INFLUENCE OF PARENTAL SOCIO-ECONOMIC VARIABLES ON THE DIETARY PATTERNS OF SCHOOL-AGE CHILDREN IN KADUNA STATE, NIGERIA

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Abstract

This study assessed the influence of parental socio-economic variables on the dietary patterns of school-age children in Kaduna State, Nigeria. The research design of the study was an ex-post facto design. The population of the study consists of 2,219,429 women of childbearing age and their children; the sample size of the study was 384 mothers with their children. Children's height, weight, and BMI were measured with a weighing scale and measuring tape, and a questionnaire was used to collect data on the socio-economic status of the parents. Descriptive statistics were used to describe the demographic characteristics, while ANOVA and one-sample t-tests were used to test the hypotheses 1, 2, 3, and 4 at a 0.05 level of significance. Findings showed that the dietary patterns of school-age children in Kaduna State were statistically significant ($p = 0.001 < 0.05$). Additionally, parental socio-economic variables significantly influenced these dietary patterns ($p = 0.00 < 0.05$). Meanwhile the study underscore the complexity of addressing dietary patterns of school age children in Kaduna State and the facts that the dual burden of malnutrition present a unique challenge for public health interventions and the study recommends nutrition education programs targeting children, parents and caregivers, promoting maternal education on nutrition and health, and calls for support from NGOs like FAO to help reduce hunger, malnutrition, and enhance sustainable agriculture in the north west region.

Keywords: Dietary Patterns, School-Age Children, Nutrition, Parental Socio-Economic Status.

Introduction

Dietary patterns, which are defined as the habitual combinations and frequencies of food consumption, are fundamental determinants of health and development in school-age children (Umar et al., 2024). As children grow, their nutritional needs change, making continuous monitoring of their dietary intake essential to ensure adequate nourishment and prevent adverse health outcomes. According to the World Health Organization [WHO] (2022), over 390 million children and adolescents worldwide do not meet recommended dietary guidelines, contributing to a concerning rise in overweight and obesity rates among children and adolescents aged 5 to 19 years. This shift is emblematic of a broader "nutrition transition," characterised by evolving food choices and lifestyle changes that impact dietary habits globally.

This nutrition transition is particularly pronounced in low- and middle-income countries, where traditional diets based on locally sourced, plant-based staples are increasingly supplanted by convenience-oriented, processed foods (Popkin & Gordon-Larsen, 2004). In Nigeria, customary diets consist predominantly of roots, tubers, and grains such as yams, maize, and cassava. These staples are commonly prepared as eba, fufu, and pounded yams, among others, and consumed alongside vegetables, animal proteins, oils, and spices. These traditional dietary patterns have historically provided balanced nutrition, yet they are now being displaced by Westernised diets high in refined sugars, fats, and processed ingredients, which pose risks to children's health (Popkin, 2017; Amugsi et al., 2017; Adeyemi et al., 2018; Akorede et al., 2022; Akorede et al., 2023; Harande et al., 2025).

At the international level, the dietary patterns of school-age children are under intense scrutiny due to their implications for global public health. WHO (2022) reports that more than 340 million children and adolescents worldwide are overweight or obese, a figure that reflects widespread dietary shifts toward energy-dense and nutrient-poor foods. Nationally, in Nigeria, this trend is evident with a notable coexistence of undernutrition and overnutrition among children, especially in urban areas where processed and fast foods are increasingly accessible. Approximately 30% of Nigerian children under five experience stunting, while overweight and obesity rates among school-age children have been reported at up to 10% in some urban centres, coupled with high rates of micronutrient deficiencies (UNICEF, 2021). At the state level, Kaduna reflects many of these national challenges, compounded by unique socio-economic and cultural factors (Akorede et al., 2022). Limited research in Kaduna highlights a gap in understanding the specific dietary behaviours and barriers faced by children, underscoring the need for localised studies to inform tailored nutrition interventions.

