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Evaluation of Households Protein Consumption Pattern in Orire Local Government Area of Oyo State

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Abstract: The study was carried out to assess the protein consumption pattern of households in Orire Local Government Area of Oyo State. Systematic sampling technique was used to select two villages from five wards in the study area. A total number of 80 households were used for the survey. The data was analysed using descriptive and inferential statistics. The result confirmed the household heads were male, married, mature with large household size and no formal education. Larger percentage were farmers with monthly income less than N20,000. Protein is fairly available in the study area but not affordable especially the animal protein, they spent as much as N7,000 monthly to purchase protein meal and consumed protein meal in partial, once daily because of the cost. The adults consumed more protein in most of the households ignoring the importance of protein in the diet of babies and children. The findings also showed that educational level, household size and income of the household heads affect the amount spent on the protein consumption. It was therefore recommended that rural dwellers should be encouraged to engage in planting legumes and rearing of livestocks in order increase personal consumption and distribution to the urban centre. Educational programmes should be organized for enlightenment about the importance of protein in their diet. Finally, family planning progamme should be emphasized to rural households in order to reduce the large household size prevalent in the study area.

Keyword: Protein, households, consumption, income

INTRODUCTION

In Nigeria, food supply is not distributed equally throughout the country and sometimes within the households. A large proportion of the populace including children, do not receive balance diet to ensure physical health and development. Most people consume the minimum level of calorie but fail to get necessary protein and essential vitamins and minerals required for leading a healthy life (Bender and Smith, 1997).

Proteins are the major structural components of all cells of the body and amino acids are the building blocks of protein. Proteins can function as enzymes, membrane-carriers and hormones (Jensen, 1994). As far as the human body is concerned there are two different types of amino acids: Essential and Nonessential. Nonessential amino acids are amino acids that the body can create out of other chemicals found in the body. Essential amino acids cannot be created, and therefore, the only way to get them is through food. Protein contains approximately 22 amino acids, eight of which are essential because the body cannot produce them. Therefore, they must be obtained from our food.

The sulphur – containing amino acids: methionine, cystine and cysteine are particularly important for the health of the brain and nervous system (Addo, 2005). Protein is required for the growth, maintenance and repair of all body tissues. Protein is 90% of the dry weight of blood, 80% constituent of enzymes, hormones and antibodies (Fallon and Eing, 2001). Proteins encompass many important chemicals including immunoglobulin and enzymes. In short, they form the foundation of muscles, skin, bone, hair, heart, teeth, blood and brain and the billions of biochemical activities going on in our bodies every minute. When we fail to consume adequate amounts of protein, the blood and tissues can become either too acidic or too alkaline. Lack of dietary protein can retard growth in children and in adult, can be a contributing factor in chronic fatigue, depression, slow wound healing and the decreased resistance to infections (Iyangbe and Orewa (2009)).

It has been estimated that the daily minimum crude protein requirement of an adult in Nigeria varies between 65 and 85g per person. However it is recommended that 35g of this minimum requirement should be obtained from animal products (Oloyede, 2005; Britton, 2003). A review of the data of food supplies available for consumption in different countries shows that the per caput protein intakes in developing countries, Nigeria inclusive, is comparatively low. Not only is the total protein supply deficient but the quality of dietary protein available is inferior to that consumed in developed countries (Brawn,2005). Most of the foods consumed in Nigeria are carbohydrates which are obtained mainly in the form of starch (Lupien and Menza, 2004)

A hard-working adult farmer needs approximately 3,500 calories and 50grams of protein per day; a one-year-old child needs about 1,000 calories and 15grams of protein per day. Yet, these quantities of essential nutrients are missing in the diets of many rural Africans, which are based on staples of grains such as maize, without nutritional supplements, Africa's staples do not provide adequate protein of micro nutrients such as vitamins and iron. Thus, dependence on these staples or sometimes a lack of the staples themselves can cause widespread malnutrition, especially, among children (Robert *et al* 2000, Morna 1993).

The level of poverty in Nigeria is on the increase due to low level of income, high cost of food products particularly protein foods as well as its inadequate production of protein foods by farmers and lack of capital to establish on a large scale. The people in the rural areas need more attention in terms of their diet most especially protein so as not to ruin agricultural production. Aromolaran (2001) confirmed that Nigeria is still struggling to meet up with the minimum food and nutrient requirements. The evidence of poor nutrition is reflected particularly amongst low income groups. It has been estimated that 7,300 children die of malnutrition annually in Nigeria, before they reach the age of four years; while 73,000 to 84,000 infants born every year suffer from malnutrition. The pre-school children are not left out of the ill wind of malnutrition blowing in Nigeria (Ajayi and Chukwu, 2008).

