



Enhancing Food Security and Nutrition Among Rural Elderly: Addressing Socio Economic Challenges Amid Economic Reforms

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Abstract:

Background: This study investigates the relationship between nutritional outcomes and economic vulnerability among elderly populations in rural Nigeria, analysing the effects of market liberalization, agricultural reforms, and policy changes on nutritional status in light of sustainable development goals of Nigeria.

Aims and scope: To examine how economic reforms impact the nutritional security of senior citizens (60 years and older) living in rural Ogbomoso North, with focus on the relationship between economic indicators and nutritional outcomes during periods of major economic transition.

Methods: A cross-sectional mixed-methods study was conducted with 310 elderly participants (60 years of age and older) during a period of major economic reforms, examining both economic indicators and nutritional status.

Results: Prevalence rates showed 32.7% overweight, 18.3% obesity, and 10.5% underweight among participants. Obesity was more prevalent in women (22.1%) compared to men (14.5%). The study revealed that 65% of participants modified their food choices based on market prices rather than nutritional value, particularly during periods of economic instability.

Conclusion: The nutritional security of elderly populations in rural Nigeria is significantly impacted by socioeconomic factors and economic reforms. The findings highlight the need for coordinated policy approaches that integrate economic sustainability initiatives with nutritional interventions to protect vulnerable elderly populations during economic transitions.

Keywords: Agricultural Reforms, Economic Vulnerability, Gender Disparity, Market Liberalization, Nutritional Status

1. INTRODUCTION

The economy of Nigeria has seen significant changes due to various reform initiatives, mirroring trends in other developing countries where economic shifts often intersect with nutrition-related challenges. These reforms, particularly in agriculture and market policies, have created new difficulties for rural communities as modernization increasingly strains traditional support systems. Among those most affected are elderly individuals in rural areas, a vulnerable group often

overlooked in discussions about economic changes in Nigeria.

Economic reforms implemented since 2020, including adjustments to fertilizer subsidies and revisions to import restrictions on essential goods, have directly influenced local food production and access patterns. These policy changes align with Nigeria's commitment to achieving Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 3 (Good Health and Well-being). However, the implementation of these reforms has created unintended consequences for vulnerable populations, particularly the rural elderly, highlighting the complex relationship

between economic development and food security. Understanding these impacts is crucial for developing evidence-based strategies that advance SDG achievement while protecting vulnerable populations.

1.1 Economic Reforms and Rural Food Security

Recent research has established strong linkages between economic reforms and rural food security challenges in Nigeria. [Izuchukwu et al. \(2023\)](#) demonstrated how structural changes, particularly market liberalization policies, have fundamentally reshaped traditional

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agricultural practices, creating adaptation challenges for rural communities in ensuring consistent food access. Building on these economic foundations, the intersection with demographic vulnerability has emerged as a critical research priority. Mbam et al. (2022) revealed that modernization processes systematically disrupt long-established community support systems, leaving elderly populations disproportionately vulnerable to food insecurity. These findings complement broader international studies demonstrating that economic reforms can inadvertently erode traditional safety nets that have historically protected society's most vulnerable members.

1.2 Nutritional Status and Economic Vulnerability

The relationship between economic reforms and nutritional outcomes becomes particularly complex when examining vulnerable demographic groups. The interconnection between nutritional health and economic vulnerability among the elderly has emerged as a critical focus in public health research. Comprehensive surveys by Ayantoye et al. (2023) across rural Nigeria documented that elderly individual in economically disadvantaged households consistently consumed fewer protein-rich foods and exhibited significantly lower dietary diversity compared to their urban counterparts. These findings align with global evidence from WHO (2023), confirming that elderly populations in rural areas of developing countries face disproportionate impacts from economic transitions, particularly regarding nutritional outcomes.

