Nutritional Status and Functional Capacity of Elderly in Selected Communities in Ibadan, Oyo State

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ABSTRACT
Background: *Elderly are vulnerable to malnutrition due to some age related factors. Continuous evaluation of these factors will help in reducing this risk.*
Objective: *The study assessed the nutritional status and functional capacity of elderly in selected communities in Ibadan, Oyo state*
Method: *A cross-sectional study involving 450 elderly selected using multistage sampling techniques from four local government areas in Ibadan. Socio-demographic characteristic of the respondents was obtained using a semi-structured and interviewer administered questionnaire. Data on dietary intake was obtained using 24 hours dietary recall. Weight (kg) and height (m) measurement was done and Body Mass Index {BMI (kg/m^2)} was calculated. Functional capacity was assessed using Bristol activity of daily living and Lawton and Brody instrumental activities of daily living scale. Data were analyzed using SPSS. version 20.0*
Results: *More than half (56%) of the respondents were female, 62% had no formal education, 27% were petty trader and estimated monthly income of majority (36.4%) of the respondents was ₦1,000-₦5,000. 66.7% had normal BMI, 17.1% were underweight while 8.2% of the respondents were overweight. Intake of Energy and nutrients like Protein, Fibre, vitamin C and Calcium were below the Recommended Dietary Allowance (RDA) while Carbohydrate intake was above the RDA. 91.0% and 71.0% were functional independent in basic activities of daily living and instrumental activities of daily living respectively. Significant (p< 0.05) association was observed between the level of functional impairment and BMI of the respondents.*
Conclusion: *Functional capacity is a factor that is independently associated with nutritional status of elderly.*

Keywords: Nutritional status, Activities of daily living, Instrumental activities of daily living, Functional capacity.

INTRODUCTION

Chronological age remains the most acceptable method of defining aged or elderly but this approach has been disputed in some developing country because many people in these countries had been found to be functionally "old" in their forties and fifties (1) nevertheless, World Health Organization (WHO) has define elderly as a persons above 60 years of age. In Nigeria, chronological age of 60 years and above is also used in classifying older adults and it is considered as retirement age. Ageing is characterized by unique conditions which result from physiological and psychosocial changes; occurrence of some diseases, as well as changes in dietary intake which influence the elderly nutritional status (2). Old age is also associated with occurrence of some chronic diseases, cognitive impairment and changes in some

personal factors, such as functional capacity which are imperative in maintain good health status of the elderly (3).

Functional capacity can be explained as the capability of performing usual daily activities essential to meet basic requirements, achieve habitual responsibility and maintain health and well-being (4). These activities are classified into Basic (BADL) and Instrumental Activities of Daily Living (IADLs) (5). Basic activities of daily living (BADL) entail all the activities that are performed daily, regularly and generally, such as dressing, bathing, and eating. In contrast, instrumental activities of daily living (IADL) are the activities that require organization and planning. This activity includes tasks like shopping, using transportation, meals preparation, handling finances, housekeeping, and telephone usage. Among elderly, increase in age and its associated health challenges can affect their functional capacity, make them more dependent in performing BADL and IADL, less safe and have a detrimental effect on their nutritional status.

Nutritional need throughout life is not statics and changes associated with nutritional requirement of the elderly may be related to many factors like; normal aging processes, medical conditions, psychological and physical factors, or lifestyles and functional incapability (6). Among the elderly, various personal and environmental factors can affect the nutritional status. Also multifaceted interaction of personal and environmental factors of this group of people has been found to have a significant effect on their nutritional status and overall well-being (6).

In old age, adequate nutrient intake is very essential for achieving and maintaining sound health, fight and recover from diseases and infections as well as leading a healthy life but this may be difficult to achieve among the elderly, especially those that enjoy no or little care (7). Similarly, difficulties in performing various BADL and IADL may make an elderly to be prone to malnutrition and this will in turn affect the health and quality of life of not only the elderly but also of the relatives and healthcare providers (8). Thus, the study evaluates the nutritional status and functional capacity of elderly in Ibadan and their associations which can be used to canvass for nutritional surveillance and appropriate nutritional interventional program among the elderly.

METHODOLOGY

Research Design
The study was a descriptive and cross-sectional in design.

