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Research Article

Nutritional Practices, Quality of Life and, Health Status of Elderly in Rural Communities in Owo Local Government Area, Ondo State, Nigeria

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Abstract

The study investigates the nutrition practices, health status, and quality of life of elderly individuals in Owo, Ondo State, Nigeria. It involves a descriptive cross-sectional design with 346 elderly participants aged 60-90, systematically sampled from six rural communities. Data were collected via structured, interviewer-administered questionnaires on demographics, medical and lifestyle histories, daily activities, health-seeking behaviors, food consumption, and nutritional care practices. Nutritional status and high blood pressure were assessed using anthropometric indices and a digital sphygmomanometer. Key findings indicate that 37.6% of participants were aged 60-64. Significant differences were noted between sexes in socio-demographic variables. Alcohol consumption, tobacco sniffing, and cigarette smoking were reported by 15.3%, 11.0%, and 4.6% respectively. Additionally, 23.1% were on hypertensive drugs and 20.1% were confirmed diabetics. Meal frequency varied, with 16.5% eating less than three times daily and 59.2% eating three times daily. Lunch (58.0%) and breakfast (36.6%) were the most skipped meals, and 15% ate outside the home. Dietary diversity scores revealed 66.5% with medium and 27.5% with good diversity. Significant gender differences were observed in dietary diversity and consumption patterns of cereals, roots, tubers, and fruits. Nutritional care practices and daily living activities scores showed 90.2% and 80.6% with fair practices and good activity scores, respectively, while 46.2% demonstrated good health-seeking behavior. Common health complaints included body and joint pain. Central obesity rates were 33.8% (WC), 30.3% (WHtR), and 30.6% (WHR). Elevated systolic and diastolic blood pressure were

found in 36.7% and 23% of participants, respectively. Only 31.2% reported a good quality of life. Significant positive correlations were found between nutritional status, quality of life, nutritional care practices, and functionality. Malnutrition, poor quality of life, and inadequate care practices among the elderly in rural areas highlight a public health challenge requiring targeted interventions.

1. Introduction

The aging process is inherently linked with a decline in functional ability and quality of life [1]. As people age, there is a notable deterioration in physical functions such as aerobic capacity, muscle strength, and postural balance, which impairs their ability to perform activities of daily living (ADL) [2]. Furthermore, the decline in functional capacity in older adults is a significant predictor of negative health events, independent of the presence and number of chronic diseases [3].

Aging is often accompanied by an increased risk of chronic conditions like respiratory diseases, arthritis, stroke, depression, and dementia [4]. These conditions, along with factors like tooth loss, poor socio-economic status, and limited mobility, can negatively impact appetite and the ability to eat, leading to poor nutritional status. Older adults also exhibit reduced muscle strength, memory, and cognitive function, primarily due to neural cell loss in critical brain regions and decreased activity in monoaminergic and cholinergic pathways [5-7].

A strong relationship exists between nutritional status and individual health. Good nutritional status is crucial for maintaining health in older adults as it impacts nearly all human organs and systems. The World Health Organization (WHO) defines quality of life as individuals' perception of their position in life within the context of their culture, value systems, goals, expectations, standards, and concerns [8]. This broad concept encompasses physical health, independence, psychological state, social relationships, personal beliefs, and environmental factors [8].

Elderly people are particularly vulnerable due to factors like loneliness, loss of interest in life, and lack of support, especially after the death of a partner or in the absence of family or friends [9]. They often require assistance with selecting, buying, and preparing food, as well as performing other daily activities. Changes in family structures mean many elderly individuals now live alone, and loneliness is linked to decreased food intake and poor nutritional status [9]. Poor social and family support systems can lead to abuse and neglect of the elderly by family and community members, especially in rural areas where most older people reside and have no income to meet their daily needs, further diminishing their interest in food.

Adequate nutrition is essential for the proper functioning of the human body at all ages, but its importance is even more pronounced in old age. Aging often brings health challenges and decreased functional capacity, affecting an individual's sense of well-being. The goal of health care for the elderly may not be complete freedom from illness but rather the ability to maintain a good quality of life despite health challenges [10, 11].

Poor nutritional care among the elderly may result from inadequate protein and energy intake and age-related changes in dietary habits. Research on the nutritional status of the elderly in Nigeria has shown high prevalence of starvation and a triple burden of malnutrition in some cases [12]. Low muscle strength due to deficiencies in micro and macronutrients is often associated with hyper catabolism from multiple health conditions, posing significant risks for frailty [13].

Elderly individuals are more vulnerable to health challenges compared to younger populations. However, public health interventions have primarily focused on other vulnerable groups such as children under five, women of childbearing age, pregnant women, and female adolescents [14]. There is a scarcity of quality data on the interplay between nutritional care practices, quality of life, and health status of the elderly in Nigeria. Therefore, it is imperative from a public health perspective to investigate these factors to understand their synergy and improve the health and well-being of the elderly.

2. Method

2.1. Study Design

The study employed a descriptive cross-sectional design to investigate nutrition care practices, quality of life, and health status among the elderly in the rural community of Owo Local Government Area, Ondo State, Nigeria. This design was chosen due to its effectiveness in providing a snapshot of the current health and nutrition status of the elderly population at a specific point in time. It allows for the collection of data on various variables simultaneously, making it suitable for assessing relationships and drawing conclusions about the prevalence and distribution of health outcomes and related factors within the study population.

2.2. Sampling Technique

A multistage sampling technique was employed to select participants for the study. The initial stage involved selecting six out of the eleven wards in Owo Local Government Area through random sampling. Subsequently, one rural community was randomly selected from each of these six wards. Systematic sampling was then used to select sixty respondents from each community, resulting in a total sample size of 400 elderly individuals aged between 60 and 90 years. This sampling technique ensured a representative sample of the elderly population in the study area, allowing for the generalization of findings.

