Journal of Agricultural and Marine Sciences 2020, 25(1): 27–38
DOI: 10.24200/jams.vol25iss1pp27-38
Reveived 05 Nov 2019
Accepted 31 Dec 2019

RESEARCH PAPER

Consumers' Preference and Behaviour Pattern Towards Fresh and Smoked Catfish in Ilorin Metropolis, Nigeria

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تفضيل المستهلكين وسلوكهم تجاه سمك السلور والسمك المدخن كما هو موضح في دراسة إليورين ، نيجيريا

جيمو أ ، ايلوجا أ ، أجبوولا ت ، عبدالله أ

ABSTRACT. Consumers' preference study allows industries to tailor the supply towards the preference of consumers so that market could be optimized for their turn-over and profits. This study investigated consumers' preference of fresh and smoked catfish in Ilorin Metropolis. A total of 225 questionnaires were administered adopting multi-stage techniques to elicit information from the respondents. The obtained data were subjected to descriptive and inferential statistics. The results showed that majority of the respondents in this study preferred smoked catfish irrespective of their socio-economic profile. The majority of the respondents agreed with the factors used in this study for the preference of fish (i.e. types) and their frequency of eating as their preferred fish. This study showed that only tribe of the respondents showed significant effect ($p<0.05$) on the respondents' preferences for whole or chunk fish; and family size, age and religion had significant effect on the frequency of their preferred fish.

KEYWORDS: catfish, preference; principal component analysis; consumption behavior; scree plot.

الملخص: إن دراسة ما يفضله المستهلكين، تسمح للقطاع الصناعي بإمداد السوق بالمنتجات التي يفضلونها حيث أن ذلك يساعد على تحسن السوق و زيادة الأرباح. ولذلك تم إجراء هذه الدراسة لمعرفة ما يفضله المستهلكين من سمك السلور سواء الطازج والمدخن في مدينة إليورين. حيث تم توزيع ٢٢٥ استبيان لإستخلاص المعلومات من عينة الدراسة. وقد خضعت البيانات التي تم الحصول عليها الى إحصاءات وصفية واستنتاجية. حيث أظهرت النتائج أن غالبية المشاركين في هذه الدراسة يفضلون سمك السلور المدخن بغض النظر عن وضعهم الاجتماعي و الاقتصادي. كذلك وافق غالبية المشاركين على أن العوامل التي تم دراستها هي المسؤولة عن تفضيلهم لنوع معين من الاسماك وتكرار استهلاك تلك الاسماك. بالاضافة الى ذلك أظهرت هذه الدراسة أن القبيلة فقط لها تأثير كبير ($p<0.05$) على تفضيل الأسماك كاملة أو كقطع كبيرة ؛ وكان لحجم الأسرة والعمر والدين تأثير كبير على تكرار استهلاك تلك الأسماك المفضلة لديهم.

الكلمات المفتاحية: سمك السلور ، التفضيل ، تحليل المكون الرئيسي ، سلوك المستهلكين ، التمثيل البياني.

Introduction

The fisheries sector plays significant role in the economic development of many countries as it contributes to employment generation, income augmentation, addressing food and nutritional security concerns and foreign earnings (Sabater et al., 2008). Nigerians, on realization that there existed a wide gap between demand and supply of animal protein in the 1990s, invested heavily in fish production (Jimoh et al., 2013). Today Nigeria is a leading catfish producer in the Sub Saharan Africa. Catfish production in Nigeria represents more than half of the total production volume with an estimation of 13.3 kg annual per capita fish consumption in 2013 (FAO, 2017). In order to avoid wastage and economic loss, fresh catfish is hot smoked to keep its quality at a high level (Ayeloja et al., 2017). With increasing demand for fish as per capital income, and high prices of alternative sources of animal protein, there has been a shift to the consumption of fish. These are mostly in fresh and smoked forms. Due to the increase in aquaculture production and Nigeria's population, there is a need to study the consumers' preference and consumption pattern so that investors can determine the product that are preferred; thereby witnessing sustained fish demand.