Study Area
The present study was carried out in four randomly selected Local Government areas in Ibadan, Oyo state; Oluyole, Ona- ara, Ibadan south east and Ibadan north east local government area.

Inclusion Criteria
The target population for the study was non-institutionalized elderly men and women living in the selected communities of Ibadan the capital city of Oyo state.

Sampling Procedure and Sample Size
A multistage sampling technique was used in selecting the sample. Ibadan city has a total number of eleven (11) local government areas (LGA) out of which four LGA (Ibadan North, Ibadan North East, Oluyole LGA and Ona - Ara LGA) were randomly selected. From each of the selected LGA, two wards were randomly selected and four communities were also selected randomly from each ward. In the selected communities, households with at least one elderly male or female (60 + years) was numbered and the Participants were systematically selected from pre listed households. Simple balloting was used in the household with more than one elderly to select one respondent.

The sample size was calculated using the formula (9)

$$n = \frac{N}{1 + N(e)^2}$$

n = sample size,
N = total population size,
e = level of precision

Ibadan was reported to have the total population of 2,376,139 (10) and elderly was reported to take 2.7% of the whole population, which is; 64, 156
N = 64,156,
e, is the desired level of precision at 5%

$$\mathbf{n} = \frac{64156}{1 + 64156(0.05)^2} = \mathbf{400}$$

Another 10% was added to the value of n obtained to make up for non-responses (11), yielding a value of 440. Which was rounded up to **450.**

Data collection

Data collection was done with the aid of semi-structure questionnaire with the following section;

a) Socio-demographic and economic characteristic,
b) Anthropometry measurement,
c) 24 hours dietary recall,
d) Functional capacity,

Socio-demographic and economic characteristic

Bio-data and socio-economic information of the respondent like age, sex, ethnic group, religion, family structure, occupation, educational level, and estimated monthly income was obtained with a semi structure questionnaire.

Anthropometry Measurement

The weight was measured while standing with only light clothing on and both arms by the side. Prior to the commencement of each measurement, the indicator of the weighing machine was set to zero after which the weight measurement was done and recorded to the nearest kilogram.

The weight of the few bedridden elderly was estimated using Onishi *et al.,* (12) weight estimation formula:

Men = 0.660× waist circumferences (cm)
+0.702× calf circumference (cm)
+ 0.096× age- 26.917

Women = 0.315 × waist circumferences (cm)
+ 0.684 × arm circumference (cm)
+ 0.183 × height (cm) – 28.788

The height of the subjects was measured using a locally made but standardized height meter. Measurement of arm spam was taken for the few elders who are unable to stand erect.

The body mass index (BMI) of the respondents was calculated by dividing the weight of the

respondents in kilogram by the square of their height measured in meters (m). Values obtained was recorded in kilogram per meter square (kg/m^2) and compared with WHO reference standards (13).

Functional capacity

In evaluating the functional ability of the selected elderly, two main types of activities was measured using a standardized functional Assessment scales questionnaire: Basic activities of daily living (BADL) scale and Instrumental activities of daily living scale (IADLs).

Basic activity of daily living scale was used to assess the ability of the respondents in performing day-to-day, routine and common activities like; dressing, bathing as well as eating and it was assessed by adapting Bristol Activities of Daily Living Scale (14). In contrast, instrumental activities of daily living scale (IADLs) was used to evaluate the ability of the respondents in performing more organized and planed activities like shopping, using transportation, meals preparation, handling finances, housekeeping and telephone usage. This was assessed by adapting Lawton and Brody instrumental activities of daily living scale. (15).

Scoring of instrument:

For better interpretation and analysis, scoring of the instrument for assessing functional capacity was done by adapting Johnson *et al.,*(16) functional impairment formula.

The scale (ADL and IADLs) comprises of five sections that addressed different areas or forms of activity. Each of the section has three to six items which was rated on 4-point scale; 0 (no problem) to 3 (no longer capable of performing the activity) and level of functional impairment in both BADL and IADL was computed using Johnson *et al.,* (16) formula.

