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Food Consumption Pattern, and Anthropometric Status of Secondary School Students (Adolescents) in Umuahia North Local Government Area of Abia State, Nigeria

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Abstract

Background

Nutrition transition is globally increasing among adolescents and has been linked to the prevalence of childhood and adolescent overweight/obesity. The nutritional status of adolescents contributes significantly to the nutritional status of the community.

Objective

This study assessed the socio-economic/demographic characteristics; determined the food consumption methods, dietary diversity, and anthropometric status; and identified the association between dietary diversity and anthropometric indicators of secondary school students (adolescents) in the Umuahia North Local Government Area of Abia State, Nigeria.

Methodology

This study adopted a descriptive cross-sectional study design with a sample size of 204 secondary school students (adolescents). Three (3) secondary schools each from both public and private secondary schools and students were randomly selected. Student information was collected using a questionnaire. Food consumption patterns and anthropometric status were assessed using a 24-hour dietary recall, height, weight, waist, and hip circumference. SPSS was used for data analysis. Correlation was used to assess the association between dietary diversity and anthropometric indicators.

Results

The study findings revealed that participants ages between 13 and 15 years were the most dominant (54.9%). The majority (70.6%) of respondents ate thrice a day, and 51.5% took pocket money to school for lunch. The majority (88.2%) of the adolescents consumed foods from most of the food groups except organ meat (38.2%). 88.2% had a high food consumption score, with 90.7% of the males having a higher food consumption score than the females. The majority (88.7%) of adolescents had a high dietary diversity score. The prevalence of stunting, thinness, overweight/obesity, and malnutrition (MUAC) was 14.2%, 3.9%, 9.3%, and 37.3%, respectively.

Conclusion

However, there was no significant (< 0.05) relationship between the anthropometric indicators and Dietary Diversity Scores (DDS).

INTRODUCTION

In many societies, adolescence is narrowly equated with puberty and the cycle of physical changes culminating in reproductive maturity. In other societies, adolescence is understood in broader terms that encompass psychological, social, and moral terrain as well as the strictly physical aspects of

maturation. In these societies, the term adolescence typically refers to the period between ages 12 and 20 and is roughly equivalent to the word teens (Saul, 2016). During adolescence, issues of emotional (if not physical) separation from parents arise. While this sense of separation is a necessary step in the establishment of personal values, the transition to self-sufficiency forces an array of adjustments upon many adolescents. Furthermore, teenagers seldom have clear roles of their own in society but instead occupy an ambiguous period between childhood and adulthood. These issues most often define adolescence in Western cultures, and the response to them partly determines the nature of an individual's adult years. During this period, individuals also experience an upsurge of sexual feelings following the latent sexuality of childhood and gradually learn to control and direct these sexual urges (Saul, 2016).

Adolescents are changing regarding their food consumption in many settings, transitioning from traditional diets to westernized, energy-dense, and nutrient-unhealthy foods (Abizari & Ali, 2019; Agofure et al., 2021; Kaur et al., 2025). The school environment is a major influence on what, when, and how adolescents eat because secondary school students spend much of their day in school, allowing them to make independent food choices (Pinho et al., 2014). For this reason, a more realistic picture of adolescent eating habits and their health should include examining overall dietary practices rather than isolated foods and nutrients (Pinho et al., 2014; Abizari & Ali, 2019; Samuel et al., 2021). Recent studies have shown that suboptimal diets among adolescents are characterized by meal skipping, frequent snacking, fast-food consumption, and low intake of fruits and vegetables (Lalusu et al., 2022; Mehammed-Ameen et al., 2024).

The transition from adolescence and late young adulthood to adulthood is recognized as a critical stage during which many unhealthy lifestyle behaviours are established. These behaviours include increased smoking, reduced physical activity, and inadequate consumption of fruits and vegetables (Hedley et al., 2014). Similarly, Hoffman et al. (2016) reported that the first year of university or college is often accompanied by unhealthy dietary changes, making students more vulnerable to excessive weight gain. West and Cumines (2016) further observed that peer influence during adolescence and young adulthood can significantly shape eating behaviours, resulting in meal skipping, undereating, or overeating. In addition, Delisle et al. (2019) noted that dietary habits among adolescents and young adults are often irregular, thereby increasing their risk of poor nutritional status regardless of geographical location.