Low nutrient intakes, leanness, low midarm circumferences and skinfold thickness

and stunting are good common features in malnourished Nigerian preschoolers. The presence of low height for age has been reported among school children and adolescents and this was attributed to inadequate intake of nutrients. The adults and the elderly ones have their own fair share of some degrees of malnutrition. Conditions such as gingivitis, angular stomatitis, loss of strength, low productivity, low morale, lethargy and retardation are common in this category of people. These conditions are directly or indirectly as a result of malnutrition. Pregnant and lactating women in Nigeria were reported to have low intakes of many nutrients such as protein, calcium, niacin and riboflavin. Figures on average crude protein consumption per day in Nigeria fall short of the recommendations of Food and Agriculture Organization (FAO) (Ene-Obony, 1990; Ajayi and Chukwu, 2008).

The deficiency of protein in the diet will invariably affect the income generating ability, manpower development and overall contribution to the nation's GDP. It is in view of these issues with protein intake that this study focused on determining the factors that affect protein consumption pattern in the study area as well as identify the socio-economic characteristics that influence protein consumption. Two hypotheses were tested as presented below.

Ho_1: There is no significant relationship between the socio-economic characteristics of the households and amount spent on protein consumption.

Food Consumption Pattern of Households

The nutritional status of a nation is difficult to assess because it can be related to social, educational and economic condition. It may be good, fair, or poor depending on the dietary essentials, relative needs for them, and body's ability to utilize them. Nutritional status of an individual depend solely on food intake in terms of quantity or quality, there is always interplay of many factors. In most cases in developing countries, the nutritional status of an individual is one of denutrition or malnutrition, only few understands the importance of balance diet, this have its root in the ignorance and poverty status of the people **(**Enwonwu 1979).

In Nigeria, dietary protein sources are more of plant based with varying levels of amino acid than animal. For instance, FAO recommendation for daily protein consumption is put at 60g per person out of which 35g is expected to be from animal source. However, it was reported that the average per capita protein intake in Nigeria was 51.7g from which only 8.6g came from animal sources, where as in developed countries, the average per capita protein intake was over 70g with more than 55g of animal protein (Ikeme 1990). This is confirmed by Abdulahi (1999) that average animal protein intake per head per day in North America, Western and Eastern Europe as 66, 39, 33 g per head per day respectively.

According to Olayide (1993), lack of sufficient food both in quantity and quality will account for low production which could lead to a decline in agricultural production, at the same time hindering development. Low protein composition of diet being consumed results in protein malnutrition which manifest itself in form of diseases such as marasmus, kwashiokor or retarded growth in many Nigerian children. Cyril *et al* (1998) discussed that all human

beings have common nutritional needs; there may be variations from one section of the community to another; and nutritional requirements changes from infancy through childhood to adolescence and adult hood. Apart form the fact that the consumption pattern differs with changes in the physiological state of the body, it also depends on various factors that are attached to different households.

Robert et al (2000) reported that the recommended amount of protein for tissue development, growth and performance differs in age and sex, for instance the adult males require more protein than their female counterparts in the same age group due to the fact that male use more energy for work while the pregnant and lactating females needs the highest quantities of protein due to the physiological state of their body. Among the factors that dictates consumption pattern are, household income, cost of food, environment, household size. The prices of foods particularly those of protein source affects its consumption since majority of the consumer are in low-income groups, they tend to appeal for the in-expensive food commodities which in most cases are the starchy food with low nutritional value, in essence, they opt for quantity rather than quality (Alderman, 1986).

The differences in personal taste, educational level, religion, custom and beliefs, may affect the consumption of protein since most of the rural dwellers engaged in one agricultural activities or the other and this makes the availability of other classes of food to be very high (Pitt 1983).

According to Koutsoyianis (2001), consumption pattern of a family is determined by family income, sexes in the family, household income, composition of age, price sales, taste, education status, religion etc. According to a FAO food survey (1985), household nutritional status has been observed to be influenced by socio-economic factors such economic factors which include prices of food items and non-food items, households' income and how it is shared among basic needs. In addition, we have socio-cultural variables like family size and composition, occupational groups, taste and preferences as well as the educational level of the household head. These factors punctuate the food composition and habits of households particularly the rural households, to the extent that households compensate for nutritional requirements in other foodstuffs by replacing consumption of protein foods which is generally believed to be expensive with carbohydrate which is less expensive, easy to prepare (Addo .A, 2005).

Olarinde and Kuponiyi (2005) affirmed that the average composition of rural households' food is usually about 79 percent carbohydrate, 17 percent protein and 4 percent vitamin per month. Comparing this with an earlier and related study on farming households in Oyo State (Adio, 2000), where food energy intake was found to be about 97% carbohydrate and about 28% protein , this implies a short fall of 18% and 11% in carbohydrate and protein intake respectively in four years. This situation depicts food insecurity and may worsen in the next few years.

