



Analysis of Food Diversification in Low-Income Communities in Korumba Village, Mandonga Sub-district, Kendari City

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Abstract

This research aims to determine socio-economic and analyze the fulfillment of the food patterns of low-income people in Korumba Village. This research was carried out from May to July 2024. The subjects of this research were the people of Korumba Village, focused on people who have low income using descriptive analysis and PPH Expected Food Pattern score. The results of the first research are the socio-economic characteristics that influence food fulfillment including age with an average of 42.7, level of education with an average of 7.6, number of members with an average of 3.7, and jobs dominated by agricultural commodity traders. Secondly, the consumption patterns of low-income people living in dominated by the staple food group as a source of carbohydrates in the form of grains at 86.4%. peoples consumption patterns have also not been diversified, this can be seen from the PPH score of 55.9%, which is still far from the ideal score of 100.

Keywords: Low income communities, Hope food patterns, Food, Food Diversification.

INTRODUCTION

Indonesia is committed to realizing 17 targets in the SDGs, including zero poverty (target number 1) and ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture (target number 2). In achieving these targets, the National Food Agency has the task and role to coordinate, establish and implement policies for the prevention and handling of food and nutrition insecurity, food consumption diversification, and food safety (BPN, 2022).

The development of an integrated Food and Nutrition Information System is absolutely

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necessary to support these tasks and roles. The National Food Agency continues to innovate and transform in the provision of data and information as outlined in the Food Security Index (IKP). Food consumption data is reviewed based on quantitative and qualitative aspects, through the calculation of energy and protein consumption based on the recommended nutrient adequacy figures for the Indonesian population. The recommended Nutrient Adequacy Rate (AKG) for the Indonesian population is the average daily nutrient adequacy for almost all healthy people according to age group, gender, body size, physical activity and physiological conditions to achieve optimal health status, using the recommended Energy Adequacy Rate of 2,100 kcal and Protein Adequacy Rate of 57 grams (based on the AKG results of the 2018 WNPB) (BPN, 2022).

Pola Pangan Harapan (PPH) is a concept of regulating food consumption that aims to achieve balanced nutrition. PPH focuses on food diversification to ensure that daily consumption includes a variety of appropriate food groups, including sources of carbohydrates, proteins, fats, vitamins and minerals that the body needs. Pola Pangan Harapan (PPH) is designed to encourage people to consume more local food that is nutritious and easily available, while reducing dependence on imported food. The importance of a balanced diet includes not only quantitative, but also qualitative aspects. This means paying attention to the amount and type of food consumed, as well as the way it is processed to ensure that nutritional value is maintained and supports optimal health (Astawan, 2019).

The level of food consumption plays an important role in determining the quality of human resources and food security, as it reflects nutritional adequacy and people's access to safe and nutritious food. National food development follows a "demand driven" approach from the demand side to "supply driven" on the supply side, in order to ensure sustainable food availability. Food consumption is also an indicator of people's diet, which is still not ideal, as seen from the 2018 Pola Pangan Harapan (PPH) score of 91.3 percent, with the dominance of rice consumption reaching 65.7 percent, higher than the recommended 50 percent, as well as increasing wheat consumption which risks increasing import dependence. Food consumption also reflects the socio-economic condition of the community, where high consumption levels indicate better welfare, while underconsumption can have an impact on individual health and well-being. Therefore, food security depends not only on physical availability, but also on economic access and sustainability of the food system to ensure people's well-being, which is the main goal of development.

Calorie consumption in Kendari City comes from various food groups including grains, fish, meat, oil, and processed foods. Household expenditure affects calorie consumption, groups with higher expenditure tend to have higher calorie consumption, adequate calorie



consumption is essential for public health (BPS Kendari, 2024).

Table 1 Average Calorie Consumption Per Capita Per Day by Food Group in Kendari City (kkl), 2022 and 2023

Food Group	Average consumption per day per capita			
	Calories		Protein	
	2022	2023	2022	2023
Grains	813.94	909.58	19.14	21.38
Tubers	52.75	56.43	0.31	0.31
Fish	95.17	100.57	17.82	18.62
Meat	50.15	52.20	3.03	3.25
Eggs and eclairs	68.51	59.36	3.82	3.21
Vegetables	38.57	42.53	2.77	3.12
Nuts	48.30	40.84	4.81	4.01
Fruits	53.47	54.68	0.66	0.69
Oil and coconut	161.34	207.95	0.06	0.09
Beverage ingredients	69.97	70.20	0.47	0.52
Condiments	8.92	10.17	0.30	0.34
Other food ingredients	79.55	62.75	1.72	1.33
Finished food and beverages	354.50	385.30	11.73	11.89
Cigarettes and Tambakau	-	-	-	-
Total	1 895,14	2,052.56	66.67	68.77

Source: BPS Kendari City, 2024

Protein consumption in Kendari City comes from various food sources, including fish which is one of the main protein sources, meat and eggs which are animal protein sources, and nuts which are vegetable protein sources. Food security is not only about the availability of calories but also about the diversity and quality of nutrition (BPS Kendari, 2024).