Funtional impairment

$$= \frac{sum\ of\ all\ rating}{3 \times total\ number\ of\ rated\ item} \times 100$$

The final score represent the level of severity of impairment in BADL and IADL and categorised into; none to mildly impairment (0–33), moderate impairment (34–66%), or severe impairment (>66%) in BADL and IADL. The functional status of the respondents was classified into two major categories; functional independent and functional dependent. Respondents with moderate and sever functional impairment was classified as functional dependent while those with no functional impairment (normal) was classified as functional independent.

DATA ANALYSIS

The data from the study was subjected to both descriptive and inferential statistics. Descriptive statistics such as percentage, frequency, graph, mean and standard deviation was used. Chi-square test was used to test for the statistical significant association between the nutritional status and functional capacity of the respondent using statistical package for social sciences version 20.0. Food intake data obtained with the aid of 24 hour dietary recall questionnaire was analysed using adapted total diet assessment software.

RESULTS

Table 1 displays the socio-demographic and economic characteristics of the respondents. More than half of the respondents (56%) were females, 47% were between the age brackets of 60-64years, almost all thee respondents (97.8%) were Yoruba and more than half of the respondents practices Islamic religion. Also, more than half (54.9%) of the total respondents were either from a polygamous family or a polygamist, 62.2% were illiterate, 36.4% earn ₦1000 - ₦5000 monthly and 27% of the respondents were petty trader.

No significant different (p > 0.05) was observed in the weight of both male and female respondent but male (59.4±10.15kg) respondents were found to be heavier than their female (57.3±14.4kg) counterpart. Conversely, significant different (P< 0.05) was observed between the height and Body mass Index (BMI) of booth male and female respondents. Male (1.72 ±0.59m) respondent had the higher mean height value compare with their female (1.57±0.08m) counterpart. Also, the BMI of the female (23.29±5.93kg/m^2)respondent was significantly higher (p< 0.05) than that of the male (21.48±3.95kg/m^2) respondents as presented on

table 2.

Table 3 presents the Body Mass Index distributions/classifications of the respondents. Majority of the respondents (66.7%) were normal that is has the body mass index that falls between 18- 24.99 kgm^2, 8.2% were overweight, 8.0 % were obese and 17.1% of the respondent were underweight.

Table 4 shows the mean energy and nutrient intake of female and male respondents. The mean energy intake of both male and female respondents (1503.59±383.08 kcal, 1156.40±413.60 kcal) was less than RDA by 26.8% and 38.3% respectively. Also, mean protein intake was 84.8% and 93.6% of the RDA among female and male elderly respectively. Carbohydrate intake of both female and male respondents was found to be 159.41% and 198.60% of RDA respectively and the mean vitamin A intake among male (1109) and female respondent (751.76) was above the RDA by 23.2% and 7.4% respectively. Intake of water soluble vitamins like; vitamin C and vitamin B complex (B1, B2, B2, B9 and B12), sodium, phosphorus, potassium, magnesium and calcium were below the RDA among both male and female respondents.

Figure 1 displays the percentage distribution of functional capacity of the respondents on overall component of Basic Activities of Daily Living scale (BADL) and Instrumental Activities of Daily Living Scale (IADL). Nearly all the respondents (91%) were functionally Independent, that is has no functional impairment while 7% and 2% were moderately and severely dependent in performing BADL respectively. Also, majority of the respondents (71%) were functionally independent in performing instrumental activities of daily living while 19% and 10% of the respondents were moderately and severely dependent in performing IADL.

Moreover, the functional ability of the respondents was classified in to two major categories; functional independent and functional dependent. Respondents with moderate and sever functional impairment was classified as functional dependent while those with no functional impairment (normal) was classified as functional independent. As presented on table 5 almost all the respondents were functionally independent in BADL like; eating (91.2%), drinking (92.4%), bathing

