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Analysis of Family Food Consumption Behavior (Case Study: Beneficiaries of Government Food Reserve Rice in Palopo City)

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ABSTRAK

Penelitian ini menganalisis perilaku pola konsumsi pangan keluarga yang memperoleh manfaat dari Beras Cadangan Pangan Pemerintah (CPP) di Kota Palopo dengan pendekatan deskriptif kuantitatif. Data primer diperoleh melalui survei pendataan makanan 24 jam dari 115 keluarga penerima manfaat yang tersebar di tiga karakteristik agroekologi: pertanian, perikanan, dan lain-lain. Konsumsi pangan dianalisis berdasarkan sembilan kelompok pangan menurut Pola Pangan Harapan (PPH), mengenai Tingkat Kecukupan Gizi (AKG) nasional. Hasil penelitian menunjukkan bahwa biji-bijian, terutama beras gilingan, menjadi sumber pangan dan energi yang dominan di seluruh daerah, menyumbang rata-rata 1644,5 kkal/kapita/hari, atau sekitar dua pertiga dari total energi harian. Konsumsi makanan hewani, khususnya ikan, relatif tinggi di daerah pertanian dan perikanan, namun kontribusinya terhadap pemenuhan protein tidak optimal. Konsumsi sayuran cukup besar dalam volume tetapi rendah dalam kontribusi energi dan belum memenuhi rekomendasi WHO sebesar ≥400 g/hari. Rata-rata Tingkat Kecukupan Energi (TKE) adalah 78,3% dari AKE, di bawah Standar Layanan Minimum 90%, menunjukkan kerawanan pangan. Analisis antar daerah menunjukkan bahwa daerah pertanian memiliki asupan energi tertinggi, sedangkan

daerah lain memiliki asupan energi terendah. Hasil ini menunjukkan kesenjangan dalam akses pangan, ketergantungan yang tinggi pada satu sumber karbohidrat, dan diversifikasi pangan yang rendah. Studi ini merekomendasikan intervensi berupa peningkatan akses dan konsumsi protein hewani dan nabati, diversifikasi sumber karbohidrat, dan edukasi gizi berdasarkan kearifan lokal untuk mendukung ketahanan pangan berkelanjutan di kalangan penerima manfaat CPP.

ABSTRACT

Study analyzes the behavior of food consumption patterns of families benefiting from the Government Food Reserve Rice (CPP) in Palopo City with a quantitative descriptive approach. Primary data was obtained through a multiple-pass 24-hour food recall survey of 115 beneficiary families spread across three agroecological characteristics: agriculture, fisheries, and others. Food consumption was analyzed based on nine food groups according to the Expected Food Pattern (PPH), concerning the national Nutritional Adequacy Rate (AKG). The results showed that grains, especially milled rice, became the dominant source of food and energy throughout the region, contributing an average of 1644.5 kcal/capita/day, or about two-thirds of total daily energy. Consumption of animal food, especially fish, is relatively high in agricultural and fishery areas, but its contribution to protein fulfillment is not optimal. Consumption of vegetables is considerable in volume but low in energy contribution and does not yet meet the WHO recommendations of ≥400 g/day. The average Energy Adequacy Level (TKE) is 78.3% of AKE, below the Minimum Service Standard of 90%, indicating food insecurity. Analysis between regions shows that agricultural areas have the highest energy intake, while other regions have the lowest. These results indicate a gap in food access, high dependence on a single carbohydrate source, and low food diversification. This study recommends interventions in the form of increasing access to and consumption of animal and vegetable proteins, diversifying carbohydrate sources, and nutrition education based on local wisdom to support sustainable food security among CPP beneficiaries.

INTRODUCTION

Family food consumption pattern behavior is a series of decisions and actions jointly made by all household members related to the selection, procurement, storage, processing, and consumption patterns of food, influenced by goals (nutritional fulfillment, economy, and tradition) as well as, in part, related to the family

environment. This definition emphasizes that food consumption is not just an individual choice but that all processes involving structured household members involve the negotiation of roles, member preferences, and the sharing of resources so that the consequences are visible in the nutritional status and well-being of the family (Fernqvist et al., 2024).

Family food consumption patterns must be understood as a process of all family members in the household, not just individual choices. This activity includes a series of decisions and actions ranging from the selection of food and how to procure it (shopping or producing yourself) to storage, processing, and daily diet. An approach that deeply involves the family as a production-consumption unit that makes trade-offs between nutritional goals, costs, time, taste preferences, and social norms; these decisions are dynamic, influenced by economic events (price changes) and external shocks (pandemics) (Hassett, 2025).

