NUTRITIONAL STATUS AND FUNCTIONAL CAPACITY OF ELDERLY IN SELECTED COMMUNITIES IN YEWA SOUTH, OGUN STATE

GABRIEL, EMMANUEL.* & ALABA, KIKELOMO ELIZABETH
Nutrition and Dietetics Department, The Federal Polytechnic, Ilaro, Ogun State, Nigeria.
*Corresponding author: emmanuel.gabriel@federalpolyilaro.edu.ng

ABSTRACT
This study assessed the nutritional status and functional capacity of Elderly in selected communities in Yewa south, Ogun state. By using a multi-stage sampling process, 320 respondents in total were selected. Data was collected from the respondents using a semi-structured questionnaire. The questionnaire was in sections, and it contained questions on the socio demographic and socio-economic characteristics of the respondents, and functional capacity of the respondents. Anthropometric measurements were taken and the BMI was determined and compared to WHO reference standard. Descriptive and inferential statistics were used to analyse the study data utilizing statistical product and service solutions (SPSS v. 20.0). The result shows that majority of the respondents were between the ages of 60-64 years (45.3%) and belong to Yoruba ethnic group (89.4%). Also, 30.3% of respondents had secondary school certificate, 32.2% were petty traders and 79.4% of the respondents earned above ₦20,000 monthly. Close to half of the respondents (45.9%) had normal weight, while 38.8% of the respondents were overweight. In addition, 3.1% and 12.2% were underweight and obese respectively. The result for functional capacity shows that 96.9% had a normal self-care activity, and for self-care activity functionality, 96.9% were independent. Furthermore, 82.5% of the respondents had a normal household care activity and 82.5% of them household care functionality are independent. For enjoyment and recreational activities, majority of the respondents (87.8%) have a normal activity; similarly, 87.8% of them can also carry out their activity independently. It was concluded that majority of the elderly can carry out their Basic Activities of Daily Living (BADL) and also Instrumental Activities of Daily Living (IADL) independently. Significance association (P<0.05) was observed between some socio-economic characteristics and nutritional status.

Keywords: Nutrition, Nutritional status, Functional capacity, Malnutrition, Elderly.

1.0 INTRODUCTION

A person over 60 is regarded as an elder according to the World Health Organization (WHO, 2020). Although many people in several developing nations have been shown to be functionally "old" in their forties and fifties, chronological age is still the most accepted way to define aged or elderly. Nevertheless, this approach has been questioned in many regions. The retirement age is also divided into chronological age groups beginning at 60. The advent of different diseases, the development of particular ailments brought about by changes in the body and mind, and dietary modifications that impact the nutritional status of elderly are all signs of ageing (Silveira, Lopes, Oliveira, Fogaça, & Leandro-Merhi, 2007).

Ageing not only leads to the onset of various chronic conditions but also results in alterations in personal characteristics such as functional capacity and cognitive decline, crucial for maintaining the health of older individuals. As people age, their physical, mental, and behavioural capabilities decrease, along with a reduced ability to cope with stressors (Zihl & Reppermund, 2022).

The term "functional capacity" describes a person's ability to carry out regular daily tasks in their lives that are desirable or required of them to meet fundamental needs, fulfil obligations, and maintain one's health and welfare under carefully monitored circumstances (Patterson & Mausbach, 2010). First, Katz assessed functional capacity while considering the performance of Instrumental Activities of Daily Living (IADL) and Basic Activities of Living on a Day-to-Day Basis (BADL), which refers to all daily activities that are performed regularly, such as eating, dressing, and taking a bath (Adepoju & Coker, 2018). The Instrumental Activities of Daily Living (IADL), on the other hand, are those that call for organization and planning. These include things like grocery shopping, using transportation, preparing food, managing money, taking care of the house, and using the phone (Tracey, 2008).

Experts and family members have determined that individuals living independently need professional attention in the area of their functional capacity and the fact that they do not have enough time to prepare and eat, which can lead to malnutrition (Oliveira, Fogaça, & Leandro-Merhi, 2009). A decrease in functional capacity measurement may indicate a risk for malnutrition, which is particularly linked to a decrease in food intake. Additionally, nutrition has a big impact on how quickly people age. A healthy diet can help prevent or treat a lot of physical issues that affect the elderly. Numerous illnesses, particularly in the elderly, are influenced by nutritional status. The nutritional status of elderly individuals is a critical factor that can help us better understand how nutrition supports and maintains their independence and autonomy. Economic, social, and lifestyle factors that contribute to a sufficient and healthful diet can be valuable instruments for evaluating the nutritional risk.

