

## CARE PRACTICES AND NUTRITIONAL STATUS OF THE ELDERLY IN OLD PEOPLE'S HOMES IN LAGOS STATE, NIGERIA

Okoye C, Ogunyemi A and Abosede O

Department of Community Health and Primary Care, College of Medicine, University of Lagos

Corresponding author's email address: [doyinogunyemi@gmail.com](mailto:doyinogunyemi@gmail.com)

### ABSTRACT

**Background:** Socioeconomic hardship of most of the elderly in Nigeria makes them vulnerable to malnutrition. The aged in care homes have high care dependency and altered modes of feeding that can impair their nutritional status.

**Objective:** The study determined the association between care practices and nutritional status of the elderly (60 years and above) in selected old people's homes in Lagos State.

**Methods:** A descriptive cross-sectional survey design was undertaken involving 56 consenting respondents aged 60 years and above in seven care homes for the elderly in Lagos State (one government, three private and three faith-based homes). An 18-item Mini Nutritional Assessment-Short Form (MNA-SF) was used to screen for nutritional risk. The data obtained was analyzed for frequencies, associations were tested using Pearson's chi-square at  $p < 0.05$  significance level using EPI INFO version 7.

**Results:** More than half (51.8%) of the elderly were at risk of malnutrition, 35.7% were malnourished and only 12.5% had normal nutritional status. Relationship with family and level of care in the facilities had significant ( $p < 0.05$ ) effects on the MNA scores. The associations between decline in food intake, acute disease and malnutrition were statistically significant ( $p < 0.05$ ).

**Conclusion:** The elderly who experienced severe decline in food intake and the presence of acute diseases were more likely to be malnourished and this association was statistically significant. The management and caregivers should conduct periodical nutritional assessment and health checks to prevent malnutrition and provide prompt intervention when needed.

**Key words:** Care practice, nutritional status, elderly, care homes.

### Introduction

Healthy nutrition is critical for the elderly because of associated ageing problems such as loss of appetite, frequent illnesses, reduced gastro-intestinal motility and hence poor absorption of nutrients (1). Care practices play a crucial role and should be tailored to the dietary needs of the elderly to reduce the risk of morbidity and mortality from malnutrition related diseases (1, 2). Malnutrition is associated with a decline in physical and cognitive functional status, immune dysfunction and the likelihood of experiencing multiple health complaints (3). Therefore, there is need to promote healthy dietary and care practices in the elderly to ensure improved wellbeing and nutritional status (4).

The family is an important source of support to the elderly in Nigeria but has experienced a decline because of urbanization and migration of younger people into the cities or out of the country (5). Coupled with the inadequacy of pension and social security schemes, the elderly in Nigeria may be particularly vulnerable to socioeconomic hardships, lack of domestic support and malnutrition. This decline in domestic support has led to the growing need for residential care for the elderly who need assisted living and other support services (5).

The aged in Old People's Homes have been known to have a higher care dependency, altered modes of feeding and limited movements in the facility. All these can

impair their nutritional status (6). The risk factors include dietary deficiencies, loss of taste, smell or appetite, chewing or swallowing problems, excessive polypharmacy, immobility, chronic diseases and co-morbidities (7). Poor nutrition contributes to functional and cognitive decline, diminished immunity, as well as a decreased quality of life among this group (8).

Anthropometric measurement is very crucial for nutritional assessment of the elderly to determine the presence and severity of malnutrition, muscle loss, fat mass gain and the redistribution of adipose tissue (9). It involves the use of the information of the physical parameters of an individual and it is highly reliable and cost-effective when compared to other complex nutritional assessment methods (9, 10). Weight loss that may result from poor food intake is common among the elderly (11). Age- and disease-induced muscle loss leads to a low body mass index (BMI) which is associated with malnutrition and increased mortality (12, 13). Similarly, high BMI or obesity is also associated with chronic diseases (14).

There is paucity of data on the nutritional status of the elderly in Old People's Homes in Nigeria. Lagos state has the highest number of Old People's Homes in Nigeria which include public, private and faith-based homes (15, 16). This study investigated the association

between care practices and nutritional status of the elderly in selected Old People's Homes in Lagos State.

