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# Analyzing Fish Consumption Patterns in Nigeria: Perceptions from Catfish Consumption in Ijare, Akure North, Ondo State

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### ABSTRACT

This study examines the patterns of fish consumption in Nigeria; perceptions from catfish household consumption. in Ijare Town, Akure North Metropolis, Ondo State, Nigeria. Data collection were through a combination of surveys, interviews, and direct observation. In addition, the research explores consumption frequency, cultural preferences, and socio-economic factors. Findings reveals an equal gender representation among respondents (50% male, 50% female), predominantly aged 30–49 years (36.7%), with Christianity as the dominant religion (70%) and most participants being married (66.7%). All respondents had received some form of education, with traders forming the largest occupational group and students comprising 16.7%. Taste (50%) and nutritional value (30%) emerged as the primary motivations for catfish consumption, followed by price (13.3%) and availability (6.7%). The study shows that smoked catfish was the most preferred form (50%), and high protein content was the most cited nutritional benefit (83.3%), with fewer mentions of vitamins (6.7%), minerals (3.3%), and low-calorie content. The study reveals significant gendered patterns in intra-household consumption; fathers were identified as the primary consumers (46.7%), while mothers and children shared secondary consumption roles equally (26.5% each), suggesting disparities in food allocation and preference shaped by traditional gender roles. The proximate composition of catfish (*Clarias gariepinus*) revealed significant variations in moisture, protein, lipid, and ash contents based on body parts and fish size. Protein content varying from 45.13% to 72.69%. The results indicated that respondents generally held positive perceptions toward the catfish consumption. However, consumers should be educated on how to assess fish quality for consumption.

**Keywords:** Catfish, Consumption Patterns, Perceptions, Akure Metropolis.

### Introduction

Fish remains a central component of Nigeria's food system and a key source of affordable, high-quality animal protein. It contributes over 50% of the total animal protein intake nationally (Olagunju *et al.*; 2007) and plays an essential role in improving food and nutrition security, particularly among low-income households (Olagunju *et al.*; 2007). Nutritionally,

fish provides essential micronutrients and omega-3 fatty acids while being low in saturated fat, offering substantial health benefits such as enhanced maternal and child development and reduced risk of cardiovascular diseases (Miller *et al.*, 2015; Olopade *et al.*, 2022).

Despite its nutritional and economic importance, domestic fish production in Nigeria remains insufficient to meet national demand. The resulting

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supply deficit has led to a sharp increase in imports, which accounted for more than 45% of total fish supply by 2020 (FAO, 2011; FAO, 2022; NBS, 2021, NBS, 2025). This trend raises concerns about national food security, foreign exchange sustainability, and the resilience of local aquaculture systems. Understanding fish consumption behavior is therefore critical for developing targeted interventions that promote sustainable production, enhance dietary quality, and reduce import dependence.

Household fish consumption patterns are influenced by several socio-economic and demographic factors, including income, price, household size, education, occupation, and cultural preferences (Olagunju *et al.*; 2007). However, available data remain limited, fragmented, and rarely disaggregated by gender or locality, limiting the effectiveness of policy responses.

This study contributes to the understanding of food and fish consumption dynamics in Nigeria by examining catfish consumption patterns in Ijare, Akure North, Ondo State. Catfish is one of the most widely consumed freshwater species in the country due to its availability, affordability, and cultural acceptance. The study analyzes gender-based differences and socio-economic determinants of catfish consumption, focusing on consumption frequency, product preferences, and purchasing behavior. The findings aim to inform nutrition-sensitive and evidence-based policy design that supports sustainable fisheries and public health improvement in Nigeria.