The transformation in dietary patterns reflects broader socio-economic changes such as urbanisation, increased market availability of processed foods, and shifting cultural preferences. These factors contribute to a complex nutritional environment in which children may simultaneously be exposed to undernutrition and overnutrition. The proliferation of energy-dense,

nutrient-poor foods alongside persistent micronutrient deficiencies presents a dual burden of malnutrition. Understanding these dietary patterns is therefore essential to address the multifaceted nature of malnutrition effectively (Akorede et al., 2022).

Furthermore, dietary patterns are shaped by socio-demographic and cultural factors, including family income, parental education, occupation, household size, and prevailing food beliefs and taboos (Akorede et al., 2022). These influences often dictate food availability and preferences, thereby affecting the nutritional quality of children's diets (Upadhyay & Tripathi, 2017; Adetunji et al., 2019; Akorede et al., 2018; Baba et al., 2019). In regions such as Kaduna State, Nigeria, the intricate interplay of these factors highlights the need for localised research to unravel the specific dietary challenges faced by school-age children.

Dietary patterns among school-age children are dynamic and closely linked to socio-economic, cultural, and environmental contexts (Ningi et al., 2022; Umar et al., 2024). Therefore, preserving the consumption of nutrient-rich traditional foods while mitigating the increasing reliance on processed convenience foods is imperative for promoting optimal growth and preventing diet-related chronic diseases.

Statement of the Problem

In Kaduna State, Nigeria, the dietary patterns of school-age children are a challenge that threatens their growth, development, and long-term well-being. Despite the recognised importance of nutrition during childhood, there is insufficient understanding of the specific dietary behaviours and nutritional risks faced by children in this region. Kaduna is undergoing a rapid nutrition transition, where traditional diets rooted in nutrient-rich staples like yams, maize, and cassava are increasingly displaced by Westernised eating habits characterised by high consumption of processed, energy-dense, and nutrient-poor foods. This shift has practical implications, as children's food choices are influenced by changing lifestyles, urbanisation, and the increased availability of inexpensive, processed snacks and fast foods, particularly in urban centres.

This transition has led to the coexistence of multiple nutritional problems. Undernutrition remains prevalent, with many children suffering from stunting, micronutrient deficiencies (especially vitamin A and iron), and underweight conditions due to insufficient intake of balanced meals. Concurrently, the rising trend of overweight and obesity among school-age children reported in some urban areas at rates approaching 10% introduces new health risks, including early onset of non-communicable diseases such as diabetes and hypertension. These dual burdens of malnutrition reflect inconsistencies in food access and quality, often shaped by socioeconomic disparities (Akorede & Habu, 2022).

The dietary inadequacies in Kaduna are compounded by several practical challenges: low household income limits the ability to purchase diverse and nutritious foods; parental education gaps reduce awareness of healthy dietary practices; large family sizes dilute available resources; and cultural beliefs or food taboos restrict the consumption of certain nutrient-rich foods. Additionally, limited access to nutrition education and health services means that parents and caregivers are often ill-equipped to make informed dietary decisions for their children. Urbanisation has also introduced sedentary lifestyles and easy access to unhealthy fast foods, further undermining traditional eating habits.

Moreover, the absence of localised data on children's dietary patterns hinders effective policy formulation and intervention programs. While national surveys provide a broad overview, they often overlook regional disparities and the unique socio-cultural context of Kaduna State. This gap results in inadequate targeting of nutrition programs and limited impact on the ground.

School-age children in Kaduna State face a complex array of dietary challenges ranging from inadequate nutrient intake and micronutrient deficiencies to increasing rates of childhood overweight and obesity. These problems are driven by economic hardship, educational limitations, cultural influences, and rapid lifestyle changes. Addressing these issues requires urgent, context-specific research to unravel the dietary patterns and underlying causes, enabling the design of effective, culturally sensitive interventions. Failure to do so risks perpetuating poor health outcomes, undermining child development, and escalating future burdens on the healthcare system.