Adolescents generally consume diets that are rich in carbohydrates, fats, and oils, often at the expense of other essential nutrients needed to support optimal growth and development. Consequently, this age group faces multiple nutritional challenges, including malnutrition, micronutrient deficiencies, and nutrition-related chronic diseases. These problems are largely associated with unhealthy dietary practices commonly observed among undergraduate students (Abolfotouh et al., 2017). Furthermore, the nutritional status of many Nigerian adolescents remains unsatisfactory and continues to require urgent public health attention (Oguntona, 2018).

Globally, adolescents continue to experience a substantial burden of malnutrition, particularly in low- and middle-income countries. Recent estimates indicate that approximately 49 million adolescent girls (8%) and 154 million women (10%) are affected by malnutrition worldwide (Keats et al., 2018; Wrottesley et al., 2023; Sridhar et al., 2023; UNICEF, 2021). The burden of adolescent malnutrition is especially high across Africa, where both undernutrition and overnutrition coexist among this population (Sridhar et al., 2023). In Nigeria, adolescents account for a considerable proportion of the population, making their nutritional status and dietary practices important determinants of the country's future health and socioeconomic development. As in many other low- and middle-income countries, malnutrition and nutrition-related diseases remain significant public health concerns in Nigeria. Although these conditions occur throughout the country, their prevalence differs across geopolitical zones, with the highest burden observed in poorer and more remote communities (NDHS, 2018; WHO, 2022). Moreover, many African countries are experiencing a rapid nutrition transition characterized by the coexistence of persistent undernutrition and micronutrient deficiencies alongside increasing rates of overweight and obesity, resulting in the emerging triple burden of malnutrition (Popkin et al., 2020).

Dietary diversity refers to the number of different foods or food groups consumed within a specified reference period. The term dietary variety is frequently used interchangeably with dietary diversity in the literature. Dietary diversity is commonly assessed by counting the number of different food groups or individual foods consumed over a defined period and is widely recognized as an indicator of diet quality and nutrient adequacy (Mahal et al., 2024). This study aimed to assess the socio-demographic characteristics, food consumption patterns, dietary diversity, anthropometric status of adolescents, and the association between socio-economic status and dietary diversity among secondary school students (adolescents) in Umuahia North Local Government Area of Abia State, Nigeria.

MATERIALS AND METHODS

Study Design

The study design used was a cross-sectional study design.

Study Population

The population sample was adolescent between the ages of 10 to 19 years old secondary school students in Umuahia North Local Government Area, Abia State.

Sampling and Sample Technique

Secondary school students in Umuahia north were purposively selected then three (3) public secondary schools and three (3) private secondary schools were randomly selected. In the third stage, thirty-four

(34) secondary school students from junior to senior secondary school classes (JSS 1 to SSS 3) from each school were selected using simple random sampling, thus sample size 204 was used.

Ethical declarations

Informed Consent /Ethical Approval

Before the collection of data, consent to participate was obtained from their parents through the principals and teachers of the selected schools. The participants, parents, principals and teachers were informed of the objectives and requirements of the study, and given the assurance that every piece of information provided would be handled confidentially. They were assured that the data which they would provide would be solely used for research purposes and would be carefully handled, thereby avoiding exposure to a third party. Ethical clearance was obtained from the Health and Research Ethics Committee of Federal Medical Centre, Umuahia a nd in accordance with the principles of the Declaration of Helsinki for research involving human participants.

DATA COLLECTION

A well-structured questionnaire containing socio-demographic, 24-hour dietary recall, and anthropometric indicators developed for the study was administrated to the study participants with a clear explanation of what to do. The questionnaire was distributed to adolescent in Umuahia North local government area of Abia State by the researcher and the research assistant. The study employed a qualitative 24-hours dietary and it was an open-ended question about what the respondents ate in the last 24-hours and a food frequency questionnaire was used to obtain information on overall dietary quality rather than nutrient composition and intake.

