

Nutritional Knowledge and Factors Determining Food Purchase Practices of Rural Women in Southwest, Nigeria

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Abstract

The present study investigated nutritional knowledge and factors determining food purchase practices of the rural women in Southwest, Nigeria. A multi-stage random sampling technique was employed, selecting 50 per cent of states, Agricultural Development Programme (ADP) zones, functional blocks, and 30 per cent of contract female farmers within each block, yielding a total sample of 301 respondents. Data were collected from primary and secondary sources, with reliability assessed via test-retest and split-half methods, yielding acceptable Cronbach's Alpha values (0.8). The results revealed respondents demonstrated generally high nutritional knowledge, particularly in basic nutrients, and other areas of nutrition, yet 57.9 per cent had high overall knowledge, with gaps regarding micronutrient functions and effects of high-fat or sweet diets on child development. Common food purchase practices included taking inventory before shopping (98.7%), checking expiry dates (90.7%), and buying from local markets (93.4%). Factors such as included affordability 96.3 per cent, readily available, 95.3 per cent, health benefit 94.0 per cent and quality 93.3 per cent enhanced food purchase practices. Nutritional knowledge significantly improved purchase decisions, planning balanced diets (78.4%), and reducing disease risks, while statistical analyses revealed that training ($\chi^2 = 3.927$, $p = 0.048$), number of children ($r = 0.197$, $p = 0.041$), family size ($r = 0.200$, $p = 0.038$), occupation ($\chi^2 = 24.453$, $p = 0.000$), age ($r = -0.415$, $p = 0.000$), annual income ($r = -0.259$, $p = 0.004$), and money spent outside the home ($r = 0.259$, $p = 0.004$) were significant predictors of nutritional knowledge across the states. It concluded that nutritional knowledge markedly enhances food selection, dietary planning, and purchase practices and recommended the implementation of targeted nutrition education, improved access to resources, and support for care giving roles to optimize household nutrition and community health outcomes in the study area.

Keywords: Nutrition knowledge, Rural women, Food purchase practices, Factors.

JEL Classification: D12, Q18, Q13

Introduction

Nigeria's economy still depends heavily on agriculture, particularly in rural areas where it provides both food and a means of livelihood. Women constitute a significant proportion of the rural agricultural workforce and play a major role in maintaining household food availability and nutrition (Olabomi *et al.*, 2021). Studies have shown that women participate in various farming activities and contribute substantially to the production of staple foods consumed across the country (Udemezue and Odia, 2021). In addition to crop production, rural women are actively involved in food

processing, preservation, and the marketing of agricultural produce.

Despite these contributions, rural women's productivity is often constrained by several structural barriers, like lack of modern farming equipment, quality seedlings, loan facilities and agricultural extension services. These limitations can reduce agricultural productivity and, thereby, affect household food availability and affordability. Limited income also restricts women's economic potential and may indirectly influence household nutrition outcomes and dietary diversity. Beyond agricultural responsibilities, rural women perform multiple roles within the household and community. The women are the caregivers, food processors, traders and

household managers. In most families, women are primarily responsible for meal preparation and decisions about the types of food purchased for household consumption (FAO, 2023). Because of the women's dual roles in agricultural production and household food management, rural women have a significant influence on household nutrition and overall well-being. The rural women's ability to provide the right food choices often determines the nutritional status of family members. Therefore, improving women's access to nutrition education and information is essential for promoting healthier food purchase patterns and at the time improve household dietary diversity.

Malnutrition remains a major public health concern in Nigeria, particularly among rural households where access to balanced diets is often limited. Malnutrition occurs when the intake of nutrients are insufficient, excessive, or poorly balanced, resulting in negative effects on health, and general well-being (Onyedika-Ugoeze, 2025). One common form of malnutrition is micronutrient deficiency, which is frequently associated with low dietary diversity and limited knowledge of appropriate nutrition practices. Inadequate intake of essential vitamins and minerals can weaken immunity, hinder physical and cognitive development, and reduce work capacity. In developing countries such as Nigeria, micronutrient deficiencies are associated with conditions such as anaemia, stunted growth, and other diet-related health problems (Jackering *et al.*, 2018). These conditions also have broader economic implications, as malnutrition is estimated to reduce national productivity by about 2.5–10 per cent of the Gross Domestic Product (GDP) (Lailou *et al.*, 2020).

