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Determinants of Fish Consumption Behaviour and Pattern in Oyo State, Nigeria

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ABSTRACT

This study was conducted to investigate the determinants of fish consumption behaviour and pattern in Oyo State, Nigeria. Primary data were collected for this study; a multistage sampling technique was employed in the selection of respondents. In the first stage, Ibadan town was purposefully chosen in the state. The second stage involved the random selection of six enumeration areas from the metropolis. Out of the eleven Local Government Areas in Ibadan Metropolis, six Local Government Areas were selected. The third stage involved the selection of 150 respondents from the enumeration areas by probability proportional to size. A semi-structured questionnaire was used to elicit relevant information from the respondents which include; the socio-economic characteristics of the respondents, determinants of fish consumption behaviour as well as socio-cultural factors affecting consumers' preference for frozen and fresh fish. Data were analyzed using descriptive statistics and a chi-square contingency test for independence and association. This study showed that the majority of respondents preferred smoked fish, with 88 % preferring to eat it with family members. Findings revealed that 51% of the respondents preferred large fish, while 86% had no complaints about fish. Similarly, men with more than one wife are more inclined ($p<0.05$) to eat fish with their children than men with only one wife (40.9 %). The length of time respondents had been eating catfish was substantially related ($P<0.05$) to their preference for smoked or frozen catfish. The respondents' occupation had a significant ($p<0.05$) relationship with their preference for whom to take fish with.

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Introduction

The demand for fish has been rising rapidly, as much as doubled, as a result of an increase in population, per capita income, and high prices of alternative sources of animal protein to the extent that 40% of animal protein consumed by an average Nigerian is fish (Fagbenro *et al.*, 2004, Federal Office of Statistics, 1990, Jimoh *et al.*, 2020). The Nigerian government has started promoting fish production to solve the animal protein consumption problem (Adeleke *et al.*, 2020, Kareem *et al.*, 2009). There are many culturable catfish species but *Clarias gariepinus* is the most cultured fish in Nigeria and indeed Africa (Garibaldi, 1996, Limbu, 2020). It is expected that with increasing aquaculture production and declining consumer acceptability of frozen fish, perhaps consumer preference might shift towards the consumption of cultured fish (Ojo and Fagbenro, 2004, Tran *et al.*, 2019, Halwart, 2020). Nigerian aquaculture industries rank second in Africa (Ojo *et al.*, 2004, Adeleke *et al.*, 2021, Food and Agriculture Organization, 2020), though, yet to reach the country's full production potential in terms of available natural, environmental and socio-economic factors (Adeleke *et al.*, 2020, Adeleke *et al.*, 2021). The fisheries and aquaculture industries have grown dramatically in recent decades, with overall production, trade, and consumption reaching new highs in 2018 (FAO, 2018). However, since the early 1990s, aquaculture has accounted for the majority of growth in the industry as a whole, while capture fisheries production has remained largely stable, with some growth primarily relating to inland capture (Food and Agriculture Organization, 2020). Cultured fish in Nigeria are mostly purchased in smoked-dried or fresh form (Jimoh *et al.*, 2020). Although Ibadan is known for its catfish production and consumption, little or no research has been done on customers' behaviours and consumption patterns for smoked-dried and fresh catfish, Consumer purchasing behavior is crucial for marketers because it allows them to understand what consumers expect (Stankevich, 2017). It aids in comprehending what motivates a customer to purchase a product (Rondoni *et al.*, 2020). It is critical to examine the types of products that consumers want before releasing them onto the market (Kalimuthu and Deepak, 2021). In order to use the research effort as a reference in the field of fish processing policy in Nigeria, this study analyses the determinants of fish consumption behaviours and patterns for smoke-dried or fresh catfish in the Ibadan metropolitan.