Anthropometry is the most commonly used method in clinical practice and epidemiological studies; as such, it is essential to understand the health of the elderly population through nutritional assessment. In this study, the nutritional status and functional capacity of the elderly in selected Yewa South communities were assessed.

2.0 MATERIALS AND METHODS

The research was conducted in Yewa South (formerly Egbado South**).** Yewa South is a local government area that borders the Republic of Benin and is located in the western part of Ogun State, Nigeria. Its headquarters are located in the northern town of Ilaro. As of the 2006 census, its population was 168,850; and its area measured 629 km². The region is composed of the following ten wards: Oke-Odan, Ajilete, Owode I, Owode II, Iwoye, Idogo, and Ilaro I, II, III. In addition to the Ogu language of the Gbè language family, which Yoruba language speakers refer to as "Egun," the inhabitants speak Yewa dialects of Yoruba. Their main sources of cultured food are "Fufu and Posu", farming and trading are their main occupations.

The study was cross-sectional and descriptive and it cut across the elderly in selected communities in Yewa South, Ogun state.

The sample size was determined using Cochran's (1977) formula

$n = \frac{Z^2pq}{e^2}$

n = sample size

Z = 1.96 at 95% confidence level

p = proportion or prevalence of malnutrition (underweight and overweight) among the elderly 25.3% (Adepoju, Olayiwola, Onabanjo, & Lasode, 2021)).

e = margin of error (0.050

$n = \frac{(1.96)^2 \times 0.253(1-0.253)}{0.0025}$

$n = \frac{3.8416 \times 0.253(0.747)}{0.0025}$

$= \frac{3.8416 \times 0.1889}{0.0025}$

$= \frac{0.7257}{0.0025}$

$= \underline{0.7257}$
0.0025

n = 290.28

The value of n obtained was adjusted to 320 by adding 10% (10%) to allow for non-responses. This resulted in a number of 319.

The sample was chosen using a multistage sampling technique. Yewa South consists of ten wards: Oke-Odan, Ajilete, Ilobi/Erinja, Iwoye, Idogo, Ilaro I, Ilaro II, and Ilaro III.

Simple random selection was used to choose two wards through balloting without replacement, and from each ward, four communities were also chosen at random. A systematic selection process was used to choose respondents from among all households with a minimum of one senior person (60 years of age or older), male or female. Simple balloting was employed to choose respondents from the homes containing multiple elderly.

A questionnaire that was semi-structured and administered by an interviewer was designed and given to the respondents. The questionnaire consists of two sections. The respondents' sociodemographic and economic details were recorded in Section A, and their functional ability was evaluated in Section B. Two primary activities were measured in order to evaluate the elderly's functional capacity: the Instrumental Activities of Daily Living Scale (IADLs) and the Basic Activities of Daily Living Scale (BADL). The basic activity of daily living scale was used to assess the ability of the respondents in performing day to day, routine and common activities e.g. dressing, bathing and eating, and the Instrumental Activities of Daily Living Scale (IADLs) was used to evaluate the ability of the respondents in performing more organized and planned activities like Shopping, Using transportation, meals preparation, handling finances, housekeeping and telephone usage. These were assessed by adapting the Johnson *et al*. activities of daily living questionnaire (Johnson et al., 2004).

The respondents' anthropometric parameters, including weight and height, were recorded. A portable height gauge with centimeter calibrations (cm) was used to measure the respondents' heights. For accuracy, the responders were measured on a level floor without shoes on. The measurements were made with a precision of 0.1 cm. A bathroom weighing scale was also used to acquire the weights. Prior to every measurement, the scale was reset to zero and rounded to the closest kilogram.

Statistical product and service solutions for Windows version 22.0 was used to conduct the statistical analysis. Standard deviation, mean, frequency, and percentage were among the descriptive statistics that were employed. Analysis of variance (ANOVA) was utilised to ascertain the difference between means, and chi-square (inferential statistics) was employed to ascertain the relationship between the categorical variables.

