

An Investigation into the Feeding Practices and Food Types of the Elderly

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ABSTRACT The goal of this paper was to explore the feeding practices and food types of the elderly in Edo Central Nigeria in Edo Central Nigeria. It focused on the main meals; revealed the provision/payment and cooking/preparation of food/meals for the elderly; and the food types and number of intakes. among others. Five hundred and forty elderly persons were selected by systematic random sampling and a total of 514 subjects aged 65 years and above completed the face to face interview administered with a questionnaire. A low consumption of fresh fruits and vegetables (the main source of vitamin C) that put the majority of the elderly at risk of poor nutritional habit was observed; the poor nutritional habit of consuming less than three main meals a day was more among elderly males than females; elderly males than elderly females were identified with one of the factors associated with poor nutritional status namely, the inability to provide and cook own food; and as people grow older they become more at risk of poor nutritional habit. It is recommended that caregivers and relatives of old people should improve on the feeding of the elderly through nutritional education.

INTRODUCTION

The estimated number of old people in Nigeria, according to the National Population Commission (2010) was 4,536, 756 while a total of 36,612,808 people would eventually grow old, in the next 30 years, if they do not die young. Edo Central has a total of 33,499 elderly people, ages 65 years and above, according to the National Population Commission (2012) and is the area of study. It is the traditional abode of the Esan speaking people of Nigeria. Edo Central receives in migrants from the entire Edo State (one of the 36 states in the country) and beyond. The high influx of people has been on the account of the presence of Ambrose Alli University, Irrua Specialist Teaching Hospital (ISTH) and occupational activities in the urban and rural communities.

In Nigeria disability levels are increasing with age (Nigeria 2008) and the ageing population must not be left to fend for selves. In other words, old age should not be made to look like punishment by abandoning the elderly. Leaving the aged to care for itself exposes them to a cruel experience in old age. It is a special care for the elderly that ensures that they age gracefully. According to Oluwabamide and Eghafona (2012), the major challenge of most old people in contemporary African societies is how to get adequate food to eat. This is the reason that the

focus of this study is feeding practice and food types of the elderly.

The focus of nutrition in the elderly is to maintain a healthy and active life style. Eating a balanced diet is the best way for an elderly individual to maintain optimum levels of health. Therefore, a number of questions come to mind on the feeding practices and food types of the elderly: What proportion of the elderly takes the three main meals, a day? Who provides/pays for the regular feeding of the elderly? Who cooks/prepares, on regular basis, the meals for the elderly and what are the food types and feeding characteristics of the elderly? Accordingly, this paper is separated into a number of sections showing a clear depiction of the feeding practices and food types of the elderly in Edo Central Nigeria.

Objectives of the Paper

The objective of this paper was to provide some basic information we needed on the feeding practices and food types of the elderly. These included the number of the main meals of the elderly, per day; the provision/payment for their regular feeding; the cooking/preparation of food/meals for the elderly; and food types as well as number of intakes of the elderly. Understanding the feeding practices and food types

of the elderly is a major step towards helping this vulnerable segment of the population and lessen the burden of expensive as well as intensive medical care on institutions. Research efforts targeting the elderly would help enlighten the health planners, gerontologists, and social workers about poverty, ill health, poor nutrition and a lack of stimulation on seniors that undermine their aging gracefully. The absence of such information, on the other hand, will obscure the demand for support and assistance with the daily nutritional requirements for the elderly.

Theoretical Background

The theories adopted, in this study, were Maslow's Hierarchy of Needs (1943) and the Malthusian Theory (1798). Maslow (1943) identified the five specific needs in life that people seek to satisfy in his Hierarchy of Needs Theory. First, in that hierarchy of needs is the physiological need comprising air, food, drink, shelter, warmth, sex and sleep). Second is the safety need encompassing protection, security, order, law, limits and stability. The third in the hierarchy of needs is social also encompassing family, affection and relationships. Self-esteem needs comprising achievement, status, responsibility and reputation as well as self-actualization needs (personal growth and self - fulfillment) ranked fourth and fifth respectively. Maslow's hierarchy of needs theory is important in the explanation of the nutrition and care of the elderly because food takes the center stage in the physiological requirement.