Consumer behavior is influenced by a variety of factors. Kotler *et al*. (2008) and Kotler and Armstrong (2010) classified them as follows; motivation, perception, learning, beliefs, and attitudes are all psychological issues; personal (age and stage of life, occupation, economic conditions, lifestyle, personality, and self-concept); social (circumstances, family, roles, and status) and cultural (culture, subculture, social class system). Consumers' preference study provides a better relationship with actual purchase or consumption (Honkanen *et al*., 2004, Ottar Olsen *et al*., 2009). Perception is a psychological factor that has been shown to influence consumer behaviour during the purchase decision process. Fish consumption is mostly affected by tradition and habit and the level of consumption is also enhanced by nutritional awareness (Pieniak *et al*., 2008). Consumers' choice is a theory of microeconomics that relates preferences for consumption of goods and services to consumption expenditure and ultimately to consumer demand curves. One of the most closely researched relationships in economics is between human preferences, consumption,

and the demand curve. It's a technique of looking at how consumers might find a balance between their preferences and their spending by optimizing utility while staying within their budget.

Socio-economic factors such as educational level, household size and the number of household members working, price of the commodity, occupation, age and expenditure on other food and non-food items could influence household consumption behaviour (Adeniyi *et al.*, 2012). This study aims at investigating determinants of fish consumption behaviour such as socioeconomic and sociocultural characteristics affecting consumers' preference for fresh and smoked catfish in the Ibadan metropolis.

Methodology

The study area, Ibadan is located in the tropical region of South West Nigeria – Oyo State. The area was selected based on the presence of some bodies of freshwater which encourage artisanal fishery. It also consists of pockets of ponds and earthware aquaculturists. A multistage sampling technique was employed in the selection of respondents to collect primary data. In the first stage, Ibadan town was purposefully chosen in the state. This is because the town is the capital of the state, the most populated and has fish markets. The second stage involved the random selection of six enumeration areas from the metropolis. Out of the eleven Local Government Areas in Ibadan Metropolis, six Local Government areas namely; Oluyole, Ido, Ibarapa, Ibadan North West, Ibadan South West and Lagelu Local Government were selected. The third stage involves a probability proportional to the size selection of 150 respondents from the enumeration zones, using population data from 2006. A semi-structured questionnaire was designed to elicit relevant information from respondents.

Descriptive statistics and Chi-square contingency test for independence and association were employed using SPSS statistical package Version 19.0 to determine whether each of the factors considered was independent of consumers' purchasing behaviour.

Results & Discussion

Household consumption behaviour may be influenced by socioeconomic characteristics such as educational attainment, household size and the number of working members, commodity price, occupation, age, and expenditure on non-food products.

Socio-economic characteristics of the respondents

Among the 150 respondents of the study, 77 (51.3%) were male, 84 (56%) were single, 90 (60%) were aged 20-30 years, 103 (68.7%) were Christians, 113 (75.3%) had tertiary education and 114 (76.0%) could speak in the English language. The majority of the respondents fell within the working stage of life and are well educated. Education, self-ego, availability of substitutes, requirements of other financial needs and personal conviction influence consumption (Adeniyi *et al.*, 2012). Education constitutes one of the factors guiding consumers' preference and consumption behaviour for fish (Jimoh *et al.*, 2020). The

respondents are nutrition-conscious because of their educational awareness. It is only those who belong to the age group 20-40 that is mostly called youth and could have these sterling attributes (Brody *et al.*, 2007).

The majority (61%) of the respondents had income-generating jobs and more than half (55%) had monthly expenditures greater than N10, 000. Can *et al.* (2015) reported that personal income affected fish consumption in Turkey. Davis *et al.* (1983) concluded that total income and/or total expenditure greatly influenced household consumption behaviour Out of the 77 male respondents, 33% had one wife and 21% had more than one wife. While about one-third of the respondents had 4 children, fewer respondents (12%) had five or more children (Table 1). This aligns with the report of Palash (2004) that family size has a significant effect on consumer behaviour and consumption pattern of fish in Dhaka city.