3.0 RESULTS AND DISCUSSION

Results:

Table 1 displays the sociodemographic and economic attributes of the participants. According to the results, 64.7% of them were female and 35.3% of them were male. Majority of the respondents were between the ages of 60-64 years (45.3%) and belong to the Yoruba ethnic group (89.4%). Moreover, a large proportion of the study participants belonged to the Christian faith (65. 3%) and came from monogamous homes (53.8%). Similarly, 53.8% were from a nuclear family background and 45.6% from an extended family. Also, the majority of the respondents (62.8%) were married. The educational level shows that 30.3% of respondents had secondary school certificates, 22.2% of them however had no formal education. In addition, 32.2% were petty traders and 79.4% of the respondents earned above ₦20,000 every month.

Table 1: Socio demographics characteristics of the respondents

Variables	Frequency (n =320)	Percentage
Gender		
Male	113	35.3
Female	207	64.7
Age range (years)		
60-64	145	45.3
65-69	71	22.2
70-74	46	14.4
75-79	20	6.3
Above 80	38	11.9
Ethnicity		
Yoruba	286	89.4
Igbo	33	10.3
Hausa	1	0.3
Religion		
Christianity	209	65.3
Islam	95	29.7
Traditional	16	5
Family structure		
Monogamy	184	57.5

Polygamy	136	42.5
Family background		
Nuclear	172	53.8
Extended	146	45.6
Joint family	2	0.6
Marital status		
Single	11	3.4
Married	201	62.8
Widow	81	25.3
Widower	27	8.4
Level of education		
No formal schooling	71	22.2
Primary	58	18.1
Secondary	97	30.3
NCE/OND	38	11.9
HND/B.Sc	56	17.5
Present occupation		
Retired	25	7.8
Self employed	70	21.9
Farming	36	11.3
Civil service	20	6.3
Petty trading	103	32.2
An employee of private establishment	20	6.3
Personal business	29	9.1
Unable to work for pay anymore	17	5.3
Estimated income (₦)		
1, 000 - 5, 000	9	2.8
6, 000 - 10, 000	24	7.5
11, 000 - 15, 000	8	2.5
16, 000 - 20, 000	25	7.8
20, 000 and above	254	79.4

Table 2 shows the anthropometric measurements of the study participants. For male, the mean height was 1.65m, while the mean weight was 70.71 kg. For females, the mean weight was 65.29 kg while their mean height was 1.59 m. The body mass index of the male and female respondents was 26 kg/m^3 and 25.66 kg/m^3 respectively. Significance difference was observed ($p<0.05$) between the mean height and weight of the respondents. However, no significance difference was found between the BMI of the respondents.

Table 2: Anthropometric measurements

Variable	Height (m)	Weight (kg)	BMI (Kg/m^3)
Sex			
Male	1.65 ± 0.74	70.71 ± 11.25	26.00±3.49
Female	1.59 ± 0.70	65.29 ± 14.01	25.66 ± 4.75
F	54.48	12.44	0.46
P-value	0.00*	0.00*	0.49

Significant at $p < 0.05$

Additionally, the nutritional status of the responder is displayed in figure 1 below. Close to half of the population (45.9%) of the respondents had a normal nutritional status. While 38.8% of the respondents were overweight. Also, 12% of the respondents were obese, while only few (3%) were underweight.