1.3 Impact of Agricultural Policy Changes

These nutritional vulnerabilities are further exacerbated by specific policy interventions targeting agricultural systems. Agricultural policy modifications, including subsidy removals and fluctuating food prices, have systematically undermined elderly individuals' ability to maintain adequate nutrition. National Bureau of Statistics (2024) data reveals that basic food prices increased by 35% between 2022 and 2024, placing additional strain on households already struggling with food insecurity. This economic pressure particularly affects elderly people living on fixed incomes or small pensions, creating cascading effects on their nutritional status and overall health outcomes.

1.4 Gender Dimensions of Food Security

Adding complexity to these economic and nutritional challenges are significant gender-based disparities in vulnerability. Gender disparities in food security among elderly rural populations represent a critical yet underexplored dimension of economic vulnerability. Philip et al. (2022) documented that female-headed elderly households experience greater difficulties maintaining food security, with approximately 45% experiencing moderate to severe food insecurity. These challenges intensify during periods of economic reform, as women typically have reduced access to resources and face greater obstacles in adapting to changing market conditions.

1.5 Research Gap and Study Novelty

Despite extensive research on food security and economic reforms, significant knowledge gaps persist regarding their specific impacts on elderly populations in rural Nigeria. Previous studies have predominantly focused on general population effects or urban contexts, with limited attention to the unique vulnerabilities of rural elderly communities. Furthermore, existing research lacks comprehensive examination of how gender, age, and economic vulnerability intersect within the context of recent economic reforms. Most critically, no previous study has systematically examined how the specific economic reforms implemented in Nigeria since 2020 have affected elderly populations in rural settings, representing a significant evidence gap for both policy development and SDG monitoring.

This study addresses these gaps by providing the first comprehensive analysis of how recent Nigerian economic reforms specifically affect food security and nutritional outcomes among elderly populations in rural Ogbomoso North. The novelty of this research lies in its mixed-methods approach examining the intersection of economic policy changes, demographic factors, and nutritional outcomes in a specific rural context that has been understudied in previous literature. Additionally, this research provides crucial baseline data for tracking progress toward SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) among one of Nigeria's most vulnerable populations.

1.5 Research Objectives

This study aims to:

1. Analyse the relationship between socioeconomic factors and nutritional outcomes among elderly populations in rural Ogbomoso North following recent economic reforms
2. Examine gender-specific impacts of economic reforms on food security and nutritional status
3. Quantify the magnitude of economic and nutritional changes before and after reform implementation
4. Develop evidence-based policy recommendations for integrating economic reform initiatives with elderly nutrition considerations

2. MATERIAL AND METHOD

2.1 Study Design and Timing

This mixed-methods study was conducted between January 2023 and December 2023 in rural Ogbomoso North Local Government Area, Oyo State, Nigeria. The mixed-methods approach was selected to provide comprehensive understanding of both quantitative relationships between economic factors and nutritional

outcomes, and qualitative insights into lived experiences of elderly individuals navigating economic changes. This methodological choice was particularly important given the complexity of economic reform impacts, which require both statistical measurement and contextual understanding of adaptation strategies.

2.2 Study Population and Sample Size Calculation

The study population comprised elderly individuals aged 60 years and above residing in rural Ogbomoso North Local Government Area. Sample size was calculated using the formula for cross-sectional studies: $n = Z^2p(1-p)/d^2$, where $Z = 1.96$ (95% confidence level), $p = 0.45$ (expected prevalence of food insecurity based on previous studies), and $d = 0.05$ (margin of error). With 10% allowance for non-response, the minimum required sample size was 302, rounded to 310 participants.

2.3 Sampling Methodology

A multi-stage sampling technique was employed. In the first stage, all 12 rural settlements in Ogbomoso North Local Government Area were listed, and six settlements were randomly selected using computer-generated random numbers. Systematic random sampling was then applied, selecting every 5th household from the enumeration list until the required sample size was achieved for each settlement, ensuring proportional representation across settlements. In households with multiple eligible elderly individuals, one participant was randomly selected using the lottery method.