In many rural communities in Nigeria, diets are largely dominated by carbohydrate-based staples, while the consumption of fruits, vegetables, and protein-rich foods remains relatively low (Adeomi *et al.*, 2022). Since rural women are mainly responsible for household food purchasing and meal preparation, their level of nutritional knowledge significantly influences family dietary practices (Jasmin *et al.*, 2023). However, limited awareness of the nutritional value of locally available foods and improper food handling practices may contribute to poor dietary outcomes (Nisansala and Eresha, 2023; Mapis, 2020; Mediratta *et al.*, 2023; Edin *et al.*, 2024). The study examined the extent of rural women's nutritional knowledge and how it influences the food purchase practices, which forms the basis for the research questions guiding as the socio-economic characteristics of the rural women in the study area; the levels of the rural woman's nutritional knowledge in the study area; the food purchase practices of the rural women in the study area and the factors that enhance food purchase practices in the study area. Keeping the significance of the study, the present study focus on examine rural women's nutritional knowledge and the factors influencing their food purchasing practices in Southwest Nigeria.

Data Sources and Methodology

The study was carried out in Southwest Nigeria, where agriculture forms a major component of rural economic activities. The region consists of six states: Ondo, Osun, Oyo, Ekiti, Lagos and Ogun, with a population of approximately 38 million people according to the 2006 national census. The majority of inhabitants belong to the Yoruba ethnic group. The region has two main climatic seasons: a rainy season that typically occurs from March to November and a dry season from November to February. Major food crops cultivated include cassava, maize, yam, and cocoyam, while cocoa, rubber, bananas, and other fruits serve as cash crops. For this research, three states Ogun, Osun, and Oyo representing half of the region were selected randomly.

Population and Sampling Procedure

The population of the study consisted of rural women farmers aged between 20 and 60 years who were responsible for purchasing food for the households. A multi-stage sampling method was used to select respondents. First, three states were randomly selected from the six states in the region. Second, Agricultural Development Programme (ADP) zones within each selected state were randomly chosen. Third, functional blocks within the selected zones were selected through simple random sampling. Finally, 30 per cent of registered women farmers responsible for household food purchases were selected proportionately from each block. This process resulted in a total sample size of 301 respondents.

Hypotheses of the Study

H₀1: There is no significant relationship between the selected socio-economic characteristics of rural women and factors determining food purchase practices.

H₀2: There is no significant relationship between the rural women's level of nutritional knowledge and factors determining food purchase practices.

H₀3: There are no significant differences in the rural women's food purchase practices across the sampled states.

Analytical framework

Data were collected from primary and secondary sources, with reliability assessed via test-retest and split-half methods, yielding acceptable Cronbach's Alpha values (0.8). Descriptive statistics like mean percentages were used to summarize socio-economic characteristics, nutritional knowledge, attitudes, and food choice behaviors, while inferential statistics; chi-square, Analysis of Variance (ANOVA), Pearson product moment correlation (PPMC), and Duncan post hoc test were used to test the hypotheses and explored relationships at $p \leq 0.005$.

Chi-square test: The association between the perceived effects of nutritional knowledge and socio-economic characteristics of rural women was examined to test the

independence across the selected variable. The test was employed to determine whether the perception regarding the effects of nutritional knowledge differed significantly across various socio-economic groups such as education level, occupation, social status, religion, nutritional training of respondents and membership of crop or women farmers association.

The null hypothesis (H_0) stated that there was no significant association between the perceived effects of nutritional knowledge and the selected socio-economic characteristic, whereas the alternative hypothesis (H_1) stated that a significant association exists.

The Chi-square statistic was computed as:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where, O-Observed frequency

E-Expected frequency

Correlation analysis: Pearson's correlation analysis was employed to examine the relationship between the perceived effects of nutritional knowledge and selected socio-economic characteristics of the respondents, namely age, number of children, annual income, and amount of money spent outside the home. Pearson's correlation coefficient was considered appropriate as all variables were measured on interval or ratio scales and the relationships among them were assumed to be linear. The analysis quantified the strength and direction of the linear association between the dependent variable (perceived effects of nutritional knowledge score) and each selected socio-economic characteristic. Further, t-test was used to test significance of the correlation coefficient.

Duncan Post Hoc test: To compare the food purchase practices of respondents across different levels of perceived effects of nutritional knowledge, Duncan post hoc test was employed. In this study, the respondents were classified into different categories based on their perceived effects of nutritional knowledge viz. low and high, while the food purchase practices score served as the dependent variable. First, a one-way ANOVA was performed to test the null hypothesis that the mean food purchase practices score was equal across all nutritional knowledge perception groups. When the ANOVA F-test was significant ($p < 0.05$), Duncan post hoc test was applied to compare all possible pairs of group means. The Duncan test controls the experiment-wise error rate by comparing the differences between ordered means using the least significant range. Means that did not differ significantly were assigned the same alphabetical letter, whereas means with different letters were considered significantly different.

