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Research

Nutritional knowledge and practices among residents in Kano Metropolis, Nigeria

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Abstract

Poor nutrition knowledge and unhealthy dietary practices contribute to the rising burden of non-communicable diseases in many low- and middle-income countries, including Nigeria. This study aimed to assess the nutritional knowledge and practices of residents in Kano Metropolis, a rapidly urbanizing region in northern Nigeria. A descriptive cross-sectional study was conducted among 420 participants (186 males, 234 females), aged 15–70 years. A validated FAO-UN questionnaire was used to collect data on socio-demographic variables and nutrition-related knowledge and practices. Data were analyzed using STATA v24.0, employing Chi-square tests to assess associations. Female participants exhibited higher levels of nutritional knowledge and healthier dietary practices than males ($p < 0.05$). This may be attributed to education exposure, particularly nutrition-related subjects in secondary schools. Participants had good awareness of balanced diets, but knowledge gaps existed in nutritional risks and harmful food choices. Most participants stated that they often did not plan for a balanced diet, often did not consume high-fiber foods, and did not exercise regularly. Women more often stated they ate nutrient dense and high protein foods and men more often used nutritional supplements. These results underscore the need for widespread nutrition education programs and the integration of nutrition curricula in schools.

INTRODUCTION

Nutrition is a fundamental determinant of health, influencing human growth, cognitive development, and disease prevention (WHO, 2024). Non-communicable diseases (NCDs) such as diabetes, hypertension and obesity are increasingly prevalent in low- and middle-income countries (LMICs), partly due to poor nutrition knowledge and dietary behaviors (Perez-Escamilla et al. 2018). A basic human right is to be free from hunger and malnutrition, and reducing this condition is essential to both individual and societal advancement (FAO, 2024).

Nutrition Education includes any combination of educational techniques and environmental supports intended to promote the voluntary adoption of healthy eating habits (SNEB, 2024). It is provided in a variety of settings and encompasses activities at the individual, community and policy levels (SNEB, 2024).

The double burden of malnutrition is best illustrated by the situation of malnutrition in sub- Saharan Africa, where the prevalence of undernutrition and obesity are rising. Both conditions contribute to diet related disease (Giancola et. al. 2022). Africa also accounted for 24% of the world's overweight children under five in 2016, with rates rising among young women and adolescents (FAO, 2022).

With 25% of its population undernourished, Sub-Saharan Africa has the highest rate of hunger in the world (WFP, 2016). Dietary consumption influences nutritional status, which is linked to nutritional knowledge (Spronk et al. 2014). Only 25% of respondents had strong nutritional awareness, according to earlier research conducted in sub-Saharan Africa (Akinyinka et al. 2016). Furthermore, the fast urbanization and economic expansion in developing nations are constantly influencing eating practices. Poor nutritional status results from these dietary changes, which include a move toward foods higher in calorie density, a higher intake of saturated fat, and a lower intake of complex carbohydrates, dietary fiber, fruits, and vegetables (WHO/FAO, 2020).

In Nigeria, urbanization has led to shifts in dietary patterns, with increased consumption of processed foods, sugary beverages and high-fat diets (Olatona et al. 2023;

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FAO, 2024). Kano Metropolis, a major urban hub in northern Nigeria, faces unique nutritional challenges, with disparities in dietary habits, food accessibility, and health awareness (Gadanya et al. 2021).

Studies of nutritional knowledge and practices in Nigeria include one on students in secondary schools in the metropolis of Sokoto (Essien et al. 2014) and another in Lagos which explored the relationship of nutritional knowledge and dietary habits (Olatona et al. 2023). Gadanya et al. (2021) assessed the nutritional knowledge and practices of girl secondary school students in Kano State, but did not explore this in Kano State adults. The present study aims to assess the nutritional knowledge and practices among residents of Kano Metropolis, identifying gender-based differences in nutritional awareness.

METHODS

STUDY AREA AND POPULATION

This was a descriptive cross-sectional study conducted among 420 adults (5–70 years) residing in Kano Metropolis. Probability sampling was used to select participants from eight urban local government areas of Kano Metropolis. Adults aged 15+ years who provided written informed consent were included who were free from severe illnesses.

SAMPLING METHOD

Stratified random sampling was conducted. All 8 local government areas (LGAs) in Kano Metropolis were included (Fagge, Gwale, Kano municipal, Nassarawa, Dala, Tarauni, Kumbotso). Then the following sampling stages were followed:

1. (Selection of wards) in each of the LGAs, a list of all political wards was drawn and then using balloting 1 ward was randomly selected.
2. (Selection of settlements). Three Settlement out of all the settlements in the wards were randomly selected.
3. (Selection of streets within the settlements). Of all streets in each ward, two were randomly selected using balloting.
4. All the houses in all these two streets were numbered. A register of all the households in each street was developed and used as the sampling frame. A systematic sampling technique was used to select the households for the study.
5. Any eligible respondents within the selected households were identified and interviewed.

