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ANALYSIS OF CONSUMER PREFERENCE FOR MEAT AND FISH CONSUMPTION IN KADUNA METROPOLIS, KADUNA STATE, NIGERIA.

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ABSTRACT
The study examined the consumption pattern of meat and fish in Kaduna State, Nigeria. Cross sectional data was used for the study. Multi-stage sampling procedure was used to select 416 respondents with the aid of structured and pre-tested questionnaire. Descriptive statistics and regression analysis were used to analyze the data. The age distribution of the sampled consumers indicated that 66.1% were male between the ages of 31-45 years, with 67.6% of them married and 62.11% having tertiary education. 55% of the respondents had household sizes that ranges between 1 and 5 members Also, 41.42% of the sampled household had their primary occupation as civil servants, and 40.20% preferred beef to other animal protein source. While About 32% gave taste as a major factor influencing their choice. Ordinary least square analysis shows the R^2 value to be 89.21%. This implies that about 89% of variables included in the model were responsible for determining variability of animal protein in the study area. Also, the study established that age, marital status, educational level, availability of substitute, and expenditure on food items are factors influencing the consumption of animal protein in the study area. The study concluded that meat was the most preferred animal protein in the study area. It is therefore recommended that education of the consumer should be channeled through a mass and printed media. Public enlightenment on dietary issues must be embarked on by the government. Mass campaign on importance of protein consumption should be embarked on by relevant stakeholders.

Keywords: *Consumption, Fish, Kaduna-State. Meat, Pattern.*

INTRODUCTION

Livestock industry is growing and the consumption of goat, sheep, pig, poultry, cattle and fish is increasing. The increasing social economic position of consumers in developing countries particularly in Nigeria plays an important role in the food consumption pattern. (Leshi and Leshi2017) Consumer's preference for quality meat and fish is becoming evident with important consequences for the transformation in the livestock industry (Nicholas *et al*, 2012).The world's demand for meat has risen sharply during the last few decades. The children from kwashiorkor due to low protein intake and unbalanced diet. Fish consumption has impacted on human being throughout various stages of human life, including pregnancy and childhood. There is little or no religious restriction to its consumption (Semeneh *et al* 2014) The major sources of protein in developing countries are meat and fish, while other sources, termed miscellaneous, are egg and milk (USDA, 1992). Nigeria has the largest population in Sub-Sahara Africa. About 47% reside in urban areas where the population growth rate is estimated at three times that in rural areas (David 2017). This suggests a shift in increased food demand from the rural to urban areas. Consumption of animal protein has been found to be vital. In Nigeria, increases in agricultural production, has not match the country's population growth rate (Rahji *et al*., 2013). Aromolaran (2004), noted that household demand for meat and fish, key reason for these increase in meat demand are increasing population, improved technology and increasing income. Household demand for meat and fish products such as beef, sheep and poultry are faced with problems which are mostly due to market price, consumers taste and credit availability and consumers wealth. This problem leads to unbalanced diet because protein is a major constituent of human diet (Aromolaran, 2004). Fish is known to be an efficient converter of food for human consumption and saving products are faced with problems which is mostly due to market price, consumers taste, and credit availability and consumers wealth. This problems lead to unbalanced diet and the consequence of this poor nutritional status is infection which will eventually result to weakness and stress, lethargy, absenteeism from farm, and poor productivity. This research will help to evaluate consumer preference; pattern of consumption in the area of study .The broad objective of this study is to determine the consumption pattern of meat and fish in the study area. The specific objectives are to: describe the socio-economic characteristics of the respondents in the study area, determine the consumption preference of meat and fish in the study area and identify the factors affecting respondents' preference for meat consumption in the study area.

MATERIAL AND METHODS

The study area is Kaduna state. It is located at the Northern part of Nigeria. The vegetation cover is Sudan Savannah type, characterized by scattered short trees, shrubs and grasses. The soil is mostly loamy to sandy type. It borders are defined by longitudes 6°20'E - 8^0 30'E and latitude 10^0 20'N. Kaduna state covers about 46,016 square kilometers representing about 5% of the total land area of Nigeria which has been put to be 923,768 square kilometers. The soil is mostly loamy to sandy type. Multi-stage sampling procedure was used to select the respondents. The first stage is the purposeful selection of four local governments namely Kaduna north, Kaduna south, Igabi and Chikum LGA from twenty three

local governments in Kaduna state. This was because these local government areas were domiciled around Kaduna metropolis and its attendant organized meat and fish markets. The second stage involves the random selection of four (4) wards each from the four local governments to make sixteen wards. The last stage also involve the random selection of twenty six respondents from each ward to make four hundred and sixteen (416) respondents in all, Three hundred and ninety (390) were used for analysis. Twenty six (26) questionnaires were rejected because of the inconsistence in the responses.

