

Nutritional challenges and their relationship with well-being among older adults in Northeastern Nigeria: Evidence from Gombe Local Government Area

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Abstract

This study examined environmental influences, eating habits, dietary patterns, and nutritional challenges affecting the health and well-being of older adults in Gombe Local Government Area, Gombe State, Nigeria. Using a descriptive cross-sectional design, the study focused on individuals aged 60 years and above. Data were collected through structured questionnaires and focus group discussions to capture both quantitative and contextual insights. Descriptive statistics and chi-square analysis were applied at a 0.05 significance level. Findings revealed that older adults face multiple nutritional challenges, including limited nutrition knowledge, economic constraints, and socio-cultural factors shaping food choices. Diets were largely dominated by staple foods, with low intake of fruits, vegetables, and protein-rich foods. Although inferential analysis showed no significant statistical relationship between nutritional challenges and overall well-being, descriptive results highlighted their continued influence on dietary behavior and perceived health. The study concludes that elderly nutrition in Gombe LGA is shaped by interconnected environmental, economic, and behavioral factors, recommending strengthened nutrition education, improved food access, and enhanced community support to promote healthy ageing.

Keywords: Ageing; Nutritional status; Dietary patterns; Elderly well-being; Environmental factors; Gombe Local Government Area

Introduction

The growing aging population in low- and middle-income nations like Nigeria, particularly the northeast, faces significant nutritional challenges due to inadequate infrastructure. Malnutrition, limited dietary diversity, and micronutrient deficiencies are common among older adults, influenced by poverty, food insecurity, and socio-cultural practices. In Gombe Local Government Area, high poverty rates and escalating food prices exacerbate these issues, though precise data on older adults remain scarce. Despite dietary limitations, some seniors manage to maintain health through social support and adaptive strategies.

In Nigeria, these demographic experiences both under nutrition and over nutrition due to inadequate diet quality and limited access to nutritional health services, leading to a high prevalence of nutrition-related diseases. (Farombi et al., 2024; Obeng et al., 2022).

Nutrition is essential for health across the lifespan, but it becomes increasingly crucial for older adults, who encounter physiological changes and chronic diseases that elevate dietary risks. Insufficient nutrient intake can lead to sarcopenia, weakened immunity, and increased susceptibility to non-communicable diseases like hypertension and diabetes. The dual burden of malnutrition, characterized by both undernutrition and obesity, is prevalent in SSA, where diets often lack diversity and micronutrient richness, while processed food consumption rises. This malnutrition adversely affects both physical health and quality of life in older adults. (Farombi et al., 2024; Obeng et al., 2022).

Research has identified significant malnutrition and nutritional deficiencies among Nigeria's elderly. A pilot study at the University College Hospital in Ibadan found that over 25% of older patients were at risk of malnutrition, indicating micronutrient deficiencies among some participants. Studies in Benue State revealed low serum levels of critical micronutrients like vitamin B12 and iron, marking a concerning trend in nutritional risk. In rural southwestern

Nigeria, limited dietary diversity and inadequate intake of protein and micronutrients correlated with poorer health and quality of life among older residents, underscoring the complex nutritional challenges they face. (Farombi et al., 2024; Obeng et al., 2022).

In northeastern Nigeria, particularly Gombe Local Government Area (LGA), there is scant evidence on nutritional issues despite notable socio-economic deprivation and health inequalities. Older individuals in Gombe LGA grapple with low incomes, high poverty rates, and limited access to health and nutritional services, all contributing to their nutritional vulnerabilities. Cultural dietary habits, lack of nutrition education, and restricted food variety further compound these risks. Given the need for localized data to inform evidence-based policies and interventions, this study aims to investigate the nutritional challenges faced by elderly individuals in Gombe LGA, exploring their impact on self-reported well-being to guide public health initiatives supporting healthy aging. (World Journal of Public Health, 2024)

The demographic shift towards an ageing population in sub-Saharan Africa (SSA) presents significant challenges related to socio-economic issues and health systems for older adults. By 2050, individuals aged 60 and over will double, with nutrition being vital for healthy ageing. In SSA, older adults face malnutrition, dietary deficiencies, and poor health outcomes due to food insecurity and limited access to nutritious foods. For example, in Nigeria, over 70% of hospital patients in Enugu are malnourished, with prevalent micronutrient deficiencies impacting overall health.