The main question regarding food security and self-reliance is how to meet the food needs of the people, especially the poor, from the aspects of availability, quality, price, affordability and stability, which is still a challenge (Rahman, 2018). One factor that weakens food security is urbanization, where the movement of people from villages to cities affects production and consumption patterns and increases urban temperatures, which can cause a crisis for low-income communities (Taridala, 2022). Kendari City, particularly Korumba Urban



Village in Mandonga Sub-district, is experiencing the impacts of urbanization with declining food security, low incomes, and high ambient temperatures, which contribute to reduced population welfare. In addition, rapid physical development in urban areas often reduces green open space, which plays an important role in reducing ambient temperature and improving quality of life. A decrease in green space also impacts biodiversity, which in turn can affect the well-being of people who depend on these ecosystems for survival (Taridala, 2022).

Low-income households in Korumba Village, Mandonga Sub-district, Kendari City are a group of families with relatively low-income livelihoods, whose economic conditions need attention from the local government because they affect food consumption decisions. The government has provided various forms of assistance such as the Family Hope Program (PKH), Cash Social Assistance (BST), Direct Cash Transfer (BLT), and Non-Cash Food Assistance (BPNT) to support the fulfillment of their basic needs (Suharto and Edi, 2010). This assistance is expected to improve the quality of food consumption of poor households. However, the food consumption patterns of low-income households in urban areas such as Kelurahan Korumba are different from those living in rural areas, where urban households are more vulnerable to malnutrition due to rapid growth, limited land, and less than optimal food distribution (Simbolon, 2016). Socioeconomic factors also affect the fulfillment of primary needs and food consumption patterns, making it an important aspect in analyzing the food security of low-income households (Nyagasa et al., 2019).

The phenomenon of urbanization that occurs in Kendari City has an impact on the quality of life of the community, especially people with relatively low income, therefore it is necessary to study how the socio-economic characteristics of the community in making decisions related to the type of food to be consumed. Regarding the fulfillment of food consumption of low-income communities, it is necessary to analyze the fulfillment of the Expected Food Pattern to determine the fulfillment of nutritional needs and see whether the community's consumption patterns are diversified or not through the Expected Food Pattern Score (PPH) which is a key indicator that needs to be measured and analyzed periodically, both at the central and regional levels in accordance with the mandate of Law No. 18 of 2012.

METHOD

The population in this study were all low-income households who received social assistance from the government in Korumba Village, Mandonga Subdistrict, Kendari City, which amounted to 307 households. Determination of the number of samples using the Slovin formula, by setting the error rate (*margin of error*) 10% = 0.1 as many as 75 people. The data collection





technique used was the interview method. This study was analyzed by calculating the score of Pola Pangan Harapan (PPH) to show the diversity of food ingredients, types, and amounts of food consumed. The calculation of the PPH score is obtained by comparing the AKE score with PPH. Therefore, it is necessary to first calculate the actual AKE score by multiplying the percentage of energy to AKE (% AKE) with the weight of the food group that has been determined (Food Security Agency of the Ministry of Agriculture, 2015). The AKE calculation is as follows:

$\text{AKE score} = \% \text{ AKE of each food group} \times \text{weight}$

Description:

$\text{AKE score} = \text{total energy value}$

$\% \text{ AKE} = \text{energy contribution}$

$\text{Weight} = \text{rating of each food group}$

The actual PPH score is calculated by comparing the actual AKE score with the maximum score. The maximum score is the maximum score limit for each food group that meets the ideal composition. The calculation of PPH score for each food group is as follows:

- 1) If the AKE score is higher than the maximum score, the maximum score is used.
- 2) If the AKE score is lower than the maximum score, the AKE score is used.
- 3) The total score of Pola Pangan Harapan (PPH), known as the quality of food consumption, is the sum of the scores of the 9 food groups, i.e. the sum of the grains group to the miscellaneous group score. This figure is called the food consumption PPH score, which indicates the level of diversity in food consumption.
- 4) $\text{PPH score} = \text{PPH score of grains} + \text{tubers} + \dots + \text{PPH score of other groups}$

RESULTS AND DISCUSSION

Type of Food Consumed

The type of food consumed is a description of the type and amount of food consumed by respondents in a day. The types of food described in this study are carbohydrate source foods, side dishes, vegetables, and fruits.

