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RESEARCH ARTICLE

Assessment of Breakfast Consumption Habits and Nutritional Status of Adolescents in Selected Secondary Schools in Abeokuta, Ogun State, Nigeria

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Abstract:

***Background and Objectives*:** Learning healthy eating habits in adolescence is an investment in one's current and long-term well-being. This study evaluated the breakfast eating patterns and nutritional condition of adolescents attending secondary schools in Abeokuta, Ogun state.

***Materials and Methods*:** The study's design was cross-sectional and descriptive; 200 adolescent boys and girls were chosen using a multi-stage sample technique. Standard Procedures were used to take anthropometric measurements and a breakfast consumption habit questionnaire was used to gather information about breakfast consumption habits.

***Results*:** The BMI-for-age was computed using WHO Anthro software. 96.5 percent of students eat breakfast, 89.5% report feeling better after eating breakfast in class, and 79% believe breakfast is the most important meal of the day. Of the evaluated pupils, 2% were obese, 5% were overweight, and 27.5% were underweight.

***Conclusion*:** These results point to the necessity of education and awareness campaigns highlighting the benefits of eating breakfast every day.

Keywords: Food Habits, Anthropometric, Adolescents, First meal.

1. INTRODUCTION

One of a person's quickest growing stages in life is adolescence. At this point, growth calls for a lot of energy, much of which can only be obtained from eating healthful meals [1]. The adolescent's lifestyle and eating habits as an adult will be influenced by the food habits they develop throughout this period [2]. Breakfast is the most important meal of the day and should consist of whole grains, fruits, vegetables, and dairy products as well as other dietary categories and calcium sources. Breakfast has been identified as a critical meal linked to increased blood glucose levels, high protein, vitamin, and mineral intake, and more [3]. Breakfast is different from the other meals we eat in that it is consumed after the longest postprandial fast—in this case, an overnight fast—from a physiological perspective. It replenishes the glucose reserves to boost vitality and attentiveness. Children's cognitive performance may be enhanced by regular breakfast consumption and higher-quality breakfast foods [4]. The breakfast also supplies other vital nutrients needed for optimal health.

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A comprehensive and balanced diet must be consumed in order to preserve health in the best possible way and avoid health risks over one's entire life. But because diet affects brain maturation and future health markers, it becomes crucial during the developmental stage and especially during early adolescence [5]. Adolescent eating habits are therefore crucial to their general well-being, conduct, and cognitive function—all of which are significant outcomes at the age of the scholar [6]. According to the World Health Organization (WHO), having a healthy breakfast is critical for providing energy and vital nutrients for the best possible physical and cognitive performance [7].

Nonetheless, not enough research has been done to explicitly look at the breakfast habits and nutritional status of Abeokuta secondary school pupils. This study was motivated by the fact that most earlier studies [8,9] focused on breakfast eating patterns and nutritional status in primary school students, ignoring the unique demands and difficulties experienced by secondary school students.

2. MATERIALS AND METHODS

A descriptive cross-sectional study was carried out to evaluate the breakfast consumption patterns and nutritional health of 200 adolescents enrolled in particular secondary schools in Abeokuta, Ogun State. This study's participants were adolescents between the ages of 10 and 19 who attended a recognized secondary school. Students who did not provide permission or whose ages do not fall between 10 and 19 were not allowed to participate. The process of collecting data involved the use of a multi-stage sampling technique. Out of the 21 wards in Ogun State's Abeokuta South and Abeokuta North Local Government Areas, 4 wards were chosen using a simple random selection technique. Using a random sampling technique, four (4) secondary schools were chosen from the designated wards. From the chosen schools, 200 pupils in total were chosen at random to be assessed.

2.1. Data Collection

A structured questionnaire was employed to collect data from the participants. There were four sections to it. The first section gathered information on the respondents' sociodemographic and socioeconomic traits. The second section gathered information on the respondents' breakfast consumption patterns. Data on the respondents' food consumption habits were gathered in Section three. A customized food frequency survey was employed. Data on the respondents' anthropometric traits were gathered in Section four. The respondents' weights and heights were recorded, and this information was used to determine their Body Mass Index (BMI). The weight/height2 formula was used to calculate the respondents' body mass index, which was then compared to BMI-for-age look-up tables for children and adolescents aged 5 to 18.

2.2. Statistical Analysis

Using statistical package software for analysis (SPSS version 25.0) and the mean, median, and mode as well as frequencies and percentiles, the collected data was subjected to descriptive statistics analysis. The anthropometric information of the adolescents was examined using WHO Anthro software.