The main principle in the hierarchy of needs theory is that it is when the first stage of needs (physiological requirement) is satisfied, that one aspires to get to the next hierarchy of needs. When elderly people take good food they remain healthy, look good, maintain a healthy and active life style. The elderly people require good food to be sustained and secured from the elements or the weather. With respect to the Malthusian Theory (1798), the relationship between population growth and means of subsistence was explained. According to Malthus (1798), population grows increased geometrically as against the increase in food that is arithmetical. When population is higher than the available food there would be hunger, diseases, vice and misery. Like the Maslow's hierarchy of needs theory, the Malthusian theory implies that food

was necessary for human existence. In relation to feeding, aging and care of the elderly, nutritional inadequacies would complicate not only their health but also the risk for major chronic diseases in older adulthood.

The Feeding Practices of the Elderly

Feeding practices refer to the frequency of taking meals per day. The frequencies range from one to three meals per day. The appropriate method refers to that of a balanced diet. A balanced diet is one that comprises the six essential nutrients in adequate amount as required by the body (Onyebueke and Souzey 2003; Ukpore 2006). The nutrients include protein, carbohydrates, fats and oil, minerals, vitamins and water which contain the various nourishing elements that are meant to preserve and promote good health (Anyakoha and Eluwa 1999; Odaman and Odaman 2013; Nutritionist Resource 2013).

As indicated by the Nutritionist Resource (2013), the basic components of a balanced diet for the elderly should be a combination of protein from meat, fish, eggs and pulses; five portions of fruits and vegetables per day; and carbohydrates from grain products. It should also comprise calcium producing milk and dairy products to reduce the risk of osteoporosis and keep the bone of the elderly healthy. According to the Nutritionist Resource (2013), the healthy older people should minimize, for instance, their consumption of fats, to improve heart health. On the other hand, the frail older persons with small appetite may find fats restriction not beneficial.

The study by Griep et al. (2000) explored the general health, degree of dependency, diminished odor perception and poor oral health on the risk for malnutrition. They observed that the health state of the elderly in retirement homes as determined by medical outcome study was most clinically relevant characteristic of malnutrition than odor health perception. Suzana et al. (2002) found that the rural elderly in Malaysia were at a greater risk of malnutrition. They observed that 38 percent and 12 percent of the elderly who participated in the study were underweight and overweight respectively. The determinants of the body mass index (BMI) were inability to cook, insufficient money to buy food, smoking, loss of appetite, dependence on others and perceived weight loss.

Lizaka et al. (2008) examined the factors associated with poor nutritional status specific to the healthy elderly in Japan. Of the 130 healthy elderly participants, 12.6 percent was at risk of malnutrition. They found that depression, lower self-efficacy, lower attitudes health scores and difficulty with meal preparation were associated with malnutrition. Han et al. (2009) identified the related factors and best predictors of elder nutrition in Wuham China. They found that 8 percent of the elders were malnourished and 36.4 percent were at risk of malnutrition. They also observed that the best predictors were the number of chronic conditions suffered, age, functional status and marital status. Thus, concluding that nutritional health remains a problem of older adult in China.

As noted by Oluwabamide and Eghafona (2012), the malnutrition among the aged in Africa has brought with it, risks of increased mortality and morbidity. Segal (2013) enumerated the benefits of eating a balanced diet for adults well over 50 years to include increased mental sharpness, resistance to illness and disease, high energy levels, faster recuperation times and better management. Finally, increasing consumption of fruit and vegetables by one to two servings daily could cut cardiovascular risk by 30 percent, according to the World Health Organization (2013). This is partly because the micronutrient deficiencies are often common in elderly people due to reduced food intake and lack of variety in their feeding. It is in the light of the foregoing that we have examined nutrition and care of the elderly in this paper.

METHODS OF STUDY

The multi stage sampling technique was employed for the study. Consequently, Edo Central was first, divided into the five Local Government Areas (LGAs) – Esan Central, Esan North East and Esan West. Secondly, the Local Government Areas (LGAs) were divided based on the number of wards (and there were fifty (50) wards in all of the five Local Government Areas (LGAs). Subsequently, 4 wards were selected randomly from each of the Local Government Areas. Next, each ward was divided based on streets and six streets were randomly selected, that is, from each ward. Thereafter, all the households in each of the selected streets with the elderly persons, ages 65+ years, and living in them were

identified. Participants were thus, selected from each street to give a sample of convenience. In all, a total of 540 respondents were selected.