2.3. Data Collection

Data collection was conducted using interviewer-administered questionnaires, which comprised six sections covering various aspects of the study:

1. Section A: Captured socio-demographic characteristics such as age, sex, marital status, occupation, educational qualification, sources of income, and household assets.
2. Section B: Focused on nutritional care practices and dietary diversity, utilizing the FAO's minimum dietary diversity questionnaire.
3. Section C: Included questions on medical history, lifestyle, activities of daily living (ADL), and health-seeking behaviors, employing the Katz index of independence.
4. Section D: Assessed health-related quality of life (HRQOL) using an adapted version of the WHOQOL instrument.
5. Section E: Examined health status, including chronic health conditions and blood pressure measurements in accordance with WHO guidelines.
6. Section F: Recorded anthropometric measurements such as height, weight, waist and hip circumference, and mid-upper arm circumference to determine nutritional status.

The questionnaires were pretested and validated to ensure reliability and accuracy of the data collected. Additionally, four research assistants fluent in the local Owo dialect were recruited and trained on data collection techniques and the use of the study instruments. They conducted the interviews with sufficient privacy to ensure the comfort and cooperation of the respondents.

2.4. Ethical Considerations

Ethical approval for the study was obtained from the Public Health Department of the National Open University of Nigeria, Akure Study Centre. A letter of approval was also secured from the Chairman of Owo Local Government. Informed consent was obtained from each study participant after explaining the objectives and procedures of the study. Participants were assured of confidentiality and anonymity, and their participation was entirely voluntary. Those who agreed to participate signed a consent form before the interview commenced. The study adhered to ethical guidelines to protect the rights and well-being of the participants. All interviews were conducted with respect and sensitivity to the participants' cultural and personal circumstances. The research assistants were trained to handle any ethical issues that might arise during the data collection process. Additionally, measures were taken to ensure that participants could withdraw from the study at any point without any repercussions. This ethical approach ensured that the study was conducted in a manner that respected the dignity and autonomy of the elderly participants while collecting valuable data for improving their health and nutrition outcomes.

3. Result

3.1. Socio-demographic Characteristics of the Respondents

Table 1 and table 2 express the socio-demographic characteristics of the respondents. A total of 346 respondents participated in the study with an average age of 72 ± 2.4 years. About two-thirds (37.6%) of the respondents were within the age of 60-64-years. More than half (59%) of the respondent were female while (41%) were male. Most of the respondents were still married (61.8%) as at the time of data collection while 33.8% of them had already lost their spouse. Christianity (84.4%) and Yoruba (82.6%) was the predominant religion practiced and ethnicity of the respondents. Although, Igbos (8.7%) and Ebira (3.5%) were also found among the participants. As at the time of data collection, 78.6% of the respondents were living with their family members of which 59.5% were in their own personal houses. This study includes 23.9% retirees, 31% traders and 16.8% farmers. More than half (58.1%) of the respondents still depend on their Personal effort/work for income to survive while 15.3% sustained on pension arrears from Government while only 22.8% received support from their children. On education attainment, 23.1% had no former education, 35% didn't study beyond primary school while only 19.7% had post-secondary certificate, and 22.3% had secondary education certificate. Well water was the most source of water to most of the respondent, about 65.9% used well water while 21.1% were able to afford Borehole.

Table 1. Socio-Demographic Characteristics of the Subjects.

Variable	Male	Female	Total (%)	X^2	P value
Age (years)					

Variable	Male	Female	Total (%)	X^2	P value
60-64	52 (36.6)	78 (38.2)	130 (37.6)	19.710	0.001
65-70	22 (15.5)	34 (16.7)	56 (16.2)		
71-74	19 (13.4)	43 (21.1)	62 (17.9)		
75-80	28 (19.7)	28 (13.7)	56 (16.2)		
81-90	21 (14.8)	21 (10.3)	42 (12.1)		
Total	142 (100.0)	204 ((100.0)	346 (100.0)		
Marital status					
Married	115 ((81.0)	99 (48.5)	214 (61.8)	43.218	0.000
Widow/Widower	21 (14.8)	96 (47.1)	117 (33.8)		
Separated	4 (2.8)	2 (0.9)	6 (1.7)		
Divorced	2 (1.4)	7 (3.4)	9 (2.6)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Religion					
Christianity	128 (90.1)	164 (80.4)	292 (84.4)	6.632	0.157
Islam	12 (8.4)	32 (15.7)	44 (12.7)		
Traditionalist	1 (0.7)	2 (0.9)	3 (0.9)		
Brotherhood	1 (0.7)	0 (0.0)	1 (0.3)		
Jehovah witness	0 (0.0)	6 (2.9)	5 (1.7)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Type of housing					
Personal	92 (64.8)	114 (80.3)	206 (59.5)	6.641	0.084
Rented	50 (35.2)	83 (58.4)	133 (38.4)		
Family house	0 (0.0)	7 (3.4)	12 (3.5)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Ethnicity					
Yoruba	109 (76.8)	177 (86.8)	286 (82.6)	13.157[a]	0.011
Igbo	17 (11.8)	13 (6.4)	30 (8.7)		
Hausa	4 (2.8)	3 (1.5)	7 (2.0)		
Ebira	6 (4.2)	6 (2.9)	12 (3.5)		
Edo	6 (4.2)	5 (2.5)	11 (3.2)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Living arrangement					
Alone	15 (10.6)	16 (7.8)	31 (9.0)	7.593	0.055
With family members	115 (81.0)	157 (77.0)	272 (78.6)		
Relatives	12 (8.4)	31 (15.2)	44 (12.4)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		

Significant at $p < 0.05$

Table 2. Socio-Demographic Characteristics of the Subjects.