2.3. Ethical Consideration

Ethical approval was obtained from the Ogun State Hospital, Ijaye Abeokuta, Reference Number: SHA/RES/VOL.23/055. The Ogun State school board, the relevant school administrators, and the respondents provided written, informed consent for the study to be conducted. At the beginning of the study, the respondents provided their informed consent; they were free to withdraw from the study at any moment if it did not feel right for them.

3. RESULTS

The demographic and characteristic details of the surveyed respondents, including age, gender, class, religion, parents' educational attainment, and family size (Table **1**). The section titled "Breakfast Consumption Habits of the Respondents" offers insights into the respondents' beliefs and habits related to breakfast consumption. In terms of breakfast consumption, the majority of respondents (96.5%) reported eating breakfast, while a small percentage (3.5%) indicated they did not. Regarding how often they ate

breakfast, about half of the respondents said they did so every day, followed by 24.5% who said they did so 1-3 times per week and the same amount who said they did so 4-6 times per week.

Table 1. Demographic and Socio-Economic Status of the Respondents.

Variable	Frequency (n=200)	Percent
Gender		
Male	83	41.5
Female	117	58.5
Religion		
Christianity	162	81
Islam	37	18.5
Others	1	0.5
Ethnic group		
Yoruba	170	85
Igbo	19	9.5
Hausa	2	1
Others	9	4.5
Class		
JSS1- JSS3	74	37
SSS1- SS3	126	63
Father's occupation		
Civil servant	98	49
Trader	22	11
Teacher	15	7.5
Farmer	4	2
Others	61	30.5
Mother's occupation		
Civil servant	66	33
Trader	40	20
Teacher	42	21
Farmer	5	2.5
Others	47	23.5
Father's level of education		
Primary school	5	2.5
Secondary school	12	6
Post-secondary school	183	91.5
Mother's level of education		
No formal education	3	1.5
Primary school	4	2
Secondary school	20	10
Post-secondary school	173	86.5

Variable	Frequency (n=200)	Percent
Number of children in the family		
1-3	129	64.5
4-6	68	34
7 and above	3	1.5

Concerning where they got their breakfast, 77.5% of respondents reported it was something they made at home, while only 3% reported they got it somewhere else. Furthermore, 17% of respondents reported they got their breakfast from a combination of buying and preparing it at home. On the timing of breakfast consumption, 45% of participants said they ate it between 6:00 and 7:30 am, followed by 22.5% between 7:31 and 8:30 am, and 30% between 8:31 and 9:30 am. When asked where they ate breakfast, 83% of respondents revealed they did so at home. Only 5% and 10% of respondents, respectively, reported they ate breakfast at school or on the way to school.

Of the respondents, 82.5% reported they had eaten breakfast during the previous 24 hours, and 17.5% reported they had not. 89.5% of those who ate breakfast reported feeling more alert and focused in class on those days as opposed to those when they skipped it. 88.5% of students who were asked how they felt in class said that they paid attention and focused, 6% said they were fatigued, 2.5% said they had trouble focusing, and 3% stated they frequently fell asleep.

When asked if they always felt more focused and energized after eating breakfast, 61.5% responded that they did, 20.5% that they did most of the time, 11.5% that they did occasionally, and 6.5% that they did not really. When asked if their academic performance differed on day they skipped breakfast vs days they had it, 50.5% said they performed better on the days they skipped breakfast, 35.5% said they saw no difference, and 14% said they did not skip breakfast, and therefore couldn't compare.

Very high (42.5%), high (48.5%), average (8.5%), and low (0.5%) were the responses given by respondents regarding their level of concentration in morning classes. A sizable portion of the respondents (70.5%) reported skipping meals; 26% skipped breakfast, 48% skipped lunch, and 7.5% skipped dinner. The reasons given for skipping breakfast included not having enough time in the morning (35.5%), not feeling hungry (18.5%), not liking breakfast foods (4%), wanting to sleep longer (2.5%), and not having access to breakfast items (1%).

When it comes to attitudes on breakfast and health, the majority—79%—strongly agreed that having a sufficient and nourishing breakfast is crucial for general health and wellbeing, with only 17.5% disagreeing. Just 0.5% of respondents strongly disagreed, and 3% disagreed. The information gathered on the respondents' food consumption patterns is displayed in Tables **2-4**. The results show how frequently different food groups—from drinks to staple foods—are consumed.

Information on the respondents is provided via their anthropometric characteristics, which include their height, weight, and body mass index (BMI). The weight ranged from 26 kilograms at the lowest to 87 kilograms at the most. The heights varied from 1.28 meters at the lowest to 1.84 meters at the highest.