Dietary Diversity Score

The dietary diversity score was assessed using the WHO guidelines. Individuals who consume less than 4 food groups had low diversity; individuals who consumed from 4–7 food groups had moderate diversity while individuals who consumed more than 8 food groups had high diversity score.

- 0-3DDS — Low diversity
- 4–7 DDS — Moderate diversity
- 8–12 DDS — High diversity

WHO, (2020)

Anthropometric measurement

The anthropometric measurement (height of the respondent) was obtained using a vertical wooden rod of 200cm with two tape rules and a fibreglass tape attached. Each respondent was weighed using the Hanson model bathroom scale and average was be taken. Weight and height were used to calculate their body mass index (BMI). BMI for age for adolescent is classified as follows:

- Overweight — >+1SD (equivalent to BMI 25 kg/m2 at 19 years)
- Obesity — >+2SD (equivalent to BMI 30 kg/m2 at 19 years)
- Thinness — <-2sd
- Severe — <-1sd

WHO (2020)

The body circumference such as waist and hip circumference were also measured using non-stretchable measuring tape. Waist and hip circumference were used to calculate waist-hip ratio (WHR). WHR is classified as follows:

WHR — Range

Female

- Low risk — < 0.8
- Moderate risk — 0.8–0.85
- High risk — > 0.85

Male

- Low risk — < 0.9
- Moderate risk — 0.9–0.95
- High risk — > 0.95

WHO (2020)

Data Analysis

Data from the weight and height, waist circumference and hip circumference of the respondents was used to derive the BMI for age and WHR. BMI for age was calculated as weight on kilograms, divided by height in meter square (kg/m2) and WHR was calculated by dividing the waist circumference by the hip circumference.

Statistical Analysis

Data were analyzed using SPSS (Statistical Package for the Social Sciences) version 23. Descriptive statistics such as means, standard deviations, frequencies, and percentages were used to summarize

the data. Chi square correlation were used to determine the relationship between socio economic status and dietary diversity, and association between food consumption score and anthropometric indicators.

RESULTS

Socio-demographic characteristics of adolescents (10–19 years)

Table 1 shows the socio-economic and demographic characteristics of adolescents who participated in Umuahia North Government Area, Abia State. Ibeku high school (26.5%) had the most participants while ages between 13–15 years were the most (54.9%) dominated. About half (52.9%) were males, while 47.1% were males. Majority were of Igbo ethnicity (92.2%) and were Christians (95.1%). Majority of respondents (95.1%) were christians. Majority of the caregivers/parents were married (95.1%) and had a household size (46.1%) of 4–6 individuals. Most (64.7%) of the participants lived with both parents.

Result revealed that more than half (52.9%) of the respondents' fathers attained tertiary education, while 1.0% had no formal education. Half (50.5%) of the adolescent's mothers attained tertiary education, 35.3% of them attained secondary education while 2.5% of their mothers had no formal education and about, 31.9% of the respondents' fathers are civil servants while 17.6% of them are traders. About 31.9% of the mothers are civil servants, while 31.9% of them are traders.

Table 1
Socio-economic and demographic characteristics of adolescents (10–19 years) (N = 204)

Variables	Frequency	Percentage (%)
School		
Isieke High School)	25	12.2
Ibeku High School	54	26.5
Ndume Secondary School	50	24.5
Standard International School	21	10.3
St. Cecilia Academy	29	14.2
Wellspring Preparatory School	25	12.3
Sex		
Male	108	52.9
Female	96	47.1
Age (years)		
10–12	44	21.6
13–15	112	54.9
> 16	48	23.5
Age (years) (M ± SD)	14.08 ± 1.77	
Class		
JSS 1	44	21.6
JSS 2	41	20.1
JSS 3	40	19.6
SSS1	32	15.7
SSS2	34	16.7
SSS3	13	6.4
Religion		
Muslim	10	4.9
Christian	194	95.1
Ethnicity		

