceptual, and procedural knowledge not only at the technical level but also in more detailed and complex contexts (Permendikbud, 2016). Respondents who completed junior or senior high school and were aged between 18 and 50 years represent a generation born and raised in the digital era. This group demonstrates a high level of adaptability to the rapid advancement and dissemination of information. Their perceptions, preferences, and role models appear to be substantially influenced by continuous exposure to digital medias (Rahmawati et al., 2020).

In relation to food preferences, particularly seafood, millennials are generally inclined toward fast food options that offer a savory aroma and strong flavor rather than natural foods such as bony fish (Untari et al., 2022). This tendency reflects broader dietary shifts influenced by convenience and sensory appeal. Nevertheless, the findings of this study reveal that respondents aged 18–50 years demonstrate a relatively high level of knowledge regarding sardinella as a valuable source of nutrition. Their awareness of the nutritional benefits and potential for incorporating sardinella into daily diets suggests a positive attitude toward local, nutrient-dense food sources. Interestingly, this awareness appears to remain largely unaffected by media influence. Data on respondents' occupations indicate that less than one-third were engaged in temporary or casual employment. This condition is strongly associated with their income levels. Individuals working in casual or informal sectors tend to earn lower wages compared to those in professional occupations, largely due to differences in skills and competencies. Moreover, they are less likely to have access to social security benefits, making them more vulnerable to economic instability and poverty (Pulungan & Haryanto, 2024).

Low household income has a significant impact on children's nutritional status, increasing the risk of undernutrition among toddlers within the family (Afifah, 2019). Findings from this study indicate that more than half of the participants earned below the regional minimum wage of Rp. 2,186,826.00. Lower per capital income reduces the community's purchasing power, consequently limiting the family's ability to meet essential needs, including adequate and

nutritious food for their children (Affah, 2019), (Rahmadani et al., 2023). Participants demonstrated good knowledge regarding sardinella as a type of fatty fish. The majority recognized sardines as a nutrient-dense food that serves as an important source of protein for household consumption. Information about the nutritional value of sardines was obtained from multiple sources, including family traditions, formal education, health promotion activities conducted by health professionals, and key figures within the community. This finding aligns with the national stunting prevention program initiated by the National Team for the Acceleration of Poverty Reduction (TNP2K), which adopts two complementary approaches: specific and sensitive interventions. The specific approach encompasses health-sector initiatives directly targeting stunting, whereas the sensitive approach involves cross-sectoral programs that indirectly influence nutritional outcomes, such as food security and access to clean water. Adequate knowledge and awareness of sardine consumption are therefore essential, particularly in regions with high stunting prevalence, to support effective implementation of these national strategies (Saputri, 2019).

Participants' knowledge of the nutritional value of sardines was positively associated with their enthusiasm for incorporating this fish into family diets as part of stunting prevention efforts. Most participants reported consuming sardines as the main source of animal protein for their households. Pregnant women and wives were particularly likely to consume sardines to support fetal nutritional needs, especially among economically disadvantaged families. Although sardines are rich in essential nutrients, they remain affordable and widely accessible, making them a preferred dietary option among low-income groups. This perception also influences household food purchasing behaviors; when shopping in traditional markets, husbands or head of household usually choose sardines over other fish species, particularly when a family member or their wife is pregnant. In general, within developing country contexts, low-income families tend to rely on pelagic fish as a primary protein source due to their affordability, digestibility, and high content of essential lipids (DHA and EPA), vitamins, amino acids, and other vital nutrients (Isaacs, 2016).

This study points out that respondents understand that sardines have high components of proteins that support organogenesis. The knowledge that were gained not only from health promotion by health practitioners but also from various medias. Even though participants educational level dominantly in the low and middle stages, it is not necessarily limiting people knowledge. Individual knowledge is obtained from what there are already acquired which is factual and positive from visible signs that is regained from personal experiences, read articles, mass medias, and also from experts (Isaacs, 2016). The findings of this study show that participants have a strong understanding of sardines as an essential source of marine protein that forms part of the community's dietary lifestyle. In the context of stunting prevention, the habitual consumption of sardines among the Lembata community appears to contribute to the district's low prevalence of stunting. According to Central Bureau of Statistics Indonesia (Badan Pusat Statistik, BPS), the stunting rate in Lembata is 7.9%, one of the lowest in East Nusa Tenggara Province (BPS Provinsi NTT, 2023).

CONCLUSION

This study suggests that the majority of respondents possess good knowledge about Lembata sardines, including their local availability, methods of capture, and utilization for meeting family and maternal nutritional needs. Furthermore, most participants demonstrated positive dietary behaviors, regularly consuming sardines as a primary marine protein source to meet household nutritional demands. The consumption of sardines during pregnancy was also perceived as beneficial for supporting fetal brain development and preventing stunting in children.

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