Table 2. Food Consumption Pattern of the Respondents.

Food Groups	Never	1-3 days	4-6 days	Everyday	More than once per day
Drinks/Beverages					
Energy Drinks	18%	22%	20%	20%	21%
Carbonated Drinks	18%	20%	18%	25%	20%
Malt Drinks	20%	25%	23%	23%	10%
Zobo	19%	22%	20%	22%	18%
Kunu	25%	25%	18%	18%	15%

Food Groups	Never	1-3 days	4-6 days	Everyday	More than once per day
Cocoa Drinks	26%	24%	16%	17%	18%
Herbal Drinks	23%	25%	23%	15%	15%
Yam					
Boiled Yam	14%	33%	22%	21%	12%
Roasted Yam	17%	21%	22%	22%	19%
Fried Yam	15%	23%	25%	21%	17%
Amala Dudu	13%	20%	22%	26%	20%
Yam Pottage	11%	28%	22%	20%	20%
Pounded Yam	16%	28%	22%	21%	14%
Ikokore	16%	28%	22%	21%	14%
Boiled Water Yam	14%	21%	24%	19%	23%
Fried Water Yam	15%	21%	33%	19%	14%
Ojojo	15%	24%	24%	24%	14%
Potatoes					
Boiled Sweet Potatoes	19%	25%	24%	19%	14%

Table 3. Food Consumption Pattern of the Respondents (contd.)

Food Groups	Never	1-3 days	4-6 days	Everyday	More than once per day
Potatoes					
Fried Sweet Potatoes	14%	21%	21%	23%	21%
Sweet Potato Pottage	21%	23%	19%	18%	20%
Boiled Irish Potatoes	15%	20%	20%	23%	23%
Fried Irish Potatoes	21%	23%	22%	17%	19%
Irish Potato Chips	13%	18%	29%	21%	19%
Mashed Irish Potatoes	20%	24%	19%	18%	20%
Poundo Potato	16%	24%	22%	17%	22%
Plantain					
Boiled Plantain	11%	24%	30%	19%	18%
Roasted Plantain	14%	27%	25%	18%	18%
Fried Plantain	16%	24%	22%	18%	21%
Plantain Chips	15%	26%	19%	21%	21%
Plantain Flour Meal	20%	23%	21%	20%	17%
Rice					
White Rice (Boiled)	22%	21%	23%	17%	19%
Jollof Rice	21%	24%	19%	18%	18%
Fried Rice	20%	27%	19%	17%	19%
Ofada Rice	15%	23%	33%	20%	10%
Coconut Rice	21%	38%	12%	20%	11%
Tuwo Shinkafa	33%	20%	20%	15%	13%

Food Groups	Never	1-3 days	4-6 days	Everyday	More than once per day
Maize					
Eko/Agidi	12%	17%	28%	26%	17%

Table 4. Food Consumption Pattern of the Respondents (contd.)

Food Groups	Never	1-3 days	4-6 days	Everyday	More than once per day
Maize					
Popcorn	11%	33%	22%	15%	20%
Maize Pap	14%	22%	24%	30%	10%
Tuwo Masara	18%	20%	30%	20%	13%
Egbo	20%	19%	16%	18%	28%
Corn Flakes	15%	17%	19%	31%	19%
Golden Morn	19%	22%	32%	18%	10%
Wheat					
Macaroni	20%	25%	15%	23%	18%
Whole Wheat Bread	18%	24%	16%	22%	21%
White Bread	20%	23%	28%	15%	16%
Semolina	20%	20%	23%	20%	18%
Spaghetti	2%	3%	2%	3%	2%
Noodles	22%	32%	15%	18%	15%
Wheat Flour Meal	18%	22%	21%	22%	19%
Beans					
Beans Pottage	20%	25%	20%	13%	23%
Bean Cake	21%	18%	26%	16%	19%
Moi-Moi	21%	19%	21%	24%	17%
Gbegiri	9%	17%	31%	12%	32%
Ekuru	10%	33%	26%	18%	14%
Akara Chips	14%	16%	34%	19%	17%

Table **5** provides information on the respondents' Body Mass Index (BMI) categories. Approximately 27.5% of the 200 responders who underwent assessment fell into the underweight category, with a BMI-for-age. A smaller portion of the respondents, 5%, were classed as overweight with a BMI that was appropriate for their age, while the majority, 65.5%, fell within the normal range. Finally, 2% of the participants met the criteria for obesity, based on a BMI range.