Variables	Frequency	Percentage (%)
Igbo	188	92.2
Yoruba	12	5.9
Hausa	1	05
Ibibio and Efik	3	1.5
Marital status of parents		
Married	194	95.1
Single	10	4.9
Household size		
1–3	34	16.7
4–6	94	46.1
7–9	58	28.4
10 and above	18	8.8
Child currently lives with		
Only father	5	2.5
Only mother	27	13.2
Both parents	132	64.7
Relatives	34	16.7
Sister	6	2.9
Highest educational level of father		
No education	2	1.0
Primary education	21	10.3
Secondary education	73	35.8
Tertiary education	108	52.9
Highest educational level of mother		
No education	5	2.5
Primary education	24	11.8
Secondary education	72	35.3
Tertiary education	103	50.5

Variables	Frequency	Percentage (%)
Father's occupation		
Farming	39	19.1
Civil servant	65	31.9
Trader	36	17.6
Artisan	21	10.3
Unemployed	8	3.9
Privately employed (sales, clerical etc)	35	17.2
Mothers' occupation		
Farmer	42	20.6
Civil servant	65	31.9
Trader	65	31.9
Artisan	16	7.8
Unemployed	4	2.0
Privately employed (sales, clerical)	12	5.9

Table 2 shows the dietary habits of the adolescents. Majority of the respondents (70.6%) ate thrice a day and took pocket money to school for lunch (51.5%). About 38.7% skipped meals in the last 7 days and suggested that lack of appetite (33.3%) was the major reason for skipping meals. the staple/main meals (eg rice, beans, yam porridge) (77.2%) dominated the adolescent's lunch box, while snacks/pastries (16.6%) was the major type of food purchased in the school tuck/shop/canteens during break.

Table 2
Dietary habits of the adolescents (N = 204)

Variables	Frequency	Percentage (%)
Eating main meal with family in last 7 days		
Yes	148	72.5
No	31	15.2
Sometimes (2–3 times per week)	25	12.3
Number of meals eaten in a day		
Once	9	4.4
Twice	28	13.7
Thrice	144	70.6
4x and above	23	11.3
Meals skipping in the past 7 days		
Yes	79	38.7
No	99	48.5
Sometimes (2-3times per week)	26	12.7
Reasons for skipping meals (N = 105)		
Lack of appetite	68	64.7
Health status	21	20.0
Insufficient food at home	16	15.3
Lunch box taken to school		
Yes	46	22.5
No	138	67.6
Sometimes (2-3times per week)	20	9.8
Types of food usually in your lunch box (N = 66)		
Staple/main meals (eg rice, beans, yam porridge)	51	77.3
Snacks/pastries	11	16.7
Soft drinks	4	6.0
Bringing pocket money to school for lunch (N = 156)		

Variables	Frequency	Percentage (%)
Yes	105	51.5
No	48	23.5
Sometimes (2-3times per week)	51	25.0
Amount (of money brought to school (M ± SD)	**129.53 ± 152.97**	
Number of days pocket money was brought to school (N = 156)		
Every day (5 days per week)	64	41.1
2–3 times per week	92	58.9
Usually buy anything from the school tuck shop/school canteen/school vendors during break		
Yes	122	59.8
No	48	23.5
Sometimes (2-3times per week)	34	16.7
Types of food purchased in the school tuck/shop/canteens during break (N = 156)		
Staple/main meals (eg rice, beans, yam porridge	33	21.1
Snacks/pastries	100	64.2
Soft drinks	20	12.8
Fruits and vegetables	3	1.9
Reasons for purchase of food at the school tuck/shop/canteen (N = 156)		
Taste	75	48.1
Health and nutritional value	35	22.4
Cost	27	17.3
Peer influence	5	3.20
Convenience /availability	14	9.0
Source of drinking water in school		
Bring water from home	113	55.4
Purchase sachet water	70	34.3

Variables	Frequency	Percentage (%)
Well	2	1.0
River	3	1.5
Borehole	16	7.8
Source of drinking water at home		
Borehole	148	72.5
Purchase sachet water	41	20.1
Well	8	3.9
River	7	3.4

Table 3 shows the proportion of adolescents who consumed different food groups. Majority of the adolescents consumed foods from most of the food groups except organ meat (38.2%).

