



Junk-Food Consumption and Bodyweight Management Among Junior Secondary School Students in Obio/Akpor LGA of Rivers State, Nigeria

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Abstract

The study investigated how the regular consumption of junk food affects body weight management among junior secondary school students in Obio/Akpor Local Government Area (LGA) of Rivers State. It employed a correlational research design with a sample size of 385 Junior Secondary Class 3 students. Five public secondary schools were randomly selected from Obio/Akpor LGA, and students were chosen for the study using proportional stratified random sampling through balloting. Data was collected using a 46-item validated instrument called the Junk-food Intake and Awareness Questionnaire (JIAQ), which measured junk food awareness level, frequency of junk food consumption, body weight management strategies, and participants' ages. Additionally, the weight and height of the respondents were measured. The reliability of JIAQ was assessed using the Cronbach formula, yielding a coefficient of 0.89. Descriptive and inferential statistics, including frequency, percentages, mean, standard deviation, and regression analysis, were employed for data analysis. The findings revealed that junior secondary school students had an above-average awareness of junk food, with frequent consumption of items such as burgers, spring rolls, and egg rolls. Body weight management practices among the students were slightly above average. The study found a strong, inverse, and significant relationship between junk food awareness and body weight, as well as a strong, positive, and significant relationship between the frequency of junk food consumption and body weight among junior secondary students in Obio/Akpor LGA of Rivers State. Recommendations included raising students' awareness of junk food available in eateries and restaurants in the LGA, aiming to reduce the regularity of consumption of such foods. This awareness is likely to contribute to better management of body weight among students.

Keywords: Junk food, Consumption, Awareness, Body weight, Body Mass Index

Introduction

The term "body weight" is often used interchangeably with "body mass," albeit incorrectly denoted in units of mass, such as kilograms. In reality, body weight represents the force exerted by gravity on an individual's body mass, typically expressed in Newtons. Although body weight is commonly measured in kilograms, it specifically refers to the measurement of an individual's weight excluding any items they may be carrying. While it's practical to measure body weight with clothing on, excluding heavy accessories like shoes, mobile phones, and wallets, using either manual or digital weighing scales, it's crucial for accurate assessment. Excessive or insufficient body weight is considered a crucial indicator of an individual's health status, with body volume measurements adding another layer by assessing weight distribution. Managing body weight involves adopting long-term lifestyle changes that promote healthy eating habits and regular physical activity. Successful strategies for body weight management encompass not just weight reduction but also the maintenance of a healthy weight over time. Additionally, effective weight management requires a comprehensive understanding of how to monitor weight changes over time and establish an ideal body weight tailored to each individual's needs (American Dietetic Association, 2009). Bodyweight management prioritizes sustainable, long-term approaches over quick-fix fad diets, aiming for gradual weight loss followed by maintaining an ideal weight based on factors like age, gender, and height. Effective weight management is essential for overall health, as it plays a pivotal role in preventing and managing various diseases and conditions. Conditions such as heart disease, high blood pressure, type 2 diabetes, gallstones, respiratory issues, and certain

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cancers are closely linked to being overweight or obese. Maintaining a healthy weight is crucial as it diminishes the risk of developing these health problems, bolsters self-esteem, and elevates energy levels, leading to a more fulfilling life. While factors such as family history may be beyond control, embracing positive lifestyle changes can significantly contribute to weight management. This includes adopting a balanced and nutritious eating plan and incorporating regular physical activity into daily routines. By making these proactive choices, individuals can take charge of their health and well-being, reducing the likelihood of weight-related health complications and enjoying a higher quality of life.

The Body Mass Index (BMI) is a commonly used measure to assess weight relative to height, providing a simple way to classify adults as overweight or obese. It is calculated by dividing an individual's weight in kilograms by the square of their height in meters (kg/m^2). This calculation offers insight into whether a person's weight might pose health risks. BMI categorizes individuals into different weight status classifications: normal weight (BMI of 18.5-24.9), overweight (BMI of 25.0-28.9), and obesity (BMI of 30 or higher). Globally, obesity rates have nearly doubled since 1980, with over 1.4 billion adults aged 20 and above being overweight in 2008. Among them, more than 200 million men and nearly 300 million women were classified as obese. Alarmingly, in countries where overweight and obesity are prevalent, they surpass underweight as leading causes of mortality, affecting about 65% of the global population. Furthermore, in 2012, over 40 million children under the age of 5 were classified as overweight or obese. The primary cause of obesity and overweight conditions is an imbalance between calorie intake and expenditure. This imbalance is primarily driven by increased consumption of high-fat foods and a decrease in physical activity, exacerbated by sedentary lifestyles prevalent in many occupations, changes in transportation methods, and shifts in lifestyle and behaviour patterns. Such behaviours include prolonged periods of television viewing, unhealthy dietary choices, and the consumption of junk foods (World Health Organization, 2014).

In 1972, Michael Jacobson, director of the American Center for Science in the Public Interest, coined the term "junk food" to describe processed foods with high caloric content, although the term encompasses a wide range of unhealthy food products. These foods are typically designed to be visually appealing and tasty, often leading consumers to develop cravings due to their engineered flavour profiles. Junk food is often associated with the fast-food industry (Pereira et al., 2005). Examples of junk foods include salty snacks, candies, sugary desserts, fried fast food items, and sweetened carbonated beverages. These items are generally low in nutritional value but high in calories, salt, and unhealthy fats. While not all fast foods can be considered junk food, a significant portion falls into this category. For instance, while a salad may be considered fast food, it does not meet the criteria for junk food. Some foods like burgers, pizzas, and tacos can blur the line between junk and healthier options depending on factors such as ingredients, calorie content, and production methods. However, frequent consumption of junk food is associated with an increased risk of developing chronic health issues (Rana, 2017).