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

Variable	Frequency (f)	Percentage (%)
Sex		
Male	198	44.0
Female	252	56.0
Total	450	100.0
Age- Range		
60-64	215	47.8
65-69	90	20.4
70-74	59	13.1
75-79	51	11.3
80-84	18	4.0
≥ 85	15	3.0
Total	450	100
Ethnic group		
Yoruba	440	97.8
Igbo	4	0.9
Hausa	2	0.4
Ijaw	2	0.4
Ibolo	2	0.4
Total	450	100.0
Religion		
Christianity	152	33.8
Islamic	294	65.3
Traditional	4	0.9
Family structure		
Monogamy	203	45.1
Polygamy	247	54.9
Educational level		
No foormal education	280	62.2
Primary education	101	22.4
Secondary education	45	10
NCE/ND	13	2.9
HND/B.Sc.	11	2.4
Estimated monthly income		
₦1,000 - ₦5,999	164	36.4
₦6,000 - ₦10,999	122	27.1
₦11,000 - ₦15,999	109	24.2
₦16,000 – ₦20,000	17	3.8
₦20,000 and above	38	8.4
Present occupation		
Retired	40	8.9
Self employed	103	22.9
Farming	65	14.4
Civil servant	11	2.4
Petty trading	125	27.8
Employee of private organization	6	1.3
Can no longer work for money	100	22.2

Table 2: Mean Anthropometric measurement of the respondent based on sex

Sex	Weight (kg) (Mean ± SD)	Height (m) (Mean ± SD)	BMI (kg/m^2) (Mean ± SD)
Male	59.4±10.15	1.72 ±0.59	21.48±3.95
Female	57.3±14.4	1.57±0.08	23.29±5.93
Total	58.3± 12.76	1.69± 0.40	22.50±5.23
f	3.04	17.03	13.69
p-value	0.08	0.00*	0.00*

Table 3: Percentage and frequency distribution of Body Mass Index of the respondent

	Male	Female	Total
	f (%)	f (%)	
Underweight	41(9.1)	36(8.0)	77(17.1)
Normal	135(30.0)	165(36.7)	300(66.7)
Overweight	14(3.1)	23(5.1)	37(8.2)
Obese	8(1.8)	28(6.2)	36(8.0)
Total	198(44.0)	252(56.0)	450(100)

Table 4: Mean energy and nutrient intake of the female and male respondents

Female			Nutrient	Male		
MEAN ±SD	[b]RDA	%RDA		MEAN ±SD	[b]RDA	%RDA
1156.40±413.60	1873.00	61.70	Energy (Kcal)	1503.59±383.08	2054.00	73.20
39.03±16.68	46.00	84.80	Protein(g)	52.40±7.63	56.00	93.60
207.34±88.66	130.00	159.50	Carbohydrate(g)	258.18±52.63	130.00	198.50
8.97±3.54	21.00	42.70	Fibre (g)	14.60±2.70	30.00	48.60
0.66±0.31	1.10	60.00	Polyunsaturated fat(g)	1.19±0.38	1.60	74.30
751.76±171.66	700.00	107.40	Vitamin A-RE (RE)	1109.69±144.05	900.00	123.20
43.09±12.81	75.00	57.50	Vitamin C (mg)	48.31±6.86	90.00	53.60
0.71±0.26	1.10	64.60	Vitamin B1(mg)	1.11±0.37	2.10	43.80
0.61±0.19	1.10	55.50	Vitamin B2(mg)	0.86±0.09	1.30	66.20
6.17±2.67	14.00	44.10	Vitamin B3(mg)	7.79±1.94	16.00	48.70
0.64±0.26	1.50	42.70	Vitamin B6(mg)	0.77±0.16	1.70	45.30
142.37±56.31	400.00	35.60	Folic acid (µg)	175.31±47.39	400.00	43.80
1.08±0.75	2.40	45.00	Vitamin B12(µg)	1.83±0.34	2.40	76.30
106.07±77.61	1,200.00	8.80	Calcium (mg)	270.79±7.60	1200.00	22.50
328.97±125.69	700.00	46.90	Phosphorus (mg)	290.80±54.64	700.00	41.50
709.43±239.70	1,200.00	59.10	Sodium (mg)	810.11±155.98	1200.00	67.50
633.60±149.24	1,400.00	45.30	Potassium (mg)	719.45±151.24	4700.00	15.30
7.25±1.58	8.00	90.60	Zinc (mg)	10.49±3.04	11.00	95.40
4.39±1.82	8.00	54.90	Iron(mg)	7.77±0.81	8.00	97.10
107.72±32.59	320.00	33.70	Magnesium (mg)	143.78±46.94	420.00	34.20