Conceptually, several operational dimensions shape patterns of consumption behavior at the family level: (a) the internal structure of the household (number of members, age, division of roles, income), (b) cultural preferences and habits (eating traditions, religious values), (c) accessibility and food environment (market availability, distance, price), and (d) knowledge and attitudes towards nutrition and health (Higgs, 2015). These dimensions interact with each other; for example, nutritional knowledge will have a different impact on low-income families than high-income families because of differences in the ability to substitute foodstuffs. Studies that focus on the role of caregivers affirm the importance of the role of household agents (often mothers) in transforming preferences into the feeding practices of children and the whole family (Robinson et al., 2013).

In the implementation of energy and protein consumption assessment, the standard/Nutritional Adequacy Rate (AKG) is used through WNPG XI in 2018, namely the level of food consumption of 2,150 kilocalories/capita/day and 57 grams of protein/capita/day, as stated in the Regulation of the Minister of Health Number 28 of 2019. Meanwhile, the proportion of energy consumption for each food group in the 2001 agreement of the Ministry of Agriculture adopted from FAO-RAPA is tubers 6%, rice 50%, oil and fat 10%, animal food 12%, nuts 5%, oily fruits and seeds 3%, vegetables and fruits 6%, sugar 5%, and various spices and beverages 3% (Badan Pangan Nasioanal, 2024).

Based on data from the Palopo City Food Expectancy Pattern (PPH) for the last five years (from 2020 to 2024), the average total score is 86.14. This condition is in the medium category, according to the provisions of the guidelines for calculating the PPH pattern by the National Food Agency, stating that the achievement of the expected food pattern score can be grouped into three categories, namely, good if the achievement of the PPH score is above 90, medium if the achievement of the PPH score is between 80 and 90, and bad if the achievement of the PPH score is below 80 (Badan Pangan Nasioanal, 2024).

Food assistance in the form of rice is a government program that has been running since the beginning of 2023, in the form of rice distribution sourced from the CPP Government Food Reserve stock. This distribution is managed by Bulog and distributed by the Food Security Service as an extension of Bapanas. Based on the CPP rice distribution data in December 2024, it was recorded that 121,120 kg of rice had been distributed to 12,112 beneficiary families (KPM) (Dinas Ketahanan Pangan Kota Palopo, 2024). With this rice food assistance, it is hoped that the beneficiaries can help

reduce spending on carbohydrate sources and pay more attention to the needs of various other foods as basic needs.

From the data and information on poverty in districts/cities in Indonesia, the number of poor people in Palopo City was recorded at 14,430 people with a poverty line income of Rp 466,521 per capita per month (Dinas Ketahanan Pangan Kota Palopo, 2024). With a limited amount of rice assistance, the adequacy of the family's needs for carbohydrate sources if they only rely on rice certainly varies depending on the number of family members. However, with the free provision of rice, the beneficiaries can allocate expenses to meet other food needs (Dinas Ketahanan Pangan Kota Palopo, 2024). Based on the background presented, it is considered necessary to conduct research related to the Analysis of Family Food Consumption Patterns (Case Study: Beneficiaries of Government Food Reserve Rice in Palopo City). This analysis will be studied with variables of consumption behavior and factors that affect people's consumption decisions.

RESEARCH METHODS

This study uses a qualitative descriptive approach that aims to identify food consumption patterns and achievements of the Hope Food Pattern score by collecting data from respondents who benefit from CPP rice in the city, using the SLOVIN formula. 115 respondents were determined. In this study, food consumption patterns were measured from nine food groups according to PPH.

Primary data consists of information collected directly from respondents through surveys and interviews. The main instrument used in this study is a questionnaire designed to collect data from respondents, which consists of three parts, namely:

1. Questions about respondents' demographics (name, gender, number of family members, age, last education, occupation, and family income per month).
2. Questions about influencing factors in determining food consumption.
3. Questions about the type and amount of food the respondents consumed during the previous 3x24 hours (Food Recall Method).

Although the respondents only mentioned the type of menu eaten, the researcher was required to ask for the main and additional ingredients of the menu, which were described and recorded in household size on the questionnaire sheet, which would later be processed to be converted into grams using the list of food ingredient conversions using the HARMONIZATION application.

The food recall method is one of the common approaches in dietary surveys to assess the diversity of diets and the quality of food consumed by individuals or population groups, which is very important in nutrition and public health research (Arvola et al., 2008). Based on semi-structured interviews carried out using retrospective verbal measurement techniques, that is, remembering and reporting information about events that have occurred in the past, in this case, usually foods that were consumed on the previous day or in a certain period that has passed.