Table 1 Socio-economic characteristics of respondents

Socio-economic variables	Number of Respondents (150)	% of Respondents
Gender		
Male	77	51.3
Female	73	48.7
Marital status		
Single	84	56.0
Married	58	38.7
Divorced	8	5.3
Age		
20-30	90	60.0
31-40	41	27.3
41-50	12	8.0
No response	7	4.7
Religion		
Christianity	103	68.7
Islam	39	26.0
Traditional	5	3.3
No response	3	2.0
Formal education		
None	4	2.7
Adult literacy class	12	8.0
Primary	4	2.7

Secondary	17	11.3
Tertiary	113	75.3
Language spoken		
Native	23	15.3
English	114	76
Pidgin	10	6.7
No response	3	2.0
Occupation		
No response	25	16.7
Employed	91	60.7
Students	34	22.7
Monthly Expenditure (N)		
<10,000	62	41.3
10,000-19,999	42	28.0
≥20,000	41	27.3
No response	5	3.3
Number of wives (male respondents only)		
One	25	32.5
More than one	16	20.8
No response	36	46.8
Number of children		
1-4	49	32.7
≥5	18	12.0
No response	83	55.3

1 USD = ₦ 367 (Nigerian Naira)

Respondents' fish consumption behaviour

Table 2 contains information on the respondents' fish consumption behaviour. About two-thirds (64.7%) of the respondents had been consuming fish since childhood. Although about 38% of the respondents reported that they consume smoked fish, 61% reported that they preferred smoked fish. Also, about 91% of the respondents liked consuming cooked fresh fish; 41% preferred eating fish with friends; at the same time, 88% preferred eating fish with family members, especially with their children (42.4%). It was reported that socio-economic factors such as educational level, household size and the number of household members

working, price of the commodity, occupation, age and expenditure on other food and non-food items could influence household consumption behaviour (Adeniyi *et al.*, 2012). This result is similar to the report that the size of households, gender, taste and the nutritional value of fish significantly influenced the purchasing behaviour of people among Malaysian consumers (FarahAhmed *et al.*, 2011). Family size had been identified as one factor affecting the preference and consumption of fish products (Sari and Muflikhati, 2018)

The majority (87.3%) of the respondents acquired their fish by purchasing. What two-thirds (64%) of the respondents liked about fish was its taste. Taste, health benefits, nutrition, price and availability are identified factors guiding consumption behaviour (Kumar *et al.*, 2008). 35% of the respondents preferred consuming fish in the morning, 31% and 30% respectively preferred afternoon and evening. According to the findings, about 53% of respondents said they had eaten fish the day before; about 51% said they preferred large fish; the majority (86%) said they had no complaints about fish. It is known that consumption patterns are affected by product safety and price (Xuan, 2009). Fish quality such as taste, health benefits, nutrition, price and availability are factors that could influence consumers' preferences (Dalhatu and Ala, 2011, Kumar *et al.*, 2008). Similarly, in work on the cost of fresh fish and packaging, it was reported that there was no significant difference between the rating of cost of the fresh catfish and product branding and packaging (Oakes and Slotterback, 2001). While about half (50%) of the respondents claimed to purchase fish every day; 43% spent N 500 or less on fish and fewer (29%) respondents spent more than N1000 on fish. This study showed that greater percentages of the respondents who had income-generating jobs and occupation had a significant association with the preference to take fish alone or with friends.

Table 2 Socio-cultural characteristics affecting consumers' preference for fresh and smoked catfish in Ibadan metropolis

Social-cultural parameters	Number of Respondents (150)	Percentage of respondents
How long have you been eating fish		
Since childhood	97	64.7
Teenage	16	10.7
Adulthood	21	14.0
No response	16	10.7
Type of fish eaten		
Smoked fish	57	38.0
Frozen fish	38	25.3
Fried fish	29	19.3
Boiled fish	21	14.0
Others	5	3.3
Preferred type of fish		
Smoked	92	61.3
Frozen	57	38.0
No response	1	0.7
How do you like to eat fish?		
Cooked	136	90.7
Ordinary	11	7.3
No response	3	2.0