b; *National Policy and Resource Center on Nutrition and Aging, Florida International University, 2004*
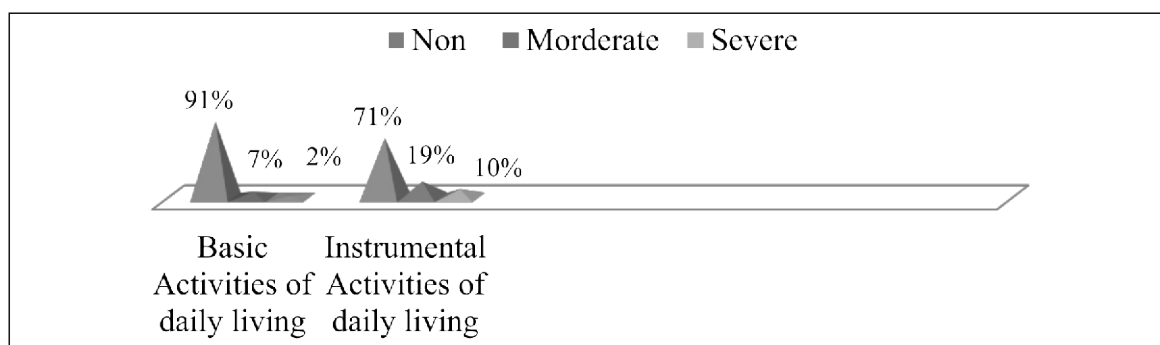
Figure 1: Percentage distribution of functional impairment among the respondents

(90.0%) and dressing (87.8%) while others were functionally dependents in eating (8.4%), drinking (7.6%), batting (10.0%) and functional dependent was most prevalent (12.2%) in the aspect of dressing, with the higher percentage among female (6.9%) than male (5.3%).

Similarly, more than half of the respondent were functionally independent in performing IADL) like; Food preparation (66.9%), drink preparation (69.8%), house-keeping (65.1%), laundry (63.6%), food shopping (67.6%), handling cash (78.7%), mobility around the neighbourhood (66.7%), telephone usage (60.7%). Conversely, less than half of the respondents were functionally dependents in Food preparation (33.1%), drink preparation (30.0%), house-keeping (34.9%), laundry (36.4%), food shopping (32.4%), handling cash (22.0%), mobility around the neighbourhood (33.3%), telephone usage (39.3%). Overall functional dependent was most prevalent in telephone usage (39.3%) as presented on table 5.

Table 6 present the association between the level of functional status in basic and instrumental activities of daily living and other variable (socio-demographic and BMI). Significant association (p< 0.05) was observed between the level of functional capacity in BADL and age, present occupation as well as the BMI of the respondent

Table 5:Frequency and percentage distribution of functional status of the respondents in basic and instrumental activities of daily living

Functional activities	Functional status	
	Functional independent	Functionally dependent
Basic activities of daily living (BADL)		
Eating	411(91.3)	39(8.4)
Drinking	416(92.4)	34(7.6)
Dressing	395(87.8)	55(12.2)
Bathing	405(90.0)	45(10.0)
Instrumental activities of daily living (IADL)		
Food preparation	301(66.9)	194(33.1)
Drink preparation	314(69.8)	136(30.2)
House keeping	293(65.1)	157(34.9)
Laundry	286(63.6)	164(36.4)
Food shopping	304(67.6)	146(32.4)
Handling cash	351(7.80)	99(22.0)
Mobility around the neighbourhood	300(66.7)	150(33.3)
Using Telephone	273(60.7)	177(39.3)
Figures in parenthesis denote percentages.		

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Table 6:Association between the level of   functional impairment in basic activities and instrumental activities of daily living and other variables

Variables	BADL			IADL		
	χ^2	df	p-value	χ^2	df	p-value
Gender	0.12	2	0.94	2.52	2	0.28
Age	89.84	10	0.00*	154.03	10	0.00*
Family structure	3.92	2	0.14	4.49	2	0.11
Educational level	12.82	8	0.12	37.36	8	0.00*
Estimated monthly income	18.75	8	0.16	14.93	10	0.16
Present occupation	52.91	14	0.00*	96.43	14	0.00*
Nutritional status (BMI)	45.91		0.00*	61.81		0.00*

Statistically significant ($p \leq 0.05$).

while socio-demographic characteristics like sex, family structure, educational level   and estimated monthly income of the respondents was not significantly associated with the level of functional impairment in the BADL. Similarly, significant association (P< 0.05) was observed between the level of functional impairment in IADL and age, educational level, present occupation as well as the BMI of the respondents while gender, family structure and estimated monthly income.