In general, consumers' buying of any product largely depends upon their perception about the product (Kazmi, 2012). Hansen (2006) stated that consumer preferences for products differ depending on the nature of a product as well as the social and economic status of the consumer. Consumers purchasing decisions are determined by cultural, social, personal and psychological factors (Lautiainen, 2015). Solomon (2010) opined that a consumer's occupation, income level and purchasing power influences their purchasing decisions and buying behavior. Research into consumers' preference and behavior is necessary for the development of the consumers' products to secure sustained consumer demand and to maximize profit (Costa and Jongen, 2006). Various strategies are used in collecting information on consumers' behavior and preference on a product in order to witness sustained consumer demands of the products

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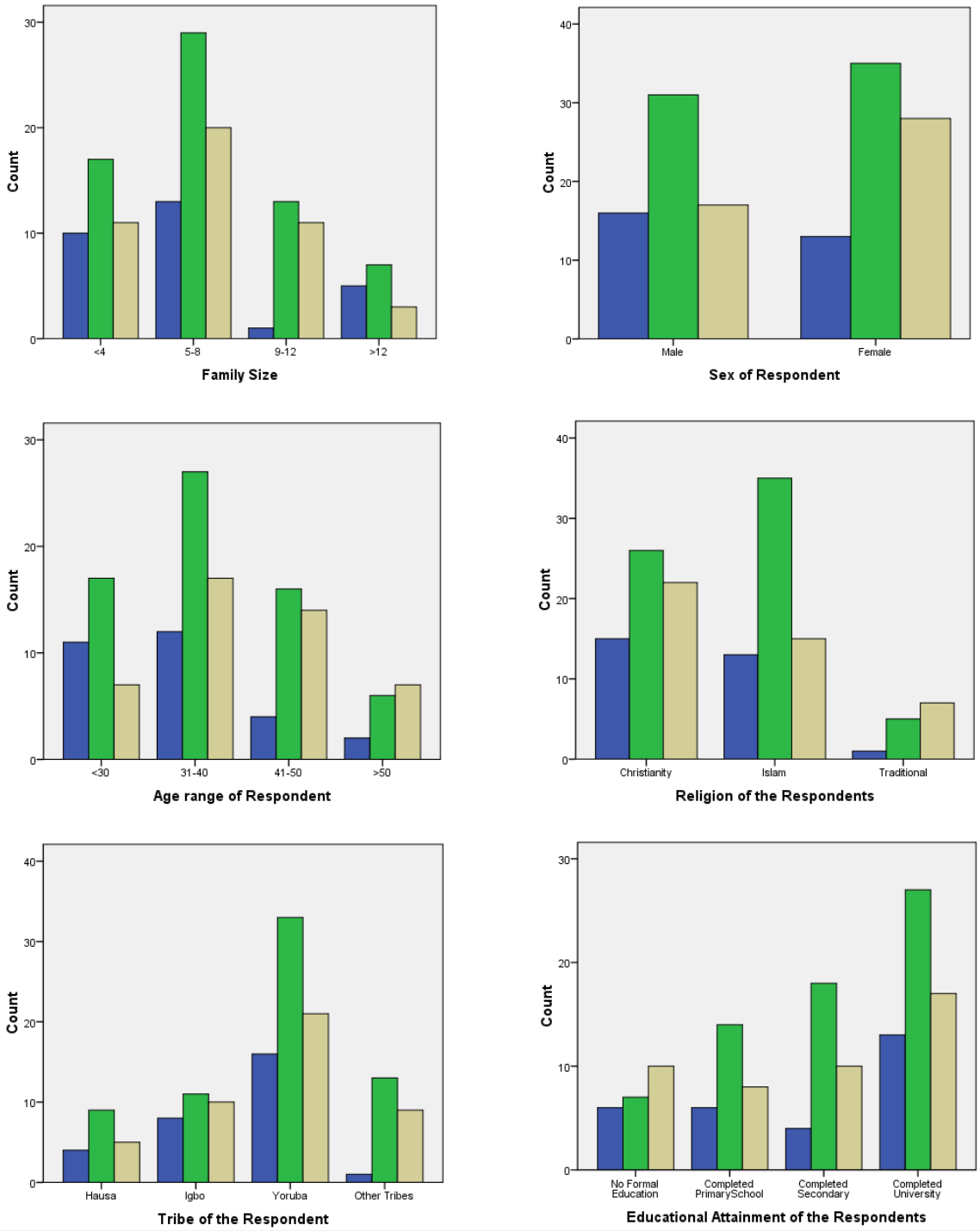

Figure 1. Socio-economic profile and their preference for part of chunk preferred (legends are shown in Figure 2)

(Nijssen and Lieshout, 1995). Information that affects consumers' preference and behavior for a particular product, such as demographic, sociocultural, socioeconomic information, are collected by the food industry to maintain their products competitive in the markets or to develop products that could satisfy the preference of the consumers (Stewart-Knox and Mitchell, 2003). Socio-cultural factors which include ethnic composition, education, and lifestyles have been reported to influence consumers' preference and buying pattern (Meulenberg and Viaene, 2005). Religious composition also plays influential role in consumers' preference (Solomon, 2010). Household size, age and gender distribution was also reported to have influence on the demand for a particular product (Hoek et al., 2004). The evaluation of consumers' preference for fresh and smoked-dried fish products can be used to prepare production planning and distribution of fish across the country (Adeniyi et al., 2012).