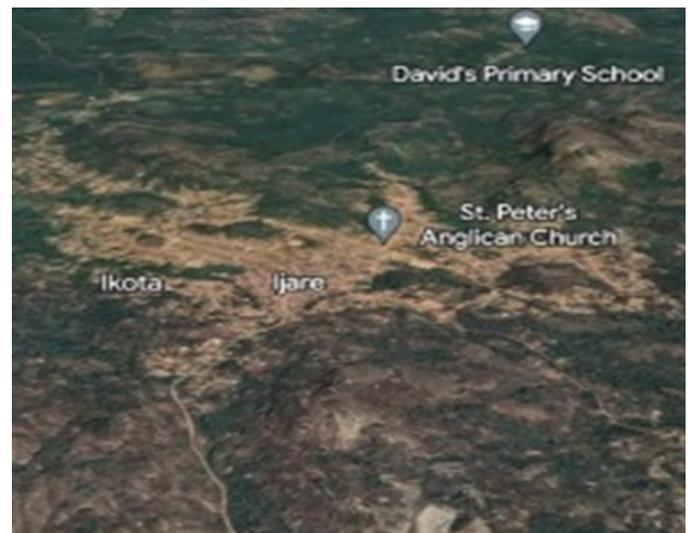
## Methodology

### The Study Area

The study was conducted in Ijare, a semi-urban community located in Ifedore Local Government Area of Ondo State, southwestern Nigeria. Geographically, Ijare lies between latitude 7°17'N and longitude 5°07'E, approximately 20 km north-northeast of Akure, the state capital. Ondo State covers a land area of about 14,793 km<sup>2</sup> and has an estimated population of 3.4 million people. The state lies within the tropical rainforest and mangrove ecological zones, known for

their rich biodiversity and agricultural potential.

The area experiences an annual rainfall ranging from 2,000 to 3,000 mm, with mean temperatures varying between 17.5°C and 27°C, and relative humidity levels exceeding 60%. The favorable climatic conditions support diverse agricultural activities, which form the primary source of livelihood for the inhabitants. Major food crops produced include maize, cocoyam, and plantain, while cocoa and timber are important cash crops contributing to household income. In addition to crop farming, small-scale fish farming and fish trading are increasingly practiced in Ijare, reflecting the community's growing participation in aquaculture. The town was selected for this study because of its active engagement in fish consumption and trade, particularly catfish, making it a suitable site for analyzing household fish consumption patterns and preferences.



**Figure 1.** Google Earth Map showing Ijare Town

Accessed November 2025

### Research Instrument

The study employed a structured questionnaire comprising both open-ended and closed-ended questions to examine food and fish consumption patterns in Ijare. The questionnaire was designed after a critical review of relevant variables and captured socio-demographic information, including

age, gender, occupation, income, household size, and education. It also investigated factors influencing catfish consumption, such as expenses, taste preferences, packaging, cost, and availability, providing insights into consumption behaviours within the community.

### Data Collection and Analysis

Data on food and fish consumption patterns in Ijare were collected using a combination of structured questionnaires, interviews, open discussions, and direct observations to ensure accuracy and comprehensiveness. The collected data were analyzed using descriptive statistics, including frequencies and percentages, with the aid of SPSS Version 25, providing insights into catfish consumption behaviours and trends within the community.

### Proximate analysis

#### Proximate analysis

The proximate analysis was done at the Nutritional Laboratory located in Obanla, FUTA. The objective was to determine the percentage composition of moisture, ash, protein and lipid content present in the three samples (small, medium and large) of *Clarias gariepinus* which are economically and nutritionally significant.

Procedures are as follows:

1. Three samples of *Clarias gariepinus* (small, medium and large) were purchased from Oja Oba market Akure
2. They were cleaned before undergoing proximate analysis according to standard AOAC (Association of Official Analytical Chemists) methods.

The analysis was performed using the following procedures:

- i. **Moisture Content:** Measured by oven-drying a known quantity of the fish sample at 105°C until a constant weight was achieved. This was done to reflect the water level in the fish, which affects its perishability and shelf life.

- ii. **Ash Content:** Determined by incinerating the sample in a muffle furnace at 550°C until all organic matter was burnt off, leaving only the inorganic minerals. Ash content indicates the presence of minerals and inorganic matter in the fish.

