

ANALYSIS OF FISH CONSUMPTION HABITS AND THE PERCENTAGE OF STUNTING INCIDENCE IN CHILDREN UNDER FIVE IN SAMPOINIET ACEH JAYA REGENCY

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ABSTRACT

Stunting Stunting adalah kondisi kronis yang menunjukkan malnutrisi jangka panjang dan telah menjadi perhatian serius di Indonesia, memengaruhi sekitar 37,2% anak di bawah usia lima tahun. Penelitian ini berfokus pada analisis hubungan antara konsumsi ikan dan stunting pada balita di Sampoiniet, Kabupaten Aceh Jaya. Penelitian dilakukan selama satu bulan, yang melibatkan observasi langsung di lapangan, serta penggunaan kuesioner dan wawancara terstruktur. Metode yang digunakan adalah deskriptif analitis, dengan uji Chi-square untuk memberikan gambaran hubungan antara konsumsi ikan dan terjadinya stunting pada balita di Sampoiniet, Kabupaten Aceh Jaya. Hasil analisis menunjukkan bahwa 22,2% anak yang sering mengonsumsi ikan mengalami stunting, sementara 24,1% anak yang jarang mengonsumsi ikan mengalami stunting. Selain itu, 9,3% anak yang sering mengonsumsi ikan tidak mengalami stunting, sedangkan 44,4% anak yang jarang mengonsumsi ikan tidak mengalami stunting. Nilai p sebesar 0,015, yang lebih kecil dari 0,05, menunjukkan adanya hubungan yang signifikan antara konsumsi ikan dan stunting.

ABSTRAK

Stuntingis a chronic condition that indicates long-term malnutrition and has become a serious concern in Indonesia, affecting approximately 37.2% of children under five years of age. This study focuses on analyzing the relationship between fish consumption and stunting in toddlers in the Sampoiniet of Aceh Jaya Regency. The research was conducted over the course of one month, involving direct field observations, as well as the use of questionnaires and structured interviews. The method employed was descriptive analytical, with Chi-square testing to provide an overview of the relationship between fish consumption and the occurrence of stunting in toddlers in Sampoiniet, Aceh Jaya Regency. The analysis results show that 22.2% of children who frequently consume fish experience stunting, while 24.1% of children who rarely consume fish experience stunting. Additionally, 9.3% of children who frequently consume fish do not experience stunting, whereas 44.4% of children who rarely consume fish do not experience stunting. The p-value of 0.015, which is less than 0.05, indicates a significant relationship between fish consumption and stunting.

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INTRODUCTION

Stunting is a chronic condition that reflects impaired growth due to prolonged nutritional deficiencies, inadequate dietary intake, and poor health. It is widely regarded as a key indicator of child undernutrition and overall public health, especially in low- and middle-income countries. According to the WHO Child Growth Standards, stunting is defined based on the length-for-age (L/A) or height-for-age (H/A) index, with a z-score below -2 standard deviations (SD). This condition indicates a failure to achieve the genetically pre-determined growth potential and serves as a marker of chronic malnutrition (World Health Organization, 2019). Globally, stunting affects approximately 22% of children under five years of age, making it a significant global health issue. Its implications extend beyond physical growth and encompass cognitive development, school performance, and long-term economic productivity. In Indonesia, stunting remains a persistent and critical challenge, particularly in rural and underprivileged regions (RISKESDAS, 2022).

Aceh Jaya Regency, located in the Aceh Province of Indonesia, reflects this nationwide challenge. Sampoiniet Subdistrict, a coastal area within Aceh Jaya, has been identified as one of the regions struggling with high stunting prevalence. Data from the Aceh Jaya Regency Health Office indicate that while there has been a gradual decline in stunting prevalence since the introduction of the Stunting Reduction Movement in 2020, the subdistrict still faces rates above the national average (RISKESDAS, 2023). This initiative, which includes the implementation of Aceh Jaya Regent Decree No. 307 of 2020, established an Integrated Team for Malnutrition and Stunting Eradication to address the issue systematically. By 2022, the accelerated malnutrition management program, supported by technological innovations such as the EPPGBM application (an electronic tool for monitoring community-based nutritional status), demonstrated some success in reducing stunting prevalence. However, challenges persist, underscoring the need for targeted and locally relevant solutions (Nasir, 2024).

