

NUTRITIONAL ASSESSMENT OF SOME ELDERLY FARMERS IN RURAL AREAS OF OGUN STATE, NIGERIA

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ABSTRACT

The nutritional status of some elderly Yoruba farmers was carried out to evaluate food consumption pattern and body mass index. A multistage sampling procedure was used to select 150 households in Ogun state. The personal characteristic data was collected using a structured household questionnaire. A three day direct weighing method of food intake was used to assess the food consumption and nutrient intake. Anthropometrics measures were taken to determine body mass index (BMI). The personal characteristics data indicated that 67% were male and 33% were female. Fifty two percent of them are in to crop farming twenty seven percent were in poultry and twelve percent were in small ruminant rearing as source of lively hood. The result showed that most of them ate three times a day some skip meals (42%) while some ate fruit daily as habit (56%). The calorie intake per day revealed a range of 501 to 3690kcal /d. The Body Mass Index (BMI) showed that 35 % of the elderly are on normal nutritional status while 65% were categorized as malnourished. BMI correlates positively with Calorie intake ($r=0, 42; p<0.05$) and education ($r= 0.24; p<0.05$). On the whole majority of the elderly farmers were taking inadequate food and nutrient especially vitamin A and Protein.

Keywords: Nutritional assessment, elderly farmers.

INTRODUCTION

The elderly population in Nigeria will be double by 2015(ACC/SCN, 1999). Many of this elderly are involved in a number of activities such as education, politics and agriculture. Adequate nutrition is necessary for the elderly to become fit, productive and capable of fulfilling their responsibilities in life. People who are well-nourished are more productive and consequently improve their own income as well as their contribution to the national economy (FAO, 2001). Improved nutritional status give the elderly more resistance to diseases, ensure strength leading to lon-

gevity and healthy aging without financial burdens on sickness.

In Africa and many developing countries, up to 70 percent of the population is employed in the agricultural sector (FAO, 2001). Thus a sound economic development strategy for a developing country such as Nigeria must have a healthy agricultural sector. In Nigeria and even in Ogun state the majority of the farmers are in the elderly class (Ogun. 2000; Khayesi, 2001).

This situation is not peculiar to Ogun state even records from the Kenya study shows that majority of the farmers were over 56

years old. (IDRC, 1994). In order that elderly contribute to the economic and social development required to be well nourished and healthy farmers in a conducive environment.

In rural Nigeria where majority of the farmers reside are noted for poor infrastructure and inadequate basic amenities such as water and electricity (NDHS, 2003). Consequently, there is need to give additional attention such as nutrition intervention which is an opportunity cost to the productivity and health of the farmers. Thus the paper focused on nutritional status and the socioeconomic condition of the elderly farmers in rural areas of Ogun state Nigeria.

METHODOLOGY

Areas of study and Sampling procedure

The areas selected for this study is Ogun state rural areas of the three senatorial districts which are Egbas, Ijebus and Yewas. These three areas also covered the three ethnic group of Ogun state, Nigeria. The Yoruba's are the major tribe predominantly living in these areas with various types of occupation ranging from large scale business to petty trading and farming. The major agricultural practices includes crop farming (especially cassava, yam and plantain), vegetables, and poultry and livestock mostly small ruminants' animals (Ogun, 2000; Omotayo, 2003).

Sampling Procedure

The population targeted for the study comprised of the male and female elderly farmers in Ogun state Nigeria.

To be eligible for inclusion in the survey, each prospective respondent was required to have attained the minimum age of 60

years and must have resided in the study area for at least ten years continuously. A multistage sampling procedure was adopted.

Selection of rural setting within the study area

The stratified sampling was adopted to cover the three ethnic settlements in Ogun state. In Ogun state there are three ethnic groups within the study areas (namely the Egbas, the Ijebus and the Yewas), hence, the selection of communities was done based on ethnic consideration such that each of the dialect (ethnic group) represent a zone. In each zone a village was randomly selected to represent the rural (after considering the population, the infrastructure and the presence of other social amenities). In all, three villages were selected for uniform representation of Ogun State indigenes. Villages studied were Alabata to represent Egba zone, Odo-Aye village represent Ijebu zone and Iwoye from Yewa area.