- iii. **Protein content:** Estimated using the Kjeldahl method, which measures the nitrogen content of the sample. A nitrogen-to-protein conversion factor (6.25) was applied to calculate protein percentage. This is essential for evaluating the fish's nutritional value, as protein plays a vital role in human health.

## Results and Discussion

Table 1 summarizes the socio-economic characteristics of respondents in Ijare, Akure North, Ondo State, providing context for catfish consumption patterns. Gender distribution was evenly split, with males and females each representing 50% of respondents, suggesting no significant gender bias in consumption has shown in Figure 1. Age distribution indicated that 36.7% of respondents were between 30 and 49 years, 33.3% were 18–29 years, 20% were 50–59 years, and 10% were 60 years or older. This shows that a majority (70%) of participants fall within the active working age, which may influence both purchasing power and dietary habits. Previous research has reported mixed effects of age on fish consumption: positive associations in studies by Emmanuel *et al.* (2019), Erdogan *et al.* (2011), and Storey and Forshee (2007), lower consumption among younger groups (Verbeke and Vackier, 2005), and a decline in consumption with age in Bangladesh (Rahman *et al.*, 2020) Figure 2.

Religious affiliation revealed that 70% of respondents were Christians, 20% Muslims, and 10% adhered to traditional beliefs. While no religion in the study area restricts fish consumption, cultural food taboos may shape consumption behavior. For example, in some Nigerian communities, pregnant women are discouraged from consuming the head of dried salted

cod (stockfish) due to beliefs about its effect on the child’s appearance, potentially limiting intake despite the nutritional benefits (Bradley *et al.*, 2020) Figure 3.

Marital status data showed that 86% of respondents were married, 12% single, and 2% divorced, reflecting trends noted by Emmanuel *et al.* (2019) and Esilaba *et al.* (2017), who reported higher catfish consumption among married individuals. Occupation varied, with traders representing 36.7%, students 5%, artisans 3.3%, and other livelihoods 30%, highlighting the diversity of income sources that may affect fish purchasing behavior has presented in Figure 4

All respondents had some level of formal education, with 30% attaining primary education, 43.3% secondary education, and 26.7% tertiary education. This relatively high educational profile may enhance awareness of nutritional benefits and influence consumption choices, consistent with findings by Can *et al.* (2015), Sari and Muffikhathi (2018), and Uddin *et al.* (2019). Education has been shown to increase the ability to understand, evaluate, and adopt dietary information which may in turn affect catfish consumption patterns in the study area Figure 5. Most of the respondents are Traders (36.7%), some are students (5%) and the Artisan (3.3%) while others are (30.0%) has shown in Table 6.