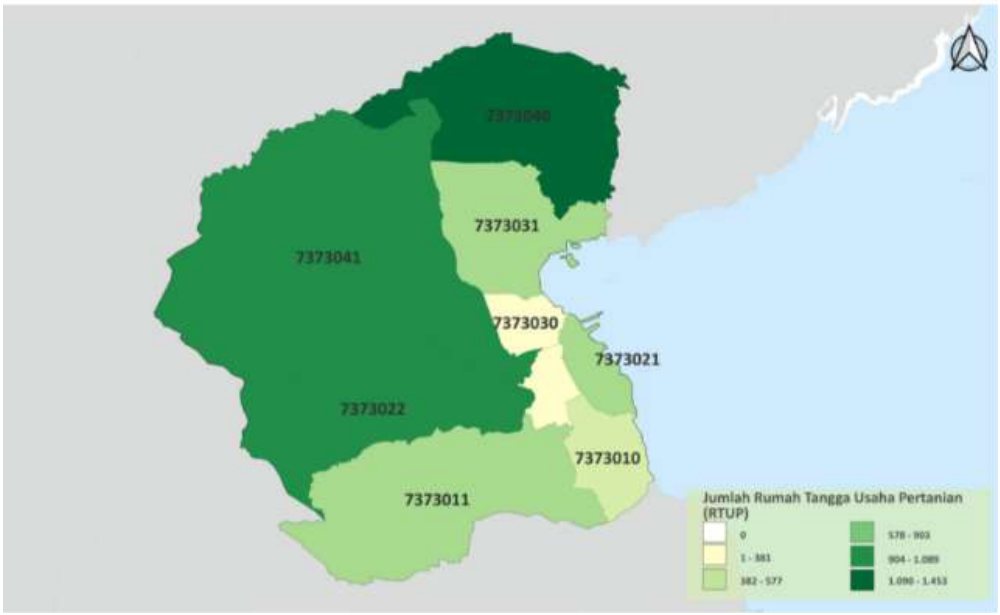
According to Conway et al. (2004), the Recall Multiple Pass method he uses directs a person to remember all the food and drinks consumed in the previous 24-hour period, from midnight to midnight. This approach involves several steps to ensure that all items consumed are recorded through the 24-hour Intake, a digital tool for diet reminders. Open 24-hour recall is used for an open interview with a child's caregiver, where they are asked to recall and report all foods and drinks consumed by the child in the previous 24 hours. This approach gives respondents the freedom to mention all

foods without a guide or list so that the relevance and variety of foods that may not be listed on the list can be captured (Ocké et al., 2024).

RESULTS AND DISCUSSION

Overview of Research Locations

Palopo City consists of nine sub-districts. Based on the results of the complete enumeration of the agricultural census phase II of Individual Agricultural Enterprises (UTP) Food Crops by Badan Pusat Statistik (2023), Telluwanua District, West Wara District, and Mungkajang District are the top three regions for two categories at once, namely the category of most UTP distribution and the highest category of Agricultural Business Households (RTUP). Therefore, these three sub-districts represent agricultural areas in the data collection in this study. The following distribution map of the two categories is presented in Figure 1.



Source: BPS, 2023

Information:

7373040 - Telluwanua
7373041 - Wara Barat
7373031 - Bara
7373021 - Wara Timur
7373022 - Wara Selatan
7373010 - Mungkajang
7373011 - Sendana
7373030 - Wara Utara dan Wara

Figure 1. Map of UTP and RTUP Distribution in Palopo City

Demografi Responden

The coastal area is represented by sub-districts bordering the empang and coastal areas, namely South Wara District, East Wara District, and Bara District. Meanwhile, Wara District, Sendana District, and North Wara District are included in other areas. These three areas were chosen by considering the affordability of

community food sources that are closer to agricultural source areas, areas close to the sea or marine food sources, and other areas.

Based on population administration data in 2020, the number of residents in Palopo City was recorded at 184,681 people, consisting of 92,444 males and 92,237 females. Most of the population makes a living as farmers and planters, with some others working as traders, civil servants, laborers, and others. The population of Palopo City is shown in Table 1.

This study took respondents from 115 families receiving CPP rice in Palopo City, spread across nine sub-districts, namely Telluwanua, Bara, West Wara, Wara, North Wara, East Wara, South Wara, Sendana, and Mungkajang Districts. This descriptive data of respondents provides some information in simple terms about the circumstances of the respondents who are the object of the research. Respondents in this study were described by gender, age, and education.

