Awareness of Nutritive Value of Cultured Fish among Inhabitants of Selected Peri-Urban Local Government Areas in Katsina State, Nigeria

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Abstract

Cultured fish represents a good percentage of fresh fish consumed in Nigeria. Fish consumption is relatively high in the southern part of the country, unlike the northern part, where there is low consumption of cultured fish. This may be attributed to many factors including but not limited to availability, distribution and information on the nutritive value of cultured fish. This study investigated the awareness of nutritive value of cultured fish among inhabitants of selected peri-urban local government areas in Katsina State, Nigeria. One hundred and twenty (120) copies of structured questionnaires were administered out of which 108 representing 90% were retrieved and analysed using descriptive statistics and logistics regression. The majority of the respondents were males (88.9%), with the age range of 40 - 49 years. Among the sampled population, 46.3% had a tertiary education with civil service being the dominant occupation (25.9%), while over 50% earned a monthly income of less than ₦30,000. The majority (95.4%) of the respondents consumed cultured fish but the larger percentage (55.4%) consumed it occasionally, although 67.6% of the population was aware of the nutritive value of cultured fish. The regression analysis showed that sex had a coefficient of -1.117, odds value of 0.327 and Z-score of 4.142, which was significant at 5% level, while age and income were significant at 10% level. Despite the fact that the awareness of the nutritive value of cultured fish in the study area was on the high side, consumption was still low and mainly occasional. Sex, age and income were observed to be factors determining the awareness level of the nutritive value of cultured fish in peri-urban areas of Katsina State, Nigeria.

Keywords: Awareness, nutritive value, cultured fish, fish consumption, Katsina State

Introduction

Nigeria requires about 2.66 million metric tonnes of fish annually to satisfy the dietary requirement for its citizens (Atanda, 2012). Owing to the country's low domestic fish supply, which is less than 0.7 million metric tonnes per annum, Nigeria imports about 0.7 million metric tonnes of fish valued at about $500 million annually to augment the shortfall (Atanda, 2012). With the widening gap between fish demand and supply as well as the diminishing fish stock in

Nigerian waters, aquaculture remains the most viable option for sustainable fish supply (Dauda *et al*., 2013a). There has been gradual increase in aquaculture production in Nigeria, considering the increment from 40,000 metric tons (6% of domestic fish production) in 2006 (Adeogun *et al*., 2007) to 200,535 metric tons (24% of domestic production) in 2011 (FAO, 2012) and 316,727 metric tons in 2015 (FAO, 2016). Despite this growth, Nigeria still imports frozen fish in metric tonnes to meet the dietary intake of her citizens. However, the demand for fish is not evenly distributed in the country. There is more demand in the southern part of the country than the northern part (NBS, 2012). According to Dauda *et al*., (2013b) fish demand and consumption is generally low in the northern part of Nigeria, apart from the fact that it is not a traditional meal to the region, there are other factors that contribute to its low consumption. Katsina state like some other states in the southern part of Nigeria, is also witnessing development in aquaculture and increase in aquaculture output. The number of farms has increased from seven in 2004 (AIFP, 2004) to 35 in 2015 (Dauda *et al*., 2015), however, market is still regarded as a constraint as inhabitants attitude to fish consumption is not improving at the same rate as production (Dauda *et al*., 2015). While fish freshness is fundamental to fish quality, low consumption of fresh fish, which cultured fish represents dominant percentage in Nigeria, can be attributed to many factors including availability, distribution, and information on its nutritive value (Tsado *et al*., 2012; Dauda *et al*., 2013b). This study investigated awareness of the nutritive value of cultured fish species among inhabitants of selected peri-urban local government areas of Katsina State, Nigeria.

Materials and methods

Study area

The study was carried out in Katsina state, the state is located in Northwestern, Nigeria and lies between Latitudes 11^0 to 13^0 N and Longitudes 07^0 to 8^0 30' E (NARP 1994). The state has three distinctive agro-ecological zones which are Sahel, Sudan Savanna, and Northern Guinea Savanna (Adekunle *et al*., 2005). The state has 34 local government areas (LGAs) which are mainly peri-urban and some few rural area. For the purpose of this study one peri-urban LGA was selected at random from each agro-ecological zone in the state in order to have representation from all the agro-ecological zones. The selected LGAs are Kankia LGA (12° 32' 57₦N 7° 49' 31₦ E) which was selected from the Sahel, Matazu LGA (12^0 14' N 7^0 40' E) from Sudan savanna and Malumfashi LGA (11^0 48' N 7^0 37' E) from Northern Guinea savanna.