The quantitative method of data collection was adopted. For the quantitative, the questionnaire was the tool of choice. The questionnaire was a 25 item one comprising two sections, 1 and 2. Section 1 sought for socio-economic and demographic information on age, sex, marital status, religion, residence, literacy and economic activities and number of dependents. Section 2 was made up of a semi structured and a few open ended questions to obtain information on nutrition care characteristics, elderly health issues, how needs were met and by whom, discrimination (if any), general level of satisfaction and suggestions for improvement. The questionnaire was administered by the researchers and three research assistants who were trained on questionnaire administration taking one ward at a time. Statistical analysis using percentages and frequencies were used for the description of quantitative data.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

The profile of the socio-economic and demographic characteristics of the respondents (elderly) is shown in Table 1. Age was categorized into 5-year age group from 65-69 years, 70-74 years, 75-79 years, 80-84 years, 85-89 years and 90+ years made up of 32.5 percent, 25.1 percent, and 19.5 percent, 11.3 percent, 6.6 percent and 5.1 percent respectively. With sex, the females (50.8 percent) outnumbered the males (49.2 percent) that were among the respondents. Regarding *marital status*, the bulk of the respondents was married (62.6 percent), 28.4 percent was widowed and the number that was never married, divorced and separated was very negligible (5.3 percent, 2.3 percent and 1.2 percent) respectively. On *religion*, 49.5 percent of the respondents were Catholics, 28.2 percent were Pentecostals, 13.8 percent were Protestants, and 2.5 percent were Moslems while 6.0 percent revealed that they were adherents of African traditional religion. As for educational qualification, the bulk of respondents (48.6 percent) had none formal education; 27.6 percent, 13.0 percent and 7.6 percent had primary, secondary and

post-secondary education respectively (Table 1).

Number of Main Meals of the Elderly

The number of main meals of the elderly per day and its variation with age and sex were first examined. Consequently, it was confirmed, that 82.1 percent of the respondents had 3 main meals while 15.9 percent of the elderly persons had less than 3 main meals per day (Table 2). With age, 88.5 percent, 77.5 percent and 77.6 percent of elderly persons aged 65-74, 75-84 and 85+ years respectively had 3 main meals per day. In other words, 11.5 percent, 22.5 percent and 22.4 percent of the elderly aged 65-74, 75-84, and 85+ years respectively, were at risk of poor nutritional habit because they had less than three main meals daily. This finding has also tended to support the observation of Han et al. (2009) that age is among the best predictors of nutritional status of community-dwelling older adults.

With sex, it is observed that more females (89.2 percent) than males (77.2 percent) had three main meals daily (Table 3). Fewer elderly females

(10.8 percent) than elderly males (23.9 percent) had less than three main meals per day. This is indicative of gender imbalance in favor of the females. It is also an implication for these findings that the caregivers, relatives and old people, themselves, should improve on the feeding practices of seniors in that regard.

Regular Provision/Payment for the Feeding of the Elderly

What was examined next was the regular provision/payment for the feeding of the elderly. Consequently, it was revealed that, on regular basis, 45.7 percent of the elderly paid/provided for own feeding; children and spouses paid/provided food for 32.2 percent and 16.6 percent of the elderly respectively; and the proportion of the elderly who responded that others (friends, neighbors and related individuals) paid/provided for their regular food intake was 5.5 percent (Table 4).

With sex, it is observed that more elderly males (54.9 percent) than elderly females (36.7 percent) paid/provided for own feeding, on reg-

Table 1: Socio-economic and demographic characteristics of the respondents

Characteristics	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
<i>Age Groups (Years)</i>						
65-69	67	26.5	100	38.3	167	32.5
70-74	73	28.9	56	21.5	129	25.1
75-79	52	20.6	48	18.4	100	19.5
80-84	26	10.3	32	12.3	58	11.3
85-89	26	10.3	8	3.1	34	6.6
90+	9	3.6		6.5	26	5.1
<i>Marital Status</i>						
Married	196	77.5	126	48.5	322	62.6
Never married	11	4.3	16	6.2	27	5.3
Widowed	34	13.4	112	43.1	146	28.8
Divorced	9	3.6	3	1.2	12	2.2
Separated	3	1.2	3	1.2	6	1.2
<i>Education</i>						
None	103	40.7	147	56.3	250	48.6
Primary	65	25.7	77	29.5	142	27.6
Secondary	55	21.7	12	4.6	67	13.0
Post- Secondary	30	11.9	25	9.6	55	10.7
<i>Religion</i>						
Catholic	121	47.8	133	51.0	254	49.5
Protestant	42	16.6	29	11.1	71	13.8
Pentecostal	61	24.1	84	32.2	145	28.2
Moslem	6	2.4	7	2.7	13	2.5
African Traditional Religion	23	9.1	8	3.1	31	6.0