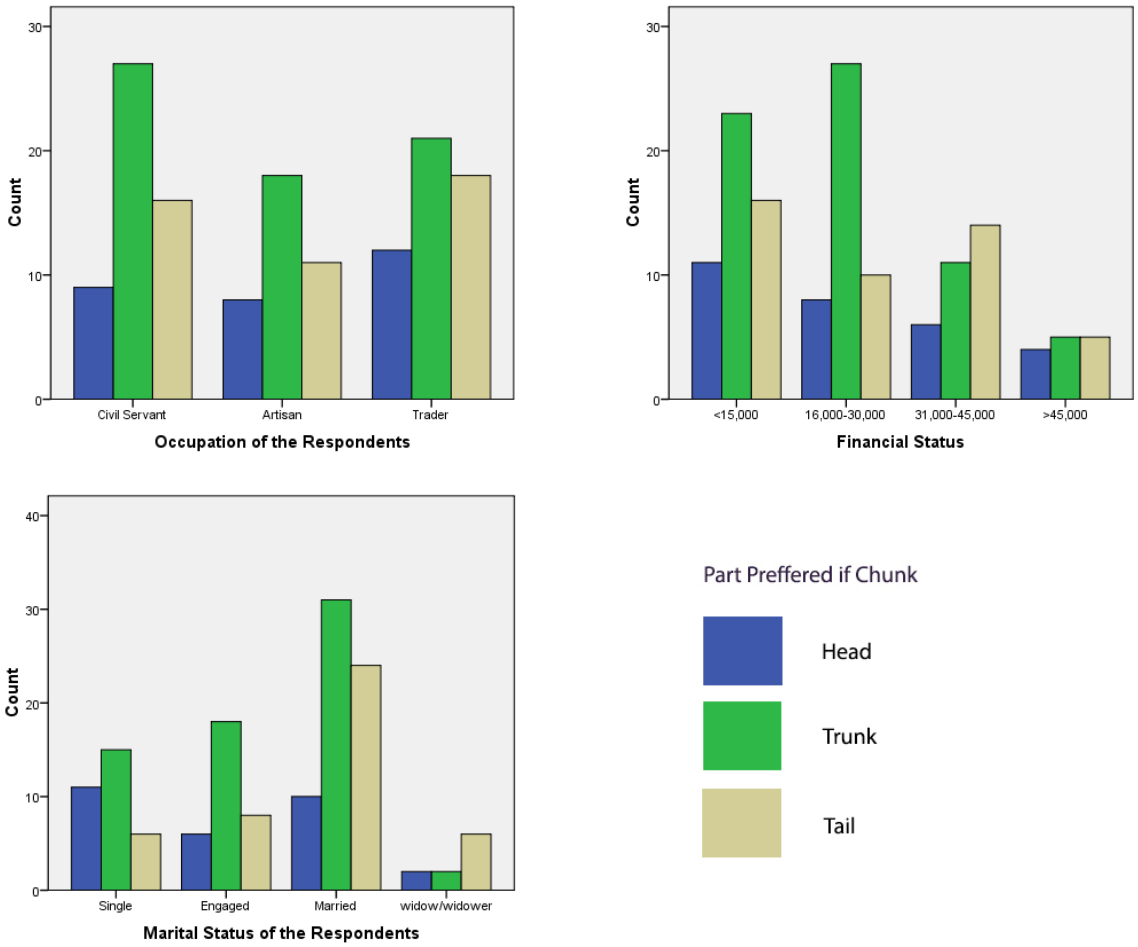

Figure 2. Socio-economic profile and their preference for part of chunk preferred

It gave a better understanding of the relationship that existed with the actual consumption or purchase (Honkanen et al., 2004; Olsen, 2004). The most closely studied relations in consumer economics is the association between personal preferences, consumption and demand curve (Myrland et al., 2000). Preference is considered to be the major factor influencing general food consumption behavior (Myrland et al., 2000). Fish consumption is mostly affected by tradition, and habit; it can be enhanced by nutritional awareness (Pieniak et al., 2008).

Although many researchers have studied consumers' preferences for fresh and smoke-dried catfish products (Jimoh et al., 2013; Sabater et al., 2008), there is a paucity of information on consumer's acceptability of fresh and smoked-dried catfish, thus this research was planned. This study therefore examined consumers' preference and behavior for fresh and smoked catfish sold within Ilorin, Nigeria.

Materials and Methods

This study area was Ilorin the capital of Kwara state. It is located on latitude 8˚30'N and longitude 4˚35'E, in North Western Nigeria. Ilorin city has a population of 847,582 and it is a confluence of cultures, populated by Yoruba, Fulani and other tribes. Its town has about three local government areas including Ilorin east, Ilorin west and Ilorin south. The population comprises different fish mongers and consumers within Ilorin. Primary data were collected with the use of scheduled interview using structured questionnaire.