Data collection

Data were collected using structured questionnaire comprises of three major sections which are socio-economic, fish consumption and awareness of the nutritive value of fish. One hundred and twenty (120) copies of the questionnaire were distributed, with 40 copies distributed using simple random sampling in each LGA and majority were retrieved the same day while other were collected within two days after distribution. One hundred and eight (108) representing 90% were retrieved and processed for the study.

Statistical analysis

The data obtained were analysed using descriptive statistics, while logistic regression was used to assess the dependence of respondents' awareness of the nutritive value of cultured fish on their socio-economic characteristics.

The implicit model of the regression is $Y = f(X_1, X_2, X_3, X_4, X_5, X_6, e)$

Where:
Y = awareness of nutritive value of cultured fish
X_1 = sex of respondents
X_2 = age of respondents (Years)
X_3 = marital status
X_4 = educational status
X_5 = occupation
X_6 = monthly income of respondents (₦)
e = error term

Results

Socio-economic characteristics

The results of the socio-economic characteristics of the respondents are presented in Table 1, the majority of the respondents were male (88.9%)

Table 1. Socio-economic Characteristics of the Respondents

Characteristics	Frequency (No)	Percentage (%)
Sex		
Male	96	88.9
Female	12	11.1
Total	108	100
Age in years		
Below 20	18	16.7
20 - 29	14	13.0
30 - 39	17	15.7
40 - 49	52	48.1
50 and Above	7	6.5
Total	108	100
Marital status		
Single	33	30.6
Married	75	69.4
Total	108	100
Educational Status		
Non-formal education	5	4.6
Arabic education	12	11.1
Primary School	2	1.9
Secondary school	39	36.1
Tertiary	50	46.3
Total	108	100
Occupation		
Unemployed	27	25.0
Civil Servant	28	25.9
Trading	19	17.6
Farmer	18	16.7
Artisan	1	0.9
Others	15	13.9
Total	108	100
Monthly income in Naira		
Below 10,000	35	32.4
10,000 - 19,999	27	25.0
20,000 - 29,999	11	10.2
30,000 - 39,999	8	7.4
40,000 - 49,999	9	8.3
50,000 and Above	18	16.7
Total	108	100

Table 2: Respondents' Awareness of nutritive value of cultured fish

Parameters	Frequency (No)	Percentage (%)
Fish consumption		
Yes	106	98.1
No	2	1.9
Total	108	100
Cultured fish consumption		
Yes	103	95.4
No	5	4.6
Total	108	100
Frequency of cultured fish consumption		
Weekly	13	12.6
Monthly	33	32.0
Occasionally	57	55.4
Total	103	100
Awareness of nutritive value of cultured fish		
Yes	73	67.6
No	35	32.4
Total	108	100
Source of information on the nutritive value of cultured fish		
Newspaper	18	24.7
Television programme	2	2.7
Radio programme	6	8.2
Internet	3	4.1
Extension Agents	7	9.6
Friends and family	31	42.5
Others	6	8.2
Total	73	100

adults, with age range 40 - 49 years (48.1%), married (69.4%), and with tertiary education (46.3%). About 25.9% of the sampled population were civil servants, while 25% were unemployed. The monthly income of the respondents showed a relatively poor state, with over 50% earning less than ₦30,000 monthly.

Awareness of nutritive value of cultured fish
As evident in Table 2, 98.1% of the respondents consumed fish, from which 95.4% consumed cultured fish, although the larger percentage (55.4%) consumed it occasionally. A total of 67.6% of the respondents were aware of the nutritive value of cultured fish and preferred it to imported frozen fish and other animal meats. The

major sources of information on the nutritive value of cultured fish to the respondents were friends and family (42.5%), followed by newspapers (24.7%).