### Materials and methods

This was a descriptive cross-sectional study design conducted in all the seven selected registered old people's homes in Lagos State, Nigeria. A list of all registered Old people's homes was obtained from the Ministry of Youth and Social development (MYSD), Lagos state. The list had three private facilities, one public facility and three faith-based facilities and all were included in the study. In each facility, a register containing the demography of the elderly residing in the homes was used to determine eligible older adults who were 60 years and above. The home administrator assisted the researcher in identifying cognitive elderly who could participate in the study based on the knowledge of their health status. Hence, respondents who were senile due to old age or too ill physically or mentally to participate in the study were excluded. A total of 56 eligible residents were selected for the study.

### Ethical clearance

Ethical approval was obtained from the Research and Ethics committee of the Lagos University Teaching Hospital. Written or thumb print informed consent was also obtained from the elderly respondents after enough information about the study was provided to them

### Data collection

An interviewer administered questionnaire was used to obtain socio-demographic data, level of care and length of stay in the facility.

Nutritional data was collected using a questionnaire tool, Mini Nutritional Assessment Tool (MNA Tool). It is both a screening and assessment tool for the identification of malnutrition in the elderly and it has been validated locally and internationally (17, 18). The obtainable scores range from 0 to 30 where scores between 0 to less than 17 are categorized as malnutrition; 17 to 23.5 as at risk of malnutrition and greater than 23.5 to 30 as normal nutrition status (18). Anthropometric measurement was done with the use of an adult weighing scale with accuracy to the nearest 0.1kg, non-elastic measuring tape and a standard stadiometer to the nearest 0.1cm for the height. The

study participants were asked to climb the weighing scale without their shoes or heavy clothing and measurements were determined in kilogram. The stadiometer was used to measure their height, each participant stood on the scale without shoes and measurement taken in meters and Body Mass Index (BMI) determined. Mid-upper arm circumference (MAC) was measured with a non-elastic tape on the non-dominant relaxed arm midway between the tip of the acromion and the olecranon process. Calf circumference (CC) was measured with the non-elastic tape on the thickest part of the undressed calf, with the individual in a sitting position and the knee flexed at 90 degrees.

The respondents were asked to rate the care level of the facility on a scale of 1 to 3 where 1 was not so good, 2 was good and 3 very good. Loss of appetite, digestive problems and difficulty with chewing or swallowing over the last 3 months was used to measure the decline in food intake on a scale of 0 to 2 where 0 indicated severe decline, 1 indicated moderate decline and 2 indicated no decline. Consumption markers for protein intake were assessed in three categories: At least one serving of dairy products (milk, cheese, yoghurt) per day; two or more servings of legumes or eggs per week and lastly the consumption of meat, fish or poultry every day. The respondents answered yes if any of the components of the category of food groups was consumed and this was scored as 1 or no if otherwise and was scored as 0. The total obtainable score was 3. It was assessed inadequate if total score was 0 or 1; adequate if total score was 2 and very adequate, if total score was 3.

### Data analysis

The data obtained was analyzed for frequency, percentages and Pearson's chi-square at  $p < 0.05$  level of significance using EPI INFO version 7.

### Results

The majority (39.3%) of the respondents were aged between 70 to 79 years and above with a mean age of  $77.4 \pm 9.7$  years (Table 1), with 64.3% females and 35.7% males. More than half (58.9%) were widowed while 19.6% were married.

**Table 1: Socio-demographic characteristics of the respondents**

<b>Variable</b>	<b>Frequency (n=56)</b>	<b>Percentage (%)</b>
<b>Age group (years)</b>		
60-69	13	23.2
70-79	22	39.3
≥80	21	37.5
<b>Mean</b>	77.4±9.7	
<b>Sex</b>		
Female	36	64.3
Male	20	35.7
<b>Marital status</b>		
Single	6	10.7
Married	11	19.6
Divorced	6	10.7
Widowed	33	58.9
<b>Source of income</b>		
Family	30	53.6
None	3	5.4
Pensioner	16	28.6
Personal Income	7	12.5
<b>Educational status</b>		
None	4	7.1
Primary	10	17.9
Secondary	10	17.9
Tertiary	32	57.1
<b>Relationship with family</b>		
Good	23	41.1
Not so good	13	23.2
Very good	20	35.7
<b>Care level in the home</b>		
Good	18	32.1
Not so good	5	8.9
Very good	33	58.9

More than half (57.1%) of the respondents had no decrease in food intake over the last three months. The mean weight, height and BMI were 59.1kg, 1.6m and 22.9kg/m<sup>2</sup>, respectively, 62.5% had an acute disease in

the last three months, 51.8% were at risk of malnutrition, 35.7% malnourished and only 12.5% had normal nutritional status (Table 2).