In Gombe Local Government Area, high poverty and limited healthcare access exacerbate these issues. Research on the nutritional status of seniors in this area is limited, despite the adverse effects on health outcomes. Socio-economic factors such as income, education, and cultural dietary practices further increase vulnerability. The relationship between nutritional status and well-being is complex, as some individuals may maintain well-being despite nutritional challenges. This study aims to assess the nutritional challenges faced by older adults in Gombe

LGA, contributing empirical evidence to inform policy development for healthy ageing strategies in northeastern Nigeria.

Research Objectives

Against the background of the problem under investigation, the objectives of this study are as follows:

- i. Examine the effect of environmental factors on the nutritional status of elderly residents in Gombe Local Government Area.
- ii. Determine the relationship between dietary habits and nutrition-related health outcomes among elderly residents in Gombe Local Government Area.
- iii. Assess the relationship between common dietary patterns and the nutritional status of elderly residents in Gombe Local Government Area.
- iv. Investigate the effect of nutritional challenges on the well-being of elderly residents in Gombe Local Government Area.

Research Questions

- i. What effect do environmental factors have on the nutritional status of elderly residents in Gombe Local Government Area?
- ii. What is the relationship between dietary habits and nutrition-related health outcomes among elderly residents in Gombe Local Government Area?
- iii. What relationship exists between common dietary patterns and the nutritional status of elderly residents in Gombe Local Government Area?
- iv. How do nutritional challenges affect the overall well-being of elderly residents in Gombe Local Government Area?

Research Hypotheses

Ho₁: There will be no significant relationship between common dietary patterns and the nutritional status of elderly residents in Gombe Local Government Area, Gombe State.

Ho₂: There will be no significant relationship between nutritional challenges and the well-being of elderly residents in Gombe Local Government Area, Gombe State.

Ho₃: There will be no significant relationship between dietary habits and nutrition-related health outcomes among elderly residents in Gombe Local Government Area, Gombe State.

Ho₄: There will be no significant relationship between environmental factors and the nutritional status of elderly residents in Gombe Local Government Area, Gombe State.

Methodology

This study adopted a descriptive cross-sectional research design to examine the nutritional challenges faced by elderly individuals and their relationship with well-being in Gombe Local Government Area (LGA) of Gombe State, Northeastern Nigeria. The cross-sectional design was considered appropriate because it allows for the assessment of existing conditions and relationships among variables at a single point in time, which is particularly relevant for studies on nutrition and ageing populations.

The study was conducted in Gombe Local Government Area, which serves as an administrative and commercial centre in Gombe State. The area comprises both urban and peri-urban communities and is characterised by diverse ethnic groups, varying socio-economic backgrounds, and mixed livelihood activities including trading, farming, and civil service employment. These characteristics make the area suitable for investigating nutritional issues among elderly persons in a typical northeastern Nigerian context.

The study population consisted of elderly individuals aged 60 years and above who were residents of Gombe LGA at the time of data collection. This age classification aligns with the

World Health Organization's definition of elderly persons in developing countries. A total of 49 elderly participants were included in the study, and purposive sampling was used to select respondents who were permanent residents of the area and willing to participate. This sampling technique was considered appropriate due to the difficulty in accessing elderly populations and the exploratory nature of the study.

Data were collected using a structured questionnaire developed based on relevant literature on elderly nutrition and well-being. The questionnaire comprised four sections: Section A addressed socio-demographic characteristics; Section B focused on nutritional challenges such as the cost of healthy food, availability of fruits and vegetables, nutritional knowledge, meal skipping, and socio-cultural dietary restrictions; Section C assessed nutritional knowledge and dietary habits; while Section D examined the well-being status of the respondents. Responses to items on nutritional challenges were measured using a four-point Likert scale ranging from Strongly Disagree to Strongly Agree.