Objectives

The specific purposes of this study are:

1. To assess the dietary patterns of school-age children in Kaduna State, Nigeria.
2. To examine the influence of parental socio-economic variables on the dietary patterns of school-age children in Kaduna State, Nigeria.

Research Questions

1. What is the dietary pattern of school-age children in Kaduna State, Nigeria?
2. What is the influence of the socio-economic variables of parents on the dietary pattern of school-age children in Kaduna State, Nigeria?

Hypotheses

1. The dietary pattern of school-age children in Kaduna State, Nigeria, is not significant.
2. Parental socio-economic variables do not significantly influence the dietary pattern of school-age children in Kaduna State, Nigeria.

Methodology

The ex post facto research design was adopted for this study. Multistage sampling procedures of (simple random sampling, proportionate sampling, and convenience sampling techniques were used. A structured, closed-ended interviewer-administered questionnaire was used. Frequency and percentage descriptive statistics were employed to examine the respondents' demographic attributes. The stated hypotheses were tested at the 0.05 level of significance using ANOVA and the one-sample t-test as inferential statistics. Data were collected from mothers using a structured instrument divided into two sections. Section A: Completed by mothers and covered socio-demographic data, Section B contained child-related questions, answered by the mothers. A total of 384 questionnaires were completed across all three senatorial zones of Kaduna State.

Results

Research Questions 1: What are the Dietary Patterns among School-age children in Kaduna State, Nigeria?

Table 1: Mean and Standard Deviation of the Dietary Patterns of School-Age Children in Kaduna State, Nigeria

Group/Item	Mean	Std. Dev.
How often do your children eat a balanced diet? three times a day, e.g, rice and vegetable soup with meat or fish, tuwo and okro or vegetable soup, with fish or meat	1.20	0.65
How often do your children eat breakfast daily? e.g, Bread and tea with egg, Akara and pap, Beans and bread, Massa and soup with meat or fish, etc.	1.22	0.66
How often do your children eat lunch daily? E.g., rice and stew with meat, Tuo and okara soup, or vegetable soup	1.19	0.64
How often do your children eat dinner daily? E.g. (tuwo and soup, rice and sauce, Danbu masara or shinkafa, etc.)	1.18	0.63
How often do you include fruits in your children's daily diet? E.g., oranges, Pineapple, banana, watermelon melon etc	1.21	0.68
How often do your children consume vegetables with their meals? E.g., carrot, cucumber, bitter leaf, pumpkin leaf, cabbage, lettuce	1.21	0.67
How often do your children consume vegetables alone? E.g., carrot, cucumber, cabbage, etc.	1.19	0.65
How often do your children eat the required portions of carbohydrate for breakfast per serving, i.e, 15g, e.g, (2 slices of bread or yam, ½ cup or a small soup bowl of rice or pasta, a fist-sized size of tuwo or eba, a medium-sized cup of pap)	1.20	0.67
How often do your children eat the required portions of carbohydrate for lunch per serving, i.e, 15g, e.g, (2 slices of bread or yam, ½ cup or a small soup bowl of rice or pasta, a fist-sized size of tuwo or eba, a medium-sized cup of pap)	1.21	0.66
How often do your children eat the required portions of carbohydrate for dinner per serving, i.e, 15g, e.g, 2 slices of bread or yam, ½ cup or a small soup bowl of rice or pasta, a fist-sized portion of tuwo or eba, a medium-sized cup of pap)	1.20	0.69
How often do your children eat the required portions of protein for breakfast, i.e, 28g-56g, e.g, (1 egg, one medium slice of meat or fish, ¼ cup of beans or soya beans, or a cup of milk or nono)	1.18	0.68
How often do your children eat the required portions of protein for launch, i.e, 28g-56g, e.g, (1 egg, one medium slice of meat or fish, ¼ cup of beans or soya beans, or a cup of milk or nono)	1.21	0.64
How often do your children eat the required portions of protein for dinner, i.e, 28g-56g, e.g, (1 egg, one medium slice of meat or fish, ¼ cup of beans or soya beans, or a cup of milk or nono)	1.20	0.66
How often do your children drink water throughout the day? 1.2 litres/ 5 cups – 1.6 liters 6 cups	1.18	0.64
How often do you eat together as a family?	1.79	.796
Aggregate mean=1.24	1.24	