Selection of household

In each of the selected community 50 households were selected using systematic random sampling to represent each zone. A total of 150 household were randomly selected from the three zones.

Selection of respondents from households

All respondents who are farmers which must have attained the age of 60 years or more in a household were selected. This sampling option was considered expedient in the absence of valid and comprehensive sampling frame in each zone. The total number of respondent studied came to 165 respondents.

Instrument for Data collection***Questionnaire method***

Demographic information was collected using structured household questionnaire while non demographic characteristics were by interview.

Direct Weighing Method of Food Intake

A 3-day direct weighing method was used for the food consumption data. Each day, food was weighed using Salter scale at meal times. The name of the food item was entered in the local language on the coded record form.

At each visit, subjects were asked what other foods they have been eaten since the last visit. These were estimated by recall, such foods were usually in between meals outside homes or snacks or food from vendors. The equivalent portion of these foods taken outside homes were then purchased and weighed. The foods were recorded into the respondent's coded form.

By means of direct weighing methods, the food intake was converted to nutrient intake using food composition tables (IUNS, 1988). After converting all food intakes into nutrients, their values were then entered into the computer. Using Micro Excel, the average energy and nutrients per day were calculated for each respondent.

Anthropometric measurement

The anthropometric data of the elderly was measured using international standards and procedures (WHO, 1995). Heights of the elderly were taken using (locally produced) stadiometer while weight was by sensitive handerson bathroom scale.

Statistical Analysis

All data were subjected to statistical analysis using means, standard deviation and percentages to describe the information gathered. Inferential statistics such as Pearson Product Moment Correlation were also used.

RESULTS

Of the one hundred and sixty five farmers studied, 67% were male and 33% were female. Fifty five percent of the subjects were between the ages of sixty and sixty-nine, and fourteen percent of the subjects were at least eighty years old. In terms of marital status, 73% were married and 24% were widowed. A high percentage of polygamy (61%) was found in the population, as Yoruba men often take a second wife at old age (Table 1).

Majority of the farmers were either illiterate or with only primary school education (76%). The farming activities engaged by the elderly farmers were mainly crop farming with fifty two percent and twenty seven percent were into poultry, only twelve percent were in small ruminant rearing while the rest are in mixed farming (Table 2).

Food Consumption Pattern

As shown in Table 3, the farmers' food habits are not too different from each other. 67% eat three times daily. Thirty two percent eat between meals and forty two percent skip meals. More than half of the farmers daily intake of fruits (56%) a shown in Table 3. The types of food eaten are mainly tubers especially cassava products such as 'gari', 'fufu' and 'lafun'. Legumes are eaten about twice in a week by the majority while meat, fish and other animal products were eaten in small quantities.

The farmers calorie and nutrients intake are shown in Table 4. Daily caloric intake as calculated from food composition table ranged from 501 to 3,690 kcalories in both sexes. The vitamin and mineral intake varied widely among the farmers.

Anthropometrics characteristics

From Table 5, the Body Mass Index (BMI) of 34% of the male farmers is in normal nutritional status. The overall index showed that some farmers are in moderate to severe malnutrition of which fifteen percent were female and thirty four percent were male.

The Body Mass Index was further observed to inversely relates with Age time spent on the farm ($r = -0.24$ $p < 0.05$; $r = -0.15$; $p < 0.05$) (Table 6). However, a positive relationship was observed between BMI and Educational status, Income and Calorie intake, respectively ($r = 0.42$; $p < 0.05$; $r = 0.27$; $p < 0.05$; $r = 0.20$; $p < 0.05$).

DISCUSSION

The findings of the present study indicate that farmer's food intakes are inadequate compare with the Recommended Dietary Allowance (RDA). The low intake of Calorie and Protein is close to the findings of Olayiwola and Ketiku (2006) in the same areas.