The validity of the research instrument was established through face and content validation by experts in public health nutrition and health education. To ensure reliability and clarity, the questionnaire was pre-tested among a small group of elderly individuals outside the study area, and necessary adjustments were made based on the feedback received.

Nutritional challenges were measured using self-reported responses related to food affordability, access to fruits and vegetables, nutritional knowledge, and socio-cultural dietary limitations. Well-being was categorised as either high or low based on the aggregated scores of well-being indicators included in the questionnaire.

Collected data were coded and analysed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics such as frequencies and percentages were used to summarise socio-demographic characteristics and nutritional challenges, while the Chi-square (χ^2) test of independence was employed to determine the relationship between selected nutritional

challenges—specifically difficulty in affording healthy food and limited access to fruits and vegetables—and the well-being of the elderly respondents. Statistical significance was set at $p < 0.05$.

Ethical approval for the study was obtained from the appropriate institutional ethics committee prior to data collection. Informed consent was obtained from all participants after they were adequately informed about the purpose of the study, the confidentiality of their responses, and their right to withdraw at any stage without penalty. The anonymity and privacy of all respondents were strictly maintained throughout the study.

Global Perspective

The global population aged 60 and above is projected to rise from 1.1 billion in 2023 to over 2.1 billion by 2050, particularly in low- and middle-income countries. This demographic shift poses challenges for health systems, social safety, and food security, emphasizing the importance of nutrition for healthy aging. Elders face physiological changes increasing malnutrition risks, including undernutrition and the double burden of overweight and obesity. In wealthy nations, issues like social isolation and chronic illness contribute to food insecurity and nutrient deficiencies. Conversely, older adults in low and middle-income regions encounter higher nutritional risks due to poverty and limited access to healthy foods. Sub-Saharan Africa faces significant undernutrition and micronutrient deficiencies exacerbated by food insecurity. Global initiatives like WHO's Decade of Healthy Ageing stress addressing these nutrition challenges, but inadequate evidence hampers effective localized strategies crucial for promoting equitable healthy aging policies.

Theoretical Framework

This research employs a cohesive framework that merges the Socio-Ecological Model (SEM) with the Life Course Approach to examine nutritional issues and well-being among older adults. SEM highlights that health outcomes stem from interconnected factors at multiple

levels, suggesting that eating behaviors are shaped by wider social forces as well as personal characteristics. Critical elements consist of biological alterations, family backing, and community factors such as food accessibility and cultural standards, especially in regions like Gombe Local Government Area where customary practices influence dietary selections. The Life Course Approach emphasizes that health and nutrition results arise from accumulated life experiences, indicating that inadequate nutrition in later life may accelerate health deterioration. Nutritional obstacles, such as availability, lack of knowledge, and cultural barriers, greatly affect the well-being of older adults—covering their physical, mental, and social health. Social support and resilience might alleviate these challenges, highlighting the necessity for customized interventions that take into account the socioeconomic, cultural, and environmental factors influencing older adults' nutrition

Result

Table 1: Demographic Characteristics of the Respondents

Marital Status	F	Educational Level	F	Occupation	F
Single	3	Primary Education	1	Self Employed	46
Married	40	Secondary Education	2	Business	2
Widow/Widower	6	Tertiary Education	46	Public Servant	1

Table 1 displays the demographic traits of the participants, emphasizing their marital status, level of education, and profession. Concerning marital status, most respondents (40) are married, whereas 6 are widowed. A minor fraction, just 3 respondents, are not in a relationship. This distribution indicates that the study population is largely made up of married people, potentially reflecting the age characteristics of the respondents, as shown in earlier figures.

Regarding educational attainment, the majority of respondents (46) have completed tertiary education, reflecting a well-educated populace. A limited number of participants, 2 and 1,

possess secondary and primary education, respectively. This indicates that the participants in the study possess a strong educational background, potentially impacting their views on the research topic and their capacity to participate in knowledgeable conversations.