The two main theories of nutrition are the ancient theory and the classical theory of a balanced diet. The ancient theory, associated with historical figures such as Galen and Aristotle, is grounded in their understanding of life processes. According to this theory, nutrition is considered fundamental to overall health, performance, disease prevention, and healing. It posits that the vitality of each bodily part is contingent upon the blood flow to that area. Nutrients derived from consumed foods power the formation of blood, which in turn serves as the life force for all bodily structures. This theory underscores the continuous production of blood in the digestive system through intricate processes not fully understood by nature. The liver acts to purify the blood, which is then distributed to various tissues and organs. Therapeutic diets were developed based on these principles, aiming to facilitate the efficient conversion of food into blood with optimal nutritional qualities. This theory emphasizes the profound impact of diet on bodily development and function. It is pertinent to the current study as it highlights the significance of food choices about bodily health, aligning with the study's exploration of the correlation between junk food consumption and student body weight (Boylan, 2007; Guggenheim, 1981).

The classical theory of a balanced diet, dating back to the era of Aristotle and Galen, embodies an ancient viewpoint on nutrition closely associated with prevailing concepts of an ideal balanced diet and optimal food selections. This theory emphasizes a balanced approach to evaluating dietary intake and retains relevance in contemporary times. It suggests that the body necessitates a steady provision of nutrients with molecular compositions that offset their expenditure and depletion through metabolic activities, work, and growth, especially relevant for young organisms.

Fundamentally, the classical theory of a balanced diet is guided by several core principles:

- The supply of nutrients must precisely align with their expenditures.
- The body efficiently utilizes ingested food.
- Food comprises various components with diverse physiological significance, including bulk, nutrients, and potentially harmful substances.
- Nutrients derived from food breakdown and absorption are essential for metabolic processes and the construction of the body's structures.

These principles form the foundation of the classical theory, emphasizing the intricate relationship between dietary intake, metabolic processes, and bodily functions (Boylan, 2007; Guggenheim, 1981).

The theory is related to the present study in the sense that for the management of the body weight of an individual, the supply of substances must exactly match their expenses through exercises and work. Be it junk food or not the body carries out the utilization of the food after consumption. However, the consumption of good food is important for the construction of the structure of the body.

The Health Belief Model, proposed by Janz and Becker (1984) and Rosenstock (1974), suggests that individuals are more inclined to adopt recommended health behaviours if they perceive themselves to be at risk of experiencing severe health outcomes. Moreover, they must believe that the benefits of adopting the suggested protective behaviour outweigh the associated costs. It's important to recognize that the perceived costs and benefits of performing a behaviour may vary among individuals. Widely utilized in health promotion and education (Glanz et al., 2002), the Health Belief Model provides a framework for evaluating and explaining individual variations in preventive health behaviours (Janz et al., 2002). The model encompasses six central concepts measured across its subscales: perceived susceptibility, perceived severity, barriers, benefits, health motivation, and confidence (Champion, 1999). This theory is pertinent to the present study because students' adherence to recommended bodyweight management behaviours hinges on their understanding of nutrition education. Failure to grasp these concepts could result in a heightened risk of serious health issues. Moreover, students must recognize that the benefits of adhering to nutrition education outweigh the potential costs of neglecting these behaviours. Understanding and implementing these concepts can lead to significant health benefits for individuals.

The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), extends the Theory of Reasoned Action (TRA) by integrating the concept of perceived Behavioral Control (PBC). Ajzen expanded TRA to encompass factors beyond an individual's volitional control that could impact their behaviour and intentions. This addition was based on the notion that behaviour is influenced by both motivation (intention) and ability (behavioural control). According to TPB, behavioural control is determined by an individual's control beliefs regarding the presence or absence of facilitators and obstacles to performing a behaviour, weighed by the perceived impact of each factor on facilitating or inhibiting behaviour. Consequently, individuals with strong beliefs about factors facilitating behaviour are likely to have high perceived control, leading to increased intention to perform the behaviour (Ajzen, 1991; Montano & Kasprzyk, 2002). Nutrition education holds significant potential to influence individuals' attitudes and behaviours, empowering them to implement what they have learned through behaviour change. Drawing from the Health Belief Model (HBM), individuals must perceive that the benefits of engaging in a suggested protective behaviour outweigh the costs associated with it. The HBM is widely employed in health promotion and education, offering a framework for assessing and describing individual differences in preventive health behaviours. Given the substantial benefits associated with nutrition education, individuals are more likely to adopt preventive behaviours for improved well-being. The current study aims to educate participants on reducing the consumption of junk food to mitigate associated health issues. In alignment with TPB, individuals' perceived control over their behaviour is influenced by their beliefs about the presence or absence of factors facilitating or hindering behaviour. Thus, in the context of the present study, individuals with strong beliefs in the value of sound nutrition education are likely to perceive high control over their behaviours, leading to an increased intent to adopt healthy dietary practices.

In a study by Davis and Carpenter (2009), the association between the proximity of fast food restaurants to schools and obesity rates among middle and high school students in California was examined, involving a sample of 5000 participants. The research findings revealed that students attending schools near fast food restaurants were more likely to consume increased servings of soda and were at higher odds of being overweight (odds ratio [OR] = 1.06; 95% confidence interval [CI] = 1.02, 1.10) or obese (OR = 1.07; 95% CI = 1.02, 1.12) compared to students whose schools were not near fast-food outlets, even after adjusting for individual- and school-level factors. The study

concluded that exposure to environments with poor-quality food options significantly influences adolescent dietary habits and contributes to the prevalence of overweight and obesity.