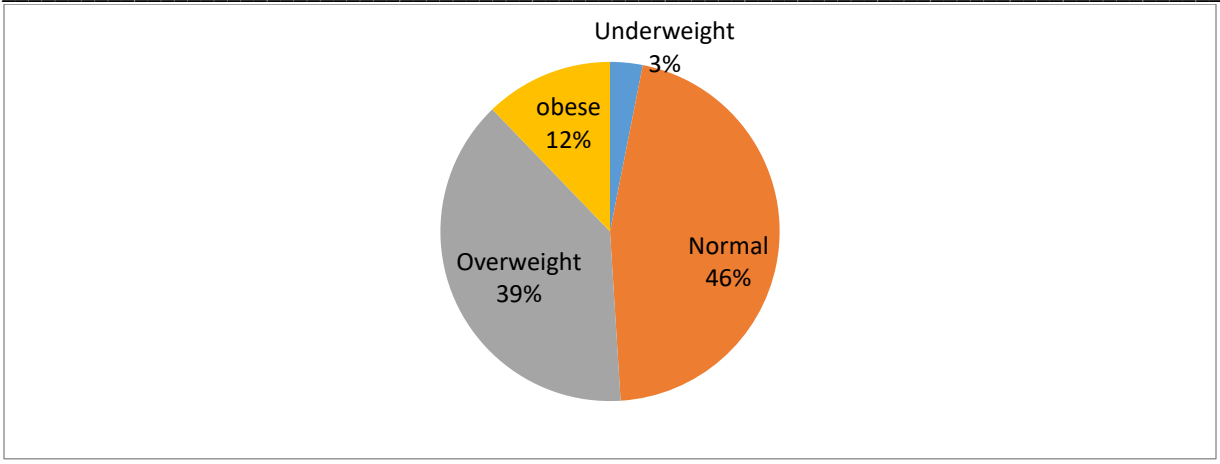

Figure 1: Nutritional Status of the respondents

Table 3 below shows the functioning capacity of the elderly. Majority of the respondents (96.9%) had a normal self-care activity, for self-care activity functionality, 96.9% are independent. Also, 82.5% of the respondents had a normal household care activity and for 82.8% of them, household care functionality are independent. For enjoyment and recreational activities, majority of the respondents 87.8% had a normal activity; similarly, 87.8% of them can also carry out the activity independently.

For shopping and money activities, close to the whole respondents (93.8%) had a normal activity and carried out the activity independently. For traveling activities, 89.4% of the respondents carried out a normal activity, and also carried out the function without depending on anybody. For communication, 93.4% communicate normally and do not need to depend on anyone to communicate.

Table 3: Functioning Capacity of Elderly

Variables	Frequency (n=320)	Percentage (100)
Self-care activities		
Normal	310	96.9
Moderate impairment	1	0.3
Severe impairment	9	2.8
Self-care activity functionality		
Functionality independent	310	96.9
Functional dependent	10	3.1
Household care		
Normal	264	82.5
Moderate impairment	32	10
Severe impairment	24	7.5
Household care functionality		
Functionality independent	264	82.5
Functional dependent	56	17.5
Employment and Recreation		
Normal	281	87.8
Moderate impairment	23	7.2
Severe impairment	16	5
Employment and Recreation functionality		
Functionality independent	281	87.8
Functional dependent	39	12.2
Shopping and money		
Normal	300	93.8
Moderate impairment	15	4.7
Severe impairment	5	1.6
Shopping and money functionality		
Functionality independent	300	93.8
Functional dependent	20	6.3
Travel		
Normal	286	89.4

Moderate impairment	28	8.8
Severe impairment	6	1.9
Travel functionality		
Functionality independent	286	89.4
Functional dependent	34	10.6
Communication		
Normal	299	93.4
Moderate impairment	19	5.9
Severe impairment	2	0.6
Communication functionality		
Functionality independent	299	93.4
Functional dependent	21	6.6

Table 4 below shows the association between socioeconomic characteristics and nutritional status. Significance association (p-value<0.05) was observed among educational level, present occupation and estimated monthly income of the respondents and their nutritional status.

Table 4: Association between socioeconomic characteristics and nutritional status

Variables	**Nutritional status**		
	$\chi 2$	**Df**	**p-value**
Educational level	23.37	12	0.02*
Present occupation	33.80	21	0.01*
Estimated income	34.82	12	0.00*