Table 3
Proportion of adolescents who consumed different food groups in the last 24 hours (N = 204)

Food group	Responses	Frequency	Percentages (%)
Cereals			
	Yes	156	76.5
	No	48	23.5
White roots and tubers			
	Yes	147	72.1
	No	57	27.9
Vitamin A rich vegetables and tubers			
	Yes	123	60.3
	No	81	39.7
Vegetables			
	Yes	154	75.5
	No	50	24.5
Vitamin A rich fruits			
	Yes	101	49.5
	No	103	50.5
Other fruits			
	Yes	122	59.8
	No	82	40.2
Meat			
	Yes	78	38.2
	No	126	61.8
Eggs			
	Yes	121	59.3
	No	83	40.7
Fish and other seafood			
	Yes	143	70.1

Food group	Responses	Frequency	Percentages (%)
	No	61	29.9
Legumes, nuts and seeds			
	Yes	134	65.7
	No	70	34.3
Milk and milk products			
	Yes	107	52.5
	No	97	47.5
Oils and fats			
	Yes	146	71.6
	No	58	28.4

Table 4 presents the dietary diversity score of adolescents. Majority of the adolescents had a high DDS score (88.2%). The table also shows that males had higher DDS scores than the females (90.7%). Majority of the adolescents had a high dietary diversity score (88.7%).

Table 4
Dietary diversity score of adolescents

Food consumption score	Males		Females		Total	
	F	%	F	%	F	%
Low (0–21)	2	1.9	2	2.1	4	2.0
Moderate (21.5–35)	8	7.4	12	12.5	20	9.8
High (> 35)	98	90.7	82	85.4	180	88.2
Low DDS (1–3)	11	10.2	7	7.3	18	8.8
Moderate DDS (4–5)	5	4.6	0	0.0	5	2.5
High DDS (≥ 6)	92	85.2	89	92.7	181	88.7

Table 5 illustrates the anthropometric indices of the adolescents. The prevalence of stunting, thinness, overweight/obesity and malnutrition (MUAC) was 14.2%, 3.9%, 9.3%, 37.3%, respectively.

Table 5
Anthropometric indices of the adolescents

Variables	Male		Female		Total		P-value
	F	%	F	%	F	%	
Height for age							0.000*
Not stunted (>-2SD)	82	75.9	93	96.9	175	85.8	
Stunted (<-2SD)	26	24.1	3	3.1	29	14.2	
BMI for age Z score							0.719ns
Extreme thinness (<-3SD)	2	1.9	0	0	2	1.0	
Thinness (<-2SD)	4	3.7	4	4.2	8	3.9	
Normal (≥ -2 - ≤+1SD)	93	86.1	82	85.4	175	85.8	
Overweight/obesity (> + 1SD)	9	8.3	10	10.4	19	9.3	
MUAC							0.034*
Not malnourished (> 18.5cm)	61	56.5	67	69.8	128	62.7	
Malnourished (≤ 18.5cm)	47	43.5	29	30.2	76	37.3	
		T-test					
	Mean	SD	Mean	SD			
Weight (kg)	45.72	15.41	47.30	9.39			0.384 ns
Height (cm)	153.13	14.33	151.94	22.45			0.656 ns

** Significant using fishers test, NS = not significant, HAZ= Height for age, BMI= Body Mass Index, MUAC = Mid Upper Arm Circumference*

Table 6 shows the association between dietary diversity and anthropometric indicators of the adolescents. There was no significant (< 0.05) relationship between the anthropometric indicators and Dietary Diversity Scores (DDS) (0.012).

Table 6
Association between dietary diversity and anthropometric indicators of the adolescents