Pereira et al. (2005) conducted a 15-year prospective analysis titled "Fast-food habits, weight gain, and insulin resistance (the CARDIA study)" to investigate the correlation between fast-food consumption patterns and variations in body weight and insulin resistance over 15 years in the United States. The study involved 3031 participants aged between 18 and 30 years, comprising both white and black adults who underwent repeated dietary assessments. Multiple regression analysis was utilized to examine the association between the frequency of fast-food consumption and baseline as well as 15-year follow-up variations in body weight, along with the homeostasis model (HOMA) for insulin resistance. The findings revealed that among various ethnic groups, white women exhibited the lowest frequency of fast-food consumption. After adjusting for lifestyle factors, the baseline frequency of fast-food intake was directly linked to changes in body weight among both black and white participants. These changes in fast-food consumption frequency over the 15 years were significantly associated with changes in body weight, although the significance level among black individuals did not meet the .05 alpha threshold. However, these changes in fast-food consumption frequency were significantly associated with insulin resistance among both black and white participants. The study highlighted the impact of fast-food consumption habits on long-term changes in body weight and insulin resistance among young adults in the United States.

Obbagy and Essery (2012) conducted a review commissioned by the United States Department of Agriculture, Center for Nutrition Policy and Promotion, focusing on the relationship between the food environment, dining out, and body weight. The review synthesized evidence indicating that the food environment significantly influences dietary intake and body weight. Specifically, the presence of supermarkets and other sources of fresh produce in local neighbourhoods was associated with lower BMI, particularly among low-income individuals. Conversely, the increased presence of fast-food restaurants was linked to higher BMI, and individuals consuming fast food had an elevated risk of weight gain, overweight, and obesity. Consuming one or more fast food meals per week showed the strongest association with obesity.

In a study by Kaur et al. (2016) investigating the relationship between fast food consumption and the health of children in Uttar Pradesh, findings revealed a high prevalence of junk food consumption among respondents, with overweight being the most common health issue observed, followed by constipation, abdominal pain, and acidity. This study highlighted the detrimental health effects associated with the consumption of junk food among children. Gao et al. (2014) conducted a study assessing the impact of a one-year nutrition education intervention on fast food behaviour in preschool children and their parents. The study found low consumption of fast food among Chinese children and parents. Nutrition education significantly improved fast food consumption among parents over time, although no significant change was observed among children. Alfawaz (2012) investigated the relationship between fast food consumption and Body Mass Index (BMI) among female university students. The study included 141 female students from various study levels within the Nutrition and Food Science Department at King Saud University (KSU), Riyadh, Saudi Arabia. Findings revealed that while there was a high frequency of fast food consumption among the students, no significant relationship was found between fast food consumption, BMI, and the pattern of fast food consumption. However, a significant positive relationship was observed between the increase in the size of fish sandwich meals and BMI. Interestingly, there was no significant relationship between portion size of other food types and BMI. Additionally, there was a significant positive relationship between university study level and knowledge about why fast food is considered unhealthy.

Darvishi et al. (2009) conducted a cross-sectional descriptive-analytical study to examine the relationship between junk food intake and weight in 6-7-year-old children from Iran. The study found no significant correlation between parental education level and junk food intake among children outside the standard percentile range. However, among children with normal weight, there was a significant association between parental education level and junk food consumption. The study also revealed a significant correlation between weight percentile and the number of meals consumed, with underweight children having the lowest mean number of meals and overweight children having the highest. Notably, cookies, biscuits, and syrup were identified as the most commonly consumed junk foods among the children. In a study by Goyal (2007) in Bangalore, India, consumer perceptions of fast food and body weight among Indian youth were assessed. The study revealed that Indian youth frequented fast food outlets primarily for entertainment and change, placing high importance on taste and nutritional quality, as well as

ambience and hygiene. Additionally, the study found a significant correlation between frequent fast food consumption and body weight among young Indians. Kumar et al. (2009) conducted a study in Allahabad City, Uttar Pradesh, India, to evaluate the socio-cultural and nutritional aspects of fast food consumption and its association with body mass index (BMI) among adolescents. The findings showed that the majority of fast food consumers were aged 15-18 years, with most having a normal BMI, while a smaller percentage were underweight. The study concluded that socio-cultural and nutritional factors play a role in influencing the consumption of fast food among adolescents.

Statement of the problem

Maintaining a healthy diet and lifestyle is crucial for overall well-being. Unfortunately, in the modern era, there is a widespread inclination towards consuming foods that have detrimental effects on health. Lifestyle changes, particularly due to urbanization and globalization, have led many individuals to overlook the nutritional value of their diets. The shift towards increased consumption of calorie-dense junk food has become a significant concern globally, contributing to the rising prevalence of various health conditions such as diabetes, hypertension, obesity, and certain cancers, particularly in developing countries. This trend is particularly worrisome among children, who may be unaware of their overweight status, leading to increased risks of health complications and negative impacts on their self-esteem, academic performance, and overall quality of life.

Nutrition education is essential for promoting healthy eating habits and addressing the challenges posed by the consumption of junk food. While extensive research has been conducted on the impacts of diet on weight management and quality of life, many studies have been conducted outside of Africa. Therefore, there is a need to understand the specific effects of junk food consumption on the body weight of junior secondary students in the Obio/Akpor Local Government Area of Rivers State, Nigeria. To date, no such study has been conducted in this area. The present study aims to fill this gap by investigating the influence of the frequency of junk food consumption on body weight among junior secondary students in this locality. By conducting this research, valuable insights can be gained into the dietary habits of students in the region and the potential implications for their health and well-being. This information can inform targeted interventions and educational programs aimed at promoting healthier eating habits and reducing the consumption of junk food among adolescents in Rivers State, Nigeria.