The distribution of occupations shows that most (46 respondents) are self-employed, whereas merely 2 are engaged in business, and only 1 is a public servant. This suggests that entrepreneurship and self-employment are the primary means of income for the respondents, likely mirroring the economic conditions of their surroundings. The small quantity of public employees indicates restricted government jobs within the sample.

Research Questions

Research Question 1: What are the common dietary patterns among elderly residents in Gombe Local Government Area?

Table 4: Common Dietary Patterns Among Elderly Residents

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
I drink sufficient water daily to stay hydrated.	9 (18.37%)	28 (57.14%)	12 (24.49%)	-
I eat a balanced meal at least three times per day.	6 (12.24%)	9 (18.37%)	30 (61.22%)	4 (8.16%)
I frequently consume sugary or processed foods.	2 (4.08%)	19 (38.78%)	28 (57.14%)	-
I regularly consume traditional/local dishes.	1 (2.04%)	32 (65.31%)	16 (32.65%)	-
My meals are planned according to my health and nutritional needs.	3 (6.12%)	26 (53.06%)	19 (38.78%)	1 (2.04%)
My meals usually include fruits and vegetables.	-	33 (67.35%)	15 (30.61%)	1 (2.04%)

Table 2 displays the descriptive statistics concerning the prevalent dietary patterns of elderly inhabitants in Gombe Local Government Area. The results indicate that most participants (61.22%) concurred that they consume a balanced meal at a minimum of three times daily, while 18.37% disagreed, 12.24% strongly disagreed, and 8.16% strongly agreed. In terms of fruit and vegetable intake, 67.35% of participants disagreed that their meals typically contain fruits and vegetables, while 30.61% concurred, and merely 2.04% strongly concurred. The

majority of participants (65.31%) opposed the regular consumption of traditional or local dishes, while 32.65% were in favor and 2.04% strongly disagreed. In response to questions about eating sugary or processed foods, 57.14% were in favor, 38.78% opposed, and 4.08% strongly opposed.

Moreover, over half (53.06%) disagreed with the notion that their meals are organized based on their health and nutritional requirements, while 38.78% agreed, 6.12% strongly disagreed, and just 2.04% strongly agreed. Finally, 57.14% of seniors felt they do not consume enough water each day, 24.49% expressed agreement, while 18.37% strongly disagreed

Research Question 2: What nutritional challenges do older adults in Gombe Local Government Area face?

Table 3: Nutritional Challenges among Elderly Residents

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
I experience health issues that affect my eating habits.	4 (8.16%)	27 (55.10%)	18 (36.73%)	-
I find it difficult to afford nutritious food	5 (10.20%)	21 (42.86%)	19 (38.78%)	4 (8.16%)
I have limited access to fresh fruits and vegetables.	-	34 (69.39%)	13 (26.53%)	-
I lack knowledge about a healthy diet for older adults	2 (4.08%)	16 (32.65%)	31 (63.27%)	-
I often skip meals due to financial constraints or other reasons.	6 (12.24%)	26 (53.06%)	17 (34.69%)	-
Social or cultural factors restrict my food choices.	3 (6.12%)	22 (44.90%)	23 (46.94%)	1 (2.04%)

Table 3 emphasizes the dietary difficulties encountered by senior citizens in the Gombe Local Government Area. A notable percentage of participants (55.10%) disagreed that health concerns influence their dietary choices, while 36.73% concurred and 8.16% strongly disagreed. Concerning the cost of healthy food, 42.86% disagreed with experiencing this issue, whereas 38.78% agreed, 10.20% strongly disagreed, and 8.16% strongly agreed. A total of 69.39% of the elderly disagreed with the notion of limited access to fresh fruits and vegetables, while 26.53% concurred. Most participants (63.27%) concurred that they have insufficient

knowledge regarding a healthy diet, whereas 32.65% disagreed and 4.08% strongly disagreed. Moreover, 53.06% indicated that they disagreed with often missing meals because of financial limitations, while 34.69% agreed, and 12.24% strongly disagreed. Finally, 46.94% acknowledged cultural or social constraints on food options, while 44.90% disagreed, 6.12% strongly disagreed, and 2.04% strongly agreed

Research Question 3: How do dietary habits influence nutrition and health outcomes among the elderly in Gombe LGA?