Primary data for this study were collected using multistage sampling techniques. The first stage involved the selection of three (3) wards under each of the three Local Government Areas selected using simple random technique, which gave a total of nine (9) wards. The second stage involved selection of five (5) communities under each ward using simple random technique, which gave a total of forty-five (45) communities. The third stage involved the selection of 5 respondents comprising of 2 fish mongers and 3 fish consumers from each community selected using simple random techniques, which resulted in a total of 225 respondents. However, the response rate was 88.9%, which resulted 200 respondents as the sample size.

The reliability of items in the questionnaire was measured using Cronbach's Alpha method of examining reliability. The Cronbach Alpha offered a measure of the in-

ternal consistency of a scale or test, expressed as number between 0 (completely unreliable test) and 1 (completely reliable test). An Alpha score above 0.75 is generally taken to indicate a scale of high reliability, 0.5 to 0.75 is generally accepted as indicating a moderately reliable scale, while a figure below this generally indicates a scale of low reliability.

Data Analysis

The reliability of items in the questionnaire was measured using Cronbach's Alpha method of examining reliability. Scale statistics was done using a measure of central tendencies. The data collected were processed using both descriptive and inferential statistics. The descriptive analysis was mainly in terms of percentage and frequency of distribution to show the socio-economic profile of the respondents and factors that guide the respondents in their preference of fish in the study area. Bar charts were used to depict the socio-economic profile of the respondents and their preference for certain parts of fish or the other. Inferential statistics (chi-square statistics) were used to test the significance of the effect of some socio-economic profile of the respondents on their preference for the type or part of fish or the frequency of eating their preferred fish. Principal Component Analysis (PCA) was used to select variable of importance in the factors that guide the preference for certain types or part of fish and their frequency of eating (i.e. their preferred fish) using eigenvalue. The percentage of variance as indices after the data was subjected to Kaiser-Meyer-Olkin (KMO) measure as the sampling adequacy and Bartlett's test of sphericity. All the analysis were conducted using SPSS version 17 (SPSS, 2008).

Results

Reliability Analysis of the Questionnaire

The reliability value of items in the questionnaire was 0.645, indicating a moderate reliability (Table 1).

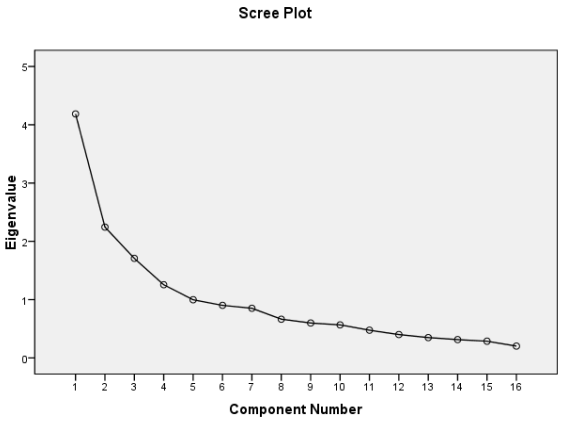

Figure 3. Scree plot showing the Eigen value of the studied variables

Socio-economic Profile of the Respondents

Personal information of the respondents using frequency counts and percentage are shown in Table 2. Respondent were almost equally distributed across genders with 50.5% of the respondents being male and 49.5% of the respondents being female; 43.5% fell within the age group 31-40 years as compared to 8% of the respondents fell within the age group of 50 years and above. The majority of the respondents practice Christianity and Islam (46%) as compared to 8% are traditional worshippers. The majority of the respondents (43%) were married while 5% were widow/widower. The majority of the respondents: 60.5% were Yoruba tribe, while Hausas had the lowest percentage (10%). Most of the respondents had formal education and only 11.5% of the respondents were not educated. Respondents (37 %) were civil servants, 33% were traders and 30% of the respondents were Artisans. Spending capacity of the responds were: 41% spent below ₦15,000, 33.5% spent ₦15,000 - ₦30,000 while 8% of the respondents spent above ₦45,000 on fish every month. Based on house hold size, this study showed that majority of the respondents 43.5% fell within the house hold size of 5-8 people, while 15% were 9-12 people, respectively.