Table 1. Number of Inhabitants of Palopo City in 2020

District	Number of Population by Gender and District in Palopo City (Jiwa)		
	Man	Woman	Sum
Wara Selatan	9.343	9.336	18.679
Sendana	3.739	3.642	7.381
Wara	15.675	15.864	31.539
Wara Timur	19.126	19.218	38.344
Mungkajang	5.079	4.983	10.062
Wara Utara	10.254	10.391	20.645
Bara	15.337	15.323	30.660
Telluwanua	8.041	7.846	15.887
Wara Barat	5,850	5.634	11.484
Sum	92.444	92.237	184.681

Source: BPS Palopo City, 2025

Table 2. Respondent Characteristics

Characteristics	Options	Frequency	Percentage
Gender	Man	35	30.4%
	Woman	80	69.6%
Age	21-40 years old	55	47.8%
	41-70 years old	60	52.2%
Education	Higher Education (S1)	35	30.4%
	Senior High School (SMA)	80	69.6%

Source: Data processed 2025

In Table 2, it is known that the number of female respondents is 80 people (69.6%) and men is 35 people (30.4%). The average age between 21 and 40 years is 55 people (47.8%), and 41-70 years old are 60 people (52.2%). The overall education level of respondents was mostly 80 high school (SMA) graduates (69.6%), while S1 graduates were 35 people (30.4%).

Food consumption patterns

Based on the results of the analysis using the PPH HARMONISASI application, the food consumption and energy consumption of CPP rice beneficiary families in Palopo City are presented in Table 3 as follows:

Table 3. Food Consumption of CPP Rice Recipient Families

Food Group/Type	Food consumption (g/capita/day)				Energy Consumption (Kcal/Capita/Day)			
	Agricultural Branch	Fishing Branch	Other Wilh	Total Territory	Agricultural Branch	Fishing Branch	Other Wilh	Total Territory
PALOPO CITY					1825.9	1578.2	1563.7	1644.5
1. Grains					1259.9	1083.6	1095.8	1138.2
Ground rice	312.7	278.0	279.7	288.5	1125.6	1000.8	1007.0	1038.6
Corn Pipilan	4.9	2.3	2.5	3.1	15.6	7.4	7.9	9.9
Flour	32.5	20.7	22.2	24.6	118.7	75.5	80.9	89.7
Other grains	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
2. Tubers					47.7	24.3	33.9	34.2
Cassava	15.2	6.1	4.6	8.2	16.6	6.6	5.0	9.0
Sweet potato	3.2	4.4	18.9	8.8	3.3	4.7	20.0	9.4
Mouse	7.7	3.7	2.5	4.4	27.2	12.9	8.8	15.7
Potato	0.8	0.1	0.1	0.3	0.5	0.1	0.1	0.2
Other tubers	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
3. Animal Food					278.6	203.1	226.0	232.4
Ruminant Meat	1, 2	1.5	2.6	1.8	2.4	3.0	5.5	3.7
Poultry Meat	14.0	2.0	5.3	6.5	24.5	3.5	9.3	11.5
Egg	28.8	29.9	31.2	30.0	41.9	43.6	45.5	43.7
Milk	2.1	2.8	11.5	5.5	1,3	1.7	7.0	3.4
Fish	230.6	167.3	175.6	188.2	208.4	151.2	158.7	170.1
4. Oils and Fats					53.1	112.4	65.1	79.7
Coconut oil	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Palm Oil	5.9	12.5	7.2	8.8	52.9	112.4	65.1	79.7
Fat	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Other Oils	0,0	0,0	0,0	0,0	0.1	0,0	0,0	0,0
5. Oily Fruits/Seeds					12.0	6.4	3.7	7.1
Coconut	33.2	17.7	10.1	19.6	12.0	6.4	3.7	7.1
Candlenut	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Guava Seeds Put	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Fruit Seeds Other oily	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
6. Nuts					40.0	32.1	19.6	30.2
Peanut	0.9	0,0	0.4	0.4	4.0	0,0	1.8	1.8
Soybean	10.7	8.5	5.1	8.0	35.5	28.1	17.0	26.5
Green Beans	0.1	1.1	0.2	0.5	0.3	3.9	0.8	1.9
Other nuts	0,0	0,0	0,0	0,0	0.1	0.1	0,0	0.1
7. Sugar					10.7	15.2	17.3	14.6
Sugar	2.6	3.7	4.4	3.6	9.6	13.4	16.1	13.2
Palm sugar	0.3	0.5	0.3	0.4	1.0	1.8	1,3	1.4
Coconut Sugar	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
8. Vegetables and Fruits					115.2	95.7	96.2	101.5
Vegetables	130.8	100.1	119.0	115.2	33.4	25.6	30.4	29.4
Fruit	110.1	94.4	88.6	97.0	81.8	70.1	65.8	72.0
9. Miscellaneous					8.8	5.4	6.0	6.6
Drink	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Spices	0.1	0.1	0,0	0.1	0.3	0.4	0.2	0.3
Other	2.8	1.7	1.9	2.1	8.5	5.0	5.8	6.3