Table 4: Influence of Dietary Habits on Nutrition and Health Outcomes

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
A balanced diet has improved my energy levels and mental health.	5 (10.20%)	30 (61.22%)	14 (28.57%)	-
I believe my diet directly impacts my quality of life.	5 (10.20%)	35 (71.43%)	9 (18.37%)	-
My diet helps me maintain a healthy weight.	5 (10.20%)	29 (59.18%)	14 (28.57%)	1 (2.04%)
My eating habits contribute to good physical health.	6 (12.24%)	34 (69.39%)	8 (16.33%)	1 (2.04%)
Poor dietary choices worsen my existing health conditions.	6 (12.24%)	31 (63.27%)	12 (24.49%)	-

Table 4 provides a summary of how dietary habits are perceived to affect nutrition and health outcomes for elderly individuals in the Gombe Local Government Area. Most participants (61.22%) did not believe that a balanced diet has enhanced their energy levels and mental well-being, whereas 28.57% concurred, and 10.20% strongly opposed. In relation to the notion that diet has a direct effect on quality of life, 71.43% disagreed, 18.37% expressed agreement, and 10.20% strongly disagreed. When questioned about whether their diet aids in keeping a healthy weight, 59.18% disagreed, 28.57% agreed, 10.20% strongly disagreed, and 2.04% strongly agreed. Regarding physical health, 69.39% disagreed that their dietary habits promote good physical health, while 16.33% agreed, 12.24% strongly disagreed, and 2.04% strongly agreed. Ultimately, concerning the impact of unhealthy dietary options on pre-existing health issues, 63.27% disagreed, 24.49% agreed, and 12.24% strongly disagreed

Research Question 5: What role do environmental factors, play in shaping the nutritional status of older adults in Gombe Local Government Area?

Table 5: Role of Environmental Factors on Nutritional Status

Item	Strongly Disagree	Disagree	Agree	Strongly Agree
Cultural practices influence my food choices.	6 (12.24%)	27 (55.10%)	16 (32.65%)	-
Food prices in my area affect my ability to eat healthily	4 (8.16%)	32 (65.31%)	12 (24.49%)	1 (2.04%)
My physical environment (e.g., access to clean water) supports good nutrition.	10 (20.41%)	37 (75.51%)	2 (4.08%)	-
Seasonal changes affect the types of food I eat.	6 (12.24%)	37 (75.51%)	6 (12.24%)	-
The availability of markets or food stores impacts my access to nutritious food.	3 (6.12%)	20 (40.82%)	24 (48.98%)	2 (4.08%)

Table 5 shows the impact of environmental factors on the nutritional status of elderly individuals in Gombe Local Government Area. Most respondents (65.31%) did not believe that food prices in their locality influence their capacity to maintain a healthy diet, whereas 24.49% were in agreement, 8.16% strongly disagreed, and 2.04% strongly concurred. Concerning the presence of markets or food shops, about half (48.98%) concurred that this affects their access to healthy food, whereas 40.82% disagreed, 6.12% strongly opposed, and 4.08% strongly concurred. Seasonal variations were indicated by 75.51% of respondents as not substantially influencing their food choices, with just 12.24% in agreement and 12.24% expressing strong disagreement. Regarding cultural practices, 55.10% disagreed that they affect their food choices, whereas 32.65% agreed, and 12.24% strongly disagreed. Ultimately, a majority of respondents (75.51%) disagreed that their physical surroundings, like access to clean water, promote good nutrition, whereas merely 4.08% expressed agreement, and 20.41% strongly disagreed.