Variable	Male	Female	Total (%)	X^2	P value
Education attainment					
None formal education	35 (24.6)	45 (22.1)	80 (23.1)	6.649	0.156
Primary school	50 (35.2)	71 (34.8)	121 (35.0)		
Secondary school	23 (16.2)	54 (26.5)	77 (22.3)		
Post-Secondary	34 (23.9)	34 (16.7)	68 (19.7)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Occupation					
None	9 (6.3)	24 (11.8)	33 (9.5)	50.536	0.001
Retired	40 (28.2)	43 (21.1)	83 (23.9)		
Trading	22 (15.5)	88 (43.1)	110 (31.8)		
Artisan	43 (30.2)	18 (8.8)	61 (17.6)		
Farming	28 (19.7)	30 (14.7)	58 (16.8)		
civil servant	0 (0.0)	1 (0.5)	1 (0.3)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Source of income					
Personal effort/work	85 (59.9)	116 (56.9)	201 (58.1)	22.118	0.001
Support from children	20 (14.1)	59 (28.9)	79 (22.8)		
Gift from others	3 (2.1)	10 (4.9)	13 (3.8)		
Pension	34 (23.9)	19 (9.3)	53 (15.3)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Source of water					
Personal Borehole	41 (28.9)	32 (15.7)	73 (21.1)	16.494	0.006
River/Lake/Stream	6 (4.2)	16 (7.8)	22 (6.4)		
Well	89 (62.7)	139 (68.1)	228 (65.9)		
Community supply	6 (4.2)	17 (8.3)	23 (6.6)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Number of dependants					
No response	14 (9.8)	22 (10.8)	36 (10.4)	6.401	0.041
less than 3	64 (45.1)	117 (57.4)	181 (52.3)		
3 or more	64 (45.1)	65 (31.9)	129 (37.3)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		

Significant at $p < 0.05$

3.2. Socio-economic Status of the Respondents Using Household Durable Goods

From the table, it was clear that most of the respondent (92.5%) owns a Radio, (90.8%) had a mobile phone, television was owned by 82.9% of the respondents while cushion chair set, fan, kerosene stove, pressing iron, video CD player and kerosene stove were owned by 73.7%, 70.8%, 70.8% 64.5%, 64.2% and gas cooker 62.7% of the respondent respectively.

Two-thirds (33.5%) of the participants could boost of generator. The least own household items are bicycle (4.9%), computer set (8.7%) air condition (9.0%), Motorcycle (20.5%), and mo-torcar (25.7%) in that order. Only 61.8% of the participants had their own personal house.

Table 3. Socio-economic status of the respondents using household durable goods.

Household item	Male	Female	Total (%)	X^2	P value
Radio	132 (38.2)	188 (54.3)	320 (92.5)	0.077	0.476
Television	130 (37.6)	157 (45.4)	287 (82.9)	12.597	0.000
Video/CD player	104 (30.1)	118 (34.1)	222 (64.2)	8.631	0.002
Bicycle	11 (3.2)	6 (1.7)	17 (4.9)	4.138	0.038
Mobile phone	135 (30.0)	179 (51.7)	314 (90.8)	5.353	0.015
Motorcycle	55 (15.9)	16 (4.6)	71 (20.5)	48.980	0.000
Kerosene stove	87 (25.1)	158 (45.7)	245 (70.8)	10.608	0.001
Cushion chair set	115 (33.2)	140 (40.5)	255 (73.7)	6.597	0.007
Gas cooker	94 (27.2)	123 (35.5)	217 (62.7)	1.248	0.158
Computer set	12 (3.5)	18 (5.2)	30 (8.7)	0.015	0.533
Fan	113 (32.7)	132 (38.2)	245 (70.8)	8.958	0.002
Air condition	9 (2.6)	22 (6.4)	31 (9.0)	2.029	0.108
Refrigerator	61 (17.6)	54 (15.6)	115 (33.2)	10.256	0.001
Freezer	43 (12.4)	54 (15.6)	97 (28.7)	0.603	0.256
Pressing iron	112 (32.4)	111 (32.1)	223 (64.5)	21.865	0.000
Motor car	48 (13.9)	41 (11.8)	89 (25.7)	8.230	0.003
House	94 (27.2)	120 (34.7)	214 (61.8)	1.929	0.101
Generator	62 (17.9)	54 (15.6)	116 (33.5)	11.103	0.001

Significant at p < 0.05

3.3. Medical History and Lifestyles Pattern of the Respondents

Table 4 presents the medical history and lifestyles pattern of the respondents. Twenty-three-point one percent (23.1%) of the respondents were on hypertensive drug, similarly, 21.1% had diabetes mellitus while 15.3% 11.0% and 4.6% drinks alcoholic beverage, use tobacco and smoke as at the time of data collection. This act was predominantly among male participants. Engagement in physical exercise was less than fifty percent of the respondents. More than half were not involved in exercise.

Table 4. Medical history and lifestyles pattern of the Respondents.

Variable	Male	Female	Total (%)	X^2	P value
On hypertensive drug					
Yes	25 (17.6)	55 (29.0)	80 (23.1)	21.069	0.016
No	117 (82.4)	129 (71.0)	231 (76.9)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Confirmed diabetic					

Variable	Male	Female	Total (%)	X^2	P value
Yes	28 (19.7)	45 (22.00)	73 (21.1)	18.231	0.013
No	114 (80.3)	159 (78.0)	273 (78.9)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Drinks alcohol					
Yes	44 (30.0)	9 (4.4)	53 (15.3)	45.580	0.000
No	98 (70.0)	195 (95.6)	293 (84.7)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Smoke cigarrette					
Yes	16 (11.3)	0 (0.0)	16 (4.6)	24.100	0.001
No	126 (88.7)	204 (100.0)	330 (95.4)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Takes tobacco					
Yes	17 (12.0)	21 (10.3)	38 (11.0)	0.241	0.373
No	125 (88.0)	183 (89.7)	313 (89.0)		
Total	142 (41.0)	204 (100.0)	346 (100.0)		
Engaged in exercise once in week					
Yes	83 (58.5)	71 (34.8)	154 (44.5)	18.955	0.003
No	59 (41.5)	133 (65.2)	192 (55.5)		
Total	142 (41.0)	204 (100.0)	346 (100.0)		

Significant at $p < 0.05$

3.4. To Assess the Nutritional and Care Practices of the Elderly

Table 5 shows the nutritional practices of the respondents. A total of 57 (16.5%) of the participants eat less than three meals per day while 205 (59.2% ate more than 3 times a day, more than 50% of the respondent skipped meals. Lunch was the most skipped meal of the day with 58.0% skipped followed by breakfast 36.8% while only 5.2% failed to consume their dinner and skipped it. Eighty-two-point six percent nine (86.9%) of the respondent consumed food made at home while less than 15% of the participants consumed outside the home.