Purpose of the study

The main purpose of the study was to investigate the impact of the regularity of junk-food intake on the bodyweight of junior secondary school students in Obio/Akpor LGA of Rivers State. Specifically, the study determined:

1. The junk-food awareness level of the junior secondary students in Obio/Akpor LGA of Rivers State
2. The most frequently consumed junk-food amongst junior secondary students in Obio/Akpor LGA of Rivers State
3. How junior secondary students in Obio/Akpor LGA of Rivers State manage their bodyweight
4. The relationship between junk-food awareness and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State
5. The relationship between the frequency of junk-food consumption and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State

Research questions

The following research questions guided the study

1. What is the junk-food awareness level of the junior secondary students in Obio/Akpor LGA of Rivers State?
2. What is the most frequently consumed junk-food amongst junior secondary students in Obio/Akpor LGA of Rivers State?
3. To what extent do the junior secondary students in Obio/Akpor LGA of Rivers State manage their bodyweight?
4. What is the relationship between awareness of junk-food and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State?
5. What is the relationship between the frequency of junk-food consumption and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State?

Hypotheses

The following null hypotheses guide the study.

H₀₁: There is no significant relationship between awareness of junk-food and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State

H₀₂: There is no significant relationship between the frequency of junk-food consumption and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State

Methods and Materials

The correlational research design employed in this study aims to examine the relationship between the frequency of junk-food consumption and body weight among Junior Secondary School 3 (JSS3) students in the Obio/Akpor Local Government Area (LGA) of Rivers State, Nigeria. In this design, the frequency of junk-food consumption serves as the independent variable, while student body weight is the dependent variable. The target population for this study consists of all 7,453 JSS3 students in Obio/Akpor LGA, as reported by the Planning, Research, and Statistics Department of the Rivers State Schools' Board (RSSSB) in 2019. However, due to practical constraints, a sample size of 400 JSS3 students was selected for participation in the study. The researchers purposively selected JSS3 students because they represent a critical stage in adolescence, and investigating the impact of junk food on their body weight at this stage can provide valuable insights into dietary habits and potential health outcomes. Yamane's formula (1967:886) was used to determine the required sample size, which was calculated to be n=380. However, to ensure an adequate sample size and account for potential dropouts or incomplete data, a total of 400 JSS3 students were ultimately included in the study. This research design allows for the examination of the association between junk-food consumption and body weight among junior secondary school students in the study area, providing valuable information for future interventions and policies aimed at promoting healthier dietary habits and reducing the prevalence of overweight and obesity among adolescents.

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N= 7453 is the population and 'e' is the level of significance (0.05). When this formula is applied to the above sample, we get the equation.

$$\begin{aligned} n &= \frac{7453}{1 + 7453(0.05)^2} \\ n &= 380 \end{aligned}$$

The study conducted by Nwankwo (2006) utilized a sample size of 400 Junior Secondary School 3 (JSS3) students from five public secondary schools in the Obio/Akpor Local Government Area (LGA) of Rivers State, Nigeria. The sampling technique employed was a combination of simple random sampling and proportionate stratified random sampling. The data collection instrument used in the study was the Junk-food Intake and Awareness Questionnaire (JIAQ), comprising 46 items. Part A of the questionnaire gathered demographic information such as sex, age, height, and weight of the students, while Part B quantified the frequency of junk food consumption, awareness of junk food, and body weight management strategies. To ensure the validity of the questionnaire, a draft was reviewed by the researcher's supervisor and two other lecturers from the Department of Home Economics and Hotel Management. Feedback was provided on the clarity, language appropriateness, and overall adequacy of the instrument. Modifications were made based on their suggestions. The content validity of the instrument was established through two phases. In the first phase, copies of the instrument were given to two experts in Food and Nutrition and Educational Measurement and Evaluation, who were asked to suggest additional items to improve content coverage. In the second phase, improved copies of the instrument were given to two other experts to assess the relevance of the items. Their feedback was used to replace irrelevant items and make necessary corrections. The study ensured the validity of the questionnaire through expert review and feedback, ensuring that the instrument effectively captured the necessary information to address the research questions and hypotheses.

The reliability of the non-cognitive instrument used in the study was assessed using the Cronbach Alpha method, which measures the internal consistency of the items within the instrument. To establish reliability, 30 respondents from Community Secondary School Ogbogoro, who were not part of the study, were randomly selected. Each respondent completed the instrument, and the filled copies were collected for analysis. The data obtained were

analyzed using the Cronbach Alpha (α) method via Statistical Package for Social Sciences (SPSS) version 21. Reliability coefficients were computed for each section of the instrument and the entire set of items excluding demographic variables. The obtained reliability coefficients were satisfactory, with values of $\alpha = 0.82$ for Junk-food awareness, $\alpha = 0.73$ for Frequency of junk-food consumption, $\alpha = 0.77$ for Bodyweight management strategies, and $\alpha = 0.89$ for the entire instrument, indicating good internal consistency. Approval for the study was obtained from the principals of the selected schools, and the researcher, along with a research assistant, administered the instrument to the students. Weighing scales and measuring tapes were provided to accurately measure weight and height. Guidance was offered to participants to ensure the proper completion of the questionnaires. Out of the 400 distributed copies of the Junk-food Intake and Awareness Questionnaire (JIAQ), 385 were returned and used for data analysis. Descriptive and inferential statistics were employed for data analysis. Demographic variables were presented using frequency and percentages. Mean and standard deviation were used to answer research questions 1-3, while regression analysis was utilized to address research questions 4 and 5, along with testing the hypotheses. A criterion mean score of 2.50 was used to determine junk food awareness and bodyweight management strategies, whereas a criterion mean score of 3.00 was applied to assess the average regularity of junk food intake among participants. All hypotheses were tested at the 0.05 alpha level.

Results

Table 1: Summary of the distribution of the demographic variables of the respondents.