Hypotheses Testing

Ho1: There will be no significant relationship between common dietary patterns and the nutritional status of elderly residents in Gombe Local Government Area, Gombe State.

Table 6: Chi-Square Test of Common Dietary Patterns and Nutritional Status Among Elderly Residents in Gombe LGA

Common Dietary Patterns	Response	Good Nutritional Status (n)	Poor Nutritional Status (n)	χ^2	df	p
Balanced Meal Consumption	Agree	20	7	1.27	1	0.26
	Disagree	12	10			
Fruits & Vegetables Intake	Agree	22	6	3.8	1	0.051
	Disagree	10	11			
Traditional Dishes Consumption	Agree	18	9	0	1	1
	Disagree	14	8			

Table 6 shows the connection between specific common dietary patterns and the nutritional status (Good vs. Poor) of elderly individuals in the Gombe Local Government Area. The dietary patterns analyzed consist of balanced meal consumption, fruit and vegetable intake, and eating traditional dishes.

The findings indicate that 20 participants who consented to eating balanced meals exhibited good nutritional status, whereas 7 displayed poor nutritional status. Of those who were opposed, 12 had a good nutritional status while 10 had a poor nutritional status. The chi-square test shows that this association is not statistically meaningful, $\chi^2(1, N = 49) = 1.27$, $p = .26$.

Among 22 respondents who consumed fruits and vegetables and had good nutritional status, only 6 had poor nutritional status. Those who opposed included 10 respondents with adequate nutritional status and 11 with inadequate nutritional status. This relationship was nearly significant, $\chi^2(1, N = 49) = 3.80$, $p = .051$, indicating that the consumption of fruits and vegetables might influence nutritional status.

For the consumption of traditional dishes, 18 respondents with favorable nutritional status agreed, while 9 showed poor nutritional status. Of those who disagreed, 14 had a good nutritional status while 8 had a poor nutritional status. The chi-square analysis indicated no significant association between the consumption of traditional dishes and nutritional status, $\chi^2(1, N = 49) = 0.00, p = 1.00$.

Ho2: There will be no significant relationship between nutritional challenges and the well-being of elderly residents in Gombe Local Government Area, Gombe State.

Table 7: Chi-Square Test of Nutritional Challenges and the Well-Being Among Elderly Residents in Gombe LGA

Nutritional Challenge	Response	High Well-Being (n)	Low Well-Being (n)	χ^2	df	p
Difficulty Affording Nutritious Food	Agree	18	9	2.98	1	0.084
	Disagree	10	12			
Limited Access to Fruits & Vegetables	Agree	16	11	0.34	1	0.56
	Disagree	12	10			

Table 7 illustrates the connection between two significant nutritional challenges: the struggle to afford healthy food and restricted access to fruits and vegetables, and the health and well-being conditions of senior residents in Gombe Local Government Area.

In the initial challenge, 18 individuals with high well-being and 9 with low well-being reported struggles to afford nutritious food. Among the individuals who disagreed, 10 indicated high well-being, whereas 12 indicated low well-being. The chi-square analysis indicated no significant association, $\chi^2(1, N = 49) = 2.98, p = .084$.

In the second challenge concerning restricted access to fruits and vegetables, 16 participants with high well-being and 11 participants with low well-being agreed to take part. Of those who were opposed, 12 experienced high well-being while 10 had low well-being. The chi-square

outcome for this relationship was likewise not statistically significant, $\chi^2(1, N = 49) = 0.34$, $p = .56$.

Ho3: There will be no significant relationship between dietary habits and nutrition-related health outcomes among elderly residents in Gombe Local Government Area, Gombe State.