Table 1. Reliability Analysis of the Questionnaire

Reliability Statistics	Cronbach's Alpha	0.688
	Cronbach's Alpha Based on Standardized Items	0.645
	Number of Items	29
Scale Statistics	Mean	77.54
	Variance	99.250
	Std. Deviation	9.962
	Number of Items	29

Table 2. Socio economic profiles of the respondents

Variables	Parameters	Frequency	Percent
Sex	Male	101	50.5
	Female	99	49.5
Age Range	Less than 30	57	28.5
	31.40	87	43.5
	41-50	40	20
	Above 50	16	8
Religion	Christianity	92	46
	Islam	92	46
	Traditional	16	8
Marital Status	Single	52	26
	Engaged	52	26
	Married	86	43
	Widow/Widower	10	5
Tribes	Hausa	20	10
	Igbo	21	15.5
	Yoruba	121	60.5
	Other tribes	28	14
Educational Attainment	No formal Education	23	11.5
	Primary School	30	15
	Secondary School	47	23.5
	University	100	50
Occupation	Civil Servant	74	37
	Artisanal	60	30
	Trader	66	33
Monthly Expenditure	Below N15,000	82	41
	15,000-30,000	67	33.5
	30,000-45,000	35	17.5
	Above 45,000	16	8
Family Size	Below 4	66	33
	5-8	87	43.5
	9-12	30	15
	Above 13	17	8.5

Socio-economic Profile of the Respondents and their Preference for Fresh or Smoked Fish

Table 3 shows the cross tabulation (chi-square test of independence) of the demographic factors of the respondent against their preference for fresh or smoked fish. The socio-economic profile did not show significant effect ($p>0.10$) on the preference of respondents for fresh or smoked fish except religion.

Socio-economic Profile of the Respondents and their Preference for Whole or Chunk Fish

Table 4 shows the cross tabulation (chi-square test of independence) of the demographic factors of the respondent against their preferred type of fish, either whole or chunk of fish. The table shows that only tribe of the respondents had significant effect ($p<0.05$) on the respondents' preference for whole or chunk fish, while other socio-economic profile had no significant effect ($p>0.05$) on the respondents' preference for whole or trunk fish.

Socio-economic Profile and their Preference for Part of Chunk Preferred

The bar chart in the Figures 1 and 2 show that majority of the respondents with the family size regardless of sex, occupation or tribe of respondents preferred to eat the trunk part of fish. Also, respondents aged 50 or less prefer eating trunk fish although those above 50 years of age prefer to eat tail of fish. The bar chart also shows that the majority of the respondents practice Islam and

Table 3. Socio economic profiles of the respondents

Socio-economic Factors		Types of Preferred Fish		Total	χ^2-value	Significance
		Fresh	Smoked			
Family Size	< 4	27	39	66	0.137	NS
	5-8	39	48	87		
	9-12	11	18	29		
	>12	12	05	17		
Total		89	110	199		
Sex	Male	47	53	100	0.306	NS
	Female	42	57	99		
Total		89	110	199		
Age (Years)	<30	29	27	56	0.512	NS
	31-40	35	52	87		
	41-50	19	21	40		
	>50	06	10	16		
Total		89	110	199		
Religion	Christianity	46	46	92	0.093	*
	Islam	40	51	91		
	Traditional	03	12	15		
Total		89	110	199		
Tribe	Hausa	07	12	19	0.143	NS
	Igbo	10	21	31		
	Yoruba	62	59	121		
	Others	10	18	28		
Total		89	110	199		
Marital Status	Single	23	28	51	89	110
	Engaged	20	31	51		
	Married	21	45	86		
	Widow/widower	05	06	11		
Total		89	110	199		
Educational Attainment	NFE	12	11	23	0.183	NS
	Primary	09	21	30		
	Secondary	18	28	46		
	Tertiary	50	50	100		
Total		89	110	199		
Occupation	Civil Servant	36	38	74	0.675	NS
	Artisans	23	37	60		
	Trader	30	35	65		
Total		89	110	199		
Financial Status	<15,000	42	40	82	0.229	NS
	16,000-30,000	25	41	66		
	31,000-40,000	13	22	35		
	>45,000	09	07	16		
Total		89	110	199		

NS: not significant ($p<0.1$)
NFE: No Formal Education
*: Significant

Table 4. Socio-economic profile of the respondents and their preference for whole or chunk fish.