Method of Data Analysis

Descriptive statistics was used to summarize the socio-economic characteristics of the respondents and their preference for meat and fish consumption. Multiple regression was used to identify the factors affecting respondents' preference for animal protein. The explicit function of regression model is given as:

$Y= \beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4 = \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \varepsilon_i$

Y = Quantity of animal protein consumed (meat and fish).Kg
β_0 = Constant
β_i = Parameter to be estimated
X_1 = Age (years)
X_2 = Marital status (1,0)
X_3 = Price of products (₦)
X_4 = Availability of substitute (₦)
X_5 = Household size (Number)
X_6 = Level of education (years spent in school)
X_7 = Income (₦)
X_8 = Expenditure on food items (₦)
ε_i = Error term

RESULT AND DISCUSSION

The distribution of the socioeconomic characteristics of the respondents is as shown in Table 1. The mean age of the respondents is 38 years. This agrees with the findings of Takaka and Baba 2012 who reported a mean age of 39 years in their study on determinant of ruminant meat demand. Age could be an important determinant in the quality and quantity of protein requirement of an individual and households because food consumption pattern generally follows the body consumption. (Amao et al., 2006)

The distribution of the household size shows that a large proportion of households fall within the household size of 1-5 persons per household, accounting for about 55% of the total sampled households. This was followed by 6-10 persons per household representing about 41.40% of sampled households. The lowest household size fell within the range of 16-20 persons per house hold accounting approximately 1.79% of the total sampled households. The mean household size of the respondent is 6 persons may be attributed to the high level of education of the respondents. This is similar to the work of Robert and Juan (2012) who found out that household positively influence the consumption of beef and fish and that the more the consumption.

The study revealed that the respondents had gained one form of education or the other. Majority (62.12%) of the respondents had tertiary education while 5.54% had no formal education. However, the report goes in contrary to Adetunji and adepoju (2011) which reported a low level of education as determinant factor of the nutritional status of the households. The marital status of the households showed that 67.44% are married, 27.69% are single, 2.31% are divorced and 2.31% are widowed. The large number of the married people might influence protein consumption in the study area.

The occupational distribution of the respondents disclosed that majority (40.26%) are civil servant, only 12.82% are farmers and 26.4% are trading, others constitutes okada operator and other forms of transportation. The high percentage of civil servant suggests a greater tendency for employment in Kaduna metropolis while the small number of farming occupation is a characteristic indication of a low level of farmers found in the metropolitan city

Table 1: Socio Economic Characteristics of Respondent

Gender	Frequency	Percentage(%)
Male	254	65.13
Female	130	34.87
Total	**390**	**100**
Age		
15-30	117	30.0
31-45	164	42.05
46-60	70	17.95
61-75	8	2.05
Mean age	37.6	9.64
Missing responses	**31**	**7.**95
Total	**390**	**100**
Marital status		
Single	108	27.78
Married	263	67.34
Divorced	9	2.31
Widowed	9	2.31
Missing system	1	0.26
Total	**390**	**100**
Educational level		
No formal	21	5.54
Primary	29	7.64
Secondary	94	24.14
Tertiary	236	60.12
Missing system	10	2.56
Total	390	**100**

Source: Field Survey 2017

Table 1: Socio Economic Characteristics of Respondent (Continued)

Family Size	Frequency	Percentage
1-5	159	55.17
6-10	118	41.40
11-15	8	2.05
16-20	7	1.79
Missing system	100	25.64
Mean	6	
Total	390	100
Occupation		
Farming	50	12.82
Trading	103	26.41
Civil servants	15	40.26
Others	69	17.69
Missing system	11	2.82
Total	390	100

Source: Field Survey 2017

Meat and Fish Consumption Preference

The consumption preference analysis presented in table 2 revealed that about 40% of the consumers indicated that they preferred beef to any other sources of animal protein while 22 respondents representing 5.64% preferred fish. The result also showed that 32.31%, 12.31%, 4.87%, 1.80%, 1.54% and 1.3% preferred Goat, Chicken, Bush meat, Turkey, Cow skin and Mutton respectively The result followed the cultural preference of people and their perception that eating of meat is a luxury and sign of social success (Humeyra 2015) Another factors that could have fueled the desire of 10.80% of the household sampled had preference for Shawa, Tilapia and Cat fish respectively. The result is a reflection of the fact that majority of the respondents are civil servant who might