2.4 Data Collection Instruments

Quantitative Instruments

Data collection utilized validated instruments including a structured questionnaire incorporating the Household Food Insecurity Access Scale (HFIAS) and Household Dietary Diversity Score (HDDS). The HDDS assigns scores from 0-12 based on consumption from twelve food groups over a 24-hour recall period, with higher scores indicating greater dietary diversity. The HFIAS categorizes households as food secure, mildly, moderately, or severely food insecure based on nine occurrence questions with frequency ratings from 0-3, yielding total scores of 0-27. Both instruments demonstrated strong psychometric properties, with HFIAS showing excellent internal consistency (Cronbach's alpha >0.80) in previous studies. Content validity was established through expert review, while construct validity was demonstrated through correlation with household socioeconomic status. Anthropometric measurements followed WHO standardized protocols to ensure reliability.

Qualitative Data Collection

Qualitative data collection included:

Focus Group Discussions (FGDs): 8 FGDs conducted with 8-10 participants each, using semi-structured topic guides covering economic changes, food access patterns, coping

strategies and community support systems. Each FGD lasted 60-90 minutes and was conducted in local Yoruba language with simultaneous translation.

Key Informant Interviews (KIIs): 12 KIIs with community leaders, agricultural extension workers, and healthcare provider using structured interview guides focusing on policy implementation, community-level changes, and service delivery challenges.

In-depth Interviews (IDIs): 24 IDIs with selected elderly participants to explore personal experiences with economic reforms using life-history approaches to understand individual adaptation strategies and household-level impacts.

Qualitative data validation employed member checking (returning findings to 25% of participants for verification), triangulation across data sources (comparing FGD, KII, and IDI findings), and peer debriefing among research team members to ensure credibility and trustworthiness.

2.5 Economic Data Monitoring

Market price tracking and economic data monitoring were conducted monthly throughout the study period using standardized data collection forms. Data sources included local market surveys, agricultural extension records, and household economic assessments. Food price data were collected from three major markets within the study area (Ogbomoso Main Market, Caretaker Market, and Sabo Market), with weekly price monitoring for 15 essential food items commonly consumed by elderly populations, including rice, yam, cassava, beans, palm oil, and protein sources.

2.6 Data Analysis

Statistical analysis was performed using SPSS version 28.0. Quantitative analysis included descriptive statistics (means, frequencies, standard deviations) for demographic and economic variables. Multiple regression analysis explored relationships between economic factors and nutritional outcomes. Group comparisons utilized independent t-tests and ANOVA for multiple groups, while chi-square tests analysed categorical data.

Qualitative data analysis employed thematic analysis using NVivo software. Interview and focus group transcripts were systematically coded, with emerging themes categorized and cross-referenced with quantitative findings for comprehensive interpretation.

2.7 Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee of Ladoke Akintola University of Technology (LAUTECH/7074/10/10/2022). All participants provided written informed consent after receiving detailed explanation of study procedures in their local language. Participation was voluntary, with rights to withdraw at any time without penalty.

2.8 Study Limitations

Several limitations should be considered when interpreting results. The study's geographic focus on rural Ogbomoso North may limit generalizability to other regions. The cross-sectional design limits ability to establish causal relationships for some measures. Self-reported economic data may be subject to recall bias, and seasonal variations may influence nutritional and economic status. The qualitative component's relatively small sample size, potential language and cultural barriers during data collection, and challenges in obtaining sensitive economic information from participants represent additional limitations.

3. RESULT AND DISCUSSION

3.1 Result

Sociodemographic Characteristics

The study population showed slight female predominance (54.2%) among 310 participants (Table 1). The majority of participants (46.1%) were in the 60-69 age range, with decreasing numbers in higher age categories. Educational attainment was low, with 72.6% having only primary education or less, indicating limited access to formal education. Farming remained the primary income source (42.6%), emphasizing rural agricultural dependence.