Results and Discussion

Socio-economic characteristics of the respondents

Table 1 presents the results of the Chi-square and Pearson product-moment correlation analyses examining the association between the perceived effects of nutritional knowledge and selected socio-economic characteristics of respondents in Southwest Nigeria. Most respondents (65.1%) were aged 41–60 years, showing that the study mainly involved middle-aged women who may have accumulated life experience related to nutrition (Ferreira-Pego *et al.*, 2020). Nearly half had tertiary education (49.8%), while 37.5 per cent completed secondary school. In terms of occupation, 33.2 per cent were farmers, 30.9 per cent traders, 26.2% civil servants, and 9.6 per cent worked in private organizations, reflecting the multiple livelihood activities common among rural women (Ghouse *et al.*, 2021). The majority were married (97.7%) and had two to four children (61.1%), emphasizing their role in household food provision. However, 57.8 per cent had never received formal nutrition training and 64.8 per cent were not members of women farmers' associations, limiting their access to nutrition and agricultural information.

Age had a significant negative relationship with nutritional knowledge ($r = -0.179$, $p = 0.002$), indicating that younger women possessed better knowledge, possibly due to greater exposure to modern information sources (Igbinoba *et al.*, 2020). Educational level showed no significant influence on nutritional knowledge ($\chi^2 = 0.460$, $p = 0.977$), suggesting that formal schooling may not adequately address nutrition education. Occupation and number of children were also not significantly associated with knowledge ($\chi^2 = 2.723$, $p = 0.436$; $r = 0.078$, $p = 0.176$). Marital status, however, showed a significant relationship, with single women demonstrating higher knowledge levels ($\chi^2 = 7.853$, $p = 0.020$). Nutrition training had a strong positive effect on knowledge ($\chi^2 = 11.096$, $p = 0.001$). The result implied that there is need for targeted nutrition education programs (UNICEF, 2020).

Relationship between the Rural Women's Level of Nutritional Knowledge and the Perceived Effects of Nutritional Knowledge in Southwest Nigeria

Table 2 presents the results of the Pearson correlation analysis examining the relationship between the rural women's level of nutritional knowledge and the perceived effects of nutritional knowledge across the three selected states and Southwest Nigeria as a whole. The findings reveal variations in the strength and direction of the relationship across the study areas.

In Osun State exhibited a strong negative and statistically significant relationship between the two variables ($r = -0.676$, $p < 0.001$). This finding indicates that respondents with higher levels of nutritional knowledge tended to report lower perceived effects of nutritional knowledge. The inverse relationship may suggest that women possessing greater

Table 1: Chi-Square and correlation analysis of perceived effects of nutritional knowledge and the selected socio-economic characteristics in southwest, Nigeria (n = 301)

Socio-economic characteristics	South West Nigeria		χ^2 -value	r-value	df	p-value	Decision
	High F (%)	Low F (%)					
Educational Level							
No Formal Education	2 (1.9)	3 (1.5)	0.460		4	0.977	Not Significant
Adult Education	2 (1.9)	4 (2.0)					
Primary Education	9 (8.7)	18 (9.1)					
Secondary Education	41 (39.8)	72 (36.4)					
Tertiary Education	49 (47.6)	101 (51.0)					
Occupation							
Civil servant	31 (30.1)	48 (24.2)	2.723		3	0.436	Not Significant
Private work	12 (11.7)	17 (8.6)					
Trading	27 (26.2)	66 (33.3)					
Farming	33 (32.0)	67 (33.8)					
Social status							
Single	3 (2.9)	-	7.853		2	0.020	Significant
Married	100 (97.1)	194 (98.0)					
Separated/Divorced	-	4 (2.0)					
Religion							
Muslim	46 (44.7)	84 (42.4)	0.138		1	0.710	Not Significant
Christianity	57 (55.3)	114 (57.6)					
Nutritional training of respondents							
No	46 (44.7)	128 (64.6)	11.096		1	0.001	Significant
Yes	57 (55.3)	70 (35.4)					
Membership of crop or women farmers association							
No	67 (65.0)	128 (64.6)	0.005		1	0.945	Not Significant
Yes	36 (35.0)	70 (35.4)					
Age				-0.179		0.002	Significant
Number of children of respondents				0.078		0.176	Not Significant
Family size of respondents				-0.064		0.265	Not Significant
Annual income of respondents				-0.159		0.006	Significant
Amount of money spent outside home by respondents				0.114		0.047	Significant