Biometric	Category	N	%
Age	11-13 years	129	33.50
	14-16 years	241	62.6
	17-19 years	15	3.9
Weight	25-43 kg	95	24.7
	44-62 kg	249	64.7
	63-81 kg	41	10.6
Height	1.04-1.24 meter	6	1.6
	1.25-1.45 meter	39	10.1
	1.46-1.66 meter	231	60.0
	1.67-1.80 meter	109	28.3
Sex	Male	155	40.3
	Female	230	59.7
BMI	Underweight (0-18.5)	153	39.7
	Optimal/healthy weight (18.5-25)	198	51.4
	Overweight (25-30)	23	6.0
	Obese (30 and above)	11	2.9

Mean values: Age(years)=14.00, Weight(kg)=50.30, Height(m)=1.59, BMI=20.04

Table 1 provides an overview of the demographic characteristics of the participants. It indicates that the majority, 241 (62.60%), of the respondents fell within the age range of 14-16 years. The next largest group consisted of 129 (33.50%) respondents aged between 11-13 years. The smallest group comprised only 15 (3.90%) respondents aged 17-19 years. The result shows that the majority, 249(64.7%) of the respondents weighed between 44-62 kg, this was followed by 95(24.7%) who weighed between 25-43 kg, and the least were 41(10.6%) who weighed between 63-81 kg. It further shows the height of most of the students, 231(60.00%) lay between 1.46-1.66 meters, this was followed

by 109(28.3%) whose height lay between 1.67-1.80 meters. Also, 39(10.1%) had their height between 1.25-1.45 meters and the height of only 6(1.6%) lay between 1.04-1.24 meters. The result shows that 230(59.7%) of the respondents were females whereas 155(40.3%) were males. On the Body Mass Index (BMI), 198(51.4%) had optimal weigh whereas 153(39.7%) were underweight, 23(6.0%) were overweight and only 11(2.90%) were obese. The mean age of the respondents was found to be 14 years whereas their mean weight was 50.30 kg, their mean height was 1.59 meters and their mean BMI was found to be 20.04.

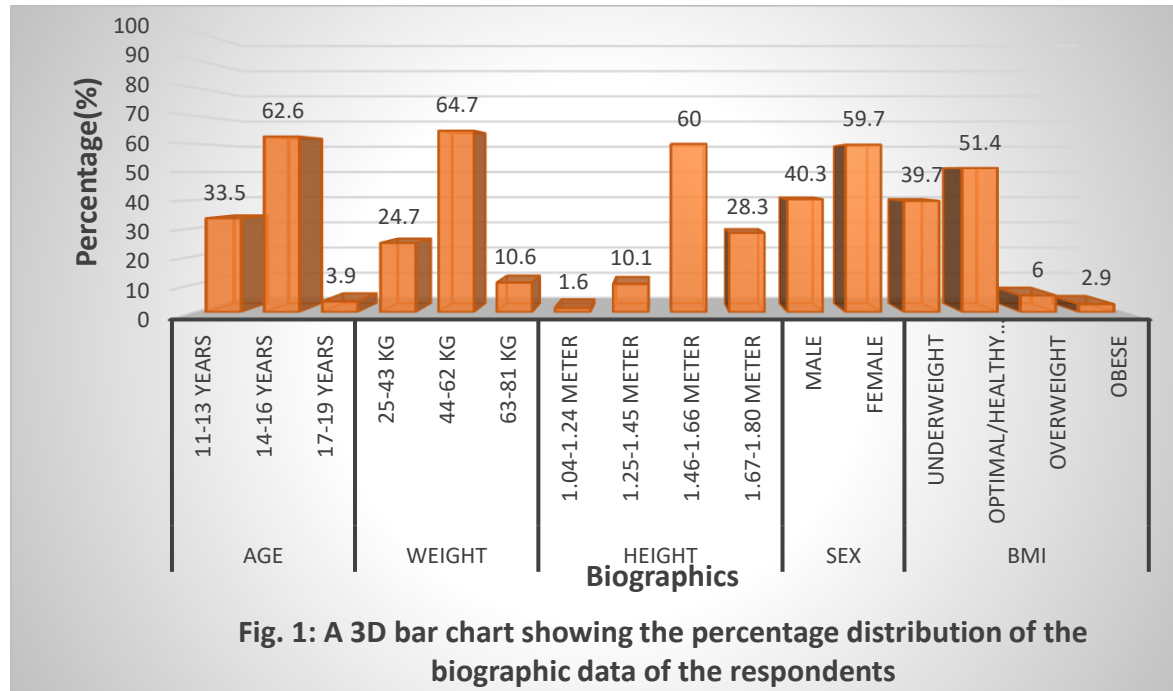


Table 2: Summary of junk-food awareness level of the junior secondary students in Obio/Akpor LGA of Rivers State

SN	item	Very Aware	Aware	Fairly aware	Unaware	Mean	SD	Decision
1	Eggroll	206	25	12	142	2.77	1.41	*
2	Hamburger	104	82	54	145	2.38	1.24	
3	Buns	202	46	21	116	2.87	1.33	*
4	Spring roll	101	69	56	159	2.29	1.25	
5	Wafers	144	62	43	136	2.56	1.31	*
6	Pizza	136	78	47	124	2.59	1.26	*
7	Tin-packaged	133	61	47	144	2.48	1.30	
8	Meat-pie	212	44	22	107	2.94	1.31	*
9	Puff-Puff	207	38	28	112	2.88	1.33	*
10	Chin-Chin	239	23	14	109	3.02	1.34	*
11	Biscuit	231	31	16	107	3.00	1.33	*
12	Doughnut	222	35	20	108	2.96	1.32	*
13	Diet	194	43	30	118	2.81	1.33	*
14	Sausage roll	144	67	66	108	2.64	1.24	*
15	Shawarma	153	62	59	111	2.67	1.26	*
16	Pancake	172	49	37	127	2.69	1.33	*
Grand mean						2.72	0.81	*

Key: *Aware

The table summarizes the mean awareness levels for various junk food items among junior secondary students in Obio/Akpor LGA of Rivers State. The data indicate that the students demonstrated high awareness levels for certain items, particularly chin-chin and biscuit. Other items such as doughnuts, meat pies, puff-puffs, buns, diets, eggrolls, pancakes, shawarma, sausage rolls, pizzas, and wafers also showed notable levels of awareness. The overall mean rating of 2.72 indicates that the respondents' junk-food awareness level surpassed the criterion mean score of 2.50.

