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Analysis of Meat Consumption Pattern in Ogbomoso North Local Government Area, Oyo State, Nigeria

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ABSTRACT: The increasing awareness of the benefits of more nutritious, healthier and safer food products by consumers plays a vital role in the recent changes experienced in the food production chain, and meat products are no exception to this. The study investigated consumption pattern of meat in Ogbomoso North Local Government Area, Oyo State, Nigeria. Primary data for the study were obtained from 120 respondents with the use of structured questionnaire analysed using descriptive statistics and inferential statistics. According to the study, chicken, turkey and beef with percentage frequencies 96.7%, 81.7% and 76.8% respectively were the most consumed meat types, while quail, rabbit and guinea fowl with percentage frequencies 6.7%, 7.5% and 12.5% respectively were the least consumed meat types. Also, income of the respondent with t-value 41.08 and a positively signed coefficient at 1% level of significance was found to have a direct effect on the monthly expenditure on preferred meat type. The study recommend there should be awareness on the nutritional benefits of consuming meats of low saturated fats and calorie contents such as rabbit, quail and guinea fowl and also to teach them how to raise these animals domestically.

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Consumers in any production system play a vital role around which the whole system revolves and meat products are no exception to this. With the rising income levels of the consumers and their changing tastes and preferences, the demand for meat is undergoing a change both in quantitative and qualitative terms. Two types of differentiated meat products that have gained popularity are grass-fed meats and locally produced meats. Part of the motivation behind increased grass-fed meat purchases is the nutritional aspect, as grass-fed meats have been found to be leaner (lower in saturated fats and calorie content) than conventional meats and higher in Omega-3 fatty acids (Clancy, 2006). Meat consumption will, in line with the economic development and the growing world population, grow worldwide. The increase is highest in poultry consumption, lower in pork and beef. Overall, the demand for grain and other traditional food will decrease in favor of animal foods (DBV 2012). Meat is the most valuable livestock product and for many people, it serves as their first choice source of animal protein (Tsegay, 2012). Meat is any flesh of animal that is used for food; it is nutritious and highly attractive in appearance (Akinwumi, *et al.*, 2011). It is a nutritious food containing quantities of essential amino acids in forms of protein. It contains B group vitamins (especially niacin and riboflavin), iron, phosphorus, ash and calcium (Obi 2000). There are different kinds of meat depending on the source from which they are obtained, for example, mutton from sheep, chevon from goat, beef from cattle, pork from pig and chicken from birds (Soniran and Okubanjo, 2002). Preferential consumption exists in spite of the importance of meat as a source of protein with high biological value, household demand for meat products such as beef, mutton, pork, chevon, chicken, quail meat, rabbit meat and guinea fowl meat are faced with problems, earlier reports classified factors that affect the consumption of meat as economic, social and cultural. Ojewola and Onwuka, (2001) specifically highlighted religion, age, sex, individual variation and income as major factors affecting meat consumption in Nigeria. The demand for meat in domestic market is rising at the rate of 2.8% for beef, 2.9% for mutton, and 6.10% for poultry, consumption of meat is increasing due to population growth, human need for protein and calcium and improving consumption patterns (Sindh Board of Investment, 2013), consumers are beginning to realize that certain common and readily available meat types are not as healthy as some uncommon ones. However, consumers do not seem to be ready to compromise the sensory features of their food products for potential

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benefits to their health (Ares, *et al.,* 2010; Tuorila and Cardelo, 2002; Verbeke, 2006). An important percentage of consumers prefer to diminish their intake of certain products or even avoid them rather than consume a supposedly healthy and tasteless version (Guerrero, *et al.,* 2011). The nutritional awareness of meat, the perceived unhealthiness, concerns about additives or the perceived fat content cannot be under estimated (Verbeke & Viaene 2000; Lea & Worsley 2001). The aspect of healthy meat consumption plays an important role especially red meat which is associated with a higher risk of health complaints like coronary heart disease, diabetes, cancer (Chao et al. 2005; Tavani et al. 2000). However, several studies have been carried out on analysis of meat consumption. (Alimi 2013), Akinsula, et al., (2019) factors influencing meat consumption and Analysis of household demand for meat (Adetunji and Rauf, 2012). This study therefore seeks to investigate consumption pattern of meat and to determine the factors influencing respondents' monthly expenditure on meat in the study area with a view to creating more awareness on domestication and consumption of meats types that are low in saturated fats and calorie contents but high in fatty acids and other essential nutrients.

MATERIALS AND METHODS

Study Area: The study was conducted in Ogbomosho North Local Government Area of Oyo State, Nigeria**.** ogbomoso is a city in Oyo state, south western Nigeria, founded in the mid-17th century. It is located within the tropical region with distinctive wet (April-October) and dry (November-December) seasons. Average temperature in the region is 31^{0}C while total annual rainfall is about 1800mm. The temperature is persistently high with an annual range of about 5^{0}C. ogbomoso is a pre-colonial urban center and the second largest city, both in terms of population and spatial extent in Oyo state, Nigeria. The population was approximately 645,000 in 2006 census (Ogunbode and Fabiyi, 2019). Ogbomoso North is the largest local government in the city, being the city's major economic nerve. It is an area of mixed culture with an appreciable standard of living and the most populous local government in the city as at the 2006 census.The majority of the people are members of the Yoruba ethnic group and Yam, cassava, maize, and tobacco are some of the notable agricultural products of the region.