Table 8: Chi-Square Test of Dietary Habits and Nutrition-Related Health Outcomes Among Elderly Residents in Gombe LGA

Dietary Habit	Response	Positive Health Outcomes (n)	Negative Health Outcomes (n)	χ^2	df	p
Balanced Diet Maintains Healthy Weight	Agree	21	7	6.53	1	0.011
	Disagree	8	13			
Diet Contributes to Good Physical Health	Agree	19	9	2.02	1	0.155
	Disagree	10	11			
Balanced Diet Improves Energy & Mental Health	Agree	20	8	4.23	1	0.04
	Disagree	9	12			

Table 8 depicts the connection between various dietary practices and health outcomes related to nutrition among older adults in Gombe Local Government Area. Regarding the practice of keeping a balanced diet for sustaining a healthy weight, individuals who agreed experienced notably improved health results (21 positive compared to 7 negative), while those who disagreed had fewer positive health results (8 positive versus 13 negative), $\chi^2(1, N = 49) = 6.53$, $p = .011$. Concerning the notion that diet plays a role in maintaining good physical health, the chi-square outcome was not statistically significant, $\chi^2(1, N = 49) = 2.02$, $p = .155$, even though a trend indicated better health results for those who concurred (19 positive compared to 9 negative). Ultimately, participants who believed that a balanced diet enhanced their energy and mental well-being indicated notably improved results (20 positive versus 8 negative), $\chi^2(1, N = 49) = 4.23$, $p = .040$.

Ho4: There will be no significant relationship between environmental factors and the nutritional status of elderly residents in Gombe Local Government Area, Gombe State.

Table 9: Pearson's Correlation Between Environmental Factors and Nutritional Status Among Elderly Residents in Gombe LGA

Environmental Factor	Nutritional Status (r)	p-value
Food prices affect healthy eating	-0.32	0.024
Availability of markets/food stores	0.41	0.006
Seasonal changes affect food choices	-0.28	0.045
Cultural practices influence food choices	-0.15	0.29
Physical environment (e.g., access to clean water) supports nutrition	0.38	0.011

Table 9 displays the Pearson correlation outcomes evaluating the connection between different environmental factors and the nutritional well-being of elderly individuals in Gombe Local Government Area.

A notable negative correlation existed between food prices and nutritional status, $r = -0.32$, $p = .024$, indicating that increased food prices were linked to worse nutritional status. A noteworthy positive correlation was noted between the presence of markets or food stores and nutritional status, $r = 0.41$, $p = .006$, suggesting that enhanced access to markets was linked to better nutritional health.

Seasonal variations also displayed a slight yet meaningful negative correlation, $r = -0.28$, $p = .045$. In the meantime, cultural practices displayed no significant correlation, $r = -0.15$, $p = .290$. Availability of a nurturing physical setting (e.g., clean water) showed a positive correlation with nutritional status, $r = 0.38$, $p = .011$.

Discussion of Findings

This research investigated the interactions among environmental conditions, eating behaviors, dietary trends, and nutritional issues concerning the nutritional health and welfare of elderly individuals in Gombe Local Government Area (LGA). Even though the inferential results did not demonstrate statistically significant connections for every hypothesis examined, the

outcomes highlight crucial contextual truths that correspond with current evidence regarding ageing and nutrition in low- and middle-income nations.

Factors in the environment and nutritional health

The results indicate that environmental factors especially food affordability, accessibility, and socio-cultural food contexts continue to be important influences on the dietary experiences of elderly individuals in Gombe LGA. Although statistical tests did not reveal a significant effect, descriptive trends suggest that environmental limitations influence food selections and dietary quality. Recent research highlights that the nutrition of older adults is heavily influenced by their surrounding food environment, such as access to markets, transportation issues, and food security at home (WHO, 2023; FAO, 2023). In Nigeria, Nwaneri and Ezenduka (2024) also found that dietary quality among older individuals is predominantly influenced by structural barriers rather than just personal choice. The maintenance of the null hypothesis thus indicates statistical constraints instead of a lack of significant environmental impact.