Variables	DDS and FCS			Fisher's exact test	p-value
	Low	Medium	High		
Height for age				1.415	0.404 ns
Not stunted (>-2SD)	14 (77.8)	5 (100)	156 (86.2)		
Stunted (<-2SD)	4 (22.2)	0 (0)	25 (13.8)		
BMI for age Z score				0.865	0.888 ns
Thinness (<-2SD)	0 (0)	0 (0)	10 (5.5)		
Normal (≥ -2 - ≤+1SD)	17 (94.4)	5 (100)	153 (84.5)		
Overweight/obesity (> + 1SD)	1 (5.6)	0 (0)	18 (9.9)		
MUAC				0.659	0.807 ns
Not malnourished (> 18.5cm)	10 (55.6)	3 (60)	115 (63.5)		
Malnourished (≤ 18.5cm)	8 (44.4)	2 (40)	66 (36.5)		
Height for age				4.125	0.129 ns
Not stunted (>-2SD)	4 (100)	20 (100)	151 (83.9)		
Stunted (<-2SD)	0 (0)	0 (0)	29 (16.1)		
BMI for age Z score				4.456	0.283 ns
Thinness (<-2SD)	0 (0)	0 (0)	10 (5.6)		
Normal (≥ -2 - ≤+1SD)	3 (75)	20 (100)	152 (84.4)		
Overweight/obesity (> + 1SD)	1 (25)	0 (0)	18 (10)		
MUAC				5.143	0.064 ns
Not malnourished (> 18.5cm)	3 (75)	17 (85)	108 (60)		
Malnourished (≤ 18.5cm)	1 (25)	3 (15)	72 (40)		

NS = not significant, HAZ= Height for age, BMI= Body Mass Index, MUAC = Mid Upper Arm Circumference

DISCUSSION

This study provides insight into the food consumption pattern and anthropometric status of secondary school students (adolescents) in Umuahia North Local Government Area of Abia State, Nigeria. This finding is similar to findings reported by Ojofeitimi et al. (2011) among public and private school

participants in which more than half (60.8%) of them were between 13–16 years. This finding is in line with the National Demographic and Health Survey (NDHS et al.„ 2013), where it was discovered that in households there were more males (81.5%) than females (18.5%). This may be because the area where this study was conducted is dominated by the Igbo community who are mostly Christians. This was expected as the study was carried out in the South Eastern part of Nigeria which is dominated by Christians. This is in line with the study conducted by Oguizu and Alozie (2018), where majority (79.5%) of the children in their population were Christians and Okudu et al. (2026), where 88% of the population were Igbo and 79.5% were also Christians.

Similar studies have reported that parental marital status and household composition play important roles in determining dietary practices, food access, and nutritional outcomes among adolescents (Keats et al., 2018; Madjdian et al., 2023). Larger household sizes may increase pressure on household resources and food allocation, thereby affecting the quality and quantity of food available to household members (FAO et al., 2023). The increase was mostly among the younger emerging adults – ages 13 to 18 – and was primarily due to the fact that they still go to school.

In the study conducted by Asomugha et al. (2017), 43.2% of the fathers had basic education, 15.2% finished senior secondary education, some of them (33.5%) attended different tertiary institutions while 8.2% had no formal education. This is contrary to the study conducted by Asomugha et al. (2017), where most (32.1%) of the mothers obtained basic education, 18.8% had senior secondary school education while 30.2% had tertiary education. This is in contrast with NDHS et al. 2013, where it was reported that 51.2% of women had no formal education.

These findings contradict the report of NDHS et al. 2013, which showed that 13.0% of fathers in the North East zone had occupations in professional, technical, and managerial positions which covers civil servants. The finding is also contrary to NDHS et al. 2013, which showed that 28.7% of fathers in North East zone were traders. Fathers are responsible for financial management of the household and this is expected as it is their responsibility to take care of and provide for household members.

These findings contradict the report of NDHS et al. 2013, which revealed that 11.0% of mothers in North East zone had occupations in professional, technical and managerial positions which covers civil servants. The report also contradicts NDHS et al. 2013, where 54.1% of mothers in North East were traders. Occupation of the mother increases household income, contributes to household purchasing power, helps in diversifying food intake, and improves the socioeconomic status of households (Motbainor et al., 2015; Tariku et al., 2019).

Contrary to this study, studies among students in the United States have shown that a considerable proportion of students skip meals, with food insecurity and food cost being major contributing factors (El Zein et al., 2019; Bruening et al., 2017). Household food insecurity remains a major concern among adolescents living in low-income households and may adversely affect dietary intake and nutritional outcomes (UNICEF et al., 2021).

In line with this study, Kgaphola and Viljoen (2000) reported similar findings that maize, cassava products, tubers and bread formed an integral part of household diets. Similar results were reported at the national level in that the most commonly consumed cereal items were maize and bread (Maunder and Labadarios, 2009).