Significant at p-value<0.05

DISCUSSION

This study was aimed at assessing the nutritional status and functional capacity of the elderly in Ilaro, Ogun State. Age plays a significant role in determining an aged person's functional ability and nutritional state. This study found that 45.3% of the elderly were between the ages of 60 and 64 years. A similar result was also reported in the study conducted by Adepoju *et al*. (2021) where the majority of the respondents were in this age range. The results further corroborated the finding of Adepoju *et al.* (2021), which stated that a small percentage of the respondents were over 80 years of age. This may be partially due to the population's low survival skills, which are ingrained in the level of poverty and the nation's economic circumstances. Women made up 64.7% of the responders - the majority in this study. A similar finding was made in the study by Cacador *et al.* (2021), where the bulk of the participants were women. This could be the outcome of studies showing that women often live longer than men do (Mota-Pinto, 2011). However, similar results were also discovered in a Portuguese study conducted by Baixinho et al. (2019) and Figueiredo-Duarte et al. (2019), where the majority of respondents were female. Regarding education, thirty-three percent of the participants had finished secondary school. This result was in line with the findings of the Cacador et al. (2021) study, which indicated that the majority of participants had just finished their eleventh year of school. Furthermore, a significant number of the respondents in this study—22.2%—had no formal education, which is similar to the majority of respondents in a study conducted by Adepoju et al. (2021) in Ibadan. In contrast to Adepoju et al.'s (2021) estimated income, which showed that most respondents made less than ₦6,000, 79.4% of respondents reported earning ₦20,000 or more. Based on their estimated income, level of education, and present employment, the majority of study participants belong to the medium-class socioeconomic background. However, Nambooze, Fujimura, and Inaoka's (2014) findings—which indicated that the majority of respondents were from low socioeconomic backgrounds—contradict the statistics presented in this study.. Anthropometry is a vital tool for evaluating an individual's overall health, growth, and nutritional status. Anthropometric measurements illustrate the differences in a person's body composition by gender and life stage. In the current study, male respondents had a higher BMI than female respondents and were both heavier and taller than female respondents. However, these findings differ from those of Adepoju et al. (2021), who found that respondents who were male were taller, heavier, and had a higher BMI than respondents who were female. Specifically, the difference in respondents' weight and height between the male and female genders could be attributed to aging. Growing older has been associated with several structural changes to the skeletal system, including demineralization, which alters the bone's composition in a variety of ways, including long bone deformities (Padilla-Colón *et al.*, 2018). Additionally, ageing is linked to several physiological and nutritional changes, which are typically expressed as a decrease in height, weight, an increase in fat mass, less muscle mass, and a redistribution of adipose tissue Wang, Xu, & Li (2022).

The nutritional status shows that 38.8% of the respondents had an overweight status and 12% had an obese status; these results were less than those of the study by Cacador *et al.* (2021), in which 59.3% of the respondents had an overweight status. Based on height and weight, it has been determined that BMI is an objective indicator of body fat. Elevated body mass index (BMI) is deemed a risk factor for the health of the elderly population due to its correlation with declining life expectancy and elevated rates of illness and mortality (Al-Snih, *et al*., 2007). Even though being overweight is linked to a decline in physical well-being, most of the study participants did not exhibit a reduction in their capacity to carry out everyday tasks. The use of BMI as a proxy for adiposity in older adults is controversial because, according to Sorkin, Muller, & Andres (1999), people lose height as they age, which causes BMI values to be overestimated. Additionally, BMI

is not able to distinguish between visceral and peripheral obesity in older adults. Accordingly, unfavourable cardiovascular illnesses may also be a danger for older persons with central obesity who present with a normal BMI (Batsis, Mackenzie, Bartels, Sahakyan, Somers, & Lopez-Jimenez, 2016; Sahakyan, Somers, Rodriguezescudero, Hodge, Carter, Sochor, Coutinho, *et al.*, 2015). Furthermore, the persistent loss of muscle mass that occurs with ageing and is linked to obesity (sarcopenic obesity) may go unrecognized, indicating that it is conceivable to have a high BMI yet receive inadequate nutrition (Wang *et al.*, 2022).

To provide the elderly with better care, functional capacity is essential. According to Ajayi, Adebusoye, Ogunbode, Akinyemi, & Adebayo (2015), one of the most reliable measures of an older person's health is their capacity. Different definition criteria, evaluation instruments, and techniques of functional capacity assessment may contribute to the global variation in the degree of functional incapacity. The Instrumental Activities of Daily Living (IADL) and Basic Activities of Daily Living (BADL) comprise this fundamental functionality. The result in supports those of Adepoju *et al.* (2021), who found that only 9% of respondents had functional impairments related to BADL and that roughly 29.5% had impairments related to IADL activities. Adepoju & Coker's (2018) study also revealed comparable results. Because activities involving IADL require more physical, mental, educational, and cognitive integrity than BADL, it is possible to attribute the high percentage of respondents who can perform IADL activities to the majority of respondents having completed secondary school. While there are a small percentage of people who are functionally impaired when performing IADLs, cultural practices in African nations where asking for help and support when performing a task or activity is customary may have contributed to the barrier preventing them from performing these different IADLs (Ajayi, *et al*., 2015).

A significant correlation (P-value<0.05) was found between the respondents' nutritional state, estimated monthly income, current occupation, and educational level. It is believed that an individual socio-economic status affects their nutritional status as well as functional capacity.

4.0 CONCLUSION

A high prevalence of overweight (39%) was observed among the respondents. Also, the majority of the elderly could carry out their Basic Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL) independently. A significant relationship (P-value <0.05) was observed between socio-economic characteristics (educational level, present occupation and income) and nutritional status.

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