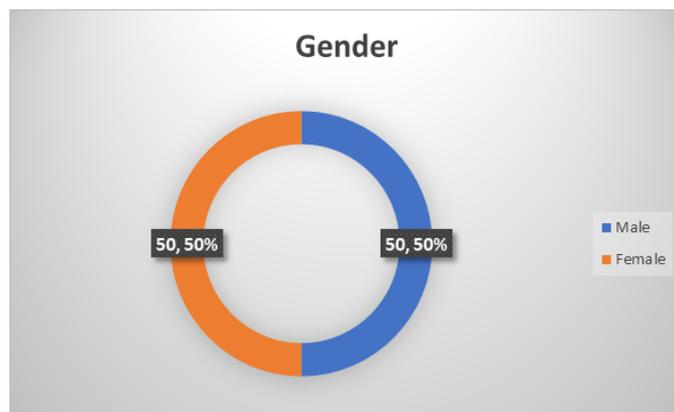


Figure 1. Gender Distribution of Respondents

**Consumption Pattern of Catfish**

Table 2 summarizes the frequency, preferences, and

**Table 1.**Socio-Economic Characteristics of Respondents

Parameters	Frequency	Percentage
<b>Gender</b>		
Male	15	50.0
Female	15	50.0
<b>Total</b>	<b>30</b>	<b>100.0</b>
<b>Age</b>		
18 – 29	10	33.3
30 – 49	11	36.7
50 – 59	6	20.0
60 and above	3	10.0
<b>Total</b>	<b>30</b>	<b>100.0</b>
<b>Religion</b>		
Christianity	21	70.0
Islam	6	20.0
Traditionalist	3	10.0
<b>Total</b>	<b>30</b>	<b>100.0</b>
<b>Marital Status</b>		
Single	9	30.0
Married	20	66.7
Others	1	3.3
<b>Total</b>	<b>30</b>	<b>100.0</b>
<b>Educational Level</b>		
Primary education	9	30.0
Secondary education	13	43.3
Tertiary education	8	26.7
<b>Total</b>	<b>30</b>	<b>100.0</b>
<b>Occupational Level</b>		
Government	4	13.3
Artisan	1	3.3
Trader	11	36.7
Student	5	16.7
Others	9	30.0
<b>Total</b>	<b>30</b>	<b>100.0</b>

Source: Computed Field Data, 2024

factors that increases appetite of catfish consumption among respondents in Ijare, a community within

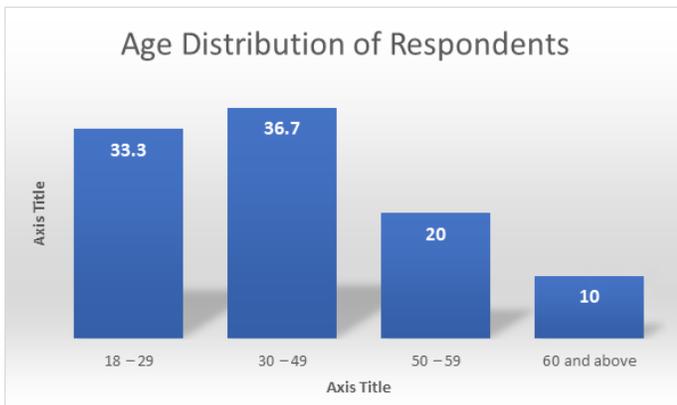


Figure 2. Age Distribution of Respondents

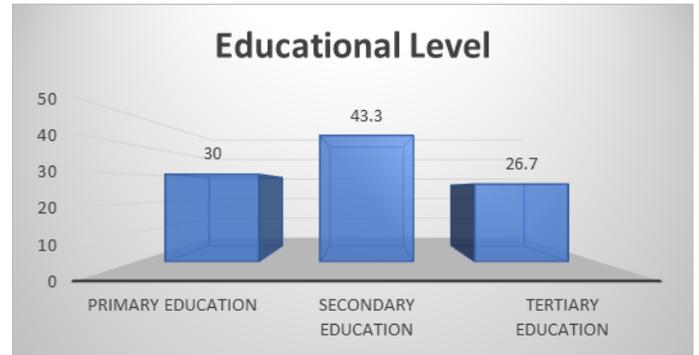


Figure 5. Educational Level of the Respondents  
respondents reported consuming catfish once a month,