4. DISCUSSION

This study was designed to evaluate adolescents' breakfast habits and nutritional status in a subset of Abeokuta's secondary schools. In this study, there are more female participants than male participants lateef *et al.* [10], Medin *et al.* [11], and numerous more researchers have revealed similar findings. It was usual for the parents of the respondents to have completed postsecondary education. This can indicate increased purchasing power and a higher standard of living. It might also have an impact on parents' level of knowledge and the dietary care they provide for their children. According to the study, the majority of respondents had breakfast at home, and 20% had breakfast at school. These findings are consistent with re-

search from a few developed nations that have studied the issue of schoolchildren not eating breakfast at school [12]. It is impossible to overstate the influence that parents have in forming their children's breakfast-eating habits. In addition to allowing parents to closely monitor their children's breakfast consumption, parents should prepare wholesome food for their children to eat before they go for school [13].

Table 5. BMI Category of the Respondents.

BMI-for-age Category	Frequency (n=200)	Percent
Underweight (-3 SD < Z < -2 SD)	55	27.5
Normal (-2 SD < Z < 1 SD)	131	65.5
Overweight (1 SD < Z < 2 SD)	10	5
Obese (> 2 SD)	4	2

The majority of the respondents' eating habits also reveal that they ate less vegetables and eggs and more items from the groupings of cereals, roots and tubers, fruits, meats, oils, and fats. This could have an impact on the respondents' access to the nutrients (such as proteins and minerals) included in these dietary groups. The cause of this, nevertheless, might be attributed to fast food being a part of modern living, which makes it one of the least consumed or badly prepared meals. The overwhelming majority of study participants indicated that they eat breakfast, which is consistent with research by Adonu *et al.* [14] and Guiné, *et al.* [15] in which the author found that 78.4% of participants consistently eat breakfast. The fact that the data collection period coincided with school exams may have contributed to the high percentage of respondents who reported eating breakfast the day before. The majority of students often ate breakfast to avoid feeling peckish while taking the test. Another study conducted among teenagers according to similar findings published by Foluke *et al.* [16], most participants had breakfast the day prior to the data collection. Just a small minority of participants in this survey had breakfast at school; the majority of respondents had breakfast at home. The practice of eating breakfast at home is beneficial since, in comparison to home-cooked meals, meals consumed outside the home typically have smaller amounts, a higher calorie content, and are generally unhealthy dietary selections [17].

The study participants engaged in breakfast intake on an almost regular basis, with nearly all of them acknowledging to have had breakfast. This encouraging result might be the result of the respondents living with their parents, guardians, or other caregivers, who take on the responsibility of deciding what to eat and when. The discovery that over 75% of the participants ate breakfast consisting of homemade items lends support to this conclusion. Since more than three-quarters of the respondents have breakfast at home, this is useful as it may encourage healthy eating habits among adolescents and give parents and guardians the chance to keep an eye on the first meal their wards are ingesting. The majority of study participants acknowledged that eating breakfast improves their ability to concentrate in early lectures. This is to be expected, as breakfast breaks the overnight fast, as the name implies. It supplies additional vital nutrients needed for optimal health while also replenishing the body's glycogen reserves, which increase energy and alertness. For general health and wellness, most study participants agreed—and agreed strongly—that eating a sufficient and nourishing breakfast is essential. This may also serve as a catalyst for their optimistic outlook on eating breakfast.

This study's findings are consistent with those of several previous studies since most of the adolescents were within the normal range for BMI [11, 18].

CONCLUSION

This study provided valuable insights into the physical health, breakfast habits, nutritional status, and daily dietary practices of the respondents. The bulk of responders were placed into the normal BMI range, according to an analysis of BMI categories. It is noteworthy, therefore, that while a lesser percentage was classed as overweight and obese, a large fraction was classified as underweight. When data on breakfast consumption patterns are taken into account, it becomes clear that the majority of respondents reported eating breakfast on a regular basis, indicating the meal's significance in their daily routines. Additionally, the respondents reported feeling more at ease and focused in class on the days when they had breakfast, suggesting that eating breakfast may have a good effect on their general wellbeing. A small percentage of respondents gave the following excuses for skipping breakfast: not feeling hungry, lack of time in the morning, and dislike of breakfast foods. These results point to the necessity of education and awareness campaigns that highlight the benefits of eating breakfast every day and offer solutions for typical obstacles.

AUTHORS' CONTRIBUTIONS

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

CONSENT FOR PUBLICATION

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CONFLICT OF INTEREST

The author confirms that this article's content has no conflict of interest.

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