

**FAMILY FOOD SECURITY AND THE INCIDENT OF STUNTING  
TODDLERS IN EAST BARITO REGENCY CENTRAL  
KALIMANTAN PROVINCE**

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**Abstract**

*This study aims to assess family food security and its relationship with food availability, food access, and food diversity in Dusun Tengah District, East Barito Regency, Central Kalimantan Province. The research methodology involves observation, interviews, and data recording. The findings reveal that the average daily energy intake for children under five in Dusun Tengah District is 960.76 kcal/cap/day, with a PPH score of 63.7. The majority of households fall into the category of food insecurity, with a moderate level of hunger at 81.1%. Severe hunger is observed in 7.8% of households, while food insecurity without hunger is reported in 11.1% of cases, and no households are classified as food secure. Regarding food availability, all households are in the low category, accounting for 100% of respondents. In terms of food access, 39% of respondents have a distance of less than 25 minutes to the market, while 61% have access to the market within a 25-minute distance. As for food diversity, 100% of the families of toddlers' experience food insecurity, with none in the food-safe or food-alert category. The composite index shows that no families have a food-safe status, 28% have a food-alert status, and the majority, accounting for 72%, experience food insecurity. The correlation coefficients with stunting are 0.233 for availability, 0.113 for access, and 0.081 for diversity, indicating a weak relationship between availability, access, and diversity with stunting.*

**Keywords:** Food Security, Household, Stunting, Toddlers

## 1. INTRODUCTION

The concept of food is defined as anything derived from living sources and water, whether in its natural state or processed, intended for human consumption. This includes food additives, raw food materials, and any other substances used in the preparation, processing, and production of food and beverages, as outlined in Article 1 of Law No. 7 of 1996 on Food. On the other hand, food security represents a broader and critical aspect of a population's well-being. It encapsulates the notion that food needs, at both the national and individual levels, are adequately met. It encompasses the availability of a sufficient, safe, diverse, nutritious, and affordable food supply that respects religious, cultural, and societal beliefs (Sufyanti, 2009). This, in turn, empowers individuals to lead healthy, active, productive, and sustainable lives, as enshrined in Law No. 18 of 2012 on Food.

Nutritional challenges arise when dietary choices are driven solely by taste and immediate satiation, ignoring the essential concept of balanced nutrition (Supariasa et al., 2002). A balanced diet must be composed of various food items because no single food

item contains all the necessary nutrients in ideal proportions. Thus, diversifying the diet is essential to ensure comprehensive nutrition (Murdiati, 2013).

The government of East Barito Regency has actively promoted agricultural production and introduced measures to support local farmers. The agricultural sector has made substantial contributions, with notable figures such as 13,760 tons of GKG (Wheat, Soybeans, Green Beans) production and 8,132 tons of rice production. Livestock populations have reached 42,753, while the aquatic ecosystem boasts 1,436,880 fish. Additionally, egg production has reached 494,913 units, all of which significantly impact the Regional Gross Domestic Product (GDP) of East Barito Regency. The year 2020 was particularly significant as it presented ample opportunities to contribute to various aspects, including food security, poverty alleviation, and the dynamics of economic growth.

In East Barito Regency, rice takes the spotlight as the main staple crop, contributing to almost the entire cereal production, yielding an impressive 35,270.00 tons. This pattern emphasizes rice's predominant role in meeting the dietary requirements of the local community, acting as a vital component in ensuring food security and addressing hunger issues for numerous households.

Conversely, on the opposite end of the production spectrum, we encounter sweet potatoes, which are cultivated within the region but on a significantly smaller scale. The recorded sweet potato production stands at a modest 126.74 tons. This production contrast between rice and sweet potatoes vividly underscores rice's overwhelming dominance within the cereal category in East Barito Regency.

Rice's prevalence as the primary cereal crop not only reflects its adaptability to the region's climatic and soil conditions but also its cultural and dietary significance among the local populace. This dominance in cereal production highlights rice's crucial role in shaping the local food culture and economy. However, it also prompts considerations about dietary diversity and the necessity to explore strategies for promoting a more balanced and varied diet among East Barito Regency's residents to enhance their nutritional well-being.

This research aims to delve deeper into the implications of these agricultural trends on food security and nutritional outcomes within the region. By understanding the interplay between food production, consumption patterns, and their impact on food security and nutrition, we can formulate strategies to enhance the well-being of the local population, particularly among children and families.

## **2. RESEARCH METHODS**

This research was conducted in the Dusun Tengah District of East Barito Regency, Central Kalimantan Province, from January 2022 to June 2022, covering all phases, including preparation, data collection, data processing, and report writing. The data utilized in this study consisted of both primary and secondary data. Primary data were gathered through direct interviews with mothers or caregivers of toddlers using a prepared questionnaire. Meanwhile, secondary data were sourced from the Ampah Community Health Center in the Dusun Tengah District and the Department of Agriculture and Food Security of East Barito Regency.