**Table 2: Mini Nutritional Assessment (MNA) variables of the respondents**

<b>MNA Variable</b>	<b>Frequency (n=56)</b>	<b>Percentage (%)</b>
<b>Decline in food intake in last 3 months</b>		
Severe decrease	6	10.7
Moderate decrease	18	32.1
No decrease	32	57.1
<b>Weight loss in last 3 months (kg)</b>		
Greater than 3	5	8.9
Weight loss btw 1-3	6	10.7
No weight loss	15	26.8
Does not know	30	53.6
<b>BMI classification (kg/m<sup>2</sup>)</b>		
Underweight (< 18.5)	13	23.2
Normal (18.5–24.9)	28	50.0
Overweight (25.0–29.9)	8	14.3
Obese (30.0–34.9)	7	12.5
<b>Mean</b>	22.9±4.7	
<b>Acute disease in last 3 months</b>		
Yes	35	62.5
No	21	37.5
<b>Protein intake</b>		
Inadequate	3	5.4
Adequate	7	12.5
Very adequate	46	82.1
<b>Nutritional status</b>		
Malnourished	20	35.7
At risk of malnutrition	29	51.8
Normal nutritional status	7	12.5

The majority (71.4%) of the respondents who had a normal nutritional status had a very good relationship with their families and this association was a statistically significant ( $p = 0.018$ ). There was also a significant ( $p = 0.032$ ) association between nutritional status and the respondent's rating of facility care as all

(100%) who had a normal nutritional status rated the facility care level as very good. There was no significant association between other socio-demographic variables and nutritional status (Table 3).

**Table 3: Associations between socio-demographics of respondents and malnutrition**

	Nutritional status			Statistics	
Variable	Malnourished	At risk of malnutrition	Normal status	df	p value
<b>Age (years)</b>					
60-69	5(25.0)	5 (17.2)	3(42.8)	4	0.577
70-79	9(45.0)	11 (37.9)	2(28.6)		
≥80	6(30.0)	13(44.8)	2(28.6)		
<b>Sex</b>					
Female	13(65.0)	18(62.1)	5(71.4)	2	1.000
Male	7(35.0)	11(37.9)	2(28.6)		
<b>Education level</b>					
None	2(10.0)	2(6.9)	0(0.0)	6	0.569
Primary	6(30.0)	3(10.3)	1(14.3)		
Secondary	2(10.0)	6(20.7)	2(28.6)		
Tertiary	10(50.0)	18(62.1)	4(57.1)		
<b>Relationship with family</b>					
Very good	3(15.0)	12(41.4)	5(71.4)	4	0.018*
Good	8(40.0)	13(44.8)	2(28.6)		
Not so good	9(45.0)	4(13.8)	0(0.0)		
<b>Care level in facility</b>					
Very good	7(35.0)	19(65.5)	7(100.0)	4	0.032*
Good	10(50.0)	8(27.6)	0(0.0)		
Not so good	3(15.0)	2(6.9)	0(0.0)		
<b>Length of stay in facility</b>					
0<6 months	6(30.0)	8(27.6)	3(42.9)	4	0.193
6-12months	2(10.0)	5(17.2)	3(42.9)		
> 12months	12(60.0)	16 (55.2)	1(14.3)		
<b>Prescription intake/day</b>					
≤2	9(45.0)	19(65.5)	5(71.4)	4	0.072
3 – 5	11(55.0)	10(34.5)	1(14.2)		
> 5	0(0.0)	0(0.0)	1(14.2)		

Figures in parentheses are percentages; \* statistically significant

The association between nutritional variables and malnutrition status is shown in Table 4. Majority of the respondents (85.7%) who had a normal nutritional had no decrease in food intake ( $p = 0.049$ ). Ninety percent

of the respondents who were malnourished had an acute disease in the past three months and this association was statistically significant ( $p < 0.001$ ).