Discussion
Several factors have been identified to be associated with the nutritional status of the elderly in low income countries. Of these, functional capacity is one of the explanatory variables (17, 18,19). The present study assessed the socio-demographic and economic characteristics, nutritional status as well as the functional capacity of the elderly in selected communities in Ibadan.
Socio-demographic and economic characteristics aspects of the population such as age, gender, present occupation, estimated monthly income etc. are part of the important factor that can be used in explaining differences in nutritional status (20). Chronological age is an important factor in evaluating the nutrient intake and the elderly nutritional status. In the present study, almost half of the respondents were less than 65 years i.e. falls between 60-64 years, less than one fifth were between 65-69 years, while others were 70 years and above. Age distribution of the respondents in the present study is in line with the findings of (20) in a similar study conducted among Yoruba elderly in Nigeria; (21) in a study conducted among the elderly residing in low

income area of south west Nigeria and (22) in a study conducted among elderly residing in Ilaro town, Ogun state, Nigeria. This finding indicates that few of the respondents were above 75 years old, which suggest that only few proportions of elderly in the study area live above 80 years of age and female elderly were found to be older than male elderly. This may be partly due to the poor survival capacities of this population entrenched in the extent of poverty and economic situation of the country as indicated by (21). Also, majority of the selected elderly has no formal education with the estimated monthly income that is less than ₦6000 and engaged in petty trading. The educational attainment, estimated monthly income and the present occupation of the respondents in the present study indicate that majority of them were of low socio-economic status. This finding corroborate that of (20) in a similar study conducted among the same group of people in Yoruba speaking state and the study conducted by (23) among the community dwelling elderly in southern laos. The low socio-economic status observed in this study will have a detrimental effect on their food intake and their overall wellbeing

Anthropometry measurement is an important measure of nutritional status, growth, development and reflects the health condition and maturity of an individual (24). At different stages of life, changes in body composition differ in both sex and these changes are reflected in anthropometric measures. In the present study, male respondent were found to be heavier and taller than women but the female respondents had higher BMI than their male counterpart.

Similar result was gotten in a study conducted in south-south gio-political zone of Nigeria among the same group of people residing in Asaba, Delta (25) and south-west Nigeria (21). However, men were found to be heavier than their female counterpart in the present study which is not in line with the findings of (25) among similar populations but different ethnic group. Specifically, the differences in the height and weight of male and female respondent may be due to aging. Advanced in age has been liked to various structural modification in skeletal system such as demineralization which affect the structure of the bone in so many ways like; reduction of the width of the vertebrae as well as the deformation of the long bones and inferior extremities (24). Also, various physiological and nutritional changes are associated with aging and this are usually manifested by reduction in height and weight, muscular mass loss, increase in fat mass and adipose tissue redistribution, with fat accumulation in the trunk and viscera (26)

Furthermore, intake of energy and nutrients like; protein, fiber and fat were less than Recommended Dietary Allowance (RDA) among both male and female respondents. Conversely intake of carbohydrate among male and female respondents was above the RDA. The nutrient and energy intake of the elderly in the present study is in line with that of (21) in a research conducted among the same group of people in low income area of southwest Nigeria and (27) in a study conducted in rural communities in Nigeria. This finding was opined by (20) to be a general trend among elderly in Nigeria, (28) also give credence to this. In the same vain, Intake of vitamin C, B complex and minerals like calcium, phosphorus, sodium, potassium and iron were found to be below RDA, which is also in agreement with the study conducted by (27). This can be linked to inadequate energy intake as opined by (29) and low intake of animal based food as indicated by (21)