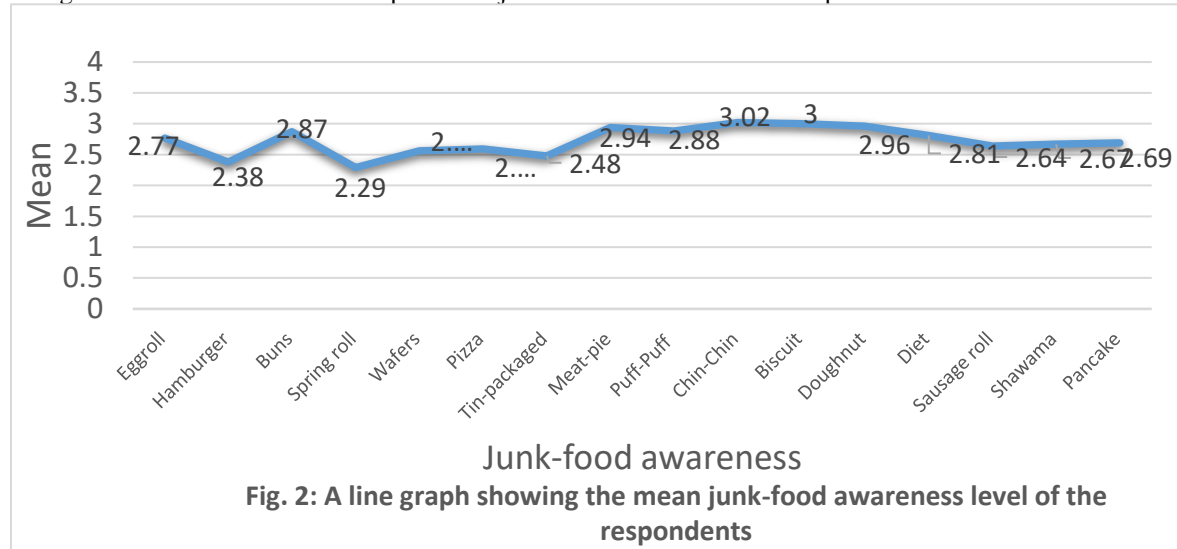


Table 3: Summary of the frequency of junk food consumption amongst junior secondary students in Obio/Akpor LGA of Rivers State

SN	item	Daily	Four times a week	Thrice a week	Twice a week	Once a week	Mean	SD	Decision
1	Eggroll	56	168	87	29	45	3.42	1.18	*
2	Hamburger	52	167	82	41	43	3.37	1.18	*
3	Buns	70	193	63	33	26	3.64	1.08	*
4	Spring roll	71	157	67	47	43	3.43	1.24	*
5	Wafers	56	99	57	86	87	2.87	1.40	
6	Pizza	32	122	69	81	81	2.85	1.30	
7	Tin-packaged	41	195	70	42	37	3.42	1.12	*
8	Meat-pie	35	184	89	44	33	3.37	1.08	*
9	Puff-Puff	61	117	109	67	31	3.29	1.16	*
10	Chin-Chin	50	82	91	135	27	2.98	1.17	
11	Biscuit	67	141	95	49	33	3.42	1.17	*
12	Doughnut	40	88	98	58	101	2.76	1.34	
13	Diet	22	53	86	140	84	2.45	1.14	
14	Sausage roll	19	126	69	78	93	2.74	1.28	
15	Shawarma	34	164	71	45	71	3.12	1.27	*
16	Pancake	56	136	79	59	55	3.21	1.27	*
Grand mean							3.15	0.47	*

Key: *consumed.

The table summarizes the mean consumption frequency of various junk food items among junior secondary students in Obio/Akpor LGA of Rivers State. The data indicate that the respondents reported frequent consumption of certain items, with buns being the most commonly consumed. This was followed by spring rolls, eggrolls, tin-packaged snacks, biscuits, hamburgers, meat pies, puff puffs, shawarma, and pancakes. The overall mean rating of 3.15

indicates that the frequency of junk food consumption among the respondents was high.