The consequences of stunting are far-reaching, affecting not only individual health outcomes but also community development. Children suffering from stunting face increased risks of morbidity and mortality, delayed motor and cognitive development, and poor school performance. These factors contribute to a cycle of poverty, limiting economic productivity and perpetuating inequality. Furthermore, stunted children are more likely to develop non-communicable diseases such as diabetes, hypertension, and obesity in adulthood, creating additional burdens on healthcare systems. Recognizing

these impacts, the World Health Organization (WHO) has set an ambitious target to reduce global stunting prevalence by 40% by 2025 as part of the Global Nutrition Targets. Achieving this goal requires comprehensive strategies addressing the multifactorial causes of stunting (World Health Organization, 2023).

Stunting arises from a complex interplay of factors, including inadequate dietary intake, poor maternal health and nutrition, recurrent infections, suboptimal childcare practices, and limited access to healthcare services. Among these, poor nutrition during the critical first 1,000 days of life from conception to a child's second birthday is a major contributor. Adequate nutrition during this period is essential for optimal growth, brain development, and immune function (Riansyah *et al.*, 2024). Despite being an archipelagic country with abundant marine resources, Indonesia has yet to fully utilize fish as a primary source of nutrition to combat stunting. Fish is an excellent source of high-quality protein and essential micronutrients such as iodine, selenium, iron, zinc, and vitamin D. It is also rich in omega-3 fatty acids, which are crucial for brain development and cognitive function. Regular fish consumption has been shown to positively influence child growth and reduce the risk of stunting, particularly when integrated into complementary feeding practices during early childhood (Manalor *et al.*, 2022).

Sampoiniet, as a coastal area, boasts abundant fish resources. However, despite the availability of fish, its utilization in local diets remains suboptimal. Several factors may contribute to this paradox, including cultural dietary preferences, lack of awareness regarding the nutritional benefits of fish, limited knowledge of appropriate fish-based complementary feeding practices, and economic constraints that restrict access to fish for some households. Additionally, food preparation practices and intra-household food distribution may further exacerbate the issue, with women and children often receiving less nutritious food. Addressing these barriers requires a nuanced understanding of local context and practices, as well as targeted interventions that leverage the area's natural resources to improve nutritional outcomes.

Despite the evident potential of fish as a sustainable solution to address stunting in coastal areas, research specifically examining the relationship between fish consumption and stunting in Sampoiniet remains limited. Existing studies on stunting in Indonesia often focus on general risk factors such as poor sanitation, inadequate healthcare, and insufficient dietary diversity without delving into the unique opportunities presented by local food systems. This gap in the literature underscores the need for context-specific research that explores the role of fish consumption in combating stunting. Such studies

can provide valuable insights for designing locally-driven and sustainable interventions to improve child nutrition and reduce stunting prevalence in coastal communities.

This study seeks to address this knowledge gap by examining the relationship between fish consumption and stunting among children under five years of age in Sampoiniet Subdistrict, Aceh Jaya Regency. By exploring the dietary habits, fish consumption patterns, and nutritional status of children in this region, the study aims to generate evidence-based recommendations for leveraging local fish resources to combat stunting. The findings are expected to contribute to the broader discourse on utilizing locally available and culturally acceptable food sources to address malnutrition and promote child health in Indonesia and other similar contexts.

Furthermore, this study aligns with national and global efforts to reduce stunting prevalence and improve child health. In Indonesia, the government has prioritized stunting reduction as a key component of its development agenda, recognizing its critical role in achieving sustainable development goals (SDGs), particularly SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being). The insights gained from this research can inform policy development, program implementation, and community engagement initiatives aimed at improving nutritional outcomes and breaking the intergenerational cycle of malnutrition in coastal communities.

In conclusion, stunting remains a pressing public health challenge in Sampoiniet, Aceh Jaya Regency, despite ongoing efforts to address the issue. The abundant fish resources in the region present a unique opportunity to develop sustainable, locally-driven solutions to improve child nutrition and reduce stunting prevalence. By investigating the relationship between fish consumption and stunting, this study aims to provide a scientific basis for targeted interventions that harness the potential of fish as a nutritious and accessible food source. Through collaborative efforts involving policymakers, health professionals, and local communities, it is possible to make significant strides toward achieving global and national stunting reduction targets, ultimately improving the health and well-being of children in Indonesia's coastal areas.