Source: Data Processed by Researchers 2025

Energy Consumption Level and Energy Adequacy Level (TKE)

Based on the output of the HARMONIZATION application, it can be displayed according to the Energy Consumption Level and the Energy Adequacy Level according to Agroecological Characteristics, or based on the calorie intake obtained from the food consumed, as shown in Figure 2:

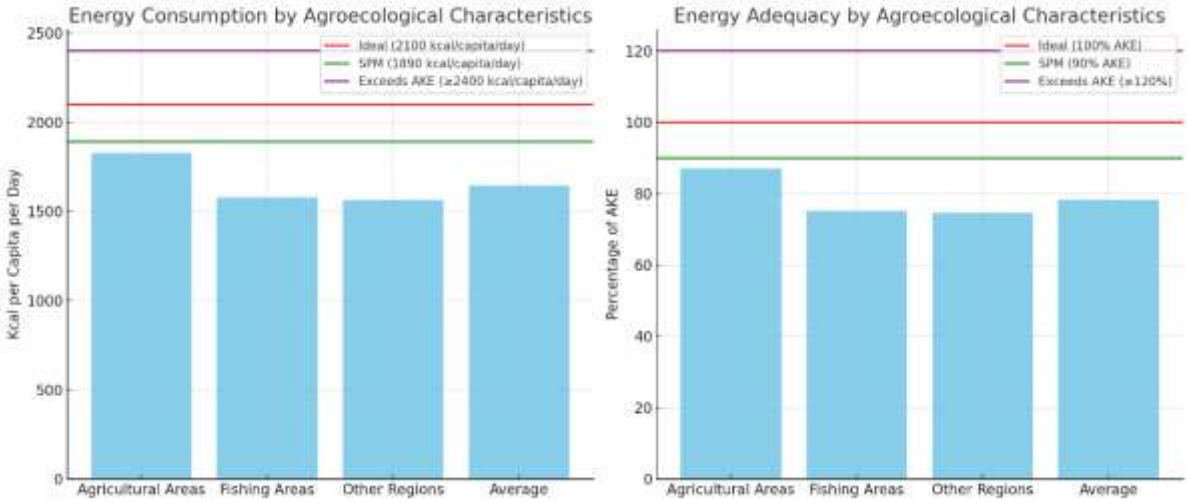


Figure 2. Energy Consumption Levels According to and Energy Sufficiency Levels to Agroecological Characteristics of Respondents of CPP Rice Recipient Families

Based on Figure 2, the Energy Consumption Level, the families of CPP rice recipients are below the minimum service standard (SPM), which is < 1890 cal/cap/day. Meanwhile, based on Figure 3, Energy Adequacy Level, CPP rice beneficiary families are in the food insecure category, which is an average of 78.3% of AKE, generally below the minimum service standard (SPM), which is 90% AKE.

Protein Consumption Level and Protein Adequacy Level (TKP)

Based on the output of the HARMONISASI Application by the National Food Agency, the Level of Protein Consumption and the Level of Protein Adequacy, according to agroecological characteristics or proteins obtained from the food they consume, can be displayed in Figure 3.