Table 5. Nutritional practices of the Respondents.

Variable	Male	Female	Total (%)	X^2	P value
Number of meals taken in a day					
Less than < 3 tmies	22 (15.5)	35 (17.1)	57 (16.5)	1.272	0.736
3 times	89 (62.7)	116 (56.9)	205 (59.2)		
Greater than > 3 times	31 (21.8)	53 (25.9)	84 (24.3)		
Total	142 (41.0)	204 (100.0)	346 (100.0)		
Normal skip meals					
Yes	74 (52.1)	100 (49.0)	174 (49.9)	15.020	0.001

Variable	Male	Female	Total (%)	X^2	P value
No	68 (47.9)	104 (51.0)	172 (50.1)		
Total	142 (41.0)	204 (100.0)	346 (100.0)		
If yes, what meal (n=174)					
Breakfast	44 (59.5)	20 (20.0)	64 (36.8)	30.947	0.001
Lunch	25 (33.8)	76 (76.0)	101 (58.0)		
Dinner	5 (6.8)	4 (4.0)	9 (5.2)		
Total	74 (100.0)	100 (100.0)	174 (100.0)		
Where meals were taken					
Home	124 (87.3)	177 (86.8)	301 (86.9)	1.148	0.563
Outside home	18 (12.7)	27 (13.2)	45 (13.1)		
Total	142 (41.0)	204 (100.0)	346 (100.0)		

Significant at $p < 0.05$

3.5. Food Consumption Pattern of the Respondents

Table 6 below shows the food consumption pattern of the respondents. Considering food consumption frequency of three or more times a week, energy food sources were well consumed with 58.1%, 64.2% and 53.8% consuming cereals, tubers and oil/fats respectively. Protein foods such as meats, fish and legumes were consumed by 63.3%, 52.9% and 51.9% respectively. However, egg and milk were consumed by 26.9% and 26.8% respectively. Vegetables were consumed by 68.8% but fruits were consumed by 44.3%.

Table 6. Food consumption pattern of the respondent.

Food groups	None	< 3 times	3-4 times	≥ 5 times
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Cereals	19 (4.5)	157 (37.4)	134 (31.9)	110 (26.2)
Roots and tubers	19 (4.5)	131 (31.2)	177 (42.1)	93 (22.1)
Vegetables	25 (6.0)	106 (25.2)	137 (32.6)	152 (36.2)
Fruits	128 (30.5)	106 (25.2)	97 (23.1)	89 (21.2)
Meats	35 (8.3)	119 (28.3)	134 (31.9)	132 (31.4)
Egg	247 (58.8)	60 (14.3)	70 (16.7)	43 (10.2)
Fish and sea food	105 (25.0)	93 (22.0)	109 (26.0)	113 (26.9)
Legumes	79 (18.8)	123 (29.3)	124 (29.5)	94 (22.4)
Milk and milk products	248 (59.0)	59 (14.0)	51 (12.1)	62 (14.8)
Oil fat or butter	91 (21.7)	103 (24.5)	114 (27.1)	112 (26.7)
Sugar or honey	198 (47.1)	70 (16.7)	77 (18.3)	75 (17.9)
Spices and condiments	119 (28.3)	101 (24.0)	82 (19.5)	118 (28.1)

3.6. Dietary Diversity of the Respondents: Consumption of Food Within 24 Hours

Table 7 shows that the majority (81.8%) and 80.3% of the respondent consumed food from cereal and root/tubers staples respectively. Seventy-one-point one percent (71.1%) and 81.2% of the respondent consumed fruits and vegetables respectively within 24 hours prior to the survey. 70.5% from Dark green leafy vegetables while protein such as Fish/seafoods, meat and egg amount to 76.0%, 48.6% and 41.0% respectively. Milk/milk product while 50.9% consumed food from other fruits and vegetables. About 37.7% consumed milk and milk product (37.6%)

was the second least food group consumed by the respondent while sugar/honey was the least consumed food group among the respondent in the study and 75.5% ate food from legume. Nearly 90% did consumed Oil, fats and butter. The dietary diversity score of the individual subjects ranged from 0 to 12. About 6.1% of the participants had low DDS (0-3) while 66.5% had average DDS (4-7), 27.5% had High/Good DDS that is, and they consumed more than 7 food groups within 24 hour prior to this investigation. Significant difference was observed ($p < 0.05$) between the male and female participant in dietary diversity score (P=0.002), in consumption of cereals (p=0.008), Roots/tubers (p=0.002) as well as fruits (p=0.006).

Table 7. Dietary diversity of the respondents: Consumption of food within 24 hours.