Functional ability is vital in ensuring holistic care for the elderly. This ability is one of the better indicators of health among this group of people (19). Specifically, the prevalence or level of Functional incapacity varies worldwide and this variation may be due to dissimilarities in definition standards, methods and instrument used in evaluating functional capacity as well as sample characteristics. Basically functional capacity can be divided into two forms which are, Instrumental Activities of Daily Living (IADL) and Basic Activities of Daily Living (BADL). IADL generally require organization and planning more than BADL. In the present study, the prevalence of functional impairment in BADL was 9% and 29.5% in IADL. The distribution of functional capacity in this study is consistent with other study (22), in which higher prevalence of dependence in IADL was discovered. High prevalence of functional dependent in IADL observed in this study can be liked to their poor educational attainment. This because these activities (IADL) require more physical, mental, educational and cognitive integrity compared to Activities of Daily Living (ADL). However, this high level of functional dependent in IADL may not be an indication of high level of physical disability, as was substantiated by the fact that majority of the respondents were slightly dependent in performing these activities. Also, cultural perception and tendency of having a helping hand in performing most of the IADL might have also influence the respondent ability in performing some of these activities. Similarly, demanding for support and assistance which is a usual and allowable practice among the older adult in African countries, regardless of their capability in carrying out such activity or task may also be part of the contributing factor that is preventing them in performing various IADL as indicated by (19).

In concordance with other studies, (30, 31, 19) significant association (p< 0.05) was observed between the level of functional impairment in Instrumental Activities of Daily Living (IADL) and socio-demographic and economic characteristics like; age, educational level and present occupation of the respondents. Specifically, significant association observed between the level of functional dependent in IADL and age of the respondents in the present study can be attributed to various age related changes that the elderly do experience, elderly are usually more fragile and prone to various chronic and acute disease which may affect their functional capability as opined by (32). Also findings (33, 34) have shown that elderly, in particular those above seventy (70) years of age are more prone to both internal and external stressors which can affects their functional capacity as well as development of frailty. Agnieszka et al (35) also found the likelihood of experiencing limitation in performing BADL and IADL with advance in age. This increase in the risk of ADL and IADL problems with age has also been proved in similar studies (36, 40).

Likewise, significant (p< 0.05) association was observed between the level of functional impairment in IADL and educational level of the subjects and corroborate other studies (30, 33, and 19), in which educational level as well as present occupation of the respondents was significantly associated with the level of functional impairment in IADL. This indicates that functional impairment in IADL is more prevalent among the elderly that lack formal education and elderly with low socio-economic status. The reason for this is not far -fetched as most studies had indicated that these activities (IADL) require more educational and cognitive integrity than BADL. In line with the present study, (37) in a study conducted on measuring the prevalence of disability discovered that functional incapacity is more common among the individuals from low socio economic status, those living below poverty level and the illiterate. Similar discovery was also reported in the study conducted by World Health Organization in her action plan on Disability and rehabilitation (38) in which low socio-economic status, illiteracy, disease and functional incapacity were seen as vicious cycle, which (37) asserted are inseparable.

Nutritional status of individuals is the outcome of multifaceted interaction of personal and environmental factors (6). In the present study, significant association was observed between the nutritional status and level of functional impairment in Both IADL and BADL which is consistent with other studies (39-42). This give credence to the general believe that functional dependency increases the vulnerability of an individual to malnutrition, affect food intake and increase dependency in performing essential activities like, cooking and shopping.

Conclusion

The study affirmed suboptimal intake of energy, protein, vitamin C, vitamin B complex and some micronutrient among the elderly residing in the study area. Also, high prevalence of underweight was discovered among the respondents and Nutritional status of the respondents was also significantly associated with the level of functional impairment in BADL and IADL

Prevalence of functional impairment in BADL was found to be very low among the elderly residing in the study area and the level of functional impairment in this activity was significantly associated with the age and present occupation of the respondents. Also functional impairment in IADL was more prevalent than BADL and level of functional impairment in IADL was significantly associated with socio-demographic and economic characteristics like; age, educational attainment and present occupation.

Recommendation

There is need for a functional policies and programmes targeted at improving the nutrition, health and general wellbeing of the elderly in the study area. Efforts should also be initiated to help the elderly to adopt healthy life style practices to maintain or improve their functional status as well as their nutritional status. Further research to authenticate the various functional evaluation tools or questionnaire should be conducted so as to make them more culturally sensitive and reliable, thereby restraining the reporting bias.

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