

## Assessment of Secondary School Students' Nutrition and Dietary Intake in Delta State

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### Abstract

The study assessed secondary school students' nutrition and dietary intake in Delta State. A research question and null hypothesis guided the study. The study adopted a descriptive survey research design. The study's population consisted of all secondary school students in Delta State. A simple random sampling technique selected 120 secondary school students as samples from three public secondary schools in Asaba, Delta State. The research instrument was a structured questionnaire and was validated by experts. The cronbach alpha method was used to determine a reliability coefficient of .83. Descriptive statistics of frequency and percentage were used to answer the research question, whereas *t*-test statistics were used to test the null hypothesis at a .05 significance level. The findings revealed that dietary intake among secondary school students in Delta State is adequate and the difference between mean ratings of boys and girls secondary school students on dietary intake in Delta State is not significant. Based on the findings, the study recommended that secondary school students eat adequate diets to ensure proper growth, development, and overall well-being.

**Keywords:** dietary intake, nutrition, secondary school students

### Introduction

Nutrition has severely been explained as a relationship between food intake and an individual's well-being. It relates to an individual's dietary needs as important development, growth, and health determinants. Nutrition is a science that explains nutrients and other food substances related to growth, food intake, absorption, biosynthesis, assimilation, catabolism, excretion, health, reproduction, maintenance, and disease of an organism (World Health Organization [WHO], 2007). This shows that nutrition is a science explaining the relationship between the intake of food substances, health, diseases, and various processes through which the body responds to food intake and how they are processed in the body as substances for overall well-being, growth, and development. The WHO reports malnutrition in over 1.8 billion children within the age bracket of 5 to 15 years globally, with more than 90% of the population living in developing countries (World Health Organization, 2018). Global Nutrition Report (2018) reported that one in three people suffers malnutrition, one in 20 children complain of hunger, and one in every five deaths worldwide is attributed to poor diet. This is more prevalent in sub-Saharan Africa, Southeast Asia, and the Pacific.

Inadequate nutrition in children has to do with serving inappropriate food according to children's nutritional needs, which determines the dietary intake for such children. Adequate dietary intake helps in children's growth, development, and excellent school outcomes. In addition, adequate dietary intake helps reduce cases of vulnerable diseases and ensure the quality of life in children. Observations have shown that diet-related diseases have become serious problems in society, that many young children (students) are at risk of being underweight and overweight. Dietary intake pattern established in childhood and is likely to be carried into adulthood.

For this reason, interest in understanding the dietary intake and determinants of such in children is growing among nutritionists. Several studies on dietary intake in children have revealed that children need adequate diets to provide sufficient nutrients to ensure growth, development, and general well-being without health problems due to poor nutrition. Again, Thomas (2022) reported that children should be fed well enough in order to ensure proper growth and, at the same time meet their energy requirements. The author also added that physical activity should be encouraged among children and ensure they are well-hydrated daily. This contributes significantly to keeping kids' food intake appropriate. This implies that adequate dietary intake is essential to children's health, affecting important factors such as growth, development, and metabolism. Poor dietary intake in children directly impacts their

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weight and health and results in obvious deficiencies of those nutrients playing significant roles in children's cognitive development. For instance, children need a balanced diet to supply the nutrients and energy needed for proper growth and development (Antia & Abraham, 2002). Good dietary intake in children helps to prevent undernutrition, growth retardation, and nutritional deficiencies. Khan et al. (2022) found a relatively high intake of poor diets and a low intake of rich diets, as recommended by WHO.

Similarly, Tassy et al. (2021) found that the macronutrient intakes of most children did not conform to adequate macronutrient distribution ranges (AMDRs), which were characterized by a higher proportion of energy from carbohydrates and a lower proportion from total fats. Protein intake was mainly within the AMDR. Compared to recommendations, over 60% of 4–8-year-old children had inadequate intakes of calcium, copper, iron, folate, and vitamins A, D, and E. There were more micronutrient inadequacies in the older children. This study identifies nutrition gaps and suggests future research and education to improve nutrition in children. On the same note, Megersa (2020) found that children's dietary intake was much below the WHO standards, with dairy and cereals being the major component of child nutrition, reflecting a typically low dietary diversity in pastoral areas. Furthermore, Santos et al. (2016) found that a high intake of snacks, fewer fruits, and vegetables was associated with children. Also, overweight and obese children at 6 years presented lower dietary intake.

Observations have shown that some students are malnourished, underweight, and overweight, most likely resulting from poor dietary intake. This is attributable to unhealthy diets, such as junk most children consume within and outside their home environment. Some mothers prefer to give their children unhealthy diets and junk foods within and outside school hours without considering the health implications and nutritional deficiencies of what their children consume regularly. Inadequate dietary intake in children may result in the risk of illnesses that are bothering lack of nutrition, tiredness, stress, being underweight, overweight, and tooth decay, among others. Furthermore, poor dietary intake in children may cause sexual problems, academic problems, and infections. It is based on the above premise and backdrop in children's dietary intake; it becomes very necessary to investigate secondary school students' dietary intake in Delta State.

### Research Question

What is the dietary/food consumption intake of junior secondary school students in the Asaba metropolis?

### Hypothesis

There is no significant difference between mean ratings of secondary school students on dietary intake in Delta State based on gender.

