HEALTH CONCERN AND CHICKEN MEAT CONSUMPTION AMONG STUDENTS OF TERTIARY INSTITUTIONS IN ABEOKUTA, NIGERIA

***Akerele, D., Oduekun, A.M. and Oluwalana, E.O.**

Department of Agricultural Economics and Farm Management,
Federal University of Agriculture, Abeokuta, PMB 2240, Abeokuta, Ogun State, Nigeria.
Corresponding author: akereledare@yahoo.co.uk; babamercy2005@yahoo.co.uk

ABSTRACT

The study examined whether concern for personal health is an important factor in chicken meat consumption among students of tertiary institution in Abeokuta, Ogun State, Nigeria. A multistage sampling technique was used to select students from three tertiary institutions in the study area. Data were collected from respondents with the aid of structured questionnaire and analyzed using descriptive statistics and Tobit regression. Approximately 50.9% of the respondents were females with the average age of 22 years. The average monthly stipend of the respondents was ₦17251.88 with 52.7% of them expending between ₦500 - ₦1000 on chicken meat per month. Fish was the most preferred substitutes for chicken meat. Majority (64.2%) of the respondents consume chicken meat once in a month while 77.4% of them consume chicken meat in fried form. The results of Tobit regression analysis showed that monthly stipend ($p<0.01$) and health concern ($p<0.01$), among others, had positive influence on expenditure on chicken meat. The implication is that increased stipend and dissemination of information about the health benefits of chicken meat can substantially raise chicken meat consumption in the studied population.

Keywords: health concerns, chicken meat, tertiary institutions, Tobit regression.

INTRODUCTION

Malnutrition is one of the major challenges facing developing countries today, Nigeria inclusive. Poor nutrition is linked to inadequate level of food consumption (Blössner and de Onis, 2005). The majority of foods consumed by households in Nigeria are largely staples with low consumption of animal proteins as part of their meals (Abbey, 2006; Stephenson et al., 2010; Akerele, 2015). Although proteins can be obtained from plant sources, plant proteins are insufficient to meet human protein requirements. Plant proteins are deficient in certain amino acids notably methionine, tryptophan and lysine, among others, which are necessary for healthy growth, whereas animal products contain these amino acids (Cerry and Harold, 2010). This is perhaps the reasons for classifying animal proteins as complete proteins. Some of the well-known sources of animal proteins in Nigeria include beef, chevon, mutton, fish, pork and poultry meat.

The focus of this study is on chicken meat consumption. According to Jayaraman et al. (2013), chicken meat is widely consumed and it is the most common and popular

poultry species in the world. Chicken meat remains the most available and cheapest source of animal protein as compared to beef, pork and mutton (Guerrero-Legarreta and Hui, 2010). Chicken meat has certain advantages over some other sources of animal protein. English et al. (2004) noted that consuming chicken can lower the risk of several diseases and premature death than red meats and help in weight loss. It is one of the safest, high quality protein meats available because of its positive effects on human health (Adetunji and Rauf, 2012).

Sizeable number of students in tertiary instructions in Nigeria can be classified as young adults (youth) (Uriah et al., 2015), and are often considered as the marrow of the human resource of any country (Girigiri, 2007). Young adults constitute about 47 percent of the productive population of Nigeria (Okorosaye-Orubite, 2008) of which fairly large proportion can be found in the tertiary institution (Uriah et al., 2015). The performance of these people group in terms of mental and physical productivity is related to adequate food and nutrition of which animal protein is important. According to Ross (2010), proper nutrition (protein) is critical to maximizing brain function and enhancing learning. This is because proteins are used to make most of the body tissues including neurotransmitters that carry information from the different cells in the body to the brain cells to function effectively. According to Gardner et al. (1996), lack of protein can retard growth in children and can be a contributing factor to chronic fatigues, depression, slow wound healing and decreased resistance to diseases in adults. Given the nexus between health, productivity, mental ability and consumption of high quality animal proteins such as chicken meat, a study that seeks to examine chicken meat consumption and its associated determinants among students of tertiary institutions becomes imperative.