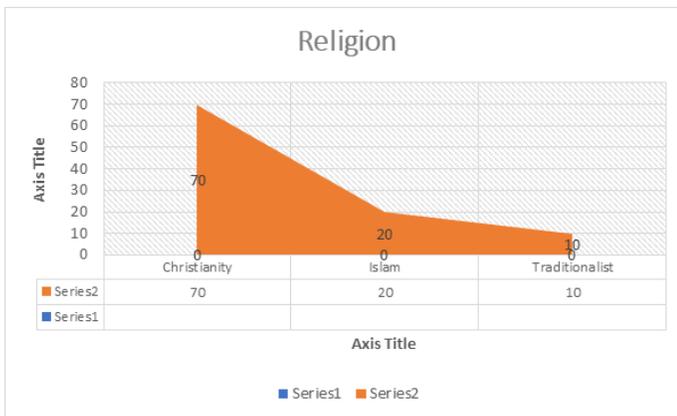


Figure 3: Religion of the Respondents

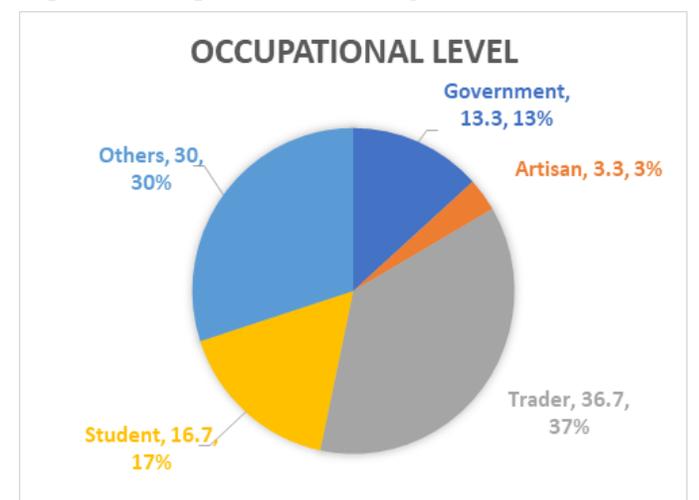


Figure 6. Occupational Level of the Respondents

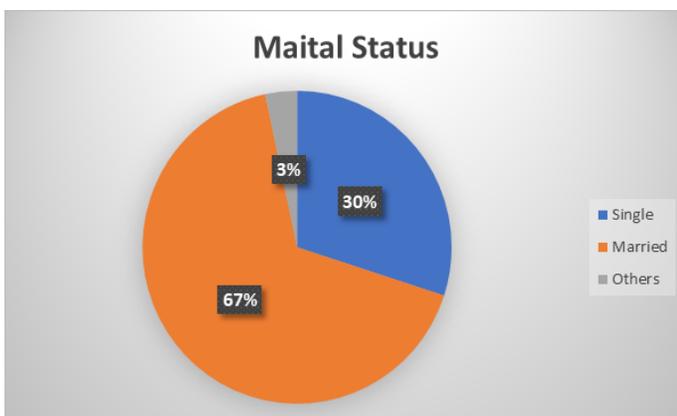


Figure 4: Marital Status of the Respondents

Akure Metropolis, Ondo State, Nigeria. Analysis revealed that most respondents (50%) consume catfish 2–3 times per week, indicating relatively high consumption levels. About 16.7% reported weekly consumption, while 13.3% consume catfish either daily or 2–3 times per month. Only 6.7% of

highlighting that fish is an integral component of the local diet.

Regarding preparation methods, smoked catfish emerged as the most preferred form, with 50% of respondents indicating it as their choice. Fried catfish was favoured by 16.7%, whereas 13.3% expressed no specific preference and consume catfish in various forms. Taste was identified as the principal driver of preference by half of the respondents, followed by nutritional value (30%), affordability (13.3%), and availability (6.7%). When asked about specific nutritional benefits, a large majority (83.3%) highlighted protein content, while vitamins and low-calorie attributes were cited by 6.7%, and mineral content by 3.3%.

These findings suggest that catfish consumption in Ijare is shaped by both sensory appeal and nutritional awareness. The strong preference for smoked catfish points to existing cultural and culinary practices, which can inform local aquaculture and fish processing strategies. High consumption frequency and consumer interest in taste and nutrition indicate opportunities for investment in value-added fish products, including smoking, preservation, and packaging technologies, which could enhance income generation, employment, and food security in the region.

Affordability and availability were also important determinants, suggesting that improvements in supply chains, reduction of production costs, and enhanced market access could further stimulate consumption. Moreover, the nutritional emphasis reflects increasing health consciousness among residents, supporting the promotion of catfish as a cost-effective, protein-rich dietary option. Consequently, catfish consumption in Ijare represents not only a culturally ingrained practice but also an avenue for economic development, nutrition improvement, and the growth of local agribusiness.