DATA COLLECTION

A validated FAO-UN questionnaire was administered via structured face-to-face interviews by the five research assistants from May 2024- September 2024. Variables Measured included nutrition-related knowledge (awareness of food groups, balanced diets, dietary risks) and practices (frequency of consuming specific food groups, exercise habits).

STATISTICAL ANALYSIS

Data were analyzed using STATA v24.0. The tests applied included descriptive statistics to summarize demographic data and chi-square tests to assess associations between KAP variables and gender. Confidence intervals (95% CI) were reported for key findings.

ETHICAL APPROVAL

The study was approved by Health Research Ethics Committee, Kano State Ministry of Health. All participants signed informed consent forms after being briefed on the study objectives, risks, and confidentiality measures.

RESULTS

The socio-demographic characteristics of the study participants are presented in Table 1 by gender.

Table 1. Socio-demographic characteristics of Kano metropolis residents based on gender

Socio-Demographic Characteristics	Categories	Female n (%)	Male n (%)	CHI²/ Fisher's Exact	P-Value
Age	1-24 years	120(51.3)	45(24.2)	43.367	0.000
	25-34 years	96(41.0)	105(56.5)		
	35-44 years	6 (2.6)	27(14.5)		
	45 and above	12(5.1)	9(4.8)		
Marital Status	Single	144(61.5)	123(66.1)	-	0.330
	Married	81(34.6)	60(32.3)		
	Divorced	9(3.8)	3(1.6)		
Educational Status	Secondary	24(10.3)	18(9.7)	0.039	0.844
	Tertiary	210(89.7)	168(90.3)		
Occupational Status	Civil servant	72(30.8)	69(37.1)	23.581	0.000
	Not employed	21(9.0)	9(4.8)		
	Self employed	39(16.7)	60(32.3)		
	Student	102(43.6)	48(25.8)		
Monthly Income	< 50,000	159(68.0)	87(46.8)	30.073	0.000
	50,000-100,000	42(17.9)	45(24.2)		
	100,001-150,000	15(6.4)	42(22.6)		
	>150,000	18(7.7)	12(6.5)		
Number of Children	0	153(65.4)	117(63.0)	-	0.055
	1-4	72(30.8)	51(27.4)		
	5-8	9(3.8)	15(8.1)		
	9 and above	0(0)	3(1.6)		

Table 2 provides information on participants' nutrition knowledge, again compared by gender. 75% recognized the importance of nutrition, but only 40% understood the risks of unhealthy diets. Women were generally more aware of nutrition, adequate meals, vital nutrients, overfeeding dangers, overweight risks, and foods for growth ($p < 0.05$). There were no significant gender differences in weight-control strategies or awareness of harmful foods. However, women reported more problems relating to appetite.

Table 3 presents data on participants' nutrition-relevant practices.75% ate protein-rich foods regularly, but only 30% planned balanced meals consistently. Physical activity was more common among men ($p < 0.05$). Consumption of fiber-rich foods was not high but there was no difference by gender ($p > 0.05$).

Table 2. Nutritional knowledge of Kano metropolis residents

S/N	Questions	Options	Female	Male	CHI²/ Fisher's Exact	P-Value
1.	Are you aware about the importance of Nutrition?	yes	225	171	-	0.008
		no	3	0		
		maybe	6	15		
2.	Are you aware of consumption of adequate diet?	yes	228	171	-	0.000
		no	6	3		
		maybe	0	12		
3.	Are you aware of the main food nutrients that you should consume daily (balanced diet); i.e. proteins, carbohydrates, fats, minerals and vitamins?	yes	228	168	-	0.005
		no	3	6		
		maybe	3	12		
4.	Are you aware of the sources of main food groups that you should eat 3 main meals a day?	yes	204	150	4.814	0.090
		no	24	24		
		maybe	6	12		
5.	Are you aware about the risk of overfeeding?	yes	207	159	-	0.002
		no	27	18		
		maybe	0	9		
6.	Are you aware of potentially harmful foods?	yes	177	150	1.951	0.377
		no	39	27		
		maybe	18	9		
7.	Are you aware of the risk of overweight?	yes	207	162	-	0.039
		no	15	21		
		maybe	12	3		
8.	Are you aware of the foods for growth and development?	yes	225	162	-	0.002
		no	6	12		
		maybe	3	12		
9.	Are you aware that the best source of information for nutrition is in the hospital?	yes	159	114	5.826	0.054
		no	45	54		
		maybe	30	18		
10.	Do you have any problems with your appetite, like not feeling hungry or feeling hungry all the time?	yes	90	60	6.601	0.037
		no	135	108		
		maybe	9	18		
11.	Have you tried to lose weight or control your weight by vomiting, taking a diet, pills or laxatives, or not eating?	yes	69	60	0.602	0.740
		no	159	120		
		maybe	6	6		