Although there are considerable recent studies on of meat consumption in Nigeria (Damisa and Hassan, 2009; Ekine, et al., 2012; Alimi, 2013; Salawu et al., 2014; Nkang and Effiong, 2015), few studies have been done as it concerns students of tertiary institutions. Some of the studies on students in tertiary institutions include Okunlola (2012) who examined meat preference and meat consumption pattern among sandwich degree students in Ekiti State University. The study found out that poultry meat was ranked highest in terms of meat preference. In their study on meat consumption among staff and students in the University of Ibadan, Ogunwole and Adedeji (2014) found out that though chicken was second on the list of most consumed meat, it ranks highest on the list of the most preferred meat.

Many of the studies on meat consumption in the country have found consumer income, price, demographic variables and taste as factors with important influence on meat consumption. However, with the changing consumers' preference and increasing information about the health attributes of food, consumers are becoming more conscious of their health in relation to food consumption (Senhui et al., 2003, Liu and Deblitz, 2007; Antwi-Boateng , 2013). There are limited empirical consumption

studies linking consumer's concerns for their health to meat consumption in Nigeria, and perhaps none among students in tertiary institutions in the country. It is therefore important to understand whether consumers' concerns for personal health can be an underlying factor driving chicken meat consumption among this population group. Such information is very important, especially from food product development and chicken meat marketing perspectives as to whether considerations for health (health benefits) can be projected to stimulate higher demand for chicken meat and products among the tertiary institutions' population subset in the country. Against this background, the study therefore sought to examine, among other factors, whether consumers concerns for their own health is an important factor affecting chicken meat consumption. In addition, the study examined the patterns of chicken meat consumption; an information that is also very important from marketing perspectives.

METHODOLOGY

Study area

The study was conducted in randomly selected tertiary institutions in Abeokuta, the capital of Ogun State. The State trailed behind Lagos in terms on the rate of industrialization in Nigeria and this has imparted on economic activities and socioeconomic conditions of the people. The presence of tertiary institutions in the State has stimulated substantial economic development and business opportunities in Abeokuta and the neighbouring communities. The population[1] of Abeokuta was 449,088 (NPC, 2010). The study area is located between longitude 7° 9′ 39″ N and latitude 3° 20′ 54″ E. Inhabitants of the Abeokuta include, among others, traders, artisans, other private business owners, civil servants, farmers, and student populations.

Sampling techniques

A multistage sampling was used to select one hundred and eight (108) respondents for this study. Firstly, a simple random sampling technique was used to select three tertiary institutions in Abeokuta. They are Federal University of Agriculture Abeokuta (FUNAAB), Federal College of Education (FCE) Osiele and Moshood Abiola Polytechnic (MAPOLY) on which information garnered as at the time of data collection indicated a population of 14,493, 6,252 and 7260 undergraduate students respectively. This was followed by random selection of 14, 6 and 7 departments from each of the institutions, respectively, proportionate to the population of students. These gave a total of 27 departments. The last stage featured selection of 4 students from each department by convenient sampling to make a total of 108 students. Of the questionnaires administered to the selected students, only 106 were found useful for data analysis. Nevertheless, the study can help gain some insights as to what

[1] The estimated population figure is 593100 according to the GeoNames geographical database updated February 6 2015 (Link available at http://population.mongabay.com/population/nigeria/2352947/abeokuta).

drives chicken meat consumption among this subset of the population.

Analytical techniques

Descriptive statistics was used in reporting the socio-economic characteristics of the respondents which include age, sex, marital status, religion, monthly stipend, patterns of chicken meat consumption and expenditure on chicken meat while Tobit regression model was used to analyse the factors that influence chicken meat consumption.