Food groups	Male =142 Yes (%)	Female =204 Yes (%)	Total = 346 (%)	X^2	P-value
Cereals	125 (36.1)	158 (45.7)	283 (81.8)	6.289	0.008
Roots/tubers	122 (35.3)	156 (45.1)	278 (80.3)	4.730	0.020
Vegetables	113 (32.7)	168 (48.6)	281 (81.2)	0.423	0.304
Fruits	90 (26.0)	156 (45.1)	246 (71.1)	6.982	0.006
Meats	69 (19.9)	99 (28.6)	168 (48.6)	0.000	0.539
Eggs	61 (17.6)	81 (23.4)	142 (41.0)	0.366	0.301
Fish/seafoods	102 (29.2)	161 (46.5)	263 (76.0)	2.308	0.082
Legumes	110 (31.8)	151 (43.6)	261 (75.4)	0.536	0.273
Nut and seed	54 (15.6)	97 (28.0)	151 (43.6)	3.086	0.050
Milk/milk product	44 (12.7)	86 (24.9)	130 (37.6)	4.454	0.022
Oil, fats and butter	122 (35.3)	186 (53.8)	308 (89.0%)	2.370	0.087
Sugar/honey	32 (9.2)	63 (18.2)	95 (27.0)	2.929	0.055

Significant at p < 0.05

Table 8. Dietary diversity score of the respondents.

Dietary diversity score (DDS)	Male	Female	Total	X^2	P-value
Low /Poor (0-3)	3 (0.9)	18 (5.2)	21 (6.1)		0.002
Medium/ Fair (4-7)	108 31.2)	122 (35.3)	230 (66.5)		
High/Good (8-12)	31 (9.0)	64 (18.5)	95 (27.5)		
Total	142 (41.0)	204 (59.0)	346 (100.0)		

3.7. Care Practices of the Respondents

Table 9 below shows the care practices received by the respondents. Preparation of meals was mostly done by the

respondent (41.6%) while 27.6% and 26.8% of the meals were prepared by their spouse and children respectively. Respondents usually don't receive assistance in bathing (93.7%), in taking medication (90.9%) and dressing (90.6%). Feeding assistance was received 18.2% Children/relatives of the sub-

jects. Thirty-four-point eight percent of the respondents received care assistance from Children/relatives while 53.6% could not receive care in washing clothes. Only 2.6% had good care practices while 90.2% had fair care practices and 6.1% had poor care practice meaning they totally like care and may likely not received care assistance from anybody and at the same time could not performed them (table 9).

Table 9. Care practices of the respondents.

Activities	Frequency	Percentage
Preparation of meals		
Spouse	97	27.6
Children	94	26.8
House help	14	4.0
No one	0	0.0
Myself	146	41.6
Total	346	100.0
Assistance in bathing		
Spouse	10	2.8
Child/relatives	8	2.3
House Help	4	1.1
Myself	329	93.7
Total	346	100.0
Assistance in taking medications		
Spouse	8	2.3
Child/relatives	17	4.8
House Help	4	1.1
No one	3	.9
Myself	319	90.9
Total	346	100.0
Assistance in Feeding		
Spouse	29	8.3
Child/relatives	64	18.2
House Help	9	2.6
No one	19	5.4
Myself	230	65.5
Total	346	100.0
Assistance in washing clothes		
Spouse	30	8.6
Child/relatives	122	34.8
House Help	11	3.1
Myself	188	53.6
Total	346	100.0

Activities	Frequency	Percentage
Assistance in shopping		
Spouse	48	13.7
Child/relatives	79	22.5
House Help	6	1.7
No one	71	20.2
Myself	147	41.9
Total	346	100.0
Assistance in dressing up		
Spouse	9	2.6
Child/relatives	11	3.1
House Help	5	1.4
No one	8	2.3
Myself	318	90.6
Total	346	100.0

Table 10. Care practices score of the respondents.

Care practices score (NCPS)	Male	Female	Total	X^2	P-value
Poor care practices (PCP)	8 (2.3)	17 (4.9)	25 (6.1)	1.640	0.440
Fair care practices FCP)	129 (37.3)	183 (52.9)	312 (90.2)		
Good care practices (GCP)	5 (1.4)	4 (1.2)	9 (2.6)		
Total	142 (41.0)	204 (59.0)	346 (100.0)		

Significant at $p < 0.05$

3.8. Nutritional Status of the Respondents

The nutritional status of the respondents is presented in Table 11. This study found that (9.0%) of the elderly were underweight while nearly half (49.0%) were within the healthful BMI range. Overweight and obesity which are 30% and 15.9% were more prevalence among the female elderly. Female respondents were not just more overweight and obese, but the difference was statistically significant (p<0.05). Waist circumference status of the respondents revealed that 33.8% of the of the entire study population were found to have a central obesity. The prevalence of central obesity was higher among female respondents (52.0%) compared to their males' counterpart (10%) and it was statistically significant (p<0.05). Similarly, waist to hip ratio revealed that 30.6% were obese while two-thirds (69.4%) had normal waist to hip ratio. Significant difference (p<0.05), also exist between male and female participants. Judging with waist to height ratio, 30.3% of the respondent were at risk of cardiovascular disease of which Female respondents (37.7%) were more at risk of than the male (19.7%) respondents. Considering the prevalence of chronic malnutrition, using the mid upper arm circumference, about 9.0% were malnourished as at the time data collection. Good nutrition was observed among 91% of the respondents.

Table 11. Nutritional Status of the Respondents.