Source: Field Survey, 2024. df – Degrees of Freedom

$p < 0.05$ level of significance; Not Significant's at $p > 0.05$

Table 2: Correlation analysis relationship between the rural women's level of nutritional knowledge and the perceived effects of nutritional knowledge

S.No.	Variables	N	r	p-value	Decision
1.	Ogun State	108	0.089	0.358	Not Significant
2.	Oyo State	71	-0.197	0.100	Not Significant
3.	Osun State	122	-0.676	0.000	Significant
4.	South-west, Nigeria	301	0.200	0.000	Significant

Source: Field Survey, 2024

Table 3: Result of Duncan Post Hoc test for food purchase practices and the perceived effects of nutritional knowledge

S. No.	States	N	Food purchase habits score	Perceived effects of nutritional knowledge score
1.	Ogun	108	69.694 ^a	106.444 ^a
2.	Oyo	71	71.831 ^a	102.366 ^b
3.	Osun	122	68.861 ^a	104.189 ^{ab}
	Sig		0.296	0.006

Source: Field Survey, 2024

nutritional knowledge have a more realistic or critical assessment of its effects compared with those having limited knowledge, who may perceive greater benefits due to increased awareness or expectations. While, in the other two state the correlation coefficient is statistically non-significant.

However, at overall level, the analysis revealed a weak but statistically significant positive relationship between the level of nutritional knowledge and the perceived effects of nutritional knowledge ($r = 0.200$, $p < 0.001$). Although the strength of the relationship was relatively low, the positive and significant coefficient indicates that, overall, respondents with higher nutritional knowledge were more likely to perceive positive effects of nutritional knowledge. This finding suggests that improving nutritional knowledge among rural women may contribute to enhanced awareness and appreciation of the benefits associated with good nutrition. The results indicate that while the relationship varies across states, nutritional knowledge plays a significant role in shaping respondents' perceived effects of nutritional knowledge at the regional level. This trend supports nutrition education's impact on women's perceptions, confirming Prasetyo *et al.*, (2023) concluded that large-scale programs enhance knowledge and self-efficacy. The test of H_0 2 showed mixed state-specific results, but the significant regional correlation leads to its rejection.

Difference in Food Purchase Practices and Perceived Effects of Nutritional Knowledge Across the sampled states

Table 3 presents the results of Duncan's Post Hoc test comparing the mean scores of food purchase practices and the perceived effects of nutritional knowledge among rural women across Ogun, Oyo, and Osun States. The results indicate that there was no significant difference in the mean food purchase practices scores among the three states, whereas a significant difference was observed in the perceived effects of nutritional knowledge.

Food purchase practices did not differ significantly across Ogun, Oyo, and Osun ($p = 0.296$), with mean scores of 69.694, 71.831, and 68.861, indicating similar behaviours influenced by shared cultural, economic, or market factors. In contrast, perceived effects of nutritional knowledge varied significantly ($p = 0.006$), with Ogun highest (106.444),

Oyo lowest (102.366), and Osun intermediate (104.189). This suggested that while purchase behaviours are similar, women's perceptions of their knowledge's impact differ across states. Differences likely reflect variations in nutrition education access, household decision-making, and community health support. (Oketunde and Oketunde, 2024). Oyo women often have less autonomy, reducing perceived efficacy despite knowledge.

Conclusions and Policy Implications

The study found that respondents were predominantly middle-aged, married and engaged in farming or trading, while a majority had not received formal nutrition training. Nutritional training and marital status were the only socio-economic characteristics significantly associated with perceived nutritional knowledge, while younger women demonstrated higher nutritional knowledge than older women. Annual income and expenditure outside the home also showed significant relationships, whereas occupation, family size, number of children, religion, and membership in farmers' associations had no significant influence. The results also found that there is a weak but significant positive relationship indicated that higher nutritional knowledge generally enhances positive perceptions of healthy dietary practices. Food purchase practices were similar across the three states, but significant differences existed in the perceived effects of nutritional knowledge, with Ogun recording the highest perception scores. These findings highlight the need for targeted community-based nutrition education programmes, particularly for older rural women and the integration of nutrition education into agricultural extension services. State-specific nutrition strategies, strengthened women's groups, behaviour change communication and greater collaboration among agriculture, health and education sectors are essential for improving nutritional knowledge, promoting healthy food purchasing decisions, and enhancing household nutrition and food security among rural women in Southwest Nigeria.

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