Tobit regression analysis

Tobit regression model is appropriate for modeling consumption relationship in which there is zero observations on dependent variable, which for this study, relates to expenditure on chicken. The Tobit model is suitable especially where the zero observations (expenditures) are not too many and are presumed to be attributed purely to economic constraints reflecting the true corner(s) in the optimal choice of utility maximization in consumer demand theory. Apart from stringent economic conditions, there are no well-established socio-cultural or religious reasons to explain respondents' non-consumption of chicken meat. The Tobit (censored regression) model is as specified:

$$Y_i^* = a + b_1X_{1i} + b_2X_{2i} + b_3X_{3i} + b_4X_{4i} + b_5X_{5i} + b_6X_{6i} + b_7X_{7i} + b_8X_{8i} + b_9X_{9i} + e_i.$$

The observed expenditure (Y_i) is related to the latent consumption (Y_i^*) through the observation/censoring rule given as:

$$Y = \begin{cases} Y^* & if\ Y^* > 0 \\ 0 & otherwise \end{cases}$$

X_1= Monthly stipend of student (₦/month)
X_2= Sex of student (0 for male, 1 for female)
X_3= Age of student (years)
X_4= Marital status of student (1 if married, 0 otherwise)
X_5 = FUNAAB (1, if student belongs to FUNAAB, 0 otherwise)
X_6 = MAPOLY (1, if student belongs to MAPOLY, 0 otherwise)
X_7 = TASTE (1, if consideration for taste drives chicken consumption, 0 otherwise)
X_8 = HEALTH (1, if consideration for personal health drives chicken consumption, 0 otherwise)
X_9 = Religion (1, if student is a Christian, 0 otherwise)
e = error term, assumed to be normally distributed with zero mean and constant variance.

The Tobit model was estimated using STATA (version 13) statistical package with standard error robust option selected to ensure more robust estimates.

RESULTS AND DISCUSSION

Distribution of respondents by socio economic characteristics

Table 1 shows that 50.9% of the sampled respondents were females, while 49.1% were male, representing a fair distribution of both sexes in the sample. It was also observed that majority (71.7%) of the respondents were Christians while the remaining 28.3% Muslims. Almost all (97.2%) the respondents were single while the remaining 2.8% were married. In terms of age distribution, the result indicates that 49.1% of the respondents were between 20 -

23 years old. Most (41.5%) of the students had monthly income/stipend between ₦5000 - ₦10000. The average expenditure on chicken meat was ₦1133.40 with majority (52.7%) spending between ₦500 - ₦1000 per month on chicken meat. In addition, the monthly expenditure on other meat sources is ₦1130.57 with most (49%) of them spending between ₦500- ₦1000 per month on other animal protein sources.

Table 1: Distribution of socioeconomic characteristics of respondents

Socioeconomic characteristics	Frequency	Percentage
Sex		
Male	52	49.1
Female	54	50.9
Religion		
Islam	30	28.3
Christianity	76	71.7
Marital status		
Single	103	97.2
Married	3	2.8
Age of respondent		
17 - 19 years	22	20.7
20 -23 years	52	49.1
Above 23years	32	30.2
Mean age (years)	21.88 (0.29)	
Monthly stipend		
<₦5000	6	5.5
₦5000 - ₦10000	44	41.5
₦10001 - ₦20000	40	38.0
Above ₦20001	16	15.0
Mean stipend	₦17251.89 (25080.63)	
Monthly expenditure on chicken meat		
<₦500	20	18.9
₦500 - ₦1000	56	52.8
₦1001 - ₦2000	21	19.8
Above ₦2001	9	9.5
Mean chicken expenditure	₦1133.40 (151.97)	
Monthly expenditure on other animal proteins		
<₦500	17	16.0
₦500 - ₦1000	52	49.1
₦1001 - ₦2000	27	25.5
Above ₦2001	10	9.4
Mean expenditure	₦1130.57 (92.92)	
Total number of respondents	106	100.0

Source: Field Survey Data, 2015 Figures in parenthesis are standard deviations

Consumption patterns of chicken and its substitutes

Table 2 shows the distribution of respondents according to the frequency of chicken consumption. The majority (64.2%) of the respondents consume chicken meat once a month. More than 75% of the respondents consume chicken meat in fried form in line with Ogunwole and Adedeji (2014) who reported that most of the students of University of Ibadan preferred consumption of fried chicken. Fish was the most commonly consumed substitutes to chicken meat.