1. Carbohydrate Source Food

Carbohydrate foods are foods that contain a significant amount of carbohydrates and serve as a source of energy for the body. Carbohydrates in food come in many forms, including simple sugars, starch, and dietary fiber. Carbohydrates are important macronutrients needed



for various body functions, especially in providing energy needed for physical activity and person function (Mahan *et al.*, 2020).

The types of carbohydrate source foods discussed in this study are rice and sago, which are carbohydrate source foods that are widely consumed by people in Korumba Village.

- Rice, low-income housewives in Kelurahan Korumba process rice into rice that is consumed in every meal. The type of rice consumed by the respondents' families is rice obtained from social assistance by the government.
- Sago, people in Korumba Village, Mandonga Sub-district usually consume sago in the form of processed sinonggi. Sononggi is consumed almost every day by the community as the main food to replace rice or as a side dish that is usually consumed before or after consuming rice.

2. Side Dishes

Side dishes are food components that are usually consumed with staple foods, such as rice, to provide a balance of nutrients in daily consumption. Side dishes primarily serve as protein, vitamins and minerals that are important for a healthy body, side dishes play an important role in providing a balanced intake, supporting tissue growth and repair, and ensuring healthy body function. Through the consumption of different types of side dishes, individuals can better meet their daily nutritional needs (Whitney and Rolfes, 2019). Animal side dishes discussed in this study include meat, fish and eggs, while commonly consumed vegetable side dishes include tofu and tempeh.

- Meat, the meat consumption referred to in this study is chicken meat, processed into finished food ingredients such as stir-fried or diopor. Food consumption and provision patterns on the first day showed 12 respondents consumed chicken meat out of 74 respondents, on the second day as many as 10 respondents, and on the third day as many as 11 respondents. Low-income communities in Korumba Village who are respondents in this study usually consume chicken meat from day one to day two.
- Fish, low-income people in Korumba Village, Mandongan Subdistrict, Kendari City usually consume fish in the form of processed fried fish, salted fish or cooked fish as a food ingredient to accompany rice or sago which is consumed every day, usually respondents buy fish at Mandonga market.
- Eggs, people in Korumba Village usually buy eggs at the Mandongan market or at food stalls, then processed by frying or boiling. Food provision and consumption patterns on the first day showed that 15 out of 74 respondents consumed eggs, on the second day as many as 13 respondents, and on the third day as many as 11 respondents. This



shows that eggs are a type of side dish that is consumed quite often by some low-income people in Korumba Village.

- Tofu, people in Kelurahan Korumba usually process tofu by frying, sautéing or mixing it with other types of side dishes as a complement to the respondent's family diet. The pattern of consumption and provision of tofu on the first day showed that 8 out of 74 respondents consumed tofu, on the second day there were 7 respondents, and on the third day there were 3 respondents who consumed tofu. This shows that tofu is a type of side dish that is consumed less by respondents.
- Tempeh, there were 10 respondents who consumed tempeh on the first day, 9 respondents on the second day, and 8 respondents on the third day. This shows that respondents do not consume tempeh every day as well as tofu consumption.

3. Vegetables

Vegetables are parts of plants that are consumed by humans as food and include leaves, stems, roots, bulbs, flowers and seeds. Vegetables are a source of essential nutrients such as vitamins, minerals, fiber and phytochemicals. Regular consumption of vegetables can improve digestive function, reduce the risk of chronic diseases, and support the immune system (Smith and Jhonson, 2021). Food expenditure on vegetables consumed by respondents ranged from Rp.1,025 to Rp.13,043, while the location or place of purchase of respondents' vegetables was obtained from the Mandonga market market.

4. Fruits

Fruit is one type of food that has nutritional content and vitamins and minerals which are generally very good for consumption every day (Kemenkes P2PTM, 2018). Some types of fruits consumed in respondent households in Korumba Village are bananas, oranges, and papaya. Mandonga market is a place where respondents often buy fruits, food expenditure in the form of fruits consumed by respondents ranged from Rp.7,000 to Rp. 30,000.