have preferred the taste of Sardine to other forms of fish. The result also agrees meat might be that meat is a by-product of Butter and Cheese and also the study area is noted for intensive rearing of cattle and other forms of meat producing animal (Mas'ud et al., 2017). The result was also corroborated by the findings of Cadel, (2013) who discovered that lean meat is more preferred form of protein and the fastest way to build muscle. The result of the respondents' preference on fish type in the study area is presented in Table 2 below. It shows that 146 respondents representing 37.72% preferred Sardine. About 12.93% of the households indicated their preference for Mackerel, while 17.5%, 12.91% and with the research carried out by Stephan *et al* 2017, on health information and the choice of fish species. They discovered that sardine was the most preferred in household consumption because of the taste and highly perceived benefit compared with other species of fish.

Table 2: Meat and Fish Consumption Preference

Preferred meat Type	**Frequency**	**Percentage (%)**
Beef	156	40.0
Goat	126	32.31
Chicken	48	12.31
Fish	22	5.64
Bush meat	19	4.87
Turkey	7	1.80
Cow skin	6	1.77
Mutton	4	1.3
Total	390	100
Preferred Fish Type		
Shawa	68	17.57
Mackerel	81	20.93
Sardine	146	37.72
Tilapia	50	12.91
Catfish	42	10.8
Total 390	390	100

Source : Field Survey 2017

Determinant of Animal Protein Consumption

Table 3 shows the determinants of meat and fish consumption. The model has an adjusted R^2 value of 89.21 %, which means that about 89% of the total variation in quantity of meat consumed by the respondents was explained by the explanatory variables included in the model.

From the table the Consumer's age was found to be positively significant (P<0.1) to the consumption of animal protein. This implies that as the consumers advance in age, their consumption of animal protein increases. This is contrary to apriori expectation because consumers are expected to reduce protein consumption as they grow older. However, Mohamed *et al.,* (2016) discovered an upward trend in consumption of animal protein of meat and fish origin in Tunisia. Although age determines inability of consumers to consume animal protein, it however enhances their preference to consume a particular class of protein. According to (Antoneta, *et al*., 2018), older people become more conscious of their health and nutrition and as such reduce intake of animal protein than younger ones.

Marital status is negatively significant (P<0.01) to the consumption of animal protein. This implies that, married people tend to relatively consume less protein than the youth and the unmarried; this is because protein is mostly needed by the young people to build up their muscles and other form of metabolic activities. Jeremy (2012) opined that young people consume more of protein for the body growth than the old people who need less of the protein to maintain the body activities.

Availability of substitute is negatively significant (P<0.01). To animal protein consumption. This connotes that as the substitutes decreasingly available in the market the consumption of animal protein increases. This might be that consumer increase their preference as the substitute availability goes down. The level of education is positively significant (P<0.01). This implies that as the education of the consumers increase, their level of animal protein consumption increase. This corroborate the work of Iyangbe et al., (2009) which found out that education is the important determinant of protein intake of rural and low income urban households in Nigeria Expenditure on other food items is negatively significant (P<0.01). This means that as the consumers increase their expenditure on other food items, their consumption on animal protein decreases. This is expected and agrees with Abdulaziz (2011) that consumer income impose a restriction on protein consumption and that there is always an opportunity cost of shifting in purchashing power.

Table 3: Determinant of Meat and Fish Consumption in the Study Area.

Y	Coefficient	Std. Error	T-value	Level of Significance
Age	0.8916	0.0227	39.32	1%
Marital Status	-0.5365	0.2383	-2.2513	1%
Price of substitute	0.5025	0.6054	0.83	NS
Substitute Availability	-0.5588	0.1803	-3.10	1%
Household size	0.1127	0.1138	0.99	NS
Educational Level	0.8959	0.2069	4.331	1%
Income	0.0018	0.0038	0.48	NS
Food Expenditure	-0.0013	0.0002	-5.632	1%
Constant	-1.9295	0.1578	-12.23	1%

Source: Field Survey 2017

CONCLUSION AND POLICY RECOMMENDATIONS

It can be concluded from this research that consumers preferred meat to other animal protein .The most important factors that positively and significantly influenced the consumption of animal protein in the study area were age and educational level. The factors that contributed negatively and significantly to animal protein consumption were marital status, availability of substitutes and expenditure of consumer on other food items.

The study recommends that education of the consumer must be reinforced and channeled through a mass media and printed media. Public enlightenment must be embarked on by the government to show-case substitute availability as possible way of making the people to escape the harmful effect of animal protein. Relevant stakeholders and ministry must be instituted to launch a mass campaign on important of protein consumption. Animal protein substitutes can be made available at affordable price through government market intervention.

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