Table 3. Nutrition-related practices of Kano metropolis residents

S/N	Questions	Options	Female	Male	CHI²/ Fisher's Exact	P-Value
1.	How often do you eat food substances that contain carbohydrate like starchy foods?	Always	117	90	-	0.469
		Often	54	51		
		Sometimes	51	33		
		Rarely	6	9		
		Never	6	3		
2.	How often do you eat bodybuilding foods like milk, egg, or beans	Always	102	51	-	0.000
		Often	72	63		
		Sometimes	60	60		
		Rarely	0	9		
		Never	0	3		
3.	How often do you eat fats and oil food substance from plant source?	Always	51	51	-	0.089
		Often	84	54		
		Sometimes	84	60		
		Rarely	12	12		
		Never	3	9		
4.	How often do you eat food substances that are rich in vitamins like fruits, vegetables, fortified milk, fortified margarine, eggs, liver and fish?	Always	69	48	-	0.001
		Often	69	63		
		Sometimes	96	63		
		Rarely	0	9		
		Never	0	3		
5.	How often do you drink eight and more glasses of fluids daily?	Always	99	81	-	0.073
		Often	48	39		

Table 3. Continued

		Sometimes	72	51		
		Rarely	9	15		
		Never	6	0		
6.	How often do you plan and keep to a balance food menu?	Always	60	45	4.384	0.357
		Often	51	33		
		Sometimes	78	57		
		Rarely	30	36		
		Never	15	15		
7.	How often do you eat food substances rich in fiber/roughages like skin of fruits, wheat and grain?	Always	27	27	-	0.200
		Often	84	63		
		Sometimes	114	81		
		Rarely	9	15		
		Never	0	0		
8.	How often do you eat fried foods and other fattening foods or high calorie foods some of which are animal fats, butter and starchy foods?	Always	18	18	-	0.185
		Often	54	48		
		Sometimes	132	105		
		Rarely	24	15		
		Never	6	0		
9.	How often do you exercise?	Always	60	57	-	0.000
		Often	24	45		
		Sometimes	114	69		
		Rarely	36	12		
		Never	0	3		
10.	How often do you take vitamins and mineral supplements?	Always	15	42	51.734	0.000
		Often	39	27		
		Sometimes	93	72		
		Rarely	33	39		
		Never	54	6		

DISCUSSION

Participants in our study, adults in Kano, Nigeria, had good nutritional knowledge and reasonable consumption of a balance diet. This may be attributed to their relatively high level of education. This result is similar to that found in western Nigeria among the civil servants (Akinmoladun et al. 2021). However, poor nutritional knowledge was found among adults in urban Lagos State (Olatona et al. 2023) as did mothers in south-west Nigeria where only 19.5% had good knowledge (Akinyinka et al. 2016).

Women in our sample had better nutritional knowledge ($p<0.005$). This aligns with Akinmoladun et al. (2021) in western Nigeria, where females exhibited greater nutritional awareness. Nutritional knowledge was found to be linked to dietary habits and nutritional status, at least among the elderly (*J*eruszka -Brekak et al. 2020). Knowledge of proper nutrition is essential as the first stage in changing the dietary patterns and practices (Olatona et al. 2023).

Participants had relatively good dietary practices among those we measured. This too may be attributed to their educational background, as well as their high level of knowledge and the settings of the study population. The main gender differences were women more often consuming nutrient dense and protein-rich foods, and men more often taking nutritional supplements. Both were often did not consume high-fiber foods or get exercise.

These results should be interpreted with caution because self-reported data may introduce recall bias. In addition, the lack of dietary intake verification may have restricted the accuracy of our findings.

CONCLUSION

This study highlights moderately positive nutritional knowledge and practices of Kano Metropolis adults, with females exhibiting higher awareness than their male counterparts. Findings highlight the need for integrated nutrition education programs targeting all demographic groups. Gender-based nutritional education programs should be developed to address gaps identified here. Government policies promoting healthier food choices in urban areas should be increased. Future studies should incorporate dietary assessments to validate self-reported data.

AUTHOR CONTRIBUTIONS

NSS was involved in the conception, project administration, supervision, writing original draft and resources. AMU was involved in data curation, investigation, methodology, validation and writing (review & editing). SA was also involved in formal analysis, software, visualization. All the authors gave approval for the publication of the final version.

CONFLICT OF INTEREST

The authors declare that they have no other potential conflicts of interest.

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