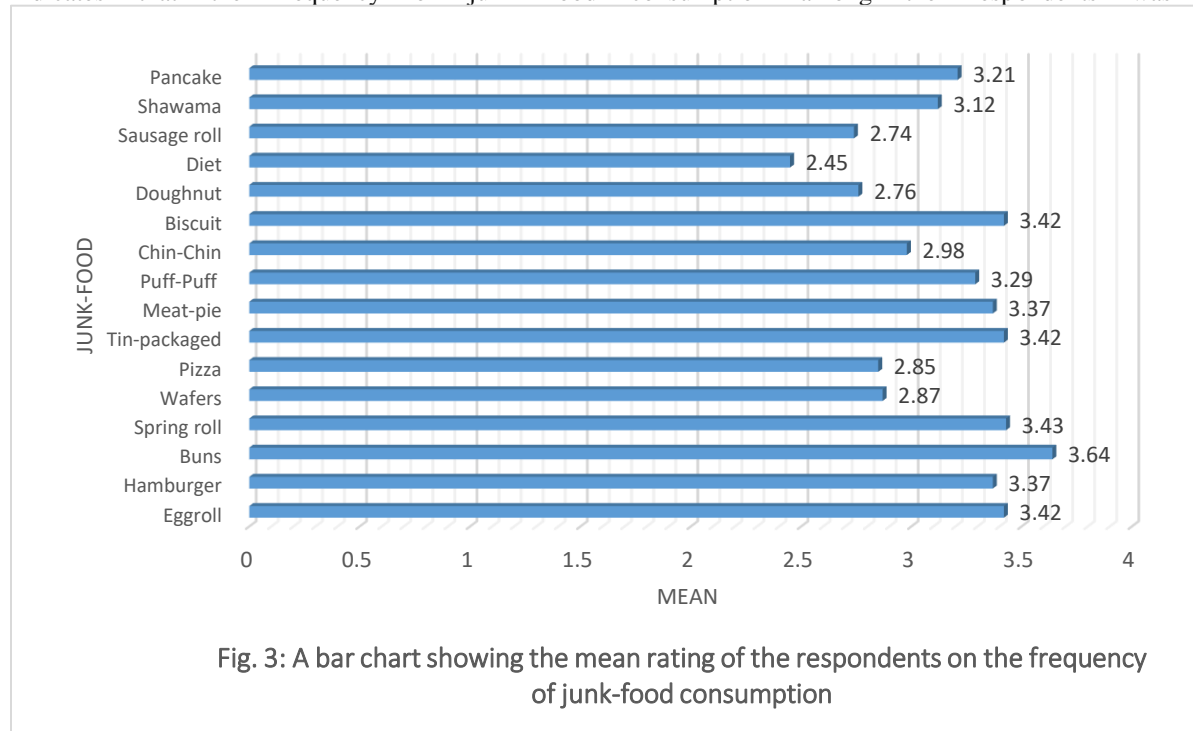


Fig. 3: A bar chart showing the mean rating of the respondents on the frequency of junk-food consumption

Table 4: Summary of mean rating of the extent the junior secondary students in Obio/Akpor LGA of Rivers State manage their body weight

SN	item	Very High extent	High extent	Low extent	Very low extent	Mean	SD	Decision
1	I do regular exercise	121	79	100	85	2.61	1.14	*
2	I don't eat late at night	119	82	83	101	2.57	1.18	*
3	I prefer organic food to junk food	108	96	75	106	2.54	1.17	*
4	I check my body weight regularly	117	69	70	129	2.45	1.24	
5	I eat more protein	162	87	71	65	2.90	1.13	*
6	I consume smaller portion	110	91	85	99	2.55	1.16	*
7	I choose low calorie based food	93	109	107	76	2.57	1.06	*
8	I eat more fruits	170	69	61	85	2.84	1.21	*
9	I eat more vegetable	178	78	46	83	2.91	1.20	*
10	I regularly eat fibre-rich food	137	103	81	64	2.81	1.10	*
	Grand mean					2.68	0.56	*

The data presented in Table 4 summarizes the mean ratings of how junior secondary students in Obio/Akpor LGA of Rivers State manage their body weight. For the respondents to manage their body weight, most of the respondents eat more vegetables ($M=2.91$, $SD=1.20$), this was followed by those who eat protein ($M=2.90$, $SD=1.13$), they indicated that they eat more fruits ($M=2.84$, $SD=1.21$), they regularly eat fibre rich food ($M=2.81$, $SD=1.10$), they do regular exercise ($M=2.61$, $SD=1.14$), they don't eat late at night ($M=2.57$, $SD=1.18$), they choose low calories based food ($M=2.57$, $SD=1.06$), they consume smaller portion ($M=2.55$, $SD=1.16$) and they prefer organic food to junk food ($M=2.54$, $SD=1.17$). Since the grand mean rating of 2.68, $SD=0.56$ was found to be above the criterion mean rating of 2.50. Their bodyweight management practice was slightly adequate.

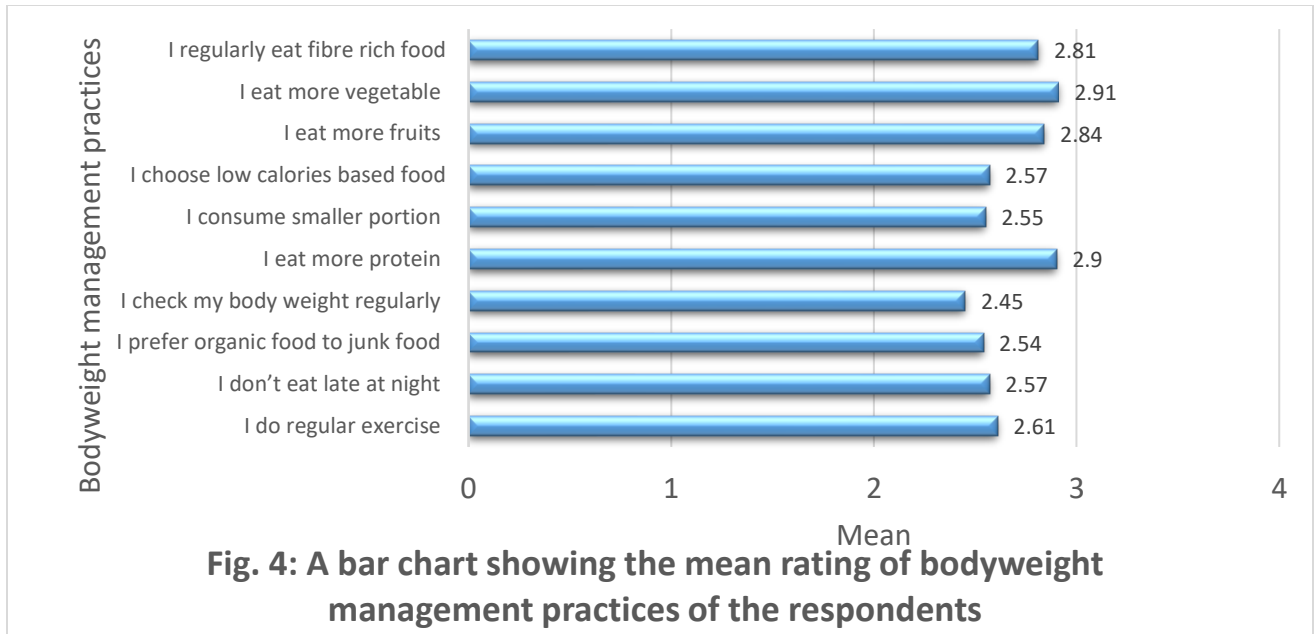


Fig. 4: A bar chart showing the mean rating of bodyweight management practices of the respondents