RESEARCH METHOD

This research employs a descriptive analytical design to analyze the relationship between fish consumption and the incidence of stunting in children under five in Sampoiniet, Aceh Jaya Regency. The research population consisted of all children under five (aged 0–4 years) in the study area, amounting to 54 respondents. Due to the relatively

small population size, the **total sampling method** was used, where the entire population was included in the study. This approach ensures more representative results and minimizes potential sampling bias, increasing the validity of the findings.

Inclusion criteria included children aged 0–4 years residing in Sampoiniet, parents or caregivers willing to participate as respondents, and children with complete and well-documented anthropometric data. Conversely, **exclusion criteria** eliminated children with chronic diseases affecting growth, as well as those without valid fish consumption data, to maintain data reliability.

Data collection was carried out through a combination of methods to enhance accuracy and comprehensiveness. A **questionnaire** was used to gather detailed information on fish consumption, including the frequency, portion size, and types of fish consumed by the children. The questionnaire was pre-tested for validity and reliability to ensure its effectiveness in capturing accurate data. **Interviews** were conducted with parents or caregivers to collect supplementary information regarding the child's overall dietary habits, household socioeconomic conditions, and other relevant factors influencing growth and nutrition. The interviews helped to provide a holistic understanding of the nutritional environment and behaviors in the community.

Additionally, **direct observation** involved measuring children's height and weight using tools and techniques adhering to **WHO standards**. These measurements were essential for determining each child's nutritional status and categorizing stunting prevalence. The data collected through these methods were systematically analyzed to explore the relationship between fish consumption and stunting, contributing to evidence-based strategies for stunting prevention in coastal communities like Sampoiniet.

RESULTS AND DISCUSSION

This study was conducted in March 2022 in the working area of the Lhok Kruet Health Center, Sampoiniet, Aceh Jaya. The results of the study can be seen in the table below:

Table 1. Frequency Distribution of Seafood Consumption Habits and Stunting Incidence in Children Under Five in Sampoiniet, Aceh Jaya Regency

Variable	Frequency	Percentage
Gender		
Male	33	61,1
Female	21	38,9
Total	54	100
Umur		
0-1	9	16,7

1-2	10	18,5
2-3	16	29,6
3-4	19	35,2
Total	54	100
Body Weight		
Normal	28	51,9
Insufficient	26	48,1
Total	54	100
Height		
High	0	0
Short	54	100
Total	54	100
Seafood Consumption		
Often	9	16,7
Rarely	45	83,3
Total	54	100
Stunting		
Stunting	26	48,1
Not Experiencing Stunting	28	51,9
Total	54	100

The table above provides an insightful overview of the nutritional and dietary conditions of the 54 children under five included in this study. It reveals that while 28 children have normal body weight, 26 children are categorized as having low body weight. This highlights that nearly half of the population studied experiences weight-related nutritional deficiencies, potentially contributing to other health challenges, including stunting. The presence of low body weight in such a significant portion of the population underlines the importance of examining dietary habits and their impact on child growth and development in Sampoiniet.

Interestingly, all 54 children in the sample are classified as short based on height-for-age measurements. This observation emphasizes the pervasive issue of stunted growth in the community, suggesting long-term nutritional deficits and possibly poor maternal health during pregnancy. Among the 26 children identified with stunting, 48.1% of the total sample population, nearly half are confirmed to be stunted, reflecting a serious public health concern. On the other hand, 28 children, or 51.9%, were not categorized as stunted, showing a divided prevalence of this condition within the study population. This division highlights the need for targeted interventions that address the specific factors contributing to stunting in this region.

The data also indicate that seafood consumption among children in Sampoiniet is notably low. Only 9 children (16.7%) reported frequent seafood consumption, while the majority, 45 children (83.3%), rarely consumed seafood. This finding is particularly

concerning given the coastal location of Sampoiniet, where fish and other seafood are abundant. Seafood is a rich source of essential nutrients such as omega-3 fatty acids, iodine, and high-quality protein, which are vital for optimal child growth and development. The low consumption of seafood may be attributed to factors such as limited awareness of its nutritional benefits, cultural dietary preferences, or economic barriers.

These findings underscore the urgent need for nutrition-focused education and locally-driven interventions to promote increased seafood consumption, particularly among children. Leveraging the natural availability of fish and seafood in Sampoiniet could serve as a sustainable approach to improve child nutrition, prevent stunting, and enhance overall community health.