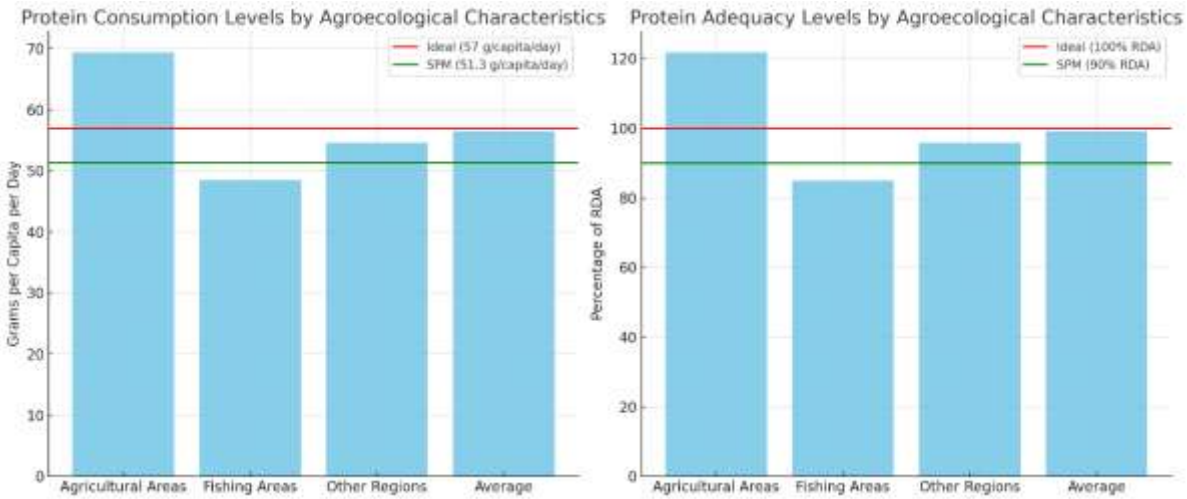


Figure 3. Protein Consumption Levels: Protein adequacy rate, according to Agroecological Characteristics

Figure 3 shows the level of protein consumption according to agroecological characteristics. In general, the protein consumption of beneficiary families is still below the Protein Adequacy Rate (AKP) standard, which is 56.5 grams/capita/day. Agricultural areas have relatively higher protein consumption than fishery areas and other areas. This can be explained because families in agricultural areas have better access to plant-based protein sources such as nuts, soybeans, and processed products. Meanwhile, Figure 3 shows the level of protein adequacy according to agroecological characteristics. The average achievement of the Protein Adequacy Level (TKP) is still in the low to moderate category (<100% AKP). This shows that most of the beneficiary families have not been able to meet the recommended daily protein needs. This condition is more prominent in fisheries and other areas, which ironically have the potential for animal protein sources (fish and marine products), but the actual consumption is still low. Factors that affect this include household purchasing power, consumption preferences that are still oriented towards rice, and low food diversification.

Discussion

The Multiple Recall method is a food consumption survey approach that relies on detailed recording of the food and beverages consumed by respondents in each period, usually 24 hours, repeated over several days to reduce bias (Conway et al., 2004). In this study, the method allows a detailed analysis of variations in food consumption based on agroecological areas of agriculture, fisheries, and other regions, so that differences in diet and nutritional intake can be mapped.

Based on the calculation results, the average energy consumption of CPP rice beneficiary families in Palopo City is 1,644.5 kcal/capita/day, which is still below the minimum energy adequacy standard of 2,100 kcal/capita/day (Kemenkes, 2019). When compared between regions, agricultural areas have the highest energy consumption (1,825.9 kcal), while fisheries and other areas are relatively lower, 1,578.2 kcal and 1,563.7 kcal, respectively. This difference reflects the variation in food access between regions, where agricultural areas are more likely to obtain energy sources from their production.

Rice consumption, especially milled rice, is the largest energy contributor for beneficiary families, with an average of 1,138.2 g/capita/day and energy contribution reaching more than 60% of total daily energy. The dominance of rice as the main food source shows that people's consumption patterns are still very oriented towards single carbohydrates, with low food diversification. This is in line with research that Indonesian people tend to make rice the main staple food, so alternative energy sources such as corn, sweet potatoes, and sago are not optimally utilized (Anzaini et al., 2022).