Source: Field Survey, Feb.-March, 2013

Table 2: Age and number of main meals per day of the elderly

Number of meals	Age (Years)						Total	
	Young old (65 – 74)		Middle old (75 – 84)		Oldest (85 +)			
	N	%	N	%	N	%	N	%
One	13	4.4	19	12.2	3	5.2	35	6.8
Two	21	7.1	16	10.3	10	17.2	47	9.1
Three	261	88.5	121	77.5	45	77.6	422	82.1
Total	295	100	156	100	58	100	514	100

Source: Field Survey, Feb.-March, 2013

Table 3: Sex and number of main meals per day of the elderly

Number of full meals	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
One	26	11.5	12	4.6	35	6.8
Two	31	12.4	16	16.2	47	9.1
Three	193	77.2	232	89.2	422	82.1
Total	250	100	260	100	517	100

Source: Field Survey, Feb.-March, 2013

Table 4: Sex and regular provision/payment for the feeding of the elderly

Who provides/pays for your feeding regularly?	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
Self	139	54.9	95	36.7	234	45.7
Spouse	19	7.5	66	25.5	85	16.6
Children	7	30.4	88	34.0	165	32.2
‘Others’	18	7.1	10	3.9	28	5.5
Total	253	100	259	100	512	100

Source: Field Survey, Feb.-March, 2013

ular basis. Precisely 25.5 percent of the elderly females and 7.5 percent of the elderly males were dependent on their husbands and wives, respectively for payment/provision for their regular food intake. More elderly females (34.0 percent) than elderly males (30.4 percent) were also dependent on their children for payment/provision for their feeding, on regular basis. With increase in age, there was a marked reduction in the number of elderly persons that were paying/providing for own feeding, for instance, from 48.0 percent to 47.5 percent and 30.0 percent at ages 65-74, 75-84 and 85+ years respectively. The proportion of elderly persons dependent on their spouses for payment/provision for feeding for feeding declined from 23.1 percent to 8.2 percent and 6.7 percent at ages 65,69 years, 70-74

years and 85+ years respectively. Conversely, the proportion of the elderly dependent on their children for payment/provision for their feeding increased from 23.8 percent to 38.0 percent and 58.3 percent at ages 65-74 years, 75-84 years and 85+ years respectively (Table 5). The implication of these findings is that the elderly requires institutional support as they grow older. It also requires the provision of employment opportunities to citizens to enable them take care of their parents at old age.

The Regular Cooking/Preparation of Food/Meals for the Elderly

The study was interested to know who cooked/prepared food/meals for the elderly, on

Table 5: Age and regular provision/payment for the feeding of the elderly

Who provides/pays for your feeding regularly?	Age (years)						Total	
	65-74		75-84		85+			
	N	%	N	%	N	%	N	%
Self	141	48.0	75	47.5	18	30.02	34	45.7
Spouse	68	23.1	13	8.2	4	6.7	85	16.6
Children	70	23.8	60	38.0	35	58.3	165	32.2
'Others'	15	5.1	10	6.2	3	5.0	28	5.5
Total	294	100	158	100	60	100	512	100

Source: Field Survey, Feb.-March, 2013

a regular basis. This was important because Lizaka et al. (2008) had observed that difficulty with meal preparation was one of the factors associated with poor nutritional status (specific to the healthy elderly). Consequently, it was revealed (see data in that on regular basis, 32.0 percent of the elderly cooked/prepared own food; children and spouses cooked/prepared food for 33.2 percent and 28.9 percent of the elderly respectively; and the proportion of the elderly who responded that others (friends, neighbors and related individuals) paid/provided for their regular food intake was 5.9 percent. The bulk of elderly females (51.0 percent) than elderly males (12.6 percent) cooked/prepared own food. This is informative because a significant proportion of the elderly particularly females would be at risk of poor nutritional habit against the backdrop of the assertion by the Nutritionist Resource (2013) that cooking for self can be de-motivating for many elderly adults as well as result in food wastage.