*Method of data Collection and Analysis***:** Primary data for the study was collected through structured questionnaire, which was used to elicit information from the respondents on their meat consumption pattern and share of expenditure on meat types. Multistage sampling technique was used to select a sample size of 120 respondents. In the first stage, six wards out of the ten wards in the LGA were randomly selected. In the second stage, twenty households were systematically selected from each of the six wards. In the last stage, the household head in each of the selected households was interviewed. This makes a total of one hundred and twenty (120) respondents. The data collected on the field were subjected to both descriptive statistics (such as means, frequency and Percentage) and inferential statistics (such as OLS regression analysis).

Ordinary least square (OLS) is more commonly named linear regression (simple or multiple depending on the number of explanatory variables).In the case of a model with p explanatory variables, the OLS regression model writes:

$$Y = \beta_0 + \Sigma_{j=1..p} \beta_j X_j + \varepsilon$$

where Y is the dependent variable, β_0, is the intercept of the model, X_j corresponds to the j^{th} explanatory variable of the model (j= 1 to p), and ε is the random error with expectation 0 and variance σ^2.In the case where there are n observations, the estimation of the predicted value of the dependent variable Y for the i^{th} observation is given by:

$$y_i = \beta_0 + \Sigma_{j=1..p} \beta_j X_{ij}$$

For this study, it was used to test for the level of relationship or significance between the monthly expenditure on meat (dependent variables) and socio economic characteristics of respondents (independent variables). Therefore;
Y = monthly expenditure on meat in naira (dependent variable).

While X_1 =Age (Years)

X_2 = Level of education (Years); X_3= Marital status (married =1, otherwise =0); X_4 = Household size (Actual); X_5 = Monthly income (₦); X_6 = Sex (male =1, otherwise =0); X_7 = Tribe (Yoruba =1, Otherwise =0)

RESULTS AND DISCUSSION

*Socio- economic Characteristics of the Respondents***:** From the table below, a high percentage (49%) of the respondents were under 30 years of age, 30% falls within the age range 31and 40 years, 17% fall within ages 41-50 and 3.3% falls within ages 51-60. The mean age is 33 years which implies that majority of the respondents are still within the economically productive age. This validates the discovery of

Akinsulu *et al*., (2019), who reported a mean age of 48.36 years implying that respondents in Ijebu-ode were also economically active youths. Also, 55% of the respondents were traders while the remaining 45% spread across the other occupations, so it is safe to say that the inhabitants of Ogbomoso north local government area of Oyo state are primarily traders. Furthermore, 55.8% of the respondents are males while 44.2% are females' and 71.7% are Christians, 27.5% are

Muslims and 0.8% are traditional worshippers. Likewise, 45.8% are educated up to the tertiary level, while 35.8% and 17.5% are educated up to the secondary and primary level respective and only 1% of the respondents has no formal education. This is an indication of high level of formal education in the study area which may increase the consumer's awareness on the nutritive value of meat in human diet as concluded by Akinsulu *et al*., (2019).In addition to the above, 61% of the respondents were married, with 62% having a household size between 1- 3members and with about 68% earn less than ₦15,000 per month

Availability of meat types in the study area: Table 2 shows that Turkey, Chicken, Chevon and Beef with percentage frequencies 97.5%, 94.2%, 83.3% and 82.5% respectively are the most available meat types in the study area while Pig, Quail, Rabbit and Guinea fowl meat with percentage frequencies 4.2%, 4.2%, 8.3% and 12.5% respectively are the least available meat types in the study area. This agrees with the discovery of Akinsula *et al.,* (2019) who reported meats from cattle (beef) as the most preferred meat type due to its availability.

Meat Consumption Pattern of Respondents in the Study Area: Table 3 presents meat consumption pattern by the respondents in the study area. Majority (97%) of the respondents consumed chicken in the study area. This is directly followed by Turkey which was consumed by (82%) of the respondents and then Beef by 77%.

This upholds the conclusions of Alimi (2013) who report beef, chicken and turkey as the most preferred in the study area. The least consumed meat types include Quail, Rabbit and Guinea Fowl with percentages of consumption 6.7%, 7.5% and 12.5% respectively

Monthly expenditure on different types of meat by respondents in the area: The results on table 4 revealed the average monthly expenditure on different meat types by the respondents. The meat types upon which the respondents spend more, averagely include; Chicken (N1182.50), Turkey (N764.17) and Beef (N728.75), while the meat types upon which the respondents spend less, averagely include; Quail (N54.17), Rabbit (N100.00) and Guinea fowl (N170.00). This implies that the respondents' highest monthly expenditure was chicken, that is, they consume more of chicken than any other meat types. This was followed by turkey and beef respectively.