Variables	Male= (142) F (%	Female= (204) F (%)	Total n= 346 F (%)	X^2	P value
Body Mass Index					
<18.5 (underweight)	6 (4.2)	12 (5.9)	31 (9.0)	17.813	0.007
18.5 – 24.9 (Normal)	85 (59.9)	85 (41.7)	170 (49.1)		
25-29.9 (Overweight)	38 (26.8)	65 (31.9)	103 (30.0)		
30-34.9 (Obesity class 1)	10 (7.0)	23 (11.3)	33 (9.5)		
35-39.9 (Obesity class 2)	3 (2.1)	19 (9.3)	22 (6.4)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Waist circumference					
< 88cm < 102cm (Normal)	131 (92.2)	98 (48.0)	229 (66.2)		
> 88cm > 102cm (Excess)	11 (7.8)	106 (52.0)	117 (33.8)	73.131	0.005
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Waist-Hip Ratio					
<0.84<0.90 (Normal)	79 (55.6)	161 (78.9)	240 (69.4)		
≥0.85≥0.90 (Excess)	63 (44.4)	43 (21.1)	106 (30.6)	21.366	0.002
Total	142 (100.0)	204 (100.0)	346 (100.0)		
Waist-Height Ratio					
Healthy weight	90 (63.4)	98 (48.0)	189 (54.6)		
Overweight	24 (16.9)	39 (19.1)	63 (18.2)	24.284	0.030
Central obesity	28 (19.7)	77 (37.7)	105 (30.3)		
Total	142 (100.0)	204 (100.0)	346 (100.0)		
MUAC					
Malnutrition	8 (5.6)	23 (11.3)	31 (9.0)		
Good nutrition	134 (94.4)	181 (88.7)	315 (91.0)	3.266	0.051
Total	142 (100.0)	204 (100.0)	346 (100.0)		

Significant at $p < 0.05$

3.9. Other Relevant Findings

3.9.1. Health Seeking Behaviours (HSB) of the Respondents

According to Table 12 Health seeking behaviour of the respondent revealed that only 46.2% had a good health seeking behaviours, meaning that this set of elderly always approach the either the health centres, hospital and pharmacy to seek for treatment whenever they are ill. More than half of the elderly had a poor health seeking behaviours of which 28.9% of them patronized Over the counter medication/ self-medication, 17.3% subscribe to herbal medicine. Faith healing (6.1%) was not left behind as well.

Table 12*. Health seeking behaviours (HSB) of the respondents.*

Sources of health care	Frequency	Percentage
Health Center/pharmacy	160	46.2
Herbal Medicine	60	17.3
Over the counter medication / self-medications	100	28.9
Faith healing	21	6.1
None	5	1.4
Total	346	100.0

3.9.2. Chronic Health Conditions of the Respondents as Suffered in the Last 12 Months

Table 13 presents the health conditions of the respondents. The prevalence of diabetes was 21.1%, nearly one-third of the respondent suffered body pain (73.1%) and joint pain (59.5%). Twenty-six-point four percent (20.8%) were hypertensive. Dental caries was found to be 14.5% of the entire population involved in the survey. The least diseases recorded among the subjects are Bloating and Defecation problem of which only 0.3% and 2.3% had the problem respectively. Malaria, dementia, and eye problem were found among 52.0%, 12.1% and 19.0% respectively. Only (6.4%) of the respondents had depression while ear problems (26.3%) complained of loss of appetite.

Table 13*. Chronic health conditions of the respondents as suffered in the last 12 months.*

Health conditions	Male =142 (%)	Female =204 (%)	Total=346 (%)	X^2	P-value
Body pain	105 (30.3)	148 (42.8)	253 (73.1)	0.083	0.436
Joint pain	85 (24.6)	121 (35.0)	206 (59.5)	.010	0.504
Diabetes	28 (19.7)	45 (22.00)	73 (21.1)	4.793	0.024
Heart problem	2 (0.6)	6 (1.7)	8 (2.3)	0.871	0.291
Loss of appetite	28 (8.1)	63 (18.2)	91 (26.3)	5.383	0.013
Dementia	27 (7.8)	15 (4.3)	42 (12.1)	10.67	0.001
Osteoporosis	2 (0.6)	8 (2.3)	10 (2.9)	1.884	0.147
Depression	34 (9.8)	79 (22.8)	113 (32.6)	8.318	0.003
Urination problem	3 (0.9)	6 (1.7)	9 (2.8)	0.227	0.456
Constipation	9 (2.6)	4 (1.2)	13 (3.8)	4.436	0.035
Hypertension	21 (6.1)	51 (14.7)	72 (20.8)	5.297	0.014
Dental caries	19 (5.5)	31 (9.0)	50 (14.5)	0.223	0.378
Ear problem	11 (3.2)	16 (4.6)	27 (7.8)	.001	0.572
Malaria	86 (24.9)	104 (30.1)	190 (52.0)	3.105	0.049
Defecation problem	5 (1.4)	3 (0.9)	8 (2.3)	1.559	0.188
Eye problem	24 (6.9)	42 (12.1)	66 (19.0)	0.737	0.237
Bloating	1 (0.3)	0 (0.0)	1 (0.3)	1.441	0.410

3.9.3. Activities of Daily Living of the Respondents

Table 14 presents the Activities of Daily living of the respondents. Out of the 346 respondents that participated in the study, questions on their ability to perform daily activities were asked by each of them. Dressing, bathing, eating, toileting, walking, and Taking Medications were the leading activities performed by the respondents. Above 95% of all the respondents could conveniently perform the home operations. Sixty-three percent (63.5%), 51.9% and 63.5% would need

the assistance of others in shopping, doing housework and in preparation of meal respectively. Less than 5% of the respondents could not conveniently put on clothes, bathe, eat, toilet, and walk i.e. they needed assistance in on putting on clothes, bathing, eating toileting, and walking. More than two-third (80%) of the respondent had a good activities of daily living score while 3.2% had poor activities of daily living score, this set of respondents may likely be unable to do anything for themselves.

Table 14. Activities of Daily Living of the respondents.