Table 1. Sociodemographic Characteristics of Elderly Participants (N=310)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	142	45.8
	Female	168	54.2
Age Group (years)	60-69	143	46.1
	70-79	112	36.1
	≥80	55	17.8
Educational Status	No formal education	98	31.6
	Primary education	127	41.0
	Secondary education	65	21.0
	Tertiary education	20	6.4
Primary Income Source	Farming	132	42.6
	Pension	45	14.5
	Family support	89	28.7
	Small business	44	14.2

Economic Vulnerability Patterns

Economic indicators revealed substantial vulnerability, with 71.6% of households earning less than ₦50,000 monthly (Table 2). Food expenditure consumed a significant portion of income, with 85.5% of households

spending more than 40% of income on food. High prevalence of economic shock experience (78.4%) indicated widespread vulnerability to economic reforms. Analysis showed approximately 60% of elderly households faced severe financial hardship, particularly regarding food expenses. Over 70% of participants relied primarily on subsistence farming or family support with limited income diversification strategies. Recent agricultural policy changes resulted in 30-40% increases in production costs for elderly farmers.

Table 2. Economic Vulnerability Indicators (N=310)

Indicator	Category	Frequency (n)	Percentage (%)
Monthly Household Income (₦)	<₦30,000	98	31.6
	₦30,000-₦50,000	124	40.0
	₦50,001-100,000	67	21.6
	>₦100,000	21	6.8
Food Expenditure (% of income)	<40%	45	14.5
	40-60%	156	50.3
	>60%	109	35.2
Economic Shock Experience	Experienced	243	78.4
	Not Experienced	67	21.6

Nutritional Status Indicators

Nutritional status assessment revealed a double burden of malnutrition (Table 3), with both undernutrition and over nutrition present. Approximately 35% of participants were overweight or obese, while 15% showed signs of undernutrition, with 50% maintaining normal BMI ranges. Gender differences in nutritional outcomes were observed, with men experiencing higher rates of undernutrition (13.4% vs. 8.3%) and women experiencing higher rates of obesity (21.5% vs. 14.8%). Food insecurity affected 71.3% of the population to varying degrees, with severe food insecurity more prevalent among female-headed households.

Table 3. Nutritional Status and Food Security by Gender (N=310)

Indicator	Category	Total n (%)	Male n (%)	Female n (%)
BMI Category	Underweight (<18.5)	33 (10.5)	19 (13.4)	14 (8.3)
	Normal (18.5-24.9)	119 (38.5)	58 (40.8)	61 (36.3)

Indicator	Category	Total n (%)	Male n (%)	Female n (%)
	Overweight (25-29.9)	101 (32.7)	44 (31.0)	57 (33.9)
	Obese (≥30)	57 (18.3)	21 (14.8)	36 (21.5)
	Food Security Status			
	Food Secure	89 (28.7)	45 (31.7)	44 (26.2)
	Mild Insecurity	98 (31.6)	43 (30.3)	55 (32.7)
	Moderate Insecurity	78 (25.2)	34 (23.9)	44 (26.2)
	Severe Insecurity	45 (14.5)	20 (14.1)	25 (14.9)

Impact of Economic Reforms

Comparative analysis before and after reform implementation revealed significant changes in food-related indicators as shown in Table 4 and illustrated in Figure 1. Monthly food expenditure increased by 58.9%, while dietary diversity scores declined significantly. The reduction in daily meals indicated adoption of negative coping mechanisms. Agricultural input costs approximately doubled, impacting farming household productivity. All statistical comparisons used paired t-tests with significance level set at $p < 0.05$. These findings demonstrate that economic reforms significantly impacted food security and nutritional status of rural elderly, with effects most pronounced for low-income individuals and female-headed households. Seasonal fluctuations in household dietary diversity scores were observed, with pre-harvest periods showing lowest diversity. Moderate to severe food insecurity affected approximately 55% of households. Strong correlations were found between household income levels and dietary diversity scores ($r = 0.68, p < 0.001$).