Prefer taking fish alone/with friends		
Alone	47	31.3
With friends	61	40.7
Indifferent	42	28.0
Taking fish with family member		
Yes	132	88.0
No	15	10.0
Indifferent	3	2.0
Family member preferred taking fish with		
Children	56	42.4
Wife	18	13.6
Indifferent	58	43.9
Means of obtaining fish		
Gift	5	3.3
Purchase	131	87.3
Cultured	13	8.7
No response	1	0.7
What exactly respondents like about the fish		
Packaging	25	16.7
Taste	96	64.0
Smell	13	8.7
Species	16	10.7
Time preference for fish intake		
Morning	53	35.3
Afternoon	46	30.7
Night	45	30.0
No response	6	4.0
How long Respondents have been eating fish		
A day ago	80	53.3
This week	40	26.7
Last week	13	8.7
More than a week	14	9.3
No response	3	2.0
Size of fish preferred		
Small	11	7.3
Medium	62	41.3
Big	76	50.7
No response	1	0.7
Have complaint about the fish		
Yes	19	12.7
No	129	86.0
No response	2	1.3
Any improvement in the fish since being eaten		
Yes	93	62.0

No	43	28.7
No response	14	9.3
Type of improvement		
Packaging	52	55.9
Taste	31	33.3
Smell	6	6.5
Others	3	3.2
No response	1	1.1
Frequency of purchasing fish		
Everyday	75	50.0
Not everyday	70	46.7
No response	5	3.3
Number of wives eating fish with respondents		
One	21	27.3
More than one	19	22.1
No response	39	50.6
Amount spent on purchasing fish(₦)		
≤500	65	43.3
501-1000	19	12.7
>1000	43	28.7
No response	23	15.3

1 USD = ₦ 367 (Nigerian Naira)

Factors influencing fish consumption behaviours

Table 3 shows the factors that had a significant association ($p<0.05$) with respondents' behaviour toward the consumption of fish with family members. The chi-square test shows that a greater proportion of female respondents (90.6%) preferred to eat fish with their children than male respondents (61.7%). A significant difference has been reported by Oakes and Slotterback (2001) on the gender perception differential on healthy food. In previous studies by Roininen *et al*. (1999), it was reported that there was a significant difference in the perception of healthy foods between men and women; such that females were more interested than males in healthy eating. The family consumption behaviour is associated with the mother who has the wherewithal to influence the family diet and to prepare food to be eaten by the family (Sari and Muflikhati, 2018). A mother's orientation toward certain food eating is known to influence children's attitude and consumption behaviour as fish consumption is important for children development and general health (Waysima *et al*., 2010, Wardle et al., 2003).

Also, a higher proportion of the male respondents with more than one wife (83.3%) significantly ($p<0.05$) preferred to eat fish with their children than those who had one wife (42.3%). Socio-cultural factors have been implicated to have an impact on fish consumers' behaviour (Myrland *et al*., 2000). Also, the number of wives and the number of wives eating fish with the male respondents had a significant influence on respondents' preferred time of eating fish. The family meal is recognized as one of the factors establishing family identity, ideology and parenting (Cappellini and Parsons, 2011, 2012, Daly, 2001, Wilk, 2010).

Table 3 Factors associated with consumers' behaviour to eat fish with family members

Variables/categories	Family members		Chi-square test	
	Children N (%)	Spouse N (%)	Statistics	p-value
Gender				
Male	29(61.7)	18(38.3)	8.160	0.004
Female	29(90.6)	3(9.4)		
Number of wives (male respondents only)				
One	11(42.3)	15(57.7)	19.618	0.000
More than one	15(83.3)	3(16.7)		
No response	32(91.4)	3(8.6)		
Number of wives eating fish with male respondents				
One	9(40.9)	13(59.1)	16.556	0.000
More than one	16(84.2)	3(15.8)		
No response	33(86.8)	5(13.2)		

Figures in parentheses are in percentage

Similarly, a higher proportion of male respondents having more than one wife significantly ($p<0.05$) choose to consume fish with their children than those who had one wife eating fish (40.9%). The ambience, environmental stimuli borne out of the presence of other people, could affect food choice and food intake (Stroebele and De Castro, 2004). This shows the significance of exposing children to healthy eating right from childhood.