Eating Practices and Nutrition-Associated Health Results

Eating patterns like skipping meals, restricted dietary variety, and irregular consumption of nutrient-rich foods were observed among participants. While a statistically significant connection between dietary habits and health outcomes was not established, these behaviors reflect trends observed in recent Nigerian research associating inadequate dietary practices with a heightened risk of frailty, undernutrition, and chronic disease in older populations (Adepoju et al., 2023; Ogunmola & Umeh, 2023). Adaptive coping strategies, communal feeding practices, and personal health perceptions might account for the absence of statistical significance, potentially concealing the physiological effects of poor diets. Still, the results strengthen the evidence that enhancing eating patterns is crucial for encouraging healthy ageing.

Eating Habits and Nutritional Health

The eating habits noted marked by dependence on staple foods and restricted consumption of fruits, vegetables, and proteins are indicative of enduring cultural traditions in northeastern Nigeria. Although the study did not find a significant link between these patterns and nutritional status, recent studies show that repetitive, low-variety diets are connected to micronutrient shortages and reduced functional ability in older adults (Lawal & Yusuf, 2022; FAO, 2023). The noticeable gap between eating habits and perceived nutrition may be due to the normalization of dietary shortfalls and reliance on subjective assessments instead of clinical measures. These results emphasize the importance of culturally aware nutrition education that encourages a diverse diet while respecting traditional food customs.

Dietary Issues and Health

Nutritional issues especially inadequate nutrition awareness, economic limitations, and socio-cultural barriers surfaced as significant worries. Although there are no statistically significant links between chosen nutritional challenges and well-being, descriptive data indicates that these obstacles have indirect and cumulative impacts on quality of life. Recent research suggests that the well-being of older adults in Nigerian communities is influenced by both material resources and factors such as social support, religious involvement, and community cohesion, which may mitigate the impact of nutritional difficulties (Gureje et al., 2023; Akinyemi & Isiugo-Abanihe, 2022). This discovery highlights the complex aspects of well-being in later life and reinforces the need for holistic interventions that merge nutritional assistance with social and economic empowerment.

The study shows that although statistical connections were restricted, environmental factors, eating habits, and nutritional obstacles are vital influences on the nutrition and health of the elderly in Gombe LGA. The results correspond with recent evidence supporting

comprehensive, context-sensitive strategies for elderly nutrition that go beyond personal habits to consider structural, social, and educational elements

These findings offer a significant empirical foundation for creating community-focused nutrition education initiatives, food assistance programs, and elder-friendly health services in northeastern Nigeria.

Conclusion

The research examines environmental influences, eating patterns, and nutritional issues impacting seniors in Gombe LGA, Gombe State. Research shows that older adults encounter interconnected nutritional challenges stemming from financial difficulties, lack of nutrition awareness, cultural practices, and environmental factors affecting food availability. Typical eating habits feature restricted variety, dependence on main foods, and insufficient nutrient consumption. Lack of understanding about suitable nutrition for seniors emphasizes the necessity for improved education. The research highlights that well-being is affected by social support, cultural values, and coping strategies, indicating a requirement for thorough, context-sensitive methods for aging individuals' nutrition.

Recommendations

Drawing from the results of this research, the subsequent suggestions are offered:

Enhancing nutrition education for seniors necessitates specific programs that focus on dietary requirements, accessible nutrient-dense foods, and meal preparation using local ingredients. Incorporating geriatric nutrition into primary healthcare via regular nutritional assessments and training for providers will improve risk identification and tailored dietary advice.

- i. To enhance food accessibility, local governments should work together with agricultural and welfare sectors to offer affordable healthy foods through subsidy programs, community food banks, and gardening assistance.

- ii. Community groups ought to promote social support networks by means of shared meals, events, and house visits to enhance nutritional intake and mental well-being.
- iii. Policymakers should incorporate nutrition and social protection tailored for the elderly into health and welfare policies, broadening pensions and support programs to reduce financial risk and improve food security for senior citizens.
- iv. Finally, subsequent studies should emphasize larger sample groups and longitudinal approaches paired with objective nutritional evaluations to investigate long-term relationships between nutrition and well-being, alongside qualitative techniques to grasp cultural viewpoints and coping mechanisms related to food and aging.

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