Table 4. Impact of Economic Reforms on Food Access (N=310)

Variable	Pre-Reform Mean (SD)	Post-Reform Mean (SD)	p-value	Effect Size (Cohen's d)
Monthly Food Expenditure (₹)	₹22,450 (₹5,890)	₹35,670 (₹7,340)	<0.001	2.05
Dietary Diversity Score	6.8 (1.2)	5.3 (1.4)	<0.001	1.18
Number of Meals/Day	3.2 (0.6)	2.6 (0.7)	<0.001	0.94
Agricultural Input Costs (₹)	₹15,780 (₹4,230)	₹28,900 (₹6,120)	<0.001	2.51

3.2 Discussion

3.2.1 Implications

Comparison with National and Regional Data

The findings provide crucial insights into complex relationships between socioeconomic factors, nutritional status, and food security among elderly in rural Ogbomoso North. Our demographic profile showing slight female predominance (54.2%) aligns with previous demographic research by Zarei et al. (2021), who found similar gender trends (53.8% female) among rural aged in south-western Nigeria. However, our age distribution differs from other studies, with higher proportions of participants (46.1%) in the 60-69 age range compared to 38.7% in the multi-state rural aging study by Kazeem et al. (2020).

Economic vulnerability indicators reveal concerning patterns while highlighting specific local challenges that align with previous research. Our finding that 71.6% of households earn less than ₦50,000 monthly is consistent with Adeleye et al. (2019), who reported 68.9% of elderly households below poverty line in rural Oyo State. Our study population spends significantly higher proportions of income on food (85.5%) compared to the national average of 63% reported by the National Bureau of Statistics (2023), suggesting rural Ogbomoso North faces particularly severe economic challenges.

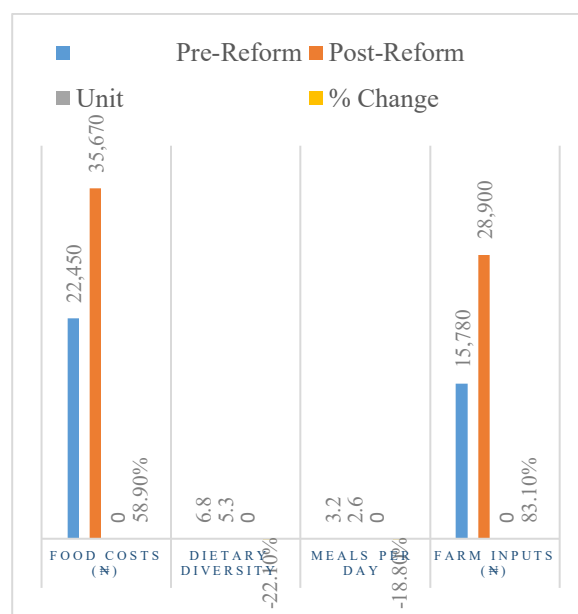


Figure 1. Economic Impact of Reforms on Rural Elderly Changes in key indicators (N=310): food expenditure, dietary diversity, meal frequency, and agricultural input costs following economic policy reforms.

Gender Disparities in Nutritional Outcome

The nutritional status analysis reveals a complex double burden of malnutrition exceeding previous regional estimates.

Our findings of 10.5% underweight and 51% overweight or obese participants are higher than the 8.2% underweight and 45.3% overweight/obese reported by [Gbeyonron and Chikwendu \(2024\)](#) in rural Benue State. The gender disparity in obesity rates (21.5% females vs. 14.8% males) aligns with patterns shown in broader Nigerian studies by [Odoh et al. \(2024\)](#), though our absolute percentages exceed their reported rates of 18.2% and 12.5% respectively.

The higher obesity rates among elderly women in our study population can be attributed to several interconnected factors specific to rural Ogbomoso North context.