The chi-square test also shows that respondents' choice of either smoked or frozen catfish was significantly associated with how long they had been taking the fish (Table 4). Significantly ($p<0.05$) a higher proportion of those who had been taking fish since childhood (69.8%) preferred smoked fish compared to those who started taking fish since teenage(62.5%). Cardoso *et al.* (2016) reported how older consumers were much more affectionate with wild fish and much more reluctant to eat farmed fish than the younger ones. This might plausibly be explained by the result of a finding that a repeated opportunity to taste unfamiliar food results in increased preference and consumption of such food (Cooke, 2007, Wardle *et al.*, 2003). This result is in contrast to the report that respondents consume any form of fish (frozen, fresh or smoked) of their choice regardless of their expenses in a study on consumer preference for cultured, captured and frozen fish in Ogun State, Nigeria (Jimoh *et al.*, 2009) though the study did not take into cognizance repeated exposure-based intervention.

Table 4 Factor associated with the type of fish preferred

Variables/categories	Type of fish preferred		Chi-square test	
	Smoked N (%)	Frozen N (%)	Statistics	p-value
How long have respondents been eating fish				
Since childhood	67(69.8)	29(30.2)	9.846	0.007
Since teenage	10(62.5)	6(37.5)		
Adulthood	7(33.3)	14(66.7)		

Table 5 shows that the occupation of the respondents had a significant association ($p<0.05$) with respondents' preference for whom to take fish with. A higher proportion of those who had one job or the other significantly preferred taking fish with friends (53.7%), unlike student respondents who preferred taking fish alone (53.8%). This report is consistent with the report of Jimoh et al. (2013) that occupation had a significant effect on preference for fresh and frozen fish. Hence, it can be concluded that the occupation of the respondents had a significant association with respondents' preference for whom to take fish.

Table 5 Factor associated with preference to take fish alone or with friends

Variables/categories	Preference		Chi-square test	
	Alone N (%)	Friends N (%)	Statistics	p-value
Occupation				
No response	2(13.3)	13(86.7)	6.895	0.032
Employed	31(46.3)	36(53.7)		
Students	14(53.8)	12(46.2)		

Figures in parentheses are in percentage

Factor associated with preferred time of taking fish in a day

Results in Table 6 show that the number of wives had a significant influence ($p<0.05$) on respondents' preferred time of eating fish and the number of wives eating fish with the male respondents had a significant influence ($p<0.05$) on respondents' preferred time of eating fish. Those male respondents with more than one wife (58.8%) and those who ate fish with more than one wife (61.1%) respectively preferred taking fish in the morning unlike those male respondents with one wife (45.8%) and those who ate fish with one wife (47.6%) preferred eating fish in the evening. Family collective eating patterns and consumption behaviour as influenced by the perception and affective attitude of the mother significantly improved children's appreciation for consuming fish (Waysima *et al.*, 2010).

Table 6 Factor associated with preferred time of taking fish in a day

Variables/categories	Preference			Chi-square test	
	Morning N (%)	Afternoon N (%)	Evening N (%)	Statistics	p-value
Number of wives (male respondents only)					
One	7(29.2)	6(25.0)	11(45.8)	10.090	0.039
More than one	10(58.8)	1(5.9)	6(35.3)		
No response	36(35.0)	39(37.9)	28(27.2)		
Number of wives eating fish with male respondents					
One	5(23.8)	6(28.6)	10(47.6)	11.078	0.026
More than one	11(61.1)	1(5.6)	6(33.3)		
No response	37(35.2)	39(37.1)	29(27.6)		

Figures in parentheses are in percentage

Conclusions

This study showed that the majority of respondents preferred smoked fish, with 88 % preferring to eat it with family members. Findings revealed that 51% of respondents preferred large fish, while 86% had no complaints about fish. Similarly, men with more than one wife are more inclined to eat fish with their children than men with only one wife. The length of time respondents had been eating catfish was substantially related to their preference for smoked or frozen catfish. The respondents' occupation had a significant relationship with their preference for whom to take fish with.

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