**Table 4: Association between nutritional variables of respondents and malnutrition**

Variable	Malnourished	Nutritional status		Statistics	
		At risk of Malnutrition	Normal status	df	p value
<b>Decline food intake in last 3 months</b>					
Severe	5(25.0)	1(3.4)	0(0.0)	4	0.049*
Moderate	8(40.0)	9(31.0)	1(14.3)		
No decrease	7(35.0)	19(65.5)	6(85.7)		
<b>Weight loss in last 3 months</b>					
>3kg	3(15.0)	2(6.7)	0(0.0)	6	0.100
1- 3kg	3(15.0)	2(6.7)	1(14.3)		
No loss	1(5.0)	11(36.7)	3(42.9)		
Not know	13(65.0)	14 (46.7)	3(42.9)		
<b>BMI classification</b>					
Normal	11(55.0)	14(48.2)	3(42.8)	6	0.358
Obese	1(5.0)	4(13.8)	2(28.6)		
Overweight	1(5.0)	6(20.7)	1(14.3)		
Underweight	7(35.0)	5(17.3)	1(14.3)		
<b>Acute disease in last 3 months</b>					
Yes	18(90.0)	17(58.6)	0(0.0)	2	<0.001*
No	2(10.0)	12(41.4)	7(100.0)		
<b>Protein intake</b>					
Inadequate	2(10.0)	1(3.5)	0(0.0)	4	0.472
Adequate	4(20.0)	3(10.3)	0(0.0)		
Very adequate	14(70.0)	25(86.2)	7(100.0)		

Figures in parentheses are percentages\*Statistically Significant

## Discussion

The mean respondents age of  $77.4 \pm 10$  years was consistent with another study done among elderly respondents in old people's homes in Southwestern Nigeria where the mean age was  $78.7 \pm 8.8$  (19). The finding of older aged in care homes was similar to other studies as levels of dependency tend to increase with age (20, 21, 22, 23). Majority (64.3%) of the residents in this study was female and this was consistent with a study done in Berlin Germany among the elderly in care which revealed that women outnumbered the men (21). It is known that female mortality rates are lower than male rates at older ages and the proportion of women in the older population grows substantially with advancing age (24, 25).

The mean BMI of the respondents in this study was  $22.9 \pm 4.7 \text{ kg/m}^2$  and it compared with  $23.8 \text{ kg/m}^2$  reported in a study conducted with the elderly in Helsinki, Finland (24). This finding was however not consistent with  $28.5 \pm 4.7$  (unit) of a study in Iran whose respondents had a higher BMI (25). The elderly in the Iranian study were not in care homes and this might be the reasons for the variation in the BMI. The 35.7% prevalence of malnourished recorded in this study was consistent with other studies that reported that the prevalence of 10-70% malnutrition among elders in long term care (26, 27); others were 33% in Sweden (28), 29% Helsinki (23), 22.8% Germany (22) and 25%

in Italy (29) but in contrast to 19% reported in Turkey (30), 13% in Finland (31), 17.7% Sweden (32) 14% Belgium (33), 5.5% South Africa (7), 3.8% Isfahan (23) and 6% Iran (25) nursing homes. The high prevalence of malnutrition among the elderly in this study might be a reflection of their health status. It is uncommon in Nigeria to institutionalize the aged as their care is seen as the responsibility of the family (34). However, this may be impossible for families with elderly who have multiple chronic illnesses and require higher levels of dependence hence more likely to become residents in old people's homes (35).

Poorly perceived level of care in the facility and a poor relationship with family was significantly associated ( $p < 0.05$ ) with malnutrition, however, increased length of stay in the facility was not significantly associated to the prevalence of malnutrition in this study. This was consistent with a study in Germany that also found a significant association between level of care and malnutrition but no significant association between increased length of stay and malnutrition (22). Findings from this study also indicated a significant association between severe decline in food intake and being malnourished. This might be a result of prevalent oral and dental problems among the elderly. A study by Naidoo et al. (7) also found that poor oral health was indicated as a risk factor for malnutrition. There was no statistically significant association between self-

reported weight loss and malnutrition in this study. Contrarily, a study in Helsinki showed that there is a significant ( $p = 0.001$ ) association between weight loss and malnutrition (23). This might be because weight loss in this study was self-reported and may not have been accurate.