Table 2: Distribution of Respondents according to Chicken Meat Consumption and Substitutes for Chicken Meat

Variables	Frequency	Percentage
Frequency of consumption		
<2 times monthly	68	64.2
2-4 times monthly	16	15.0
5-8 times monthly	14	13.2
10-20 times monthly	8	7.6
Total	106	100
***Forms of consumption**		
Boiled/Cooked	29	27.4
Fried	82	77.4
Barbeque	9	8.5
Other forms	4	3.8
***Chicken meat substitutes**		
Beef	33	31.1
Fish	66	62.3
Eggs	31	29.2
Pork	2	1.9
Other meats	1	0.9

Source; Field Survey Data, 2015 **Multiple Responses*

Factors Affecting Consumption of Chicken Meat

The results of the Tobit regression on factors influencing chicken meat consumption are presented in Table 3. Interpretation of the coefficients of the explanatory variables is as a partial derivative of desired (latent) chicken meat consumption (Y^*). The marginal effects for the observed expenditure on chicken meat (Y) derived from the coefficients of (Y^*) represent the effects of changes in the explanatory variables on observed expenditure on chicken meat. The focus is on the marginal effects of the observed consumption-expenditure. The marginal effects associated with monthly stipend is positive and significant ($p<0.1$), implying that increase in the monthly stipend/income of the student will lead to increase in observed expenditure on chicken meat. This is consistent with Damisa and Hassan (2009) who found a positive relationship between wealth (income) status and poultry meat consumption among consumers in North-Central Nigeria. The estimated marginal effect (0.02) indicates that a unit increase in the average monthly stipend of the respondent is expected to raise expenditure on chicken meat by 0.02 units.

The marginal effect of FUNAAB is positive and significant ($p<0.05$), implying that an average FUNAAB student would consume more chicken meat than their counterparts in FCE Osiele and MAPOLY, holding all other factors constant. The magnitude of the marginal effect is 270.37, indicating that an average student from FUNAAB is expected to spend ₦270.37 per month on chicken meat higher than an average student from the other institutions examined. The sex, age, marital status and religion of students are unlikely to have any considerable effect on chicken meat consumption. Concern for taste has positive, but little effect on chicken meat consumption. However, consideration for personal health has positive and significant influence, indicating that health concerns have strong influence on consumption of chicken meat. The importance of the finding is that with increased information about the health attributes of chicken meat, its consumption can increase considerably among the students. The log pseudo-likelihood is -823.46 and the associated Likelihood Ratio (2.56) is statistically significant ($p<0.01$), indicating that all the explanatory variables in the model jointly influence chicken meat consumption.

Table 3: Results of factors influencing chicken meat consumption

Variables	**[+]Coefficients**	**t-value**	**P>|t|**
Monthly stipend of respondent	*0.03	1.90	0.06
Sex of respondent	57.01	0.30	0.76
Age of respondent	56.39	1.10	0.28
Marital status of respondent	2251.36	1.36	0.18
FUNAAB	**485.79	2.14	0.04
MAPOLY	-47.10	-0.18	0.86
Taste	153.13	0.70	0.49
Health	***636.19	2.62	0.01
Religion	-7.42	-0.03	0.98
Constant	-1336.27	-1.36	0.18
Sigma	1082.34		
Log-Likelihood	-823.46		
Likelihood Ratio (Chi-Square)	2.56		
Prob>Chi-square	0.011		
Variables	**[++]Marginal (effect of the observed Expenditure)**	**t-value**	**P>|t|**
Monthly stipend of respondent	*0.02	1.83	0.70
Sex of respondent	32.90	0.30	0.75
Age of respondent	32.54	1.14	0.24
Marital status of respondent	1299.36	1.40	0.16
FUNAAB	**270.37	2.05	0.04
MAPOLY	-27.18	-0.18	0.85
Taste	88.39	0.70	0.49
Health	***367.17	2.82	0.01
Religion	-4.28	-0.03	0.98