Slightly more elderly males (34.4 percent) than elderly females (32.0 percent) were dependent on their children to cook/prepare food for them to eat, on regular basis. Precisely 47.4 percent of the elderly males and 10.8 percent of the elderly females were dependent on their spouses to cook/prepare food to eat. The observation

that only 12.6 percent and over 47 percent of elderly males cooked/prepared own meals and depended on their spouse(s) to cook/prepare food to eat respectively was not unexpected. This was because of the cultural practice, prevalent among the Edo people of Nigeria, for women rather than elderly males to cook/prepare food for the family. The findings are also significant because the inability to cook is one of the determinants of the body mass index (BMI), for instance, among rural elderly Malays as noted by Suzan et al. (2002).

With increase in age, there was a marked reduction in the number of elderly persons that regularly cooked/prepared food to eat, for instance, from 38.8% to 29.8 percent and just 5.0 percent at ages 65-74, 75-84 and 85+ years respectively (Table 6). The proportion of elderly persons dependent on their spouse(s) to cook/prepare food for them to eat declined from 31.6 percent to 26.0 percent and 23.3 percent at ages 65-74, 75-84 and 85+ years respectively.

Food Types of the Elderly

Food types and feeding practices of the elderly was examined. The food types were enumerated, thus: Meat/other sources of protein,

Table 6: Sex and regular cooking/preparation of food/meals for the elderly

Who cooks/prepares your meals regularly?	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
Self	32	12.6	132	51.0	164	32.0
Spouse	120	47.4	28	10.8	148	28.9
Children	87	34.4	83	32.0	170	33.2
'Others'	14	5.5	16	6.2	30	5.9
Total	253	100	259	100	512	100

Source: Field Survey, Feb.-March, 2013

fruits/vegetables, fruits/vegetables, milk products, grain products, roots and tubers and fats-sweets and non-alcoholic. These food types comprised six nutrients that included protein, carbohydrates, fats and oil, minerals, vitamins and water.

The responses they gave tended to suggest that all food types were consumed by the elderly. However, the number of times per week varied with the food types. For instance, precisely 66.0 percent, 60.9 percent, 47.1 percent, 18.5 percent and 7.8 percent of the elderly persons responded that they consumed meat/other sources of protein, roots/tubers, milk products, roots/tubers and fruits/vegetables respectively, 4+ times per week (Table 7). Yet, the consumption of meat, some vegetables and dried fruits by the elderly can restore iron in the blood to prevent receiving less oxygen leading to tiredness and lethargy. As observed by WHO (2013), it is the low consumption of fresh fruits and vegetables (which are the main source of vitamin C) that put the majority of the elderly at risk of poor nutritional habit. As indicated by Segal (2013) the balanced diet for seniors increases mental sharpness, resistance to illness and disease, high energy levels, faster recuperation times and better management. Thus, agreeing with Han et al. (2009) observation among older adults in china that nutritional health remains a problem.

CONCLUSION

This study has attempted to examine the feeding practices and food types of the elderly in Edo Central Nigeria. It was observed that the number of people unable to afford the three main meals per day increased with age up to 85 years. It was also observed that the proportions of elderly persons that, on regular basis, paid/provid-

ed and cooked/prepared own meals decreased gradually as people grow older. The bulk of elderly females (51.0 percent) than elderly males (12.6 percent) cooked/prepared own food. Consequently, it is tempting to conclude that elderly males than elderly females are identified with one of the factors associated with poor nutritional status namely, the inability to provide and cook own food.

The foregoing are indications that as people grow older they become more at risk of poor nutritional habit. As it relates to gender, the poor nutritional habit of consuming less than three main meals a day was more among elderly males than females. Apart from the wide spread poverty, this is indicative of abandonment of the aged and is unjust. This could also be associated with the fact that majority of the care givers may not have had adequate knowledge of nutrition. Good feeding can minimize the pains and ill-health associated with aging

On the number of times, per week, the food types were consumed, the results generally showed very poor levels of nutrition among the elderly. For instance, 34 percent, 38.1 percent, 52.9 percent, 81.5 percent and 92.2 percent of the elderly had less than 4 servings of meat/other sources of protein, roots/tubers, milk products, grain products and fruits/vegetables respectively. These have far reaching implications given that vitamin C the elderly needs to heal wounds and repair bones as well as teeth comes from fruits and vegetables. The zinc that the elderly requires in the body to maintain a healthy immune system comes from eating meat, shell fish and some grain products.