Activities	YES (%)		No	
Activities	Frequency (n=346)	(%)	Frequency (n=346)	N (%)
Dressing	338	96.3	17	8
Bathing	338	96.3	13	3.7
Eating	343	97.7	8	2.3
Toileting	340	96.9	11	3.1
Walking	340	96.9	11	3.1
Shopping	128	36.5	223	63.5
Preparing Meals	181	51.6	170	48.4
Housework	169	48.1	182	51.9
Taking Medications	314	89.5	37	10.5
Managing Finances	246	70.1	105	29.9

3.9.4. Blood Pressure Pattern of the Respondents

A total of 40% of the respondents had normal systolic blood pressure. Twenty -six-point five percent (26.5%) of them were female respondents. Only 22.9% of the study populations were at borderline (pre-hypertension). Some of the respondents (21.6%) were said to having grades 1 while 15.1% had an elevated grade 2 (hypertension) of which its prevalence (16.2%) was found to be among female respondents. There was a sta-

tistical significance in the systolic blood pressure between the male and female respondents (p=0.001). On diastolic blood pressure pattern, 63.3% of the respondents had normal blood pressure while 23% were hypertensive regardless of the 13.6% that were at borderline (pre-hypertension). Significance difference was observed between the diastolic blood pressure pattern the male and female respondents (p>0.005).

Table 15. Blood pressure pattern of the respondents.

Variables	Male (%)	Female (%)	Total (%)	X^2	P value
SBP (mmHg)					
Optimal BP (<120)	37 (36)	49 (26.5)	86 (29.5)	20.860	0.001
Normal BP (120-129)	5 (7)	27 (16)	32 (11.0)		
Pre-Hypertension (130-139)	33 (30.8)	34 (18.4)	67 (22.9)		
Hypertension grade 1 (140-159)	18 (16.8)	45 (23)	63 (21.6)		

Variables	Male (%)	Female (%)	Total (%)	X^2	P value
Hypertension grade 2 (160-179)	14 (13.1)	30 (16.2)	44 (15.1)		
Total	107 (100.0)	185 (100.0)	292 (100.0)		
DBP (mmHg)					
Optimal BP (<80)	59 (55.1)	97 (52.4)	156 (53.4)	10.456	0.063
Normal BP (80-84)	7 (6.5)	22 (11.9)	29 (9.9)		
Pre-Hypertension (85-89)	14 (13.1)	26 (11)	40 (13.4)		
Hypertension grade 1 (90-99)	11 (10.2)	20 (10.8)	31 (10.6)		
Hypertension grade 2 (100-109)	16 (15.0)	20 (10.8)	36 (12.4)		
Total	107 (100.0)	185 (100.0)	292 (100.0)		

Significant at p < 0.05

3.9.5. Quality of Life Score of the Respondents

The table below shows the quality of life of the respondent in the study area. the quality of life of the respondents reflects the perception of the on their health status. From the table, good quality of life was observed among 31.2% of the subjects of which 33.8% of the total number of female participants who participated. Majority of the entire samples shows that 68.2% had fair quality of life. The difference observed between male, and female wasn't significant (P=0.446).

Table 16. Quality of life score of the respondents.

Quality of life score	Male	Female	Total (%)	X^2	P value
Good (GQL)	39 (27.5)	69 (33.8)	108 (31.2)	1.614	0.446
Fair (FQL)	102 (71.8)	134 (65.7)	236 (68.2)		
Poor (PQL)	1 (0.3)	1 (0.5)	2 (0.6)		
Total	142 (100.0)	204 (59.0)	346 (100.0)		

Significant at p < 0.05

3.9.6. Relationship Nutritional Status, Blood Pressure Pattern and ADL Score, DDS Score, NCP Score, and QOL Score of the Respondents

Table 17 below presents the relationship between anthropometric status, blood pressure pattern and ADL score, DDS score, NCP score, and QOL score of the respondents using correlation. There was a significant positive relationship between BMI against activities of daily living score (ADL score), (r= 0.334 vs P=0.001), dietary diversity score, (r= 0.363 vs P=0.000), care practices score), (r= 0.334 vs P=0.002) and quality of life score (r= 0.254 vs P=0.021) of the respondents.

It simply means BMI increased with an increase in the average ADL score, DDS score, NCP score, and QOL by the respondents. Similarly, there was a significant positive relationship between WHTR against activities of daily living score (ADL score), (r= 0.306 vs P=0.000), dietary diversity score, (r= 0.339 vs P=0.002), care practices score), (r= 0.319 vs P=0.000) and quality of life score (r= 0.219 vs P=0.066) of the respondents. Systolic blood pressure was significantly associated with activities of daily living score (ADL score), (r= 0. 0.353 vs P=0.003), while negligible correlation was observed in dietary diversity score, (r= 0.298 vs P=0.055), care practices score, (r= 0.291 vs P=0.072) and quality of life score (r= 0.213 vs P=0.182) of the respondents.

Table 17. Relationship anthropometric status, blood pressure pattern and ADL score, DDS score, NCP score, and QOL score of the respondents.

Anthropometric Parameters	ADL score		DDS score		NCP score		QOL score	
	r	P-value	R	P-value	R	P-value	r	P-value
BMI (Kgm^{-2})	0.339	0.001	0.363	0.000	0.334	0.002	0.254	0.021
WC (cm)	0.087	0.264	0.069	0.435	0.111	0.113	0.141	0.030
WHR	0.121	0.075	0.087	0.267	0.143	0.028	0.125	.0650
WHTR	0.306	0.000	0.390	0.002	0.319	0.000	0.219	0.066
MAUC (cm)	0.209	0.000	0.083	0.303	0.203	0.001	0.127	0.060
SBP (mmHg)	0.353	0.003	0.298	0.055	0.291	0.072	0.213	0.182
DBP (mmHg)	0.217	0.152	0.346	0.000	0.230	0.090	0.260	0.020

Significant at p < 0.05), Key ADL=Activities of Daily Living, DDS = Dietary diversity score, NCP=Nutritional care practices score, and QOL = Quality of life score SBP= Systolic Blood Pressure, DBP- Diastolic blood pressure, WHR- Waist-to-Hip Ratio, WHtR- Waist-to-Height Ratio, BMI-Body Mass Index, MUAC- mid upper arm circumference

3.9.7. Relationship Between Nutritional Care Practices Score and Quality of Life Score of the Elderly

Table 18 below, it's clear that care practices of the respondent had a link with the quality of life of the respondent.