Socio-economic Factors		Types of Preferred Fish		Total	χ^2-value	Significance
		Fresh	Smoked			
Family Size	< 4	35	31	66	0.678	NS
	5-8	48	39	87		
	9-12	14	16	30		
	>12	7	10	17		
Total		104	96	200		
Sex	Male	55	46	101	0.288	NS
	Female	49	50	99		
Total		104	96	200		
Age (Years)	<30	29	28	57	0.630	NS
	31-40	48	39	87		
	41-50	21	19	40		
	>50	06	10	16		
Total		104	96	200		
Religion	Christianity	49	43	92	0.309	NS
	Islam	50	42	92		
	Traditional	05	10	15		
Total		104	95	199		
Tribe	Hausa	09	11	20	0.011	*
	Igbo	10	21	31		
	Yoruba	74	47	121		
	Others	11	17	28		
Total		104	96	200		
Marital Status	Single	30	21	51	4.06	NS
	Engaged	27	25	52		
	Married	44	42	86		
	Widow/widower	03	07	10		
Total		104	95	199		
Educational Attainment	NFE	08	15	23	0.105	NS
	Primary	14	16	30		
	Secondary	22	25	47		
	Tertiary	60	40	100		
Total		104	96	200		
Occupation	Civil Servant	39	35	74	0.746	NS
	Artisans	32	28	60		
	Trader	33	33	66		
Total		104	96	200		
Financial Status	<15,000	41	41	82	0932	NS
	16,000-30,000	37	30	67		
	31,000-40,000	18	17	35		
	>45,000	08	08	16		
Total		104	96	200		

*: significant ($p < 0.05$)
NS: Not Significant

Table 5. Socio-economic profile and frequency of eating their preferred fish

Socio-economic Factors		Frequency of eating Preferred Fish				Total	χ^2-value	Significance
		Daily	Weekly	Monthly	Festive Period			
Family Size	< 4	28	25	10	03	66	0.000	*
	5-8	27	40	17	03	87		
	9-12	10	03	13	04	30		
	>12	04	03	06	04	17		
Total		69	71	46	14	200		
Sex	Male	35	34	24	8	101	0.920	NS
	Female	34	37	22	6	99		
Total		69	71	46	14	200		
Age (Years)	<30	23	21	10	03	57	0.014	*
	31-40	32	34	20	01	87		
	41-50	11	12	11	06	40		
	>50	03	04	05	04	16		
Total		69	71	46	14	200		
Religion	Christianity	41	32	13	06	92	0.007	*
	Islam	27	35	24	06	92		
	Traditional	01	04	08	02	15		
Total		69	71	45	14	199		
Tribe	Hausa	04	06	10	0	20	0.000	*
	Igbo	10	12	08	1	31		
	Yoruba	49	47	19	6	121		
	Others	06	06	09	7	28		
Total		69	71	46	14	200		
Marital Status	Single	21	18	09	03	51	0.069	NS
	Engaged	15	27	08	02	52		
	Married	29	25	25	07	86		
	Widow/widower	03	01	04	02	10		
Total		68	71	46	14	199		
Educational Attainment	NFE	07	05	07	04	23	0.190	NS
	Primary	11	09	10	0	30		
	Secondary	13	19	12	03	47		
	Tertiary	38	38	17	07	100		
Total		69	71	46	14	200		
Occupation	Civil Servant	30	20	18	06	74	0.608	NS
	Artisans	18	26	14	03	61		
	Trader	21	25	14	05	65		
Total		69	71	46	14	200		
Financial Status	<15,000	27	31	18	06	82	0.430	NS
	16,000-30,000	24	27	13	03	67		
	31,000-40,000	11	11	11	02	35		
	>45,000	07	02	04	03	16		
Total		69	71	46	14	200		

*: significant ($p<0.05$)
NS: not significant

Table 6. Factors guiding preference for fish

	Variables	SD	D	U	A	SA	Mean	SD	CIE
1.	Fish is highly nutritive	22(11%)	16(8%)	07(3.5%)	71(35.5%)	84(42%)	3.89	1.34	3.70-4.00***
2.	It is less costly	10(5%)	26(13.1%)	14(7%)	97(48.7%)	52(26.1%)	3.78	1.12	3.62-3.94***
3.	It is more delicious	11(5.5%)	14(7%)	21(10.5%)	106(53%)	48(24%)	3.83	1.05	3.68-3.98***
4.	It has sweet aroma	14(7%)	16(8%)	10(5.1%)	108(54.3%)	51(25.6%)	3.83	1.11	3.68-3.99***
5.	It is easy to cook	09(4.5%)	13(6.5%)	22(11%)	97(48.5%)	59(29.5%)	3.92	1.03	3.78-4,06***
6.	Packaging	14(7%)	32(16%)	29(14.5%)	87(43.5%)	38(19%)	3.52	1.17	3.35-3.68***
7.	Size of fish	09(4.5%)	27(13.6%)	36(18.1%)	82(41.2%)	45(22.6%)	3.64	1.11	3.48-3.79***
8.	Does your age affect choice	18(9%)	53(26.5%)	44(22%)	62(31%)	23(11.5%)	3.10	1.18	2.93-3.26***
9.	Does your health status influence your choice	18(9%)	62(31.2%)	35(17.6%)	59(29.6%)	25(12.6%)	3.64	1.22	2.99-3.23***
10.	Physical features of fish	17(8.5%)	43(21.5%)	42(21%)	77(38.5%)	21(10.5%)	3.21	1.15	3.05-3.37***
11.	Psycho-social issues	17(8.5%)	49(24.5%)	46(23%)	60(30%)	28(14%)	3.16	1.19	3.00-3.33***
12.	Level of Disposable income	12(6%)	49(24.5%)	46(23%)	60(30%)	28(14%)	3.58	1.12	3.42-3.74***
13.	Fish Size Requirement	17(8.5%)	25(12.5%)	38(19%)	85(42.5%)	40(20%)	3.60	1.17	3.44-3.77***
14.	Availability	17(8.5%)	19(9.5%)	20(10%)	110(55%)	34(17%)	3.62	1.13	3.47-3.78***
15.	Family Background	27(13.5%)	58(29%)	30(15%)	64(32%)	21(10.5%)	2.97	1.26	2.79-3.15***
16.	Cultural Background	39(19.5%)	46(23%)	34(17%)	49(24.5%)	32(16%)	2.94	1.38	2.75-3.14***