RECOMMENDATIONS

The elderly requires institutional support as they grow older. It also requires the provision of

Table 7: Age and regular cooking/preparation of food/meals for the elderly

Who cooks your meals regularly?	Age (years)						Total	
	65-74		75-84		85+			
	N	%	N	%	N	%	N	%
Self	114	38.8	47	29.8	5	5.0	164	32.0
Spouse	93	31.6	41	26.0	14	23.3	148	28.9
Children	71	24.2	72	45.6	41	68.3	170	33.2
'Others'	16	5.4	12	7.6	2	3.4	30	5.9
Total	294	100	158	100	60	100	512	100

Source: Field Survey, Feb.-March, 2013

employment opportunities to citizens to enable them take care of their parents at old age. Caregivers and relatives of old people should improve on the feeding of the elderly through nutritional education. Adequate amount of meat/other sources of protein and fibre (fresh fruits, vegetables and grain products) should be included in the diets of older adults to help ensure their digestive system is healthy and in working order. The ageing population must not be left to fend for themselves and old age should not be made to look like punishment by abandoning the elderly. Besides, leaving the aged to care for them exposes them to a cruel experience in old age. It is a special care for the elderly that ensures that they age gracefully. Finally, the society stands to benefit from the good feeding of the elderly because it would spare enough resources for investment, being the very population that tends to receive expensive and intensive medical care.

REFERENCES

- Anyakoha EU, Eluwa MA 1999. *Home Management for Schools and Colleges*. Onitsha: Africana –FEP Publishers.
- Griep M I, Mets T F, Collys K 2000. Risk of malnutrition in retirement homes elderly persons measured by the mini-nutritional assessment. *J Gerontol A Boil Sci Med Sci*, 55(2): M 57-63
- Han Y, Li S, Zheng Y 2009. Predictors of nutritional status among community-dwelling older adults in Wuhan, China. *Public Health Nutr*, 12(8): 1189-1196.
- Lizaka S, Tadaka E, Sanada H 2008. Comprehensive assessment of nutritional status and associated factors in the healthy community-dwelling elderly. *Gerontol Int*, 8(1): 24-31.
- Malthus RT 1798. From <http://www.thefreedictionary.com/Malthusian+theory>. (Retrieved on 29 September 2013).
- Maslow AH 1943. A theory of human motivation. *Psychological Review*, 50: 370-390.
- National Population Commission (2010). 2006 *Population and Housing Census*. Abuja. National Population Commission.
- National Population Commission. Monitoring of CRVS operations in Nigeria (successful 2012). From <en.wikipedia.org/wiki/Civil_Registry> (Retrieved on 29 September 2013).
- Nigeria 2008. *Nigeria Demographic and Health Surveys*. Abuja: National Population Commission.
- Nutritionist Resource 2013. Adults and Elderly Adults. From <<http://www.nutritionist-resource.org.uk/articles/adults-elderly.html>> (Retrieved on 9 September 2013).
- Odaman K I, Odaman O M 2013. Mothers' socio-economic background and feeding practices of secondary schools students in Edo Central, Nigeria. *Studies in Home and Community Science*, 7(2): 71-81.
- Onyebueke D, Souzey JA 2003. *Nutrition for the Tropics: Introduction to Food and Nutrition*. Delta State: Soliq Limited.
- Oluwabamide A J, Eghafona K A 2012. Addressing the challenges of ageing in Africa. *Anthropologist*, 14(1): 61-66.
- Segal J 2013. Nutrition for the Elderly. Senior Nutrition and Healthy Eating Tips as You Age. From <<http://m.helpguide.org/articles/healthy-eating/senior-nutrition->> (Retrieved on 30 November 2013).
- World Health Organization 2013. Nutrition for Older Persons. From <<http://www.who.int/nutritiontopics/aging/en/index1.html> on 30/10/2013.> (Retrieved on 3 November 2012).
- Suzana S, Earland J, Suriah AR, Warness AM 2002. Social and health factors influencing nutritional status among rural elderly Malays. *J Nutr Health Aging*, 6(6): 363-369.
- Ukpore BA 2006. *Fundamentals of Consumer Education*. 3rd Edition. Ibadan: Spectrum Books Ltd.