Table 3 revealed a distinct pattern in the intra-household allocation of catfish, reflecting underlying social hierarchies, gender roles, and cultural norms in Ijare. Intra-Household Distribution of Catfish answer the question of What part of the catfish is given to each person in the family (catfish); the results revealed that the father consistently received the most valued portions with 46.7% of his servings comprised the whole fish, while 23.3% included combinations of the head and middle sections. This allocation underscores his position of authority and privilege within the household.

In contrast, mothers predominantly received the middle portion in 53.6% of servings, but never the whole fish, suggesting a respected yet secondary status in household consumption. Children generally received the middle portion most frequently 69.0% for sons and 58.6% for daughters indicating its

**Table 2.** Consumption Pattern of Catfish

<b>Fish Consumption/ How often</b>	<b>Frequency</b>	<b>Percent</b>
Daily	4	13.3
2-3 times a week	15	50.0
Once a week	5	16.7
2-3 times a month	4	13.3
Once a month	2	6.7
others	4	13.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

<b>Preferred mode of consuming catfish</b>	<b>Frequency</b>	<b>Percent</b>
Smoked	15	50.0
Fried	5	16.7
Stewed	4	13.3
Grilled	4	13.3
Cooked	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

<b>Factors that influence the choice of fish</b>	<b>Frequency</b>	<b>Percent</b>
Taste	15	50.0
Price	4	13.3
Nutritional value	9	30.0
Availability	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

**Source:** Computed Field Data, 2024

perception as the most desirable yet less prestigious section. Notably, daughters were more likely than sons to receive tail portions (37.9% versus 20.7%), highlighting subtle gender-based distinctions in access to higher-value fish parts. Combinations involving the head were allocated almost exclusively

**Table 3.** Intra-Household Distribution of Catfish

Household	Whole	Head	Middle	Tail	Tail and middle	Head and middle	Head and tail
Father	14= 46.67%	4= 13.3%	2 = 6.67%	2 = 6.67%	0	7= 23.3%	1= 3.33%
Mother	0	1= 3.33%	15 = 50%	6 = 20%	6 = 20%	0	0
Son	0	3 = 10%	20 = 66.67%	6 = 20%	0	0	0
Daughter	0	1 = 3.33%	17 = 56.67%	11=36.67%	0	0	0

Source: Computed Field Data, 2024

to the father, reinforcing traditional associations between the fish head and the head of the household.

These patterns suggest that household catfish distribution is influenced by hierarchical social structures, with males particularly the father privileged over females and younger members. Sons received relatively more favourable portions than daughters, reflecting gendered norms in food allocation. While mothers and children were typically assigned the middle section, which is considered highly edible, their exclusion from whole fish servings illustrates the interplay between authority, age, and gender in dietary practices.

**Proximate Analysis**

Table 4 reveals the proximate analysis of *Clarias gariepinus* (African catfish) provides crucial insights into its nutritional composition and potential contribution to dietary protein intake in Ijare, Ondo State. Protein content, a key macronutrient for growth, tissue repair, and overall health, was notably high across all sampled portions, ranging from 45.13% to 72.69%. Among the samples, Tm3 the tail section of medium-sized catfish recorded the highest protein concentration at 72.69%, indicating that this portion offers the greatest protein yield per gram of fish. The high protein content observed aligns with the known status of catfish as a protein-dense food source,

making it a vital component of local diets where animal protein may otherwise be limited. The variation in protein content across different fish portions (head, middle, tail) suggests that specific parts of the fish may contribute differently to nutrient intake. In particular, the tail portion appears to be the most protein-rich, likely due to its muscle composition and lower fat-to-protein ratio compared with other sections.

This information has important implications for consumption patterns and nutrition planning. Households that preferentially allocate the head or middle portions to certain members may unintentionally provide less protein to others. Understanding the differential protein content of fish portions can inform both intra-household allocation strategies and public health recommendations, ensuring that high-protein sections are directed toward individuals with higher nutritional needs, such as children, pregnant women, or the elderly.