D: Disagreed; SD: Strongly Disagreed; U: Undecided; A: Agreed; SA: Strongly Agreed
SD: Standard Deviation ; CIE: Confidence Interval Estimate, *** Significant difference

Christianity, and they preferred eating the trunk part of fish. The traditionalists preferred the tail of fish except those who have no formal education whose majority prefer eating the tail of fish, the majority of educated respondents irrespective of their educational attainment preferred eating trunk of fish. The majority of the other socio-economic factors under this study preferred eating trunk of fish.

Socio-economic Profile and Frequency of Eating Fish

Table 5 shows the cross tabulation (chi-square test of independents) of the social-economic profile of the respondents against the frequency of their preferred fish. It shows that family size, age and religion had significant effect on the frequency of eating fish.

Table 7. KMO and Bartlett's Test

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		0.708
Bartlett's Test of Sphericity	Approx. Chi-Square	1034
	DF	120
	Significant	0.000

Factors Guiding Preference for Fish Consumption

Table 6 shows the factors guiding preference for fish consumption. The mean score on the 5-point likert scale for all the variables under consideration were above 2.5, which is the average of the 5-point likert scale. Majority of the respondents agreed with the studied variables as factors responsible for their preference of certain type or part of fish and their frequency of eating fish. The confidence interval estimated for all the studied variables were all very highly significant ($p<0.0001$).

Factor Analysis

Table 7 shows the results of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity as conducted prior to PCA. The KMO test was 0.708 with Bartlett's Test of sphericity being significant ($p<0.05$). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was calculated using correlations and partial correlations to test whether the variables in our sample are adequate to correlate, it was calculated to identify whether variables were so highly correlated and cannot be distinguished between them (multicollinearity). A general rule of thumb is that a KMO value should be greater than 0.5 for a satisfactory factor. The higher the value is considered better. The KMO value in this study was 0.708, showing the data can be used for PCA. The results of the Bartlett's Test of Sphericity shows

Table 8. Communalities showing percentage of the variability in variables that is explained by the extracted factors

S/n	Variables	Initial	Extraction
1.	Fish is highly nutritive	1.000	0.638
2.	It is less costly	1.000	0.683
3.	It is more delicious	1.000	0.637
4.	It has sweet aroma	1.000	0.534
5.	It is easy to cook	1.000	0.407
6.	Packaging	1.000	0.617
7.	Size of Fish	1.000	0.417
8.	Age	1.000	0.785
9.	Health	1.000	0.762
10.	Physical feature of fish	1.000	0.549
11.	Psycho-social issues	1.000	0.637
12.	Level of disposable incomes	1.000	0.472
13.	Fish size requirement	1.000	0.509
14.	Availability	1.000	0.520
15.	Family Background	1.000	0.608
16.	Cultural Background	1.000	0.619

whether there is a relationship between the variables. If no relationship is found then there is no point in proceeding with the factor analysis. A p-value less than 0.05 indicated that it was necessary to continue with the factor analysis. Since the p-value obtained in this study was significant ($p < 0.001$) it can be concluded that there were relationships between variables considered in this study, hence the data generated can be used for factor analysis.

Extraction Method: Principal Component Analysis

Table 8 explains the percentage of the variability in the variables that is explained by the extracted factors. The results showed greater than 50% of the variation in each variable were explained by extracted factors except for variable 5 and 12 that were below 50%. Table 9 reveals that four components (or factors) have been produced with eigenvalues greater than 1 accounting for 58.71% of the variance in the data. If more than 5% variance is to be selected, then first 13 factors would be selected. The scree plot is presented in Figure 3.