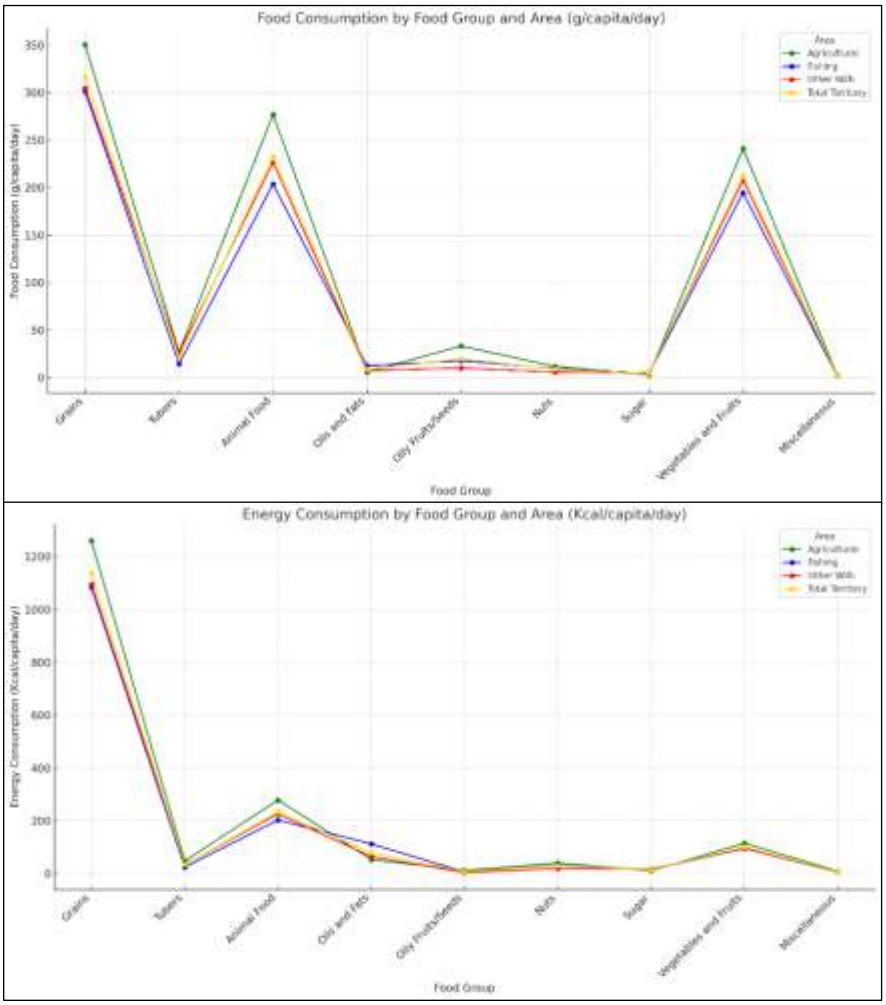
Tubers, which should be an alternative source of carbohydrates, contribute only a very small amount of energy, which is an average of 34.2 kcal/capita/day. The consumption of sweet potatoes and cassava trees is relatively higher in agricultural areas than in fishery and other areas, but overall, the contribution remains low. The low consumption of non-rice local food indicates a shift in people's preferences, who prefer rice as a daily staple.

The animal food group contributed an average of 232.4 kcal/capita/day. Fish consumption is quite high in all regions, especially in agricultural (230.6 g/capita/day) and fisheries (167.3 g/capita/day), but ironically, fishery areas do not show higher fish consumption than agricultural areas. This can be explained by the limited purchasing power of households, the distribution pattern of seafood, and consumption preferences that prioritize rice over animal protein.

The oil and fat group showed considerable variation between regions, with the highest consumption in the fishery area at 112.4 kcal/capita/day. Oil consumption is dominated by palm oil, which is widely used for frying needs. Meanwhile, the consumption of legumes is relatively low, which is an average of 30.2 kcal/capita/day. Nuts can be a cheap and easy source of essential vegetable protein.

Consumption of vegetables and fruits reaches an average of 101.5 g/capita/day, but it is still far below the WHO recommendation of 400 g/day. Vegetables are consumed more than fruits, with the highest consumption patterns in agricultural areas. Limited access, purchasing power, and lack of awareness of the importance of fruit and vegetable consumption are suspected to be the main factors in the low intake of this food group. Overall, the results of the analysis using the Multiple Recall Method show that the food consumption of CPP rice beneficiary families in Palopo City is not balanced and is still far from PPH. Consumption patterns are still focused on rice as the main source of energy, with a low contribution of food sources of protein, vegetables, fruits, and nuts. These findings emphasize the importance of nutrition counseling and education efforts, as well as local potential-based food diversification interventions, so that family food security can be achieved sustainably.

Energy consumption from vegetables and fruits (98.7 kcal) is relatively low, although the volume of vegetable consumption is quite large. This is natural considering the low energy density of vegetables and fruits, but from a health point of view, this consumption is important to meet the intake of vitamins, minerals, and fiber. The average Energy Adequacy Level (TKE) is 78.3% of the Energy Adequacy Rate (AKE), below the SPM limit of 90%. This condition indicates that CPP beneficiary families are in the food-insecure category, which is in line with the concept of food insecurity according to FAO. Chronic energy deficiencies like this can have an impact on a child's nutritional status, work productivity, and development (Anstruther et al., 2021). In the long term, this condition can trigger an intergenerational cycle of malnutrition, in which children born to mothers with energy deficits tend to experience stunted growth (Anindya, 2020).