Influence of socio-economic characteristics on the awareness of nutritive value of cultured fish
The result of the logistic regression is shown in Table 3. There were significant relationships between awareness of the nutritive value of cultured fish and age, sex and monthly income of the respondents. Sex had a coefficient of -1.117, odds value of 0.327 and Z-score of 4.142, which was significant at 5% level. Age had a coefficient of -0.006, odds value of 0.994 and Z-score of 3.438, which was significant at 10% level. Income had a coefficient of 0.000, odds value of 1.000 and Z-score of 3.577, which was significant at 10% level. The results showed that for every unit increase in income of the respondents, the log odds of the awareness of the nutritive value of cultured fish (versus unawareness) increases by 1.000. However, for every unit increase in age of respondents, the log odds of awareness of the nutritive value of cultured fish (versus non-awareness) decreased by 0.994. In the case of sex, about 32.7% of non-awareness of the nutritive value of fish among the respondents was dictated by sex.

Discussion

The predominance of males among the respondents can be attributed to the peculiarities of the study area, where women stay mostly indoors. This is in line with the report of Dauda *et al*. (2013b). The dominant age range indicated that the respondents were young and, therefore,

should be able to give adequate information on their area. The respondents were dominated by civil servants and this may be associated with a larger number of them having high educational status and since there are fewer industries in the area, civil service remains the main available option (Dalhatu and Ala, 2010). The percentage of the unemployed among these respondents was on the high side, although this group was dominated by housewives. This was as a result of the peculiarities of the study area, where women stay indoors primarily for house chores with little or no contribution to the family finance (Dauda *et al*., 2013b). The monthly income of the respondents showed a relatively poor state, with over 50% earning less than ₦30,000 monthly. This may probably affect their purchasing power and the choice of what they consume. The inhabitants of such areas spend a larger part of their income on food (NBS, 2012).
A large number of the respondents consumed cultured fish, except for the fact that most of them consumed it occasionally. This may not be unconnected with availability, information on the nutritive value of cultured fish and the financial status of the respondents (Tsado *et al*., 2012). Since the majority of the sampled population consumed cultured fish occasionally, consumption can still be regarded as low and this is in line with the previous report of Dauda *et al*. (2013b). The awareness on the nutritive value of cultured fish was higher in the study area. This is in contrast to the findings of Tsado *et al*. (2012). The reason for occasional consumption may be attributed basically to availability and cost of cultured fish since most of the respondents earned a low income, which makes cultured fish unaffordable. The principal sources of the

Table 3. Effect of Socio-economic Characteristics of the Respondents on Awareness of Nutritive Value of Cultured Fish

Variable	Estimate (B)	Z-score	P-value	Odds
Sex	-1.117**	4.142	0.042	0.327
Age	-0.006*	3.438	0.064	0.994
Marital status	-0.187	1.349	0.245	0.829
Educational status	0.024	1.108	0.293	1.024
Occupation	-0.180	1.064	0.302	0.835
Monthly income in naira	0.000*	3.577	0.059	1.000
Constant	0.735	12.784	0.000	2.086

*Significant at 10%, **Significant at 5%

respondents' information were friend and family, followed by newspapers. This may be attributed to the high proportion of respondents with secondary and tertiary education.

Among the socio-economic characteristics, sex, age and income of the respondents had an influence on the awareness of nutritive value. Sex and age had negatively signed values, while income had a positively signed value. The results could imply that the younger ones had better awareness than the older ones. This could be that the younger ones are more active and tend to have more access to information through the media and their social engagement (Dauda *et al.*, 2013b). The negatively signed value for sex showed that males had less awareness than the female respondents who were less in number. This may be due to the fact that women are primarily responsible for food and feeding in the house and, as such, may have more knowledge on the nutritive value of food (Tsado *et al.*, 2012). For the positively signed income, those with higher income had a greater awareness of the nutritive value of cultured fish. This may be due to the fact that when income increases, people become more interested in what they eat and hence the quality and nutrient value of their meal. Similar findings were reported by Dalhatu and Ala (2010).

Conclusion

Awareness of the nutritive value of cultured fish in the study area is on the high side although consumption can still be regarded to be low, considering the percentage that consumed fish occasionally. Sex, age and income are the determinants of awareness of the nutritive value of cultured fish in the study area. The awareness of nutritive value of cultured fish can still be promoted in the state, through sensitization and advocacy programmes that cut across ages, sexes and income classes. Also, there is a need for an increase in the availability and distribution of cultured fish which may, in turn, improve the consumption level in the state.

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