The BMI of respondents in this study had no significant association with malnutrition. This was not consistent with the Turkey's study where malnutrition was significantly higher in the elderly with low BMI (30). Other studies (21, 31, 32) also indicated that malnutrition was significantly higher among the elderly with low BMI. It is also known that nutritional status may be adversely affected by other factors such as weight loss, acute disease and depression among the elderly (33). There was an association between acute disease and malnutrition at ( $p < 0.05$ ) (Table 4). Similar study by Eskin et al (30) reported that elders with comorbidities greater than four were mostly at risk.

### Conclusion

About half of the elderly in the homes were at risk of malnutrition. The elderly who experienced severe decline in food intake and had an acute disease in the last three months were more likely to be malnourished and this association was statistically significant. The management and caregivers should conduct periodical nutritional assessment and health checks to prevent malnutrition and provide prompt intervention when needed.

### References

- Munoru K. F. K, Kuria E. N and Mbithe D. K (2018). Dietary and care practices and nutritional status of the elderly in Meru County. *International Journal of Medical and Health Research*, 4(6): 01-06
- World Health Organization. (2002). *Keep Fit For Life. Meeting the nutritional needs of older persons*. Geneva, WHO. Pp 21-3. <http://apps.who.int/iris/handle/10665/>
- Chapman, I. M. (2006). Nutritional disorders in the elderly. *Medical Clinics of North America*, 90:887-907.
- World Health Organization (2015). *Overview-Healthy ageing - WHO | Regional Office for Africa*. Geneva, WHO. pp 35-4. [http://apps.who.int/iris/bitstream/handle/10665/186463/9789240694811\\_eng.pdf?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/186463/9789240694811_eng.pdf?sequence=1)
- Okumagba, P.O (2011). Family Support for the Elderly in Delta state of Nigeria. *Studies on Home and Community Science*, 1: 21-22. <https://www.tandfonline.com/doi/abs/10.1080/09737189.2011.11885325>
- Fujio Y, Ogawa N, Kodaira M, Inoue Y and Takeuchi T (2016). Indices of Under-nutrition in the Care-dependent Elderly. *Asian Journal of Human Services*, 10: 16-24.
- Moreira N. C. F, Hofmann S. K and Matthys C (2016). Risk Factors for Malnutrition in Older Adults: A Systematic Review of the Literature Based on Longitudinal Data. *Advances in Nutrition*, 3: 507-522.
- Naidoo I, Charlton K. E, Esterhuizen T. M and Cassim, B (2015). High risk of malnutrition associated with depressive symptoms in older South Africans living in KwaZulu-Natal, South Africa: A cross-sectional survey. *Journal of Health, Population and Nutrition*, 19: 1-8.
- Martínez L. C, Peña, C. G, Cedillo T. J, Carrasco Ó. R, Gánem C. R, and García S. S (2012). Anthropometric measurements and nutritional status in the healthy elderly population. Neonatal anthropometry: a tool to evaluate the nutritional status, and to predict early and late risks. 169:2709-2730.
- Silva R. R. A, Martinez E. M, Duarte M.C, Rodrigues P. M, Rezende F. W. C and Fett C. A (2014). New values anthropometry for classification of nutritional status in the elderly. *The Journal of Nutritional Health and Aging*, 7: 655-661.
- Hickson, M (2006). Malnutrition and ageing. *Postgraduate Medical Journal*, 82:2-8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2563720/>
- Kalyani R. R, Corriere M and Ferrucci L (2014). Age-related and disease-related muscle loss: the effect of diabetes, obesity, and other diseases. *The Lancet Diabetes and Endocrinology*, 10: 819-829.
- Burman M, Säätelä S, Carlsson M, Olofsson BGustafson C. Y and Hörnsten (2015). Body Mass Index, Mini Nutritional Assessment, and their Association with Five-Year Mortality in Very Old People. *The Journal of Nutrition, Health & Aging*, 19: 461-467.
- Daviglus M. L, Liu K, Yan L. L, Pirzada A, Manheim L, Manning W, Garside D. B, Wang R, Dyer A. R, Greenland P and Stamler J (2004). Relation of body mass index in young adulthood and middle age to Medicare expenditures in older age. *Journal of the American Medical Association*, 292: 2743-2749.
- Eze, M (2013). Old Age Legislation in Nigeria. Available at <http://www.lco-cdo.org/ccel-presentations/1A%20-%20Magnus%20Eze.pdf>. (Accessed 9<sup>th</sup> August 2017).
- List of care service providers for the elderly in Nigeria. Available at <https://femininematerz.wordpress.com/2015/08/14>

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