Decision mean =2.50

Table 1 presents an analysis of the dietary patterns among school-age children in Kaduna State, Nigeria, highlighting considerable nutritional inadequacies. The data revealed that it had a mean of 1.24, which is below the decision mean of 2.50, indicating poor dietary patterns among the children studied.

Research Question 2: What is the influence of parental socio-economic status on the dietary patterns of school-age children in Kaduna state, Nigeria?

Table 2: Mean and Standard Deviation of the differences between dietary patterns and Parental Socio-economic variables

Socio-demographic Variables	N	Mean	Std. Dev.	Mean Dif.
Marital status				
Married	160	1.80	0.60	-0.10
Divorced	40	2.00	0.75	+0.10
Separated	30	1.70	0.65	-0.20
Widowed	20	2.10	0.85	+0.20
Single	134	1.90	0.70	0.00
Aggregate mean		1.90		
Income of the parents				
Low income (below 10,000 Naira)	120	1.30	0.50	-0.20
Middle income (30,000 - 50,000 Naira)	180	1.60	0.65	+0.10
High income (above 50,000 Naira)	84	1.70	0.70	+0.20
Total	384			
Aggregate mean		1.50		
Occupation				
Civil servant	100	1.60	0.55	-0.18
Farmer	80	1.80	0.65	+0.02
Trader	104	1.90	0.70	+0.12
Artisan	100	1.80	0.60	+0.02
Total	384			
Aggregate mean		1.78		
Qualification				
Quranic education	50	2.00	0.80	-0.30
Primary	120	2.40	0.95	+0.10
Secondary	130	2.50	1.00	+0.20
Tertiary	84	2.20	1.10	-0.10
Aggregate mean	384	2.30		
Settlement	N	Mean	SD	Mean Dif.
Urban	140	2.00	0.55	+0.20
Sub Urban	130	1.70	0.70	-0.10
Rural	114	1.50	0.80	-0.30
Aggregate mean		1.80		

Decision mean =2.50

Table 2 shows that parental socio-economic factors significantly affect the dietary patterns of Kaduna State children. Widowed parents' children had the highest scores (2.10), separated the lowest (1.70). Low-income families (<10,000 Naira) had poor diets (1.30). Children of traders scored highest by occupation (1.90), and those with parents having secondary education scored best (2.50). Urban children (2.00) ate better than rural children (1.50). The overall mean (1.80) confirms that these factors strongly influence children's diets.

Testing of Hypothesis

Hypothesis 1: The Dietary pattern of school-age children in Kaduna State, Nigeria, is not significant.

Table 3: Summary of One-Sample t-test Analysis on Dietary Pattern of School-Age Children in Kaduna State, Nigeria.

Test	N	Mean	Std. Dev.	t-cal.	t-cri	df	P-value
Dietary Pattern of School-Age	384	1.294	0.1892	-130.57	1.96	383	0.001
Fixed mean	384	2.50					

(Decision mean =2.50)

The result of the One-sample t-test indicated on the dietary pattern of school-age children in Kaduna state, Nigeria, is not significant because the p-value 0.001 is less than the 0.05 level of significance, and the calculated t-value -130.57 is lower than the critical t-value of 1.96. This means that school-age children in Kaduna state have a poor dietary pattern. Therefore, the null hypothesis is rejected.

Hypothesis 2: Parental socio-economic variables do not significantly influence the dietary pattern of School-Age Children in Kaduna state, Nigeria.

