Full Length Research Paper

Factors influencing the nutritional status of the aged in an urban slum in Jos, Plateau state

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Abstract

The elderly population in recent decades, especially in Africa and other developing countries, appears to be increasing. Physiological changes associated with aging may contribute to the aged having a lower energy intake. Other socio-cultural or economic factors may likely play a role as well. This study set out to assess the specific factors influencing the nutritional status of the aged living in an urban slum in Jos, Plateau state.

This cross-sectional, community based, descriptive study was carried out on 220 apparently healthy elderly persons who were sampled using a two-staged sampling technique. Data was collected from them using interviewer administered questionnaires and analysed using Epi info version 3.4.5. Chi-square was used for test of relationships and a p-value of < 0.05 was considered statistically significant.

Most of the respondents (80.4%) had poor nutritional knowledge and majority of them (64.5%) were not aware of any special nutritional needs of the aged. About 60% of the studied elderly had normal BMI while 25.9% were overweight. The aged females were more likely to be obese than their male counterparts (p=0.0032). There was however no statistically significant relationship between nutritional status of respondents and their age group (p=0.3784), graded nutritional knowledge (0.9968) and employment status (p=0.9883).

Most of the elderly in the study area (Tudun Wada) have poor nutritional knowledge and

practises, and as many as a quarter of them were overweight/obese. The study recommends that health programmes aimed at improving the diet of the elderly must take a multi-pronged approach.

Keywords: Elderly, nutritional status, urban slum, factors.

INTRODUCTION

According to World Health Organization (WHO) the Elderly are defined as persons above the age of 60 years, with women comprising a majority of this population (WHO, 2010). The elderly population in recent decades, especially in Africa and other developing countries, appears to be increasing. This poses a serious background problem for these countries (like Nigeria) that lack trained health personnel to take care of its teeming population. Furthermore, these developing countries have a dearth of trained geriatric health professionals since their life expectancy is generally low.

Physiological changes associated with aging, including slower gastric emptying, altered hormonal responses, decreased basal metabolic rate, altered taste and smell may also contribute to lower energy intake in them, with resultant impact on their nutritional statuses (Arellano, 2004; Marais et al., 2007; Genser, 2008). Other factors such as marital status, income, education, socio-economic status, diet related attitudes and beliefs have also been found to play a role (Genser, 2008).

Malnutrition is a common problem among older people; whether they live on their homes or in geriatric nursing homes (Saeldlou et al., 2011). It has been found to affect up to 37% of institutionalized elderly in Europe (Guigoz et al., 2002). Research has shown that if nutritional needs are ignored, the health outcomes of the elderly are usually poor, particularly in developing countries, where insufficient attention is given to it (Mitsuyoshi, 2013).

Malnutrition, in any age group, has dire effect on their country of residence: for instance, countries lose up to two or three percent of their Gross Domestic Product (GDP) as a result of iron, and zinc deficiencies (Horton

et al., 2008). It is calculated that each dollar spent on prevention and control of nutritional problems, yields between US $8 and US $138 of benefits (Horton et al., 2008).

The Nigerian government devotes only a small proportion of its resources to healthcare, with little or no emphasis on the health problems of the aging population; probably because the aged are thought to constitute such a small proportion of the population. In most developing countries, formal social security systems have only limited coverage and inadequate benefit payments for the aged (Bailey, 2000; Colin et al., 2000). As a result, the majority of the elderly in sub-Saharan Africa, depend on the family support networks to meet their nutritional and other needs (Kaseke, 2009; WHO, 2002).

In Nigeria, as in many developing countries, there is a dearth of information as well as epidemiological data on the nutritional status of the Elderly since studies regarding this group are limited and isolated. Therefore it is expected that this study will add valuable information about the magnitude of the problem and the factors influencing it. This will guide evidence based-efforts aimed at solving problem associated with malnutrition in the elderly. This is quite imperative now that the population of the aged is increasing even in developing countries. The objective of this study was to assess factors that affect the nutritional status of the elderly living in an urban slum in Jos, Plateau state.

METHODS AND MATERIALS

Study Area

Plateau State is one of the six states located in the North Central geopolitical zone of Nigeria. It has an area of 26,899 square kilometres, and an estimated population as at 2006 was of 3,178,712 people (NPC, 2006). It is located between latitude $80°24'$ N and longitude $80°32'$ and $100°38'$ E and is bounded to the North East by Bauchi State, North West by Kaduna State, South West by Nasarawa State and South East by Taraba State. It has over forty indigenous linguistic groups (NPC, 2006).

Jos is the state capital of Plateau State. It had a population of about 429,300 (from the 2006 census figures) and is divided into three Local Government Areas (LGA) which are Jos North, Jos South and Jos East. Jos North Local Government Area (LGA) is one of the seventeen LGA in Plateau State with a land mass of 291 km² (112.4 square miles). The temperature ranges from 17-35⁰C yearly (NPC, 2006).