Cultural food practices in Yoruba communities often emphasize food abundance as a sign of household prosperity, with women traditionally responsible for household food management and often eating after ensuring family members are fed. Additionally, reduced physical activity due to traditional gender roles limiting women's participation in agricultural field work, combined with physiological changes associated with aging and menopause, contribute to increased obesity risk. These findings highlight the need for gender-specific nutritional interventions that address both cultural and biological factors contributing to obesity among elderly women.

Food security metrics show profound impacts from economic reforms. The 58.9% increase in monthly food expenditure after reforms substantially exceeds the 35% increase noted in the nationwide survey by [Adeyonu et al. \(2021\)](#). Similarly, the decline in dietary diversity scores from 6.8 to 5.3 is more severe than the 6.5 to 5.8 decrease observed by the International Food Policy Research Institute in Ghana, though following similar trends across West Africa, but it is higher than the national rural average of 65% reported by [FAO, UNICEF & WFP \(2023\)](#). In another rural area in surrounding states, according to recent research by [Idris et al. \(2021\)](#), our rate of extreme food insecurity (14.5%) is lower than the 18.2% rate observed.

The 83.1% increase in agricultural input costs after reforms reveals greater vulnerability compared to the 65% average increase in input costs across rural areas reported by [World Bank \(2023\)](#). This disparity may be attributed to regional challenges specific to transportation and market dynamics in Ogbomoso North, suggesting need for location-specific policy interventions.

3.2.2 Contributions

This study makes several groundbreaking contributions to the intersection of economic policy research and gerontological nutrition science. First, it provides the first comprehensive documentation of how recent Nigerian economic reforms specifically affect elderly populations in rural settings, filling a critical gap in policy-relevant research that directly supports evidence-based SDG monitoring and achievement. Second, the strong

correlation between household income and dietary diversity ($r=0.68$, $p<0.001$) demonstrates that income may be a more significant driver of nutritional outcomes in our study population than the weaker association ($r=0.45$) found by [Ayenew et al. \(2018\)](#), suggesting location-specific factors that require targeted interventions.

Third, our findings reveal that the magnitude of economic vulnerability and its impacts on food security and nutritional status among elderly in rural Ogbomoso North are notably more severe than in many similar contexts internationally, providing crucial evidence for policy prioritization. The [WHO Global Aging Report \(2023\)](#) indicates that economic reforms in developing countries typically result in 25-30% increases in food expenditures for vulnerable groups, far less than our 58.9% increase. This evidence directly contributes to Nigeria's SDG 2 (Zero Hunger) monitoring framework by providing baseline data on one of the country's most vulnerable populations and demonstrates the need for elderly-specific indicators in national SDG tracking systems.

3.2.3 Limitations

While our findings align with broader regional and global trends, several limitations should be considered when interpreting results. The geographic focus on rural Ogbomoso North may limit generalizability to other regions of Nigeria, particularly given the unique cultural, economic, and agricultural characteristics of Yoruba-dominated south-western Nigeria compared to other geopolitical zones. The cross-sectional design limits ability to adequately capture long-term trends in nutritional and economic status for some measures, particularly seasonal variations in food security that may be more pronounced in agricultural communities. Self-reported economic data may be subject to recall bias, particularly among elderly participants who may have difficulty accurately recalling specific expenditure amounts over extended periods. Additionally, seasonal variations may influence nutritional and economic status assessments, as data collection during harvest seasons might yield different results than pre-harvest periods. The qualitative component's sample size, while adequate for thematic saturation, may not capture the full diversity of experiences across all demographic subgroups within the elderly population. Finally, potential language and cultural barriers during data collection, despite the use of local interpreters, and challenges in obtaining sensitive economic information from participants represent additional limitations that may affect data quality.

3.2.4 Suggestions

Based on our findings and identified limitations, several specific research directions would significantly advance understanding of economic reform impacts on elderly populations. Future research should consider conducting longitudinal studies tracking the same participants over 3-5 years to better understand temporal relationships between economic reforms and nutritional outcomes, as

recommended by [Kehinde et al. \(2021\)](#). Comparative studies across multiple rural locations in different geo-political zones could determine whether the severe economic impacts observed in Ogbomoso North are region-specific or indicative of broader trends affecting elderly populations across Nigeria.