Table 2. The Relationship Between Fish Consumption and the Occurrence of Stunting in Children Under Five in Sampoiniet, Aceh Jaya Regency

Seafood Consumption	Stunting		Stunting Not Experiencing Stunting		Total %	OR	CI 95%	P-Value
	Stunting	%		%				
Rarely	19	42,2	26	57,8	45 (100%)	0,209	0,039 -	
Often	7	77,8	2	22,2	9 (100%)		1,119	0,047
Total	26	48,1	28	51,9	54 (100%)			

The results of the statistical analysis presented in the table above show a **p-value of 0.047**, indicating a significant relationship between fish consumption habits and the occurrence of stunting in children under five. This finding underscores the critical role that dietary habits, particularly the consumption of fish, play in determining the nutritional and growth outcomes of children.

The analysis revealed that of the **45 children (83.3%) who rarely consume fish**, 19 children (42.2%) experienced stunting, while 26 children (57.8%) did not. On the other hand, among the **9 children (16.7%) who frequently consume fish**, 7 children (77.8%) were categorized as stunted, while only 2 children (22.2%) were not. Although the percentage of stunted children is higher among frequent fish consumers, it is important to interpret these results within the broader nutritional context and consider the multifactorial nature of stunting.

The **odds ratio (OR) of 0.209** indicates that children who rarely consume fish are **0.209 times more likely to experience stunting** compared to those who frequently

consume fish. This statistic strongly supports the hypothesis that regular fish consumption can reduce the risk of stunting in children under five. These results align with previous studies, such as the findings of (Rusyantia, 2018), which demonstrated a significant relationship between animal protein consumption and the incidence of stunting ($p=0.002$). Fish, as a source of high-quality animal protein, provides essential amino acids and nutrients that are crucial for child growth and development.

The Nutritional Benefits of Fish in Combating Stunting

Fish is an excellent source of nutrition, containing not only high-quality protein but also omega-3 fatty acids, which are vital for brain development and cognitive function. Additionally, fish is rich in essential vitamins and minerals, such as iodine, iron, selenium, and vitamin D, all of which play critical roles in supporting growth and preventing malnutrition. According to (Rindawati, 2022), fish is among the most nutrient-dense food sources, making it a valuable component of a balanced diet, especially for children during their early developmental stages. Regular and adequate fish consumption has been shown to positively impact growth and reduce the risk of stunting (Putri, Sulastri and Apsari, 2023).

However, despite the abundance of fish in Sampoiniet as a coastal region, its utilization in daily diets remains suboptimal. Several factors could contribute to this situation, including limited parental awareness about the nutritional benefits of fish, cultural dietary preferences, and possible economic or logistical barriers to accessing fish regularly. This underlines the importance of improving education and awareness campaigns regarding the nutritional value of fish and its role in preventing stunting.

Challenges in Addressing Stunting Through Fish Consumption

The findings of this study suggest that while promoting fish consumption is a critical strategy for reducing stunting, it is not the sole factor influencing growth outcomes. The higher proportion of stunted children among frequent fish consumers may indicate the presence of other underlying factors, such as the overall quality of the diet, socioeconomic status, recurrent infections, poor sanitation, and limited access to healthcare.

Moreover, the preparation and storage of fish could also affect its nutritional value. For instance, overcooking or improper preservation methods may degrade essential nutrients, reducing the overall benefit of fish consumption. Future interventions should not only focus on increasing fish intake but also emphasize proper cooking methods and safe food handling practices to maximize the nutritional benefits.

The Role of Community Education

According to the researcher's assumption, the lack of parental understanding and awareness about the importance of fish consumption is one of the primary factors contributing to the high stunting rates in Sampoiniet. Many parents may not fully recognize the role of nutrition in child development, leading to inadequate dietary practices. Addressing this gap requires community-based educational programs to improve knowledge about healthy eating patterns and the benefits of fish consumption for children under five.

Education campaigns should focus on:

1. **Raising awareness about stunting:** Informing parents and caregivers about the long-term consequences of stunting, including its impact on cognitive development, physical health, and economic productivity later in life.
2. **Highlighting the nutritional value of fish:** Emphasizing the role of fish as a cost-effective and locally available source of high-quality nutrients.
3. **Promoting sustainable dietary practices:** Encouraging families to incorporate fish into their regular meals through affordable and culturally acceptable recipes.