Tudun-Wada is located in the township district of Jos Metropolis, in Jos North Local Government Area of Plateau State. It is located at an elevation of 1,230 m above sea level and its estimated population as at 2011 was 736,113 (Jos LGA, 2017). Its coordinates are 9°54'32" N and 8°52'40" E in DMS (Degrees Minutes Seconds) or 9.9 and 8.88333 (in decimal degrees) (Wikipedia, 2017). It is an urban slum which is densely populated with people of the middle and lower social classes and is both a commercial and residential area.

Study Design

This study used a cross sectional descriptive design to study apparently healthy, non-institutionalized male and female elderly persons residing in Tudun Wada district of Jos, Plateau State.

Study Population

The study population comprised of elderly male and female residents of Tudun Wada community. It included consenting elderly people who had lived in Tudun Wada for at least 6 month; which was considered sufficient time to be referred to as residents of the community. Respondents were also at least 60 years; this being retirement age in Nigeria.

The elderly who are severely ill and too weak to respond to questions themselves were excluded from the study.

Sample Size Determination

The sample size was determined using the formula below;

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

Where,

n=Minimum sample size

z=Standard normal deviation at 95% confidence interval=1.96

p=Proportion of elderly who had poor nutritional status and practices in the community in a similar cross sectional study was 15.0%=0.15[15]

q=Complementary probability (1-P)=1−0.15=0.85

d=Precision=5%=0.05

$$n = \frac{1.962 \times 0.15 \times 0.85}{0.05^2} = 195.9$$

Therefore, the minimum sample size of 196 households as calculated. To account for non-responses, 10% of the minimum sample size was calculated this was added as follows.

$$\frac{10 \times 196}{100} = 19.6$$ Which is approximately 20.

196 + 20=216

Hence, this gave minimum total number of questionnaires to be used.

Sample Technique

A two multistage sampling technique was used to select the respondents.

Stage 1: Jos North LGA was selected from a sample frame of the 20 LGAs in Plateau state using simple random sampling by balloting.

Stage 2: Tudun Wada ward was selected from the list of the 20 wards of Jos North LGA using simple random sampling technique by balloting.

Taking each ward in the LGA as a cluster, all individuals who met the inclusion criteria in the settlement were sampled into the study.

Data was collected using a structured interviewer administered questionnaire. The questionnaire was developed by the researchers based on the objectives of the study.

The questionnaire comprised of four sections and gathered information on subject's socio-demographics, nutritional knowledge, practices and their Body Mass Index (BMI).

Other data collection tools included weighing scale, tape measures and writing materials.

Nutritional knowledge of respondents were graded as "good", "fair" or "poor" depending on the scores they got out of 15 questions used to assess their nutritional knowledge. Nutritional practices were graded as "appropriate" or "inappropriate", depending on their food intake of certain food items (proteinous foods like milk, meat, fish; water; fruits and vegetables) in a week. If eaten 4-7 days in a week, nutritional practises were termed as "appropriate" and it was termed "inappropriate" if eaten less than four days in a week. Body mass index was classified and "underweight", "overweight" "overweight" and "obese" were defined based on WHO criteria (WHO, 1995).

Data was collated and analyzed using Epi-info statistical software version 3.5.4. Quantitative data such as age were presented using mean ± standard deviation. Chi square test was used as a test of statistical relationship. A 95% confidence interval was used in this study with a P value of ≤ 0.05 considered statistically significant.

Written Ethical approval was issued by the Jos University Teaching Hospital Research Ethics Committee for the study. Each respondent gave informed verbal consent before being enrolled into the study after being assured of confidentiality and given the option to opt out of the study at any time.

RESULTS

Table 1. Socio-demographic Characteristics of Respondents

Variables	Frequency (n=220)	Percentage
Age group (years)		
65-74	162	73.6
75-84	32	14.5
85-94	19	8.7
95-104	5	2.3
105-114	2	0.9
Marital status		
Single	1	0.5
Married	149	67.6
Divorced	3	1.4
Widowed	67	30.5
Sex		
Female	95	43.2
Male	125	56.8
Educational status		
None	104	46.8
Primary	76	34.9
Secondary	22	10.1
Tertiary	18	8.2
Average Monthly Income		
<10000	133	60.5
10000-50000	79	35.9
>50000	8	3.6
Occupation		
Employed	42	19.1
Retired	178	80.9

The largest proportions of respondents were aged 65-74 years, most were males (56.8%), retired (80.9%) and married (67.6%).

Table 2. Nutritional Knowledge of the aged

Knowledge of nutritional needs Of the aged	Frequency (n=220)	Percentage (%)
Not aware	142	64.5
Aware	78	35.5
Graded knowledge		
Good	27	12.3
Fair	16	7.3
Poor	177	80.4

Most of the respondents (80.4%) had poor nutritional knowledge and majority of them (64.5%) were not aware of any special nutritional needs for the aged.