Source: Data Processed by Researchers 2025

Figure 4. Comparison of Food Consumption Patterns Between Regions and Energy Contribution of Each Food Group

Comparison of food consumption between regions. This research shows that there is a gap between regions, where agricultural areas are better able to meet energy needs than fishery and other areas. This supports the theory of accessibility to food, that physical and economic access to food sources affects energy intake (Kholidah et al., 2023). In terms of protein, the trend of consumption of animal foods and nuts shows more protein intake in agricultural areas, in line with the availability of local food and self-production. This consumption pattern shows that CPP rice assistance does contribute to meeting the needs of carbohydrate-based energy, but it is not enough to meet balanced nutritional needs. Additional food interventions, such as animal proteins, nuts, and quality fruits, need to be considered. Thus, based on the Recall Multiple theory and PPH analysis, the food consumption of CPP recipient families in Palopo City still depends on grains with low food variety, substandard energy adequacy levels, and imbalances in the proportion of macronutrients. To achieve sustainable food security,

food diversification, increased access to quality protein, and nutrition education are needed, tailored to the characteristics of the agroecological region.

A comparison of food consumption patterns between regions and the energy contribution of each food group is shown in Figure 4. Interregional food consumption (g/capita/day) shows the dominance of grains in all regions, followed by vegetables and animal foods. The energy contribution of each food group (kcal/capita/day) shows grains as the largest energy contributor, followed by animal foods and oils. Agricultural areas excel in almost all food groups, showing greater access to fresh and self-produced food. Fishery areas have high fish consumption, but the energy contribution of grain is slightly lower than that of agriculture. Other regions tend to have the lowest food and energy consumption, indicating potential food vulnerability.

The results of this study provide a comprehensive overview of the food consumption behavior of families benefiting from CPP rice in Palopo City. In general, consumption patterns show the dominance of rice, especially milled rice, as the main source of energy in all regions. This dependence is consistent with the phenomenon of monotonous staple diets that are common in Indonesian society, where most of the energy comes from one main source of carbohydrates. While this helps meet basic energy needs, over-reliance has the potential to reduce the diversity of nutrient intake, particularly micronutrients. Of the nine food groups analyzed, animal food occupies the second largest energy contributor after grains, with fish as the dominant component. Agricultural and fishery areas have relatively high fish consumption, reflecting the influence of local availability on consumption patterns. However, the consumption of other animal foods, such as ruminant meat, poultry, and dairy products, is still relatively low. This has an impact on protein intake that is not optimal to achieve AKG standards, especially in non-agricultural areas.

CONCLUSION AND SUGGESTIONS

The results of this study provide a comprehensive overview of the food consumption behavior of families benefiting from CPP rice in Palopo City. In general, consumption patterns show the dominance of rice, especially milled rice, as the main source of energy in all regions. This dependence is consistent with the phenomenon of monotonous staple diets that are common in Indonesian society, where most of the energy comes from one main source of carbohydrates. While this helps meet basic energy needs, over-reliance has the potential to reduce the diversity of nutrient intake, particularly micronutrients. Of the nine food groups analyzed, animal food occupies the second largest energy contributor after grains, with fish as the dominant component. Agricultural and fishery areas have relatively high fish consumption, reflecting the influence of local availability on consumption patterns. However, the consumption of other animal foods, such as ruminant meat, poultry, and dairy products, is still relatively low. This has an impact on protein intake that is not optimal to achieve AKG standards, especially in non-agricultural areas.

Recommendations

The consumption patterns of CPP beneficiaries still do not meet the principles of balanced nutrition. Rice assistance programs have helped reduce the burden of spending on carbohydrate sources, but they have not necessarily increased the diversity of food consumption. Therefore, additional interventions are needed, including:

1. Diversification of food sources reduces dependence on rice by encouraging the

consumption of tubers, corn, and other cereals.
2. Increased protein intake expands access to affordable fish, poultry, nuts, and dairy products.
3. Locally based nutrition education integrates nutrition knowledge into consumption practices by utilizing available local foodstuffs.
4. Strengthening market access ensures the availability of nutritious food throughout the region, including non-agricultural areas, by improving distribution and logistics.

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Conflicting interests

The authors of the research have stated that they do not have any conflicts of interest to disclose concerning the current investigation.

Contributions by the authors

Each of the writers made an equal contribution to this article, and they were the primary contributors. Every author of the final paper reads it and gives their approval.

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