METHODOLOGY

The study was carried out in Orire Local Government Area of Oyo State. It covers a total estimated land area of 2,040 km^2. It inhabits over 100 villages/ communities such as Tewure, Iluju, Apiko, Saamo amongst others. Orire Local Government Area is a derived savanna zone where common agricultural products such as yam, melon, cashew, mango, shea butter, cocoa, kola nut, palm-oil etc can be found. Therefore, most of the inhabitants engaged in farming as their major occupation while some are hunters, traders, fish farmers, etc. (Alalade, 2000)

The data used for the study were obtained from primary source through the use of a well structured questionnaire. Systematic random sampling was used to select five wards out of the 10 wards under the local government area, with two villages from each ward. A total number of eight respondents were randomly selected from each village to make a total of eighty households.

Descriptive and inferential statistical tools were used to analyze the data collected. Descriptive statistics such as frequency distribution table was employed to analyze the socio-economic factors, level of protein consumption and factors affecting protein intake by the households. Inferential statistics such as regression and correlation analysis were to determine the relation ship between dependent and independent variables. The hypotheses were tested using the model specified below:

$C = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + \mu$ 1

Where

C = Total amount spent on protein consumption (N)

X_1 = Household size of respondents (number of individuals)

X_2 = Income of household (N)

X_3 = Number of years spent in school (years)

X_4 = Marital status (married=0, single=1)

X_5 = Age of respondents (years)

μ = Error term

RESULT AND DISCUSSION

Table 1 presents the socio economic and demographic characteristics of the respondents. About 64 percent of the households were headed by male while the rest accented for female headed households. The numbers of female headed households were a little higher in the study area because most of them were either separated, widowed or divorced which can inversely affect the protein intake of such household. Twelve percent of the respondents were less than 30 years of age while those above 50 years accounted for over 47 percent. This directly affect protein intake as people tend to reduce the quantity of protein consumed as they grow older e.g. consumption of meat and egg. Only 2 percent of the respondents were single at the time the study was carried out. Sixty six (66) percent accounted for those that were married and 15 percent represent those that were once married but are now single as a result of separation, death of spouse etc. Since majority of the respondents were married, the tendency to consume more protein in the area is high.

About 24 percent of the household had between 1 and 3 household members while 38.8 percent accounted for household which has over 6 members in its family unit. While 30 percent of them had no formal education, 27 and 13 percent

of the respondents spent between 1-6 years and above 12 years in school respectively. The result further revealed that educational level was low in the study area, consequently importance of protein intake may not be well appreciated.

Respondents' religion may affect the level of protein taken as some religion restricts their faithful/worshipers from eaten some animals which are sources of protein e.g. all Islamic faithfuls are restricted from eating pork, etc. All these restrictions can affect the level of protein intake by the household. From the table, about 39 percent are Muslims while none of the respondents claim to be a traditional worshipper. About 36 percent of this rural household engaged in farming activities, 14 percent of them were artisans and 31 percent claimed to be in the civil service. The result indicates that not all the household engage in farming as a primary occupation and this consequently may reduce their protein intake due to its cost.

Eleven (11) percent of the respondents earned less than N10,000 per month while majority earned an average of N15,000 monthly (41%). Only about 12 percent earned over N30,000 as income per month. This implies that majority of the household earn below N30,000 (an equivalent of $260) per monthly, the low in income may reduce the level protein intake due to its cost.

Table 1: Socio-economic Characteristics of Respondents

Variables	Frequency	Percentage
Sex		
Male	51	63.7
Female	29	36.3
Age(yrs)		
< 30	10	12.5
31-40	18	22.5
41-50	14	17.5
> 50	38	47.5
Martial Status		
Single	2	2.3
Married	66	82.2
Widowed	12	15.5
Household		
size	19	23.7
1-3	30	37.5
4-6	31	38.8
above 6		
Education Level(yrs)	24	30.0
0	22	27.5
1-6	7	8.8
7-9	16	20.0
10-12	11	73.7
>12		
Religion		
Islam	31	38.7
Christian	49	61.3
Traditional	0	0.0
Occupation		
Farming	29	36.3
Trading	15	18.7
Civil service	25	31.1
Artisan	11	13.7
Income Level(₦)		
<10,000	9	11.3
10000-19999	41	41.2
20000-30000	20	25.0
>30000	10	12.5
Total	**80**	**100.0**

Source: Field Survey 2010

Table 2 presented the availability and household consumption of protein food items. About 27 percent claimed they source their protein food items from their various farms while 21 and 51 percent have access to protein foods through gift and from the market respectively. The result, however, suggest that the percentage of protein food items produced in the study area is low and therefore needs to be supplemented. This is evidenced with about 60

percent of the respondents claiming that protein is fairly available in the area.