Table 5: Summary of regression analysis on the relationship between awareness of junk-food and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53.832	1.779		30.261	.000
	Awareness of junk-food	-1.297	.626	-.105	-2.070	.039

a. Dependent Variable: bodyweight, $y=53.83-1.297x$

Table 5 presents a summary of the regression analysis conducted to examine the relationship between junk-food awareness and bodyweight among junior secondary students in Obio/Akpor Local Government Area of Rivers State. Part B of Table 5 reveals that the relationship between junk-food awareness and bodyweight among these students is significant but inverse (Beta=-.105). The regression equation, $y=53.83-1.297x$, as depicted in Figure 5, illustrates that heightened awareness of junk-food tends to correlate with a decrease in the body weight of respondents. The R-square value of .011 in Part A of Table 5 indicates that junk-food awareness accounts for approximately 1.1% of the observed variations in respondents' body weight. Moreover, the results in Part C of Table 5 demonstrate a significant association between junk-food awareness and bodyweight among junior secondary students in Obio/Akpor Local Government Area of Rivers State ($F_{1, 383}=4.284, p<.05$), leading to the rejection of null hypothesis one at the .05 alpha level.

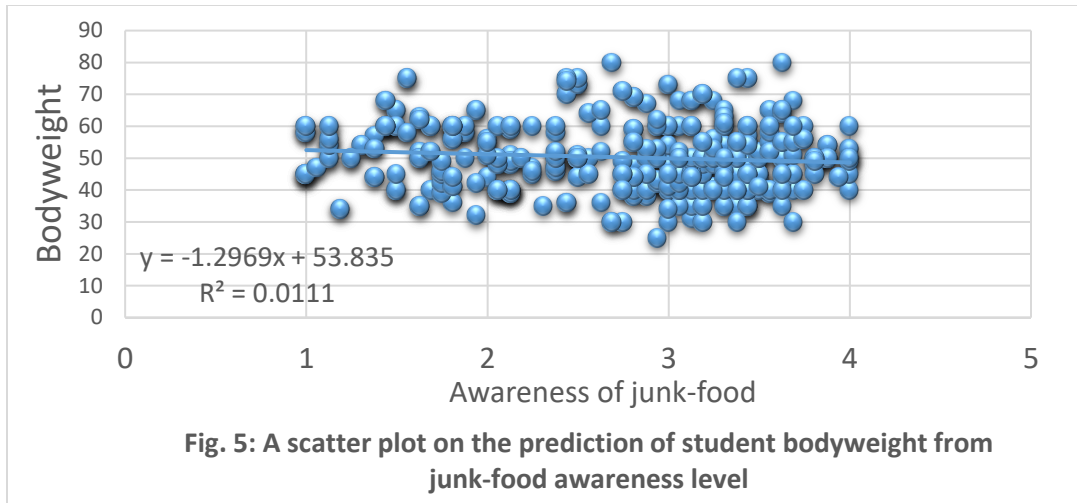


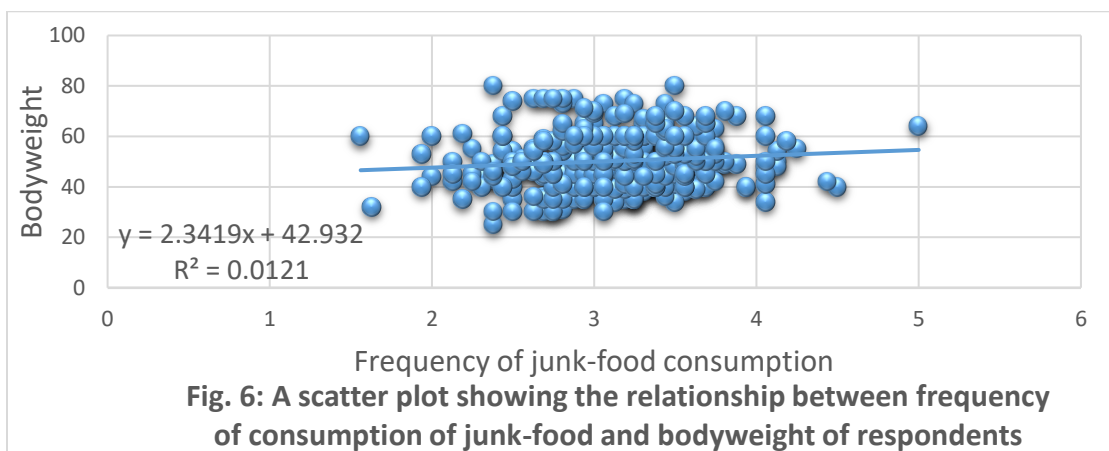
Table 6: Summary of regression analysis on the relationship between the frequency of junk-food consumption and bodyweight amongst junior secondary students in Obio/Akpor Local Government Area of Rivers State

$r=.110$, $r\text{-squared}=.012$
 $F=4.668$, $p=.031$

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	42.946	3.443		12.473	.000
	Frequency of junk-food consumption	2.338	1.082	.110	2.161	.031

a. Dependent Variable: Bodyweight, $y=42.95+2.338x$

The regression analysis indicates a significant positive relationship between the frequency of junk-food consumption and bodyweight among junior secondary students in the Obio/Akpor