### Methodology

The research design of the study was a descriptive survey research design. A descriptive survey research design is a research design that studies a population by gathering data from only a few people or items considered to be representative of the entire population. The population for this study comprised all secondary school students in Delta State. The sample of this study was 120 secondary school students selected from three public secondary schools in Delta State. A multi-stage sampling technique was used. First, a simple random sampling technique was used to select three public secondary schools out of fourteen in Asaba. After that, the researcher used a simple random sampling technique to select 40 secondary school students from each of the three public secondary schools selected for the study. The instrument used for data collection was a structured questionnaire titled dietary intake of Secondary School Students Questionnaire (DISSSQ). Two experts

validated the DISSSQ. The Cronbach alpha method was used to determine a reliability coefficient of .83, indicating that the DISSSQ was fit for the study. 120 copies of the questionnaire were distributed to the selected respondents. The data collected were analyzed using descriptive statistics of frequency and percentage. The formulated null hypothesis was tested with t-test statistics. The decision rule was that a null hypothesis is accepted if the  $p$ -value is greater than .05, whereas any null hypothesis with a  $p$ -value less than .05 is rejected.

## Results

Research question 1: What is the dietary/food consumption intake of junior secondary school students in the Asaba metropolis?

**Table 1**

*Frequency and Percentage Scores of Secondary School Students' Dietary Intake in Delta State*

Dietary intake	Frequency	Percentage
<b>Protein</b>		
Not at all	-	-
Once	-	-
Twice	5	4.20
Three times	115	95.80
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Carbohydrate</b>		
Not at all	-	-
Once	3	2.50
Twice	11	9.20
Three times	106	88.30
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Fats/oil</b>		
Not at all	-	-
Once	-	-
Twice	44	36.70
Three times	76	63.30
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Minerals</b>		
Not at all	-	-
Once	-	-
Twice	37	30.80
Three times	83	69.20
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Vitamins</b>		
Not at all	-	-
Once	-	-
Twice	23	19.20
Three times	97	80.80
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Water</b>		
Once	-	-
Twice	-	-
Three times	-	-
Many times	120	100
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Snacking (junk)</b>		
Not at all	-	-
Once	9	7.50
Twice	15	12.50
Three times	96	80
<b>Total</b>	<b>120</b>	<b>100</b>

*Note.*  $N = 120$ . Data were collected by the authors in 2023.

Table 1 shows the frequency and percentage scores of junior secondary school students' dietary/food consumption intake in the Asaba metropolis. The analysis further reveals that for item 1, 115 secondary school students comprised 95.8% out of 120 indicated that they consume protein three times daily, whereas five secondary

school students comprised 4.8% indicated that they consume protein once and twice daily. On item 2 (carbohydrate), 106(88.3%) out of 120 secondary school students indicated consuming carbohydrates three times daily. In contrast, only 3(2.5%) and 11(9.2%) secondary school students out of 120 indicated consuming carbohydrates once daily and twice, respectively. Similarly, on items 3, 4 and 5, a greater percentage of secondary school students indicated consuming fats/oil, minerals and vitamins twice or thrice daily.

On the other hand, a lower percentage of secondary school students indicated consuming fats/oil, minerals, and vitamins once daily. In addition, all secondary school students sampled indicated they take water as often as possible daily. Finally, on item 7, 96(80%) and 15(12.5%) secondary school students out of 120 indicated consuming snacks three times and twice daily, respectively. On the other hand, only 9(7.5%) indicated that their children consume snacks once daily. Generally, based on the analysis, secondary school students have adequate dietary/food intake except for item 7 (snacks), where a greater percentage of them indicated that they consume snacks three times daily.

Hypothesis: There is no significant difference between mean ratings of secondary school students on dietary intake in Delta State based on gender.

**Table 2**

*Test of Difference between Mean Ratings of Secondary School Students on Dietary Intake in Delta State Based on Gender*

Gender	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Boys	49	21.53	7.19	118	-1.78	.07
Girls	71	23.67	5.22			

Note. *N* = 120. *p* > .05

Table 2 shows that a *t*-test was run to test the difference between mean ratings of secondary school students' dietary intake in Delta State based on gender. The result shows no significant difference given that *t*-value = -1.78 and *p* > .05 (.07 > .05); therefore, the null hypothesis was accepted that the difference between mean ratings of secondary school students on dietary intake in Delta State based on gender is insignificant.

### Discussion

This study's findings revealed adequate dietary intake among secondary school students in Delta State. The difference between mean ratings of secondary school students' dietary intake in Delta State based on gender is insignificant. These findings consolidate the finding of Khan et al. (2022) there is a relatively high intake of poor diets and a low intake of rich diets in children, as recommended by WHO. Similarly, Tassy et al. (2021) found that the macronutrient intakes of most children did not conform to AMDRs, which were characterized by a higher proportion of energy from carbohydrates and a lower proportion from total fats. Protein intake was largely within the AMDR. Compared to recommendations, over 60% of 4–8-year-old children had inadequate intakes of calcium, copper, iron, folate, and vitamins A, D, and E. There were more micronutrient inadequacies in the older children. This study identifies nutrition gaps and suggests future research and education to improve nutrition in children. Megersa (2020) found that children's dietary intake was much below the WHO standards. Dairy and cereals are the major components of child nutrition, reflecting a typically low dietary

diversity in pastoral areas. Santos et al. (2016) found that a high intake of snacks, fewer fruits, and vegetables was associated with children. Also, overweight and obese children at six years presented lower dietary intake. Furthermore, Antia and Abraham (2002) found that good dietary intakes in children are important in preventing undernutrition, growth retardation, and acute child nutritional problems. A child needs a balanced and adequate diet to supply the nutrients and energy needed for proper growth and development.

### Conclusion

Based on the findings, the study concludes that secondary school students in Delta State have good and adequate dietary intake.

### Recommendation

Based on the findings, the study recommended that secondary school students eat adequate diets to ensure proper growth, development, and overall well-being.

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