Given the noted gender differences in obesity prevalence and economic vulnerability, intervention research testing gender-specific approaches would be valuable, particularly studies examining the effectiveness of women-only nutrition education programs versus mixed-gender approaches. Additionally, studies examining effective coping strategies employed by the minority of households that maintain food security despite economic challenges could provide valuable insights for developing resilience-building interventions. Research into culturally appropriate obesity prevention strategies for elderly women and investigation of successful community-based support systems would inform future intervention design and policy development.

4. CONCLUSION

Key Findings Summary

This study demonstrates that elderly individuals in rural Ogbomoso North face more severe nutritional and economic challenges than previously documented in similar contexts ([Ogunniyi et al., 2021](#)). Recent economic reforms have created a particularly challenging environment ([Choy et al., 2021](#)), with increases in food expenditures (58.9%) and agricultural input costs (83.1%) far exceeding both national and international benchmarks. The double burden of malnutrition and high prevalence of food insecurity (71.3%) indicate a complex public health challenge requiring immediate attention.

Addressing Research Gaps

These findings fill critical research gaps by providing the first comprehensive analysis of how recent Nigerian economic reforms specifically impact elderly populations in rural settings, directly contributing to evidence-based SDG monitoring and policy development. The study demonstrates that the intersection of economic vulnerability and food insecurity is more pronounced in this population compared to similar rural communities in Nigeria and other countries, highlighting unique challenges requiring targeted intervention strategies. This research provides essential baseline data for tracking progress toward SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) among one of Nigeria's most vulnerable populations, supporting the development of elderly-specific indicators in national SDG monitoring frameworks.

Direct Policy Recommendations

Based on this study findings, it is recommended:

1. Targeted Economic Support Programs: Implement elderly-specific social protection programs that provide direct income support, given that 85.5% of households spend more than 40% of income on food
2. Agricultural Input Subsidies: Develop specialized subsidy programs for elderly farmers to offset the 83.1% increase in input costs following reforms
3. Gender-Specific Interventions: Design separate nutrition programs addressing undernutrition in elderly men and obesity prevention in elderly women, incorporating culturally appropriate approaches
4. Integrated Food-Economic Security Programs: Establish programs that simultaneously address nutritional security and economic vulnerability, given the strong correlation ($r=0.68$) between household income and dietary diversity
5. Community-Based Food Distribution: Implement targeted food assistance programs during pre-harvest seasons when dietary diversity is lowest, utilizing existing community structures for delivery

Future Research Directions

Based on the finding from this study, priority research needs include longitudinal studies to track long-term impacts of economic reforms on elderly populations, comparative regional studies to determine if findings are location-specific, and intervention research testing the effectiveness of proposed policy recommendations. Additionally, research into culturally appropriate obesity prevention strategies for elderly women and investigation of successful coping mechanisms used by food-secure households would inform future intervention design. The urgent need for evidence-based policy development that integrates economic and nutritional support systems is evident, particularly given the 35% increase in basic food costs between 2022 and 2024 affecting this vulnerable elderly population in rural Nigeria. This research provides the foundational evidence necessary for developing comprehensive approaches that protect vulnerable populations while advancing Nigeria's commitment to achieving the Sustainable Development Goals.

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AUTHOR CONTRIBUTION STATEMENT

KB conceptualized the research problem, designed the study framework, led data collection and analysis, and wrote the original manuscript draft. OOA supervised the overall research process, provided methodological guidance, conducted focus group discussions, and critically reviewed the manuscript. OBA coordinated participant recruitment, performed anthropometric assessments, contributed to data validation, and assisted in manuscript preparation. TIA conducted literature searches, performed statistical computations, prepared figures and tables, and edited the final manuscript. All authors contributed to the interpretation of findings and approved the submitted version.

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