Discussion

The Cronbach's Alpha value obtained in this study depicted the items in the questionnaire to have moderate reliability as the total scores of the questionnaire. The respondents score was 77.54 (mean) with a variance of 99.25, and a standard deviation of 9.96. The small standard deviation indicated that variations in the scores of our respondents was small for the overall total score on the questionnaire, thus indicating moderate reliability of the questionnaire. Chi-square test of independence was used to show whether significant difference existed between the socio-economic profile of the respondent and the factors guiding their choice of catfish type and part. This test showed that there was no significant difference between the socio-economic profile of the respondents and their preference for smoked or fresh catfish except religion. This study showed that only tribe played significant role in the association between the socio-economic profile of the respondent and their choice for whole or chunk fish. Van Trijp and Steenkamp (2005) observed similar trend in their study of the influence of cultural factors on consumer buying behavior (i.e. a case study of pork). Sethi and Chawla (2014) also stated that tribal, social, cultural and psychological factors were some of the major factors that influenced the buying behavior of consumers. Tribe, culture, subculture and social class had profound influences on people's behavior because they were powerful drivers in the formation of attitudes, beliefs and values, this explained why certain consumption behavior was hard to change once developed (Blythe, 2008a, b). Socio–cultural factors have been reported to have impact on fish consumption preference (Myrland et al., 2000). The result of this study also indicated that religion also had a significant effect on the type of catfish preferred and frequency of consumption of their preferred fish. Religion was a major component of culture, it has strong influence on people's lives and behavior (Cwiertka, 2005; Kumar et al., 2008; Wandel et al., 2008). Ijewere and Odia (2012) and Lawan and Zanna (2013) opined that religion exerted the great influence on the thinking, perception and behavior of many people in the world. That was a key element of culture which influenced both behavior and purchasing decisions, it therefore influenced what to buy and in what form it should be bought. This study equally established that family size and age have significant association between socio-economic profile and the frequency of their consumption of preferred fish, while others had no significant association. Can et al. (2015) also observed that age group had significant influence on fish consumption preference among people leaving in Antakaya community in Turkey. Palash (2004) also observed that family size have significant influential role on consumption pattern and consumer behavior of fish in Dhaka city. Most of the respondents agreed with the variable listed as factor affecting consumers' preference on fresh and smoked fish. Kumar et al. (2008) reported that perceived quality of fish such as taste, health benefits, nutrition, price and availability are factors that could influence consumers' preference. Family size, age and religion had significant effect on the frequency of their preferred fish in this study. This was in consonance with the reports of Meulenberg and Viaene (2005) and Costa and Jongen (2006), as the size of families and households and demand for a food product. Also, Hoek et al. (2004) reported that demographic factors, such as household size and age could be used as indices of food preference and

Table 9. Total variance explained

Initial Eigenvalues				Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.	4.186	26.162	26.162	4.186	26.162	26.162
2.	2.244	14.026	40.189	2.244	14.026	40.189
3.	1.708	10.673	50.861	1.708	10.673	50.861
4.	1.255	7.845	58.706	1.255	7.845	58.706
5.	.998	6.236	64.942			
6.	.901	5.634	70.576			
7.	.852	5.325	75.901			
8.	.664	4.149	80.050			
9.	.598	3.739	83.789			
10.	.566	3.538	87.327			
11.	.476	2.973	90.300			
12.	.400	2.502	92.801			
13.	.349	2.180	94.981			
14.	.314	1.961	96.942			
15.	.287	1.792	98.734			
16.	.203	1.266	100.000			

demand. Greater percentage of our respondents are educated and readily agreed that level of education constituted one of the factor guiding their preference of fresh or smoked fish. They were the nutrition-conscious consumers. This study showed that respondents who had low level of educational did not consume as much fish as the respondents who were educated. The increased education level lead to produce and consume healthy food as educated consumers are nutrition-conscious (Brody and Lord, 2007; Kearney, 2010; Senauer et al. 1991).

Conclusion

Fish consumption is influenced by many factors. These factors mainly determine the consumers' preference for fish. The present study indicated most of the respondents' preferred smoked catfish irrespective of their socio-economic profile. The majority of the respondents agreed with the studied variables (e. g. price, packaging, age) as the factors responsible for their preference of certain type or part of fish and their frequency of eating. This study showed that only tribe of the respondents had significant effect on the respondents' preference for whole or chunk fish. The family size, age and religion had significant effect on the frequency of their preferred fish. It is recommended that the consumers should be educated more on nutritional value of fish because this study showed that respondents who had low level educational attainment do not consume as much fish as the educated ones.

Acknowledgement

The authors appreciate Prof Abdulkadri Olabode Abdullah for editing of the manuscript prior to being sent for publication and also Mr Musa Mustapha for translation of the manuscript title and abstract section into Arabic Language.

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