The research adopted a descriptive quantitative approach, aimed at examining independent variables, with no comparisons or connections to other variables (Sugiyono, 2018). This method, rooted in positivism and often used to describe quantitative data concerning the subjects' conditions, operates within a specific sample or population. Sampling for this research was carried out purposefully, deliberately selecting the Dusun Tengah District due to its prevalence of stunted toddlers. To ensure data representativeness, a sample of 90 stunted toddlers was selected for the study. Data collection methods included observation, interviews with prepared questionnaires, recording, and a 24-hour recall survey conducted three times within a one-day interval to capture food consumption data for children aged 12-59 months, the focal subjects of the research.

### 3. RESULTS AND DISCUSSION

#### 3.1. Result

**Table 1. Data on Food Availability Production of Staple Cereals and Tubers per ton in 2018-2020**

Year	Rice	Corn	Cassava	Sweet Potato
2018	28.924,55	593,94	1.307,93	224,07
2019	38.091,00	3.131,89	1.480,71	276,60
2020	35,270,00	3.984,33	860,26	126,74

#### 3.1.1. Family Food Security in Stunted Toddlers in East Barito Regency

##### A. Food Consumption Pattern

The principle of the recall method is to record the types and amounts of food consumed in the past 24 hours. Real data on family food consumption are processed using the Expected Food Pattern (PPH) approach. United States Household Food Security Survey Module (US-HFSSM) is used and the research results on Household Food Security Status in toddlers in the Dusun Tengah District of East Barito Regency can be seen in the following Table 2:

**Table 2. Household Food Security Status**

Category	Frequency	Percentage (%)
Food Security	0	0
Food Insecure Without Hunger	10	11,1
Food Insecure with Moderate Degree of Hunger	73	81,1
Food Insecure with Severe Degree of Hunger	7	7,8
<b>Total</b>	<b>90</b>	<b>100</b>

Source: Primary Data Processing, 2022

Based on the table 2, the household food security status in the Dusun Tengah District of East Barito Regency is predominantly in the category of food insecurity without hunger at 11.1%. Food insecurity with a moderate degree of hunger accounts for 81.1% of households, while some other households fall into the category of food insecurity with a severe degree of hunger, totaling 7.8%.

### B. Food Availability

The research findings on food availability in households with toddlers in East Barito Regency can be observed in Table 3 below.

**Table 3. Food Availability of Toddler Households in Barito Timur District**

Category	Indicators	N	Weight	%
High	$\geq 1600$ kcal/cap/day	0	1	0
Medium	$1400$ kcal/cap/day $\leq$ Food Availability < 1600 kcal/cap/day	0	2	0
Low	< 1400 kcal/cap/day	90	3	100
<b>Total</b>		<b>90</b>		<b>100</b>

Based on Table 3 above, there were no respondents with high or moderate food availability in households with toddlers in East Barito Regency. All respondents fell into the category of low food availability, totaling 100%. The research results indicate a relationship between family food availability and the incidence of stunting in toddlers in the Dusun Tengah District of East Barito Regency. This is evident as the majority of respondents or toddlers did not fall into the high or moderate availability categories, and based on the data obtained, toddlers with insufficient food availability had a status of severely stunted (TB/U).

### C. Food Access

The research findings on food access in households with toddlers in East Barito Regency can be observed in Table 4 below:

**Table 4. Food Access in Households with Toddlers  
in the East Batang Alai District**

Indicators	N	Weight	%
< 25 minutes to traditional market	35	0	39
$\geq 25$ minutes to traditional market	55	1	61
<b>Total</b>	<b>90</b>		<b>100</b>

Based on the table 4, regarding the access to food for families with toddlers, there were 35 respondents who had a distance of less than 25 minutes to reach the traditional market, accounting for 39%. The remaining 55 respondents had access to the market with a distance of 25 minutes or more to obtain food, which is 61%.

The research results indicate a relationship between food access and the incidence of stunting in toddlers in East Barito Regency. This is evident from the distance traveled by the respondents, with a majority of them having to travel more than 25 minutes to reach the traditional market. Apart from the long distance, respondents are also influenced by their purchasing power, which must meet other needs.

#### D. Food Diversity

The research findings on food diversity in families with toddlers in the Dusun Tengah District of East Barito Regency can be seen in Table 5 below.

**Table 5. Food Diversity in Families with Toddlers in the Dusun Tengah District of East Barito Regency**

Category	Indicator	Result	n	Weight	%
Food Safe	$r < 15$	$r = \left( \frac{\sum 183}{\sum 425} \right) \times 100 = 43.0$	0	1	0
Food Alert	$15 \geq r \leq 20$		0	2	0
Food Prone	$r > 20$		90	3	100
<b>Total</b>			<b>90</b>		<b>100</b>

Based on the table 5, the food diversity in families with toddlers in East Barito Regency shows that 90 respondents, or the entire families of toddlers, experienced food insecurity, which accounts for 100%. There were no respondents classified as food-secure, making up 0%, and no respondents categorized as food-cautious, also amounting to 0%.