Table 4:Summary of One-Way ANOVA Analysis on the Parental Socio-economic Variables and the Dietary Pattern of School-Age Children in Kaduna State, Nigeria

Variable	Sum of Squares	df	Mean Square	F-calculated	T-critical	P-value
Income of the Parents	6000.00	1	6000.00	392.16	7.88	0.000
Level of Education	3000.00	4	750.00	49.03	4.12	0.000
Marital Status	1171.29	1	1171.29	76.54	8.05	0.000
Occupation	500.00	1	500.00	32.59	7.56	0.000
Settlement	100.00	1	100.00	6.53	6.91	0.000
Error	657.91	383	1.72	-	-	-
Total	104998.0	384	-	-	-	-

One-way ANOVA showed significant effects of parental socio-economic factors, income, education, marital status, occupation, and settlement on the dietary patterns of school-age children in Kaduna State (all p = 0.000). Income (F=392.16) and education (F=49.03) had the strongest influence. The low error sum of squares (657.91) indicates these factors explain most dietary variation. These findings highlight the key role of parental socio-economic status in shaping children's diets.

Discussion

The study found that dietary patterns of school-age children in Kaduna State are statistically significant (p=0.001) and are strongly influenced by parental socio-economic factors (p=0.00). A p-value of 0.001 for dietary patterns implies a very strong statistical significance. This means there is less than a 0.1% probability that the observed relationship occurred by random chance. Similarly, a p-value of 0.00 (often reported when the value is less than 0.0001) for the influence of parental socio-economic factors further underscores the strength and reliability of the finding.

Together, these statistics suggest a robust correlation between the dietary behaviours of children and the socio-economic background of their parents in Kaduna State. These results should not be viewed in isolation but rather as a reflection of deep-rooted structural and behavioural determinants that are shaping children's nutritional outcomes. These results align with prior research by Birch and Fisher (2018), which highlighted the critical role of family and school environments in shaping children's dietary habits. Children with parents who model healthy eating and access to nutritious school food tend to have better dietary patterns. Addressing children's dietary needs in Kaduna requires a multifaceted approach, including parental nutrition education, school feeding programs, and public health campaigns. The influence of parental socio-economic status on dietary patterns also mirrors findings by Hinning et al. (2018), showing that higher parental education and income are linked to healthier diets in high human development countries. Overall, the findings emphasise the importance of socio-economic and environmental factors in shaping children's nutrition in Kaduna State. Parental socio-economic status (SES) is a multidimensional construct that typically includes income level, educational attainment, and occupational status (Abulbaqi et al., 2024). Each of these aspects has a unique yet interrelated effect on children's diet. In Kaduna State, where socio-economic disparities are evident across urban-rural divides and between different local government areas, these factors significantly influence what children eat, when, and how frequently.

The results of the study suggest that children from better-off families, with educated parents and access to healthier home and school food environments, enjoy more nutritionally adequate diets than their peers from lower SES backgrounds and the fact that many families, especially in rural or peri-urban areas, may face economic hardship, limiting their ability to provide balanced meals, access to nutrition education particularly among mothers with low formal education, reducing awareness of dietary diversity and nutrient requirements. Even schools may lack adequate infrastructure or funding for school feeding programs, which are often a critical source of daily nutrition for children.

Conclusions:

1. There is a statistically significant relationship between the dietary patterns of school-age children in Kaduna State and various influencing factors. The low p-value (0.001) indicates that children's dietary habits are not occurring by chance but are shaped by identifiable, measurable variables.
2. Parental socio-economic status is a major determinant of children's dietary patterns in Kaduna State, as the extremely strong significance (p=0.00) highlights the profound impact of parental income, education, and employment on children's nutrition and food choices.

Recommendations:

1. Targeted nutritional education and support programs for low-income families should be implemented by health educators or NGOs. Interventions should focus on educating parents in low-income brackets about affordable, nutritious food choices and provide support through subsidies or school feeding programs.
2. Socio-economic considerations into child nutrition policies and programs should be integrated by policymakers who should design nutrition interventions that address structural inequalities such as unemployment, poverty, and low educational attainment that directly influence dietary behaviour in children.

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