Table 3. Showing BMI of respondents and their classifications

BMI	Frequency	Percentage (%)	Classification	WHO Classification
<18.5	17	7.7	Underweight	Underweight
18.5-24.9	132	60	Normal	Normal
25.0-29.9	57	25.9	Overweight	Grade 1
30.0-39.9	13	5.9	Obese	Grade 2
>40.0	1	0.5	Morbid obesity	Grade 3
Total	**220**	**100**		

Table 4. Relationship between BMI and associated factors

BMI F	Sex		Total	X²	p
	Female (n=95) Freq (%)	Male (n=125) Freq (%)			
<18.5	5 (5.3)	12 (9.6)	17		
18.5-24.9	46 (48.4)	86 (68.8)	132	15.865	0.0032
25.0-29.9	35 (36.8)	22 (17.6)	57		
≥ 30.0	9 (9.5)	5 (4.0)	14		
	Graded nutritional knowledge				
BMI	Poor (n=177)	Fair (n=16)	Good (n=27)	Total	X²	p
<18.5	14 (7.9)	1 (6.2)	2 (7.4)	17		
18.5-24.9	104 (58.8)	11 (68.8)	17 (63.0)	132	1.1868	0.9968
25.0-29.9	47 (26.6)	3 (18.8)	7 (25.9)	57		
≥ 30	12 (6.7)	1 (6.2)	1 (3.7)	14		
BMI	Employment status		Total	X²	p
	Employed (n=42)	Retired (n=173)			
<18.5	4 (9.5)	14 (8.1)	18		
18.5-24.9	26 (61.9)	108 (62.4)	134	0.3232	0.9883
25.0-29.9	10 (23.8)	46 (26.6)	56		
>30.0	2 (4.8)	12 (2.9)	14		

Majority of respondents (60%) had normal Body Mass Index; however 25.9% were overweight while 7.7% were underweight.

There was a statistically significant relationship between nutritional status of respondents and their sex. There was however, no statistically significant relationship between nutritional statuses of respondents and their graded nutritional knowledge score, or employment status.

DISCUSSION

This study was carried out among elderly persons in an urban slum community in North-Central Nigeria, with the objective of assessing factors that affect the nutritional status of the elderly living in that urban slum. This nutritional assessment is relevant in developing countries (like Nigeria) and urban slums, because of the increasingly growing population of the elderly in such places. If their nutritional health is not catered for, their longevity will be threatened.

Majority of the respondents were males and a good proportion of them had retired from gainful employment. This can be explained by the fact that their average age was 72 ± 9 years and retirement age in Nigeria is 60 years. It also suggests that if they are not economically buoyant, it can have an effect on their purchasing power, which will determine their food choices, food intake, nutritional practices and invariably, their nutritional status. Furthermore, socio-demographic data also showed that most of the respondents did not have any formal education. This would have a negative effect on their nutritional knowledge as they are likely to be illiterate and can't read nutritional information even if it is readily available.

Most of the respondents had poor graded nutritional knowledge. Other researchers have found out that a high proportion of older adult in their societies have very little basic nutritional knowledge and this acts as a barrier to healthy eating (Moynihan, 2007). A literate person is more likely to read nutritional material on food items as well as look out for them from the media too. This has an advantage for the elderly who need to be able to eat appropriately in order to maximize the nutrients in their meals.

An assessment of the nutritional statuses of the elderly revealed that most of the respondent had normal BMI while 0.5% had morbid obesity or Grade 3 obesity; according to WHO classification. Other researchers' work has revealed that obesity was a more common form of nutritional disorder observed in the elderly (Stevens & Cai, 1997). This is usually associated with being retired, being less physically active and having associated skeletal problems like arthritis, osteoporosis and fractures. It is important for the elderly to have a normal BMI because it makes it easier for them to be physically active and helps in the control of NCDs.

The relationship between BMI and sex of the respondents was statistically significant. More of the females than the males were either obese or morbidly obese, as is expected in most developing countries. This is partly because of the role hormones have in regards to weight gain in menopausal female (Landi & Ender, 2000). There was however, no statistically significant relationship between nutritional statuses of the respondents and their graded nutritional knowledge. It has been found in a systemic review, that many studies however find a relationship between them (Sponke et al., 2014)

Of the studied elderly respondents, 64.7% of them were not aware of any special dietary requirements for the

aged. This could explain why they consume all available food or seasonal foods that are predominant in their locality. Although there is actually no required special diet for elderly, it is vital for their diet to be rich in fruits and vegetables. This has been found to improve their gastric motility, supply required vitamins and minerals for them and help prevent them from having micronutrient deficiencies (Finch et al., 1998). A diet rich in animal protein also helps to enhance their mental capacity as well as help them have proper bone strength.

CONCLUSIONS

Most of the elderly in the urban slum, (Tudun Wada) have poor nutritional knowledge and practises, and a little over a quarter of them were overweight/obese; more in females than male subjects. It is recommended that the findings of this study, be used as a baseline for subsequent continuing assessment of the elderly people in the study area by relevant health and government authorities. It is also expected that this study will further bridge the information gap and promote the care for the aged population in their familiar environment; their homes or communities.

The study further recommends that health programmes aimed at improving the diet of the elderly must take a multi-pronged approach.

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