There was a significant positive correlation between nutritional care practices score (NCP), and quality of life score of the respondent (r = 0.206; P=0.004). It was found out that the majority of the respondents, 312 (90.2%) with fair care practices, 216 (62.4%) had fair quality of life. Fair quality of life is associated with fair care practices among the respondent.

Table 18. Relationship between Nutritional care practices score (NCP), on quality of life score of the respondent.

Variables	Quality of life score (QOLs)					
NCP score	Poor	Fair	Good	Total	R	P-value
Poor care practices (PCP)	1 (0.3)	11 (3.2)	13 (3.8)	25 (7.2)	0.206	0.004
Fair care practices FCP	1 (0.3)	216 (62.4)	95 (27.5)	312 (90.2)		
Good care practices (GCP)	0 (0.0)	9 (2.6)	0 (0.0)	9 (2.6)		
Total	2 (0.6)	236 (68.2)	108 (31.2)	346 (100.0)		

Significant at p < 0.05

4. Discussion

4.1. Socio-demographic Characteristics of the Respondents

This study focused on the nutritional care practices, quality of life, and health status of the elderly in rural communities in Owo, Ondo State, Nigeria. The global elderly population is increasing, and malnutrition remains a significant concern due to socio-economic factors [15]. The study found that two-thirds of respondents were aged 60-64 years, which is lower than findings in similar studies in southwestern Nigeria [16, 17]. There were more female than male participants, possibly due to availability and approachability factors, aligning with findings by Adepoju and Coker [20]. Marital status impacts elderly health and nutrition, with over a third of respondents being widowed, separated, or divorced, a situation linked to increased poverty and food insecurity. Most respondents were Yoruba

and Christian, reflecting the local demographics. However, housing conditions were often poor, exposing the elderly to various risks [18]. Educational levels were low, with many relying on personal effort for livelihood, mirroring findings in Ilaro, Ogun State. The predominant economic activity was trading, consistent with Afolabi et al. [17].

4.2. Medical History and Lifestyle Patterns of the Respondents

A healthy lifestyle includes physical activity, good nutrition, and avoiding tobacco. Most elderly respondents had abstained from alcohol, smoking, and tobacco, lower than rates reported in Kenya [19]. This abstinence may be due to awareness of alcohol's negative health impacts, particularly for those with compromised immune systems.

4.3. Nutritional Practices

Less than 20% of respondents ate fewer than three meals a day, with over half skipping lunch, like findings by Adepoju and Coker [20]. Skipping meals is linked to health issues like gastric ulcers and poor glucose management in diabetics [12].

4.4. Dietary Diversity

Dietary diversity indicates the quality of a diet. Most respondents had a medium dietary diversity score, consuming foods from 4-7 food groups in the past 24 hours, consistent with other studies. However, low consumption of protein-rich foods like eggs and milk could lead to nutrient deficiencies.

4.5. Care Practices

Traditional support for the elderly is prevalent, with a small proportion living alone, which is lower than findings in rural Kenya [19]. Most respondents lived with family, with friends also playing a supportive role. Care practices were generally fair, with the elderly often preparing their own meals and receiving minimal assistance with daily activities.

4.6. Activities of Daily Living

Most respondents could perform daily activities independently, though a third needed help with meal preparation, like findings by Munoru [19]. Supportive settings are crucial for maintaining good dietary and physical activity habits [21].

4.7. Nutritional Status

Nutritional status, measured by BMI, WC, WHR, WHtR, and MUAC, showed a high prevalence of overweight and obesity, particularly among women. Nearly half the population was overweight or obese, higher than findings in Osun State [14]. Central obesity was more common among females,

increasing the risk of metabolic syndrome [22, 23]. Chronic malnutrition was also present, indicating inadequate energy intake and the need for better care to reduce malnutrition-related mortality [24].

4.8. Health-Seeking Behaviors of the Elderly

Health-seeking behaviors, defined by Afolabi et al. [17], showed that 46.2% of respondents regularly sought treatment from health facilities, lower than in other studies [25]. Many relied on over-the-counter medication, herbal medicine, and faith healing, a trend higher than among market traders in Owo [12]. Untrained patent drug dealers pose risks due to counterfeit drugs and improper dosage.

4.9. Health Status of the Elderly

Chronic diseases such as musculoskeletal problems, diabetes, and hypertension were prevalent. The incidence of diabetes was 21.1%, lower than in Osun State (Olanrewaju et al., 2022) but higher than figures in southwestern Nigeria [26]. Hypertension affected 20.8% of respondents, consistent with previous studies [17], with elevated blood pressure noted in many subjects. Cardiovascular and metabolic diseases were significant health issues, requiring better health interventions and support systems.

5. Conclusion

In conclusion, despite the easy access to farm products in rural areas, the low intake of fruits, vegetables, eggs, milk, and meat suggests significant micronutrient deficiencies among residents, contributing to chronic diseases. The diet is predominantly carbohydrate-based with limited protein sources, indicating malnutrition. High morbidity rates, particularly among the elderly, coupled with poor health-seeking behaviors and inadequate care practices, negatively impact dietary intake and quality of life. The study highlights a high prevalence of hypertension and a double burden of malnutrition, underscoring the need for improved dietary diversity, health practices, and support systems for rural elderly populations. Additionally, it found significant correlations between anthropometric parameters, daily activities, and quality of life.

Abbreviations

ADL	Activities of Daily Living
BMI	Body Mass Index
FCP	Fair Care Practice
GCP	Good Care Practice
MUAC	Middle Upper Arm Circumference
NCP	Nutrition Care Practice
PCP	Poor Care Practice
SBP	Systolic Blood Pressure

WHO	World Health Organization
WHO-QoL	WHO Quality of Life
WHR	Waist to Hip Ratio
WHtR	Waist to Height Ratio

Conflicts of Interest

The authors declare no conflicts of interest.

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