Note: *, ** and *** imply that coefficients are statistically significant at 10%, 5% and 1% respectively; + = values are the coefficients of explanatory variables associated with latent level of chicken meat consumption (Y*). ++ = values relate to the marginal effects of the explanatory variables for the observed expenditure on chicken meat (Y).

CONCLUSION

The study examined the influence of health concerns on chicken meat consumption among tertiary institutions' students in Abeokuta, Ogun Sate, Nigeria. The majority of respondents preferred to consume chicken meat in fried form. Students' stipend (income) and health concerns exerted substantial influence on chicken meat consumption. Increases in the stipend (income) of student, and concerns for their health (wellbeing) would stimulate higher consumption of chicken meat. Efforts to raise students' stipend as well as strategies to promote the health benefits of chicken meat will be a crucial marketing strategy to encourage higher consumption of meat among the student consumers.

REFERENCES

Abbey, B.W. (2006) Bridging protein gap with what you have. An inaugural lecture series no. 48, 27th April, 2006, University of Port-Harcourt, Nigeria.

Adetunji, M.O. and Rauf, M.O. (2012) Analysis of household demand for meat, in Southwest, Nigeria. *Global Journal of Science Frontier Research Agriculture & Biology* 12 (1):15-21.

Akerele, D. (2015). Household food expenditure patterns, food nutrient consumption and nutritional vulnerability in Nigeria: Implications for policy. Ecology of Food and Nutrition, 54 (5): 546-571.

Alimi, R.S. (2013). An analysis of meat demand in Akungba-Akoko, Nigeria. *Nigerian Journal of Applied Behavioural Sciences*, 1 (2013), 96 – 104.

Antwi-Boateng, C., Owusu-Prempeh, V. and Asuamah, S.Y. (2013). Assessment of factor influence the consumption of pork and poultry meat in Ghana. *International Journal of Innovative Research in Management*, 2(4): 1-12

Blössner, M. and de Onis, M. (2005) Malnutrition: quantifying the health impact at national and local levels. Geneva, World Health Organization (WHO Environmental Burden of Disease Series, No. 12).

Cosmos, A.B., Vida, O.P. and Samuel, Y.A. (2013). Assessment of factors influencing the consumption of pork and poultry meat in Ghana: Comparative study *International Journal of Innovative Research in Management*, 4(2):1-12

Damisa, M.A. and Hassan, M.B. (2009) Analysis of factors influencing the consumption of poultry meat in the Zaria Emirate of Kaduna State, Nigeria. *European Journal of Educational Studies* 1(1):1-5.

De Silva, P.H. G.J., Atapattul, N.S.B.M., and Sandika, A.L. (2010). A Study of the socio -cultural parameters associated with meat purchasing and consumption pattern: A Case of Southern Province, Sri Lanka. *The Journal of Agricultural Sciences,* 5(2):71-79.

Ekine, D.I., Albert, C.O. and Peregba, T.A. (2012). Expenditure pattern for beef consumption in selected households in Southern Nigeria. *Developing Country Studies*, 2(7): 1-4

English, D.R., MacInnis, R.J., Hodge, A.M., Hopper, J.L., Haydon, A.M. and Giles, G.G. (2004). Red Meat, Chicken, and Fish Consumption and Risk of Colorectal Cancer. *Cancer Epidemiol Biomarkers Prev* 13(9):1509-1514.