Food Diversification Analysis

Pola Pangan Harapan (PPH) is used to describe the condition of food diversity and availability of a region at a macro level, by measuring the types and amounts of major food groups recommended to meet energy and nutritional needs (FAO-RAPA, 1998). PPH is a method of assessing and evaluating the food consumption patterns of a population that focuses on food balance and diversity to improve nutritional status and public health (Suryana and Swastika, 2021). The PPH score measures the extent to which food consumption patterns are close to the ideal diet based on nutritional standards of various important food groups, such as grains,



tubers, animal foods, legumes, vegetables, and fruits, where each food group has a contribution to the total score (Suhardjo, 2008). The higher the PPH score, the more diverse and balanced the food consumption of the population, with a score of 100 indicating optimal fulfillment of all the body's consumption needs. The score of the Expected Food Pattern in low-income communities in Korumba Village can be seen in Table 2.

Table 2 Expected Food Pattern Score

NO	Food Group	Actual Energy	% Actual	% AKE	Weight	Actual Score	AKE Score	Max Score	PPH Score
1	Paddy rice	1815	88.54	86.4	0.5	44.3	43.2	25	25
2	Root vegetables	34.4	1.68	1.6	0.5	0.8	0.8	2.5	0.8
3	Animal food	123.6	6.03	5.9	2	12.1	11.8	24	11.8
4	Oils and fats	0	0.00	0.0	0.5	0.0	0.0	5	0
5	Oily fruits/seeds	0	0.00	0.0	0.5	0.0	0.0	1	0
6	Nuts	0	0.00	0.0	2	0.0	0.0	10	0
7	Sugar	0	0.00	0.0	0.5	0.0	0.0	2.5	0
8	Vegetable and fruit	77	3.76	3.7	5	18.8	18.3	30	18.3
9	Other	0	0.00	0.0	0	0.0	0.0	0	0
	Total	2050	100.0	97.6		75.9	74.1	100	55.9

Table 2 shows that the consumption pattern of the community in Korumba Village is still dominated by grains for staple foods and animal food consumption. The consumption level of the grains group reached 86.4%, exceeding the recommended consumption of 50%, while the consumption level of the animal food group was 5.9%, not reaching the recommended consumption of 10-20%. Based on the data and facts obtained in the field, the total PPH score reached 55.9%, which is still far from the ideal PPH score of 100. This shows that the consumption pattern of low-income people living in Korumba Village is not balanced and does not include all food groups in accordance with the recommended portion, in other words, based on the data obtained, it shows that the community's consumption pattern is not diversified. The results of the study are in line with research conducted by Indrianrini (2018), which shows that community consumption has not been diversified. This is indicated by the PPH score obtained is still far from the maximum PPH score, the PPH score that has been achieved is still dominated by the grains food group. In contrast to research conducted by Rahmanto (2021), which shows



that community consumption has been diversified as seen from the level of food security in district areas which reached 80.53% and urban areas of 92.85%.

Agribusiness in a narrow sense is defined as trading or marketing agricultural products that seek to maximize profits. In a broad sense, agribusiness is a unity of business activities that include one or all of the production, processing and marketing links that have to do with agricultural commodities that aim to make a profit (Gunawan, 2013). In other words, agribusiness is defined as a business activity aimed at obtaining profits covering part or all of the agribusiness sector, namely the input sector, production sector, and output sector. Agribusiness subsystems are divided into production facilities procurement and distribution subsystems, farming subsystems, processing or agroindustry subsystems, marketing subsystems, and supporting subsystems (Arifin and Biba, 2017).

In terms of agribusiness, community consumption in Korumba Village falls into the category of processing or agro-industry sub-systems and also the procurement and distribution of production facilities and infrastructure. This is because most respondents work as agricultural commodity traders who provide food sources for the community, and also process the food obtained into food ingredients that are consumed every day.

CONCLUSION

Some conclusions from the results of this study are that the community in Korumba Village has socio-economic characteristics that influence food fulfillment, including the age of respondents who are still in productive age at 82.4%, the level of education dominated by elementary school graduates at 31%, the number of members of 1 to 4 people at 75.7%, and occupations dominated by agricultural commodity traders at 51.3%.

The consumption pattern of low-income people living in Korumba Village, Mandonga Sub-district, is still dominated by carbohydrate food groups in the form of grains at 86.4%. The consumption pattern in the community in Korumba Village shows that community consumption has not been diversified, this can be seen from the PPH score of 55.9% which is still far from the ideal score of 100.

Based on the results of the analysis in this study, there are several suggestions that can be applied, namely for the people of Korumba Village, Mandonga Subdistrict, especially low-income earners, it is recommended to pay more attention to food consumption patterns, especially carbohydrate sources in daily life. For the government of Southeast Sulawesi Province, evaluation of programs related to food availability needs to be carried out on an ongoing basis to ensure their effectiveness. Meanwhile, for future researchers, it is recommended to analyze





the nutritional adequacy of low-income communities through consumption patterns and food availability with a food diversification program approach.

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