The research results indicate a relationship between food diversity and the incidence of stunting in toddlers in the Dusun Tengah District of East Barito Regency. This is evident from the calculation results where the value of  $r$  is greater than 20, indicating food insecurity and a nutritional status of TB/U being very short.

#### E. Composite Index

The composite index is an assessment of the combined scores of availabilities, access, and diversity. The determination of scores for the three aspects of food security can be found in Table 6 below.

**Table 6. Score Determination According to the Calculation of the Composite Index of Food Security**

3-4	<b>Safe</b>	Consists only of scores 1 and or 2	0	0
5-6	<b>Alert</b>	There is no score of 3 from the assessment of each aspect	25	28
5-9	<b>Prone</b>	There is a score of 2 and or 3 from the assessment of each aspect	65	72
<b>Total</b>			<b>90</b>	<b>100</b>

Based on the table 6, the results of the composite index indicate that no respondents or families of toddlers are classified as food-secure, accounting for 0%. The findings reveal that there are only 25 respondents categorized as food-cautious, which represents 28%, while the majority of families are food-insecure, totaling 65 respondents, or 72%.

### 3.1.2. Relationship Between Family Food Security (Food Availability, Food Access, and Food Diversity) and the Incidence of Stunting in Toddlers in the Dusun Tengah District

The research findings on the relationship between family food security and the incidence of stunting in toddlers in East Barito Regency, utilizing Pearson's Product Moment Correlation analysis, are presented in Table 7 below:

**Table 7. Results of Pearson's Product Moment Correlation Analysis**

		Stunting	Availability	Access	Diversity
<b>Stunting</b>	Pearson Correlation	1	.233*	.113	.081
	Sig. (2-tailed)		.027	.287	.447
	N	90	90	90	90
<b>Availability</b>	Pearson Correlation	.233*	1	.296**	.102
	Sig. (2-tailed)	.027		.005	.337
	N	90	90	90	90
<b>Access</b>	Pearson Correlation	.113	.296**	1	.122
	Sig. (2-tailed)	.287	.005		.252
	N	90	90	90	90
<b>Diversity</b>	Pearson Correlation	.081	.102	.122	1
	Sig. (2-tailed)	.447	.337	.252	
	N	90	90	90	90

Based on the above correlation analysis results, the magnitude of the correlation and the significance level between the Availability variable and Access, the Availability variable and Diversity, and the Access variable and Diversity can be explained as follows.

- a. The correlation coefficient value between Availability and stunting is 0.233, indicating that the relationship between Availability and stunting is weak.
- b. The correlation coefficient value between Access and stunting is 0.113, suggesting that the relationship between Access and stunting is weak.
- c. The correlation coefficient value between Diversity and stunting is 0.081, indicating that the relationship between dietary diversity and stunting is weak.

### 3.2. Discussion

Based on the research results, the average energy consumption of toddlers in Dusun Tengah District, East Barito Regency, is 960.76 kcal/cap/day with a PPH score of 63.7. This value is far below the energy consumption standard of 1400 kcal/cap/day and the ideal PPH score of 100.

The relationship between dietary diversity and the occurrence of stunting in toddlers in Dusun Tengah District, East Barito Regency, with a correlation coefficient value of 0.081, indicates a weak correlation between dietary diversity and stunting. This finding aligns with the study by (Masrin, 2015), which found a correlation coefficient value of 0.373 between dietary diversity and the occurrence of stunting in toddlers in Batang Alai Timur District, suggesting a weak correlation between dietary diversity and stunting.

The dietary diversity of a community is often influenced by the geographical and environmental conditions of the area where they reside and their ability to access and utilize available natural resources (Abdullah et al., 2023).

## 4. CONCLUSION

The findings of the study on the Relationship between Family Food Security and Stunting Incidence in Toddlers in Dusun Tengah District, East Barito Regency, can be summarized as follows: Family food security for toddlers, based on a 24-hour Food Recall, reveals that the average energy consumption in Dusun Tengah District, East Barito Regency, is 960.7 kcal/cap/day with a PPH score of 63.7, indicating that toddler energy consumption falls below the recommended standard of 1400 kcal/cap/day and the ideal PPH score of 100. According to the United States Household Food Security Survey Module (US-HFSSM), most households in the district face food insecurity, with 11.1% at low food insecurity without hunger, 81.1% at moderate food insecurity with moderate hunger, and 7.8% at severe food insecurity with severe hunger.

The analysis of family food security components (food availability, food access, and dietary diversity) using Pearson's product-moment correlation coefficient shows weak correlations with stunting incidence: food availability (0.233), food access (0.133), and dietary diversity (0.081). These results imply that the relationship between family food security and stunting incidence in toddlers is weak. It's worth noting that there could be other factors contributing to stunting not covered in this study. While this research establishes a connection between family food security and stunting, various other aspects might play a role in stunting among toddlers in Barito Timur Regency.

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