Furthermore, these findings support the economic and agricultural value of catfish. Its high protein content enhances its marketability as a nutritious food product, while highlighting the potential for local aquaculture initiatives to contribute to food security and dietary protein sufficiency in the region. By emphasizing the protein richness of specific catfish portions, interventions can be designed to maximize

**Table 4.** Results of the Proximate Analysis

<b>Fish type: T for Catfish Large/Medium/Small</b>	<b>Ash Content</b>	<b>Moisture Content</b>	<b>Lipid Content</b>	<b>Protein Percentage (%)</b>
TL1	25	3	3.6	52.19
TL2	7	6	7	65.88
TL3	9	8	5.4	71.31
TM1	19	1	3.2	49.19
TM2	7	11	6.2	45.13
TM3	6	2	4.2	72.69
TS1	22	7	3.4	48.13
TS2	3	10	3.2	34.94
TS3	2	4	6.4	59.44

**Fish type:** T for Catfish

**Size classification:** L for large, M for medium, S for small

**Acronyms for fish part consumed by household members:** 1 for head, 2 for trunk, 3 for tail

**Source:** Computed Catfish Specimen Samples, 2024

both nutritional benefits and household satisfaction, aligning cultural practices with health-promoting consumption.

The proximate analysis indicates that catfish, particularly the tail section, is a highly protein-rich food, reinforcing its nutritional significance in the diet of Ijare residents and its potential role in addressing protein deficiency and malnutrition in Nigeria. The tail portion in this study contained up to 72.69% protein, highlighting its exceptional nutrient density compared to other parts of the fish. This finding is consistent with previous research demonstrating the high protein content of *Clarias gariepinus* in Nigerian contexts.

The variation in protein content across different fish sections suggests that household consumption patterns, particularly the allocation of tail portions, could significantly influence the nutritional intake of household members. From a public health perspective, these results emphasize the importance of promoting catfish consumption as a protein-rich dietary option, especially for vulnerable populations,

while also informing aquaculture and food policy strategies aimed at improving dietary protein availability and addressing malnutrition. Assessment of these proximate components offers crucial insights into the nutritional quality of catfish, contextualizing local consumption patterns and informing dietary recommendations for the community.

## Conclusion and Recommendations

This study analyzed food and fish consumption patterns in Nigeria, with a focus on catfish consumption in Ijare, Akure North, Ondo State. Findings revealed a clear gendered and hierarchical pattern in intra-household allocation of catfish, where fathers predominantly received culturally esteemed portions, such as the whole fish and head, while mothers and children particularly daughters were more frequently served the middle and tail sections. This distribution reflects traditional social norms that influence household food practices and reinforces the broader cultural context in which fish consumption occurs in Nigerian communities. Proximate analysis of catfish indicated that the tail

of medium-sized specimens (sample TM3) contained the highest protein content at 72.69%, highlighting a disconnect between culturally preferred portions and nutritionally optimal ones. Consequently, portions with the greatest cultural value were not necessarily those providing the highest nutritional benefits, suggesting that traditional allocation practices may limit protein intake among women and children.

These results underscore the importance of integrating nutrition-focused education with culturally sensitive interventions. Public health campaigns and community programs should encourage equitable distribution of nutritionally valuable fish portions and promote consumption practices that consider both cultural norms and dietary quality. Such strategies have the potential to improve household nutrition, particularly for groups that are disadvantaged in traditional food hierarchies.

Furthermore, this study highlights the need for broader investigations across Nigerian communities to understand how socio-cultural, economic, and demographic factors shape food and fish consumption patterns. Insights from such research could inform targeted policies and interventions aimed at enhancing food security, improving dietary protein intake, and supporting local aquaculture and fish processing initiatives. Connecting consumption behaviour with nutritional outcomes, these findings provide actionable guidance for promoting sustainable and health-conscious food practices in Nigeria.

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