Table 1: Socio- economic characteristic of the respondents

Variable	Frequency	Percentage
AGE		
≤30	59	49.2
31-40	36	30.0
41-50	21	17.5
51 and above	4	3.3
Total	120	100
GENDER		
Male	67	55.8
Female	53	44.2
Total	120	100
Tribe		
Yoruba	101	84.2
Hausa	10	8.3
Igbo	9	7.5
Total	120	100
Religion		
Islam	33	27.5
Christianity	86	71.7
Traditional	1	0.8
Total	120	100
Marital status		
Single	58	48.3
Married	61	50.8
Widowed	1	0.8
Total	120	100
Educational Level		
Non formal education	1	0.83
Primary	21	17.50
Secondary	43	35.83
Tertiary	55	45.83
Total	120	100
Primary occupation		
Trader	66	55.00
Farmer	13	10.83
Civil servant	14	11.67
Artisans	27	22.50
Total	120	100
Household Size		
≤3	74	61.67
4 and above	46	38.33
Total	120	100
Monthly income(₦)		
<15000	82	69.33
15000-20000	33	27.50
Above 20000	5	4.17
Total	120	100

Source: Field Survey, 2018

Table 2: Availability of Meat Types in the Respondents Area

Meat type	Frequency	Percentage
Turkey	117	97.50
Chicken	113	94.20
Chevon	100	83.30
Beef	99	82.50
Mutton	29	24.20
Guinea fowl	15	12.50
Rabbit meat	10	8.30
Quail	5	4.20
Pig	5	4.20

Source: Field Survey, 2018

Table 3: Meat Consumption Pattern of Respondents in the Study Area

VARIABLE	Frequency	Percentage
Turkey		
Do not consume	22	18.3
Consume	98	81.7
Total	120	100
Chicken		
Do not consume	4	3.3
Consume	116	96.7
Total	120	100
Beef		
Do not consume	28	23.3
Consume	92	76.8
Total	120	100
Chevon		
Do not consume	68	56.7
Consume	52	43.3
Total	120	100
Quiinea fowl		
Do not consume	105	87.5
Consume	15	12.5
Total	120	100
Rabbit		
Do not consume	111	92.5
Consume	9	7.5
Total	120	100
Quail		
Do not consume	112	93.3
Consume	8	6.7
Total	120	100
Pork		
Do not consume	91	75.8
Consume	28	24.2
Total	120	100

Data Analysis: Regression analysis was carried out to establish the relationship between socioeconomic characteristics of respondents and monthly expenditure on meat. The regression result according to table 5 shows that the explanatory variables explained 94.93% of the variations in the dependent variable, while the remaining 5.07% was due to error which were not included in the variables. The F-value was 279.74 and significant at 1%, showing the goodness of fit of the regression model. From the result, the respondents' income has a t-value 41.08 and a positively signed coefficient at 1% level of significance.

Table 4: Average monthly expenditure on meat by respondents

Type of meat	Mean Monthly Expenditure (N)
Chicken	1182.50
Quail	54.17
Guinea Foul	170.00
Turkey	764.17
Beef	728.75
Rabbit	100.00
Chevon	403.89
Mutton	249.58
Pork	161.67

Source: Field Survey, 2018

This implies that the respondents' income has a direct effect on the monthly expenditure on preferred meat type. The religion has t – value of 1.63 and a positively signed coefficient at 10% level of significance. This implies direct effect. This is probably because some religion considers eating particular type of meat as taboo. Therefore, the model now becomes;

$Y = 11454.41 - 18.13X_1 + 7.36X_2 + 23.32X_3 + 137.85X_4 - 126.54X_5 + 5.85X_6 + 43.26X_4 + 3001.261X_8$

$R^2 = 94.93\%$ i.e 0.9493, F – value = 279.74.

Table 5: Result of regression analysis

	Coefficient	Std. Err.	t	P>|t|
Age	7.361597	6.064646	1.21	0.227
Sex	-18.13338	77.39324	-0.23	0.815
Tribe	5.846642	48.17513	0.12	0.904
Marital status	-126.5433	107.1345	-1.18	0.240
Religion	137.8508	84.68091*	1.63	0.106
Educational level	23.32105	35.14213	0.66	0.508
Household size	43.26748	35.33788	1.22	0.223
Income	3001.261	73.06351***	41.08	0.000
Constant	11454.41	259.933***	44.07	0.000

Source: Field Survey, 2018

Conclusion: Chicken is the most consumed meat type by the respondents. This is followed by turkey and beef. The least consumed meat types in the study area include quail, rabbit, guinea fowl and pork. From the result of the multiple regressions it can also be concluded that respondent's income and religion are the major factors influencing respondents' monthly expenditure on meat in the study area**.** There should be awareness creation on the benefits of consuming other meats (e.g rabbit, quail and guinea fowl) that are low in saturated fats and calorie contents but high in fatty acids and other essential nutrients.

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