Gardner, C.D, Fortman., S.P. and Krauss., R.M. (1996) Association of small low density lipoprotein particles with the evidence of coronary artery diseases in men and women. *JAMA publication*, 276(11):875

Girigiri, B.K. (2007) Issues in the problems of youth restiveness; Niger Delta Contact. In O. P. Nwanna-Nzewunwa, B. K. Girigiri and C. F. Okoh (Eds) Social studies: Foundations, Methods and Contemporary Social Problems. New Owerri: Springfield Publishers

Guerrero-Legarreta, I., and Hui, Y. H. (2010). Processed poultry product.

Handbook of Poultry Science and Technology, Wiley. pp688

Hoffman, J. R. and Michael, J. F. (2004) Protein-which is best? USA - symposium -macronutrient utilization during exercise: implications for performance and supplementation. *Journal of Sports Science and Medicine*, 3: 118-130

Inyang, H. B., Adebayo, E. F. and Anyanwu, S. O. (2014) Consumption of animal protein in Adamawa State. An empirical analysis. *Journal of studies in social sciences*, 7(1): 41-46

Jayaraman, K., Munira, H., Dababrata C. and Iranmanesh, M. (2013) The preference and consumption of chicken lovers with race as a moderator- An empirical study on Malaysia. *International Food Research Journal*, 20(1):165-174.

Liu, H. and Deblitz, C. (2007) Determinants of meat consumption in China. Asian Agribusiness Research Centre (AARC). Working Paper 40

Luz, M.., Malabayabas, M., Yorobe, J.M. and De Castro, N. L. (2009) Household demand analysis for fresh meat in the Philippine. *Philippine Journal of Veterinary and Animal Sciences* 35 (2): 168 -176

Nalty, C., Sharkey, J. and Dean, W. (2013) Children's reporting of food insecurity in predominately food insecure households in Texas border colonias. *Nutrition Journal*, 12 (15): 1-9

National Population Commission. (2010) Population Distribution by sex, state, LGA and Senatorial district. Priority Table Volume III. Federal Republic of Nigeria 2006 Population and Housing Census.

Nkang, M. O. and Effiong, J. B. (2015) The influence of consumer's perception on pork and poultry meat consumption in Calabar South LGA, Cross River State. *International Journal of Agricultural Science Research*, 4(5):86-91

Ogunwole, O. A. and Adedeji, B. S. (2014) Consumers' preference and perception of the different types of meat among staff and students of the University of Ibadan, Nigeria. *Journal of Agriculture and Environmental Sciences*, 3(2):77-95

Okorosaye-Orubite, A. K. (2008) Education and Sustainable development in the Niger Delta: The Role of the Youth. International conference on the Nigerian state, oil industry and the Niger Delta. Port Harcourt, Nigeria: Harey Publications.

Okunlola, O. O. (2012). Meat preference and meat consumption pattern of Southwestern Nigeria: A study of sandwich degree Students of Ekiti State University, Ado-Ekiti, Oyo study centre. *Journal of Agriculture, Forestry and Social sciences* 10(1):23-31

Ross, A. (2010). Nutrition and its effect on academic performance. *How can schools improve nutrition and academic performance?* M.sc Thesis Northern Michigan University. pp.1-58

Salawu, M. B., Ibrahim, A. G., Lamidi, L. O. and Sodeeq, A. E. (2014). Consumption and consumer preference for poultry meat types in Ibadan Metropolis. *Journal of Economics and Sustainable Development*, 5(28):20-25

Senhui, H., Stanley F. and Arbindra, R. (2003). Identifying factors influencing beef, poultry and sea food consumption, *Journal of food distribution research*, 34(1):50-55

Stephenson, K., Amthor, R., Mallowa, S., Nungo, R., Maziya-Dixon, B., Gichuki, S., Mbanaso, A. and Manary, M. (2010) Consuming cassava as a staple food places children 2-5 years old at risk for inadequate protein intake, an observational study in Kenya and Nigeria. *Nutrition Journal*, 9(9):1-15

Uriah, O. A., Egbezor, D. E. and Ololube, N. P. (2015) Socio-economic status and gender: implications for youth restiveness and educational development in Rivers State, *International Journal of Applied Sociology*, 5(1):16-30.