The magnitude of acceptable food consumption scores among adolescents in previous studies has been reported to be relatively high among populations with improved food availability and better socioeconomic conditions (World Food Programme, 2021; Madjdian et al., 2023).

Kgaphola and Viljoen (2000) reported similar findings that vegetables, cassava products, fat and oil, cereals, tubers and bread formed an integral part of adolescents' household diets. Similar results were reported at the national level in India that the most commonly consumed cereal items were maize and bread (Maunder and Labadarios, 2009). Comparing between genders, these findings match those of previous studies in other LMICs that found minimum dietary diversity score to be largely similar by sex, but where gender differences do exist, it is usually women who have lower minimum dietary diversity scores (Ferguson et al., 2017).

This study revealed that the overall prevalence of thinness among adolescents was lower than the study done in Asembo and Mumias, Kenya (15.6%) (Leenstr et al., 2005). Anthropometric indices were similar to Burkina Faso (13.7%) (Madjdian et al., 2023) and West Bengal (16%) (Sarkar, 2015). Recent evidence suggests that nutritional outcomes among adolescents are influenced by multiple interacting determinants including household income, parental education, dietary diversity, sanitation and environmental conditions (Keats et al., 2018). Furthermore, age-related physiological differences may contribute to disparities in nutritional status since early adolescents undergo rapid growth and nutrient demands that may increase vulnerability to undernutrition compared with middle and late adolescents (Madjdian et al., 2023). Therefore, differences in demographic characteristics and study settings may explain the observed variations in nutritional status across populations.

Similar observations have been reported in recent studies which showed that dietary quality indicators may not always correspond directly with anthropometric measures among adolescents due to the complex and multifactorial nature of nutritional status (Endalifer et al., 2021). Recent studies have demonstrated that household food security, parental education, and meal frequency significantly influence dietary diversity and nutritional outcomes among adolescents (Endalifer et al., 2021). Furthermore, evidence from Nigeria indicates that adolescent nutritional status is complex and influenced by diverse socioeconomic and environmental determinants beyond dietary intake alone (Abubakar et al., 2024; Gabriel et al., 2024). Therefore, the multidimensional determinants of adolescent nutrition may explain observed variations in nutritional outcomes.

CONCLUSION

A cross-sectional study was carried out among 204 respondents attending secondary school in different classes ranging from JSS 1 to SSS 3 in Umuahia North Local Government Area of Abia State, Nigeria

This study assessed the food consumption pattern, dietary diversity, and anthropometric status of secondary school adolescents in Umuahia North Local Government Area of Abia State, Nigeria. The findings showed that the majority of adolescents had high food consumption and dietary diversity scores. However, despite the generally favorable dietary pattern observed, notable proportions of adolescents were stunted, overweight/obese, and malnourished based on MUAC assessment. Furthermore, no significant association was observed between dietary diversity scores and anthropometric indicators. The findings suggest that adolescent nutritional status is influenced by multiple factors beyond dietary diversity alone and highlight the need for continuous nutrition education and targeted interventions to improve adolescent health and nutritional outcomes.

RECOMMENDATION

Based on the findings of this study, it is recommended that:

1. school based nutrition education regarding food consumption score should be given for the community at large.
2. intervention program to educate parents and the adolescents themselves are needed to prevent the increase in prevalence of overweight and obesity especially in a country like Nigeria where undernutrition already exists. There is also a need for survey of national prevalence in this age-group
3. schools must provide opportunities for daily physical education and comprehensive health education. Physical education classes should incorporate aerobic exercises and recreational activities.
4. furthers studies to understand the food consumption pattern and dietary diversity of adolescents in Nigeria is recommended.

DECLARATIONS

Declaration of Conflict of Interests

The authors have declared no conflicts of interest.

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Author Contribution

CVE: Contributed with conception, methodology, investigation, data curation, writing original draft, manuscript preparation and revision.EMO: Contributed with investigation, validation, manuscript preparation and revision resources.UBI: Contributed with investigation, resources, supervision.VCA: Contributed with conception, methodology, investigation, data curation, writing original draft.

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Data Availability

The data and materials supporting the findings of this study are available from the corresponding author upon reasonable request.

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