Thirty seven (37) percent of the respondents spent as much as N7,000 and above on protein food items monthly, while only one percent spent less than N2,500 monthly on protein foods. Considering the income level of most household in the study area, it can be deduced that most of them spent much on protein foods and this might be due to the high cost of protein foods. On this basis, about 53 percent claimed that they usually combine protein meal with other type of meal (eg cabohydrate) once daily.

Table 2: Availability and Household Consumption of Protein Food Items

Variables	Categories	Frequency	Percentages
Source of protein consumed	Market	41	51.3
	Farm	22	27.5
	Gift	17	21.2
Protein availability in the area	Available	28	35.0
	Fairly available	48	60.0
	Not available	4	5.0
Monthly expenditure on protein food items (N)	< 2500	1	1.3
	2500 – 5000	14	17.5
	5000 – 7500	33	41.2
	>7500	30	37.5
	Undecided	2	2.5
Number of protein meals consumed daily (in partial meal)	1	43	53.8
	2	21	26.2
	3	16	20.0
		80	**100.0**

Source : Field Survey 2010

The consumption pattern of protein food items by household is presented in table 3. About 46 percent of the respondents indicated that protein foods were fairly affordable while 37 percent claimed that they were not affordable. To this extent, 30 percent of the respondents depended solely on plant protein which have incomplete amino acids and economically cheap compared to animal protein (10%). About 60 percent however claimed to consume both animal and plant protein even though animal protein is more expensive.

Ninety (90%) percent of the respondents were aware of the importance of protein in daily meal but 57% consumed less of protein because of its high price. Three percent however consume less of protein due to non availability and length of time it takes to cook. The level of protein consumption by household members shows that only 12 percent of the respondents agreed that babies needs more protein in their meal. About half of the population (50%) believed that adult should consume more protein. The result therefore implies that many household are not aware that babies should consume more protein than other members for growth and development.

Table 3: Consumption Pattern of Protein Food Items by Households

Variables	Freq	Percent
Affordability of protein foods		
Affordable	13	16.3
Fairly affordable	37	46.2
Not affordable	30	37.5
Type of protein often consumed Animal protein	8	10.0
Plant protein	24	30.0
Both protein sources	48	60.0
Awareness of importance of protein		

Yes	72	90.0
No	8	10.0
Reason for less protein consumption		
Taste	9	11.3
Cost of protein	46	57.5
Non-availability	3	3.7
Not easy to cook	3	3.7
Others	19	23.8
Household members that consumes more protein		
Babies	10	12.5
Children	9	11.3
Adult	40	50.0
Old	21	26.2
	80	**100.0**

Source: Field Survey 2010

Table 4 explained the relationship between amount spent on protein consumption (Y) by the respondents and their various socio-economic characteristics. The result revealed that income, educational level, household size are significantly related to amount spent on protein consumption at 1% level of significance. This implies that as these factors increase, amount spent by household on protein intake will also increase. However, household size is negatively related to protein intake. The result suggests that an increase in the number of household members will bring about a reduction in the amount spent on protein consumption by the household. The adjusted R^2 (64%), also explain the variation in the amount spent on protein consumption by households in the study area as explained by the independent variables. Since most of the socio-economic factors considered were statistically significant at I percent level of significant, the alternative hypothesis is accepted

Table 4: Result of Regression Analysis

Variables	**B**	**S.E**	**t- value**
Constant	1.280	1.482	0.864
Household size	-0.789***	0.072	-10.958
Income	4.566***	0.000	4.470
Education	0.576***	0.065	8.862
Marital status	0.103*	0.060	1.717
Age	0.130*	0.022	1.716

R = 0.720 = 72%
R^2 = 0.642 = 64%
F = 1.235
*Significant at 10% level of significance
**Significant at 5% level of significance
***Significant at 1% level of significance

CONCLUSION AND RECOMMENDATION

This study revealed that most of the household heads were male, married, mature with large household size and no formal education. Larger percentage were farmers with monthly income less than N20,000. The respondents said that protein is fairly available in the study area but not affordable especially the animal protein, they spent as much as N7,000 monthly to purchase protein meal and consumed protein meal in partial, that is in combination with other type of meals, once daily. They rarely consume whole protein meal. Most of households were aware of the importance of protein in the diet but they consumed less protein food items due to cost and availability. The adults consumed more protein in most of the households ignoring the importance of protein in the diet of babies and children.

The findings also showed that educational level, household size and income of the household heads affect the amount spent on the protein consumption.

It was therefore recommended that rural dwellers should be encouraged to engage in farming activities (planting legumes and rearing of livestocks) in order increase their production of protein food source, so that there will be enough for personal consumption and distribution to the urban centre. There is need for

pricing policy in order to bring down the prices of protein foods to make it affordable for the rural people. Also, more educational programmes should be organized so that the rural people will have more knowledge about the importance of protein in their diet. Finally, family planning progamme should be emphasized to rural households in order to reduce the large household size prevalent in the study area.

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