The observation on low Calories and Proteins seem to be a general trend in the food consumption pattern of elderly in Africa and even in Nigeria. Oguntona et al. (1998) also observed a low intake of protein of animal sources and low calorie intake by the elderly in the rural areas They recorded 797.6 cal/d for female and 1119 cal/d for male in rural Nigeria. Fur-

thermore at the international level, observation of lower calorie was recorded during the National Health and Nutrition Examination survey (NHANES II) and National Health Interview survey among the elderly African Americans in United States.

These surveys showed that older African Americans consistently consumed fewer calories, less total fat and fewer saturated fatty acids than the American whites of the same age group. The fat intake of these black American ranged from 29 to 33g /d (Wakimoto and Block, 2001). The fat intake of the farmers in this study shows a very wide variation although the average intake still falls within the range of fat intake of the elderly from other countries. Naturally one would expect that farmers should eat more in view of their profession, however in this study the elderly farmers did not consume anything higher than other elderly non farmers. The reason may be due to either economic state as most farmers want to sell farm produce for cash benefit rather than nutritional gains (NDHS, 2003). Vitamin A intake was observed to be lower than the recommended dietary allowance of elderly. The implication of low vitamin A is great for this age group more so that they are farmers who need a lot of antioxidants....

This, further shows the level of food security of rural farmers as majority are in the elderly group. By the definition of food security which exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. In this context it is clear that the farmers in this study are not secured. Farmers need to be focused nutritionally to meet their daily

requirements. At low levels of consumption, and where 40 percent skip meals in addition to poor fruits intake which are rich in micronutrients especially vitamin A may end up in poor nutritional status.

Deficiencies in various minerals and vitamins, such as iron, iodine, folic acid, and vitamins A and D, are widespread in poor areas, and the consequences of these deficits are especially serious for vulnerable the elderly inclusive. (World bank, 2002). The nutrition of the community should be seen as an ally of agriculture in an indirect way for the production of variety of the diet necessary to stimulate and boost micronutrient-rich foods especially vitamin A (World Bank, 2002).

The agriculture community should tap the nutrition community's ability to develop food safety standards that are sensible and met food security needs of the farmers. The result of body mass index in classifying the elderly into various categories of nutritional status is becoming acceptable (ACC/SCN, 1999). The Body Mass Index of the elderly farmers in this study revealed that more than half of the respondents were in normal nutritional status while under nutrition cut across the sexes. The observation of under nutrition was not a surprise since majority eat less energy than the RDA. Other workers have also reported the occurrence of under nutrition among elderly (Morley, 1997; Ismail, 1999).

Ismail (1999) in her study in Africa especially Rwanda reported 19.5% under nutrition in elderly and in Malawi 36%. Higher percentage of under nutrition was observed in Malawi than in this study,

which may be attributed to the condition of elderly included in the study who are living under serious hardship with poor access to food, water and clothing (ACC/SCN, 1999).

In this study, BMI has revealed the effect of non-nutritional factors on nutritional status of the farmers. Although there is a positive correlation on the BMI on energy and protein intake, however BMI also correlates with factors, such as age, education, and food habit of the elderly. This observation is supported by many workers in nutrition (Ronbenoff, 2000; Kehaya et al., 1997; Solomon, 2000, Harper, 1998). In their studies BMI was found to decrease with age, an indication of higher level of under nutrition in old age due to loss of appetite and poor environmental condition. The nutritional status measured in BMI relates positively with calorie intake. Despite the age of the respondents it is obvious that food intake has a direct effect on nutritional status as BMI correlates positively with Calorie and Protein intake.