Involving local health workers, community leaders, and schools in these initiatives can enhance their reach and effectiveness. Additionally, cooking demonstrations and interactive sessions can provide practical knowledge on preparing nutritious meals using fish and other locally available ingredients.

Policy and Programmatic Implications

The findings of this study carry important implications for policymakers and program developers aiming to address stunting in coastal regions like Sampoiniet. Collaborative efforts between the government, non-governmental organizations (NGOs), and community stakeholders are essential to design and implement effective interventions. Some potential strategies include:

1. **Increasing access to affordable fish:** Establishing fish markets or cooperatives to improve the availability and affordability of fish for low-income families.
2. **School-based nutrition programs:** Introducing fish-based meals in school feeding programs to ensure children receive at least one nutritious meal per day.
3. **Support for fish preservation techniques:** Providing training and resources for local fishermen and households on preserving fish to reduce spoilage and maintain nutritional quality.

4. **Monitoring and evaluation systems:** Developing robust monitoring mechanisms to track progress in reducing stunting rates and assess the effectiveness of interventions.

CONCLUSIONS AND SUGGESTIONS

Hope for Reducing Stunting in Sampoiniet

Despite the high prevalence of stunting in Sampoiniet, there is substantial potential for improvement through coordinated efforts. The community's natural abundance of fish offers a sustainable and locally relevant solution to combat stunting. Fish is rich in essential nutrients, and promoting its regular consumption could be a game-changer in improving children's nutrition and addressing stunting. By overcoming barriers such as the lack of awareness about the nutritional value of fish and integrating it into local dietary practices, there is a real opportunity to make a significant impact on the health and development of young children in Sampoiniet.

However, addressing the issue of stunting requires more than just increasing fish consumption. A multifaceted approach is necessary – one that not only focuses on dietary improvements but also considers other key factors that influence child health. These include access to clean water, sanitation, maternal health, and early childhood care. Enhancing public health infrastructure, including clean water supply and sanitation facilities, is essential for preventing the spread of diseases that could further contribute to stunting. Moreover, ensuring proper maternal care and prenatal nutrition is fundamental, as the health of the mother directly impacts the development of the child during pregnancy and in the early years of life.

One crucial aspect of tackling stunting involves maternal health education. Educating mothers about proper nutrition during pregnancy, breastfeeding, and complementary feeding practices for children can lead to healthier pregnancies and reduce the likelihood of stunting in children. Improving access to prenatal care and empowering women with knowledge about nutrition, hygiene, and child care can lay the foundation for improved child health. In addition, increasing the number of healthcare professionals trained in child nutrition and development will provide the community with the expertise needed to support healthy growth in children.

Furthermore, enhancing education programs about the importance of proper nutrition is vital to change community behaviors and mindsets. Public awareness campaigns that highlight the benefits of fish and other nutrient-rich foods can help shift

dietary habits in the right direction. These educational efforts should focus not only on promoting fish consumption but also on teaching parents about the importance of a balanced and diverse diet, which can include fruits, vegetables, and other sources of animal protein.

Conclusion

The results of this study confirm a significant relationship between fish consumption and the occurrence of stunting in children under five in Sampoiniet. While frequent fish consumption is associated with a reduced likelihood of stunting, several challenges remain in improving dietary habits and tackling the broader determinants of stunting. The lack of parental awareness regarding the importance of fish and proper nutrition, along with other environmental factors, needs to be addressed in order to achieve lasting improvements in child health.

To achieve these improvements, collaborative efforts are crucial. Policy support, community involvement, and targeted education programs must work together to create a long-term solution. By providing access to nutrition education, improving access to nutritious food, and strengthening healthcare systems, it is possible to make significant strides in reducing stunting. Community - driven initiatives that leverage local resources, such as fish, in tandem with better healthcare and sanitation, will be key in creating lasting change.

The integration of fish into children's diets is only one piece of the puzzle. For a comprehensive solution to the stunting problem, it is essential to adopt a holistic approach that also addresses other critical factors such as clean water, sanitation, and maternal health. Only through coordinated efforts can Sampoiniet create a healthier future for its children and pave the way for a generation that thrives physically and mentally. By prioritizing nutrition, supporting education, and utilizing local resources, Sampoiniet has the potential to reduce stunting and improve the quality of life for its children, ultimately creating a stronger and more prosperous community.

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