The BMI relates positively to socio-economic condition and that social factors are necessary for individuals to be in good nutritional status (ACC/SCN, 1999; WHO, 1989). In this wise programmes and efforts to improve nutritional status of farmers must put into consideration such factor as income education and calorie and protein intake as observed in this study for farmer's efficiency and productivity to improve. It is important, therefore, to develop policies that support a more comprehensive research programmes in addressing the food security situation of the farmers. Although such policies should be devel-

oped at both national and international levels, the national level is more strategic since concerns and problems of resource poor farmers can be addressed most effectively and efficiently at the grassroots level. On the whole findings show that farmer's food intakes are poor thereby resulting in low Calorie, Protein and Vitamin A intakes.

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Table 1: Demographic Characteristics of the Elderly Farmers

Variables	F	Percentage
Sex		
Male	111	67
Female	54	33
Age groups	48	29
65-69	43	26
70-74	26	17
75-79	23	14
80+	24	14
Religion		
Christian	61	37
Muslim	91	55
Others	13	8
No of dependents		
No dependent	49	30
2 - 3	37	22
4-5	47	29
6+	31	19
Household size		
1-5	76	46.1
6-10	65	39.4
>10	21	13
Educational level		
No formal educ	95	57
Primary	32	19
Secondary	21	13
Tertiary	16	10
Ethnic group		
Egba	72	44
Ijebus	47	22
Yewa	46	22
Family structure		
Monogamy	59	36
Polygamy	106	64
Marital Status		
Married	120	73
Single	5	3
Windowed	40	24

Table 2: Type of Farming activities of the elderly

Type of Farming	f	Percentage
Crop farming	86	52
Poultry farming	44	27
Others such as Small ruminant	20	12
Vegetables	15	9

Table 3: Food pattern of the farmers

Food Pattern	f	Percentage
No of eating per day		
Once /day	1	1
Twice / day	30	18
Thrice /	110	67
More than 3x	10	6
Irregular	15	9
Skip meal		
Yes	69	42
No	95	58
Eat between meals		
Yes	53	32
No	111	67
Type of meal skipped		
Breakfast	11	6
Lunch	54	32
Supper	4	3
Daily fruit intake		
Yes	92	56
No	73	44
Alcohol intake		
Yes	35	21
No	130	79
Food Vendor Patronage	90	55

Table 4: Calorie and Nutrient Intake Of The Farmers Per Day

Variables	Male		Female	
	Minimum	Maximum	Minimum	Maximum
Calorie (kcal)	799	3690	501	3318
Protein (gram)	15	130	9.7	130.6
Fat (grams)	6	169	3.1	188
Vit A (RE)	24	2818	8.2	2818
Calcium (mg)	185	1230	28	1592.9
Iron (mg)	6	82	2	67

Table 5: Nutritional Status By Body Mass Index

BMI		Male		Female	
		n	%	n	%
<11- 15.95	Severe	10	6.1	4	2.4
16 – 17	Mild	15	9.1	5	3.0
17.1 18 .40	Moderate	20	12	16	9.7
18.5 – 24.95	Normal	57	34.5	16	9.7
25 -29.5	Overweight	7	4	10	6.1
30+	Obese	2	1	3	1.8
Total		111	67	54	33

Table 6: Pearson Product Moment Correlation of Nutritional Status and Socioeconomic Condition

Variables	r		
	M	F	T
Age/ BMI	- 0.26	-0.22	-0.3
Age/hour of rest	0. 37	0.31	0.3
Age/Education	-0.42	-0.40	-0.4
Educ/Income	0.74	0. 70	0.7
Educ/food habit	0.58	0.56	0.6
Educ/Protein intake	0.40	0.32	0.4
Educ/Iron intake	0.40	0.30	0.4
BMI/no of eating	0.37	0.31	0.3
BMI/Farming hours	-0.19	-0.16	-0.2
BMI/ Income	0.28	0.26	0.3
BMI/ Food habit	0.48	0.16	0.3
BMI/ education	0.70	0.26	0.5
Calorie/iron	0.80	0.22	0.5
Calorie/protein	0.96	0.36	0.7
Calorie/Vit. A	0.49	0.32	0.4
Calorie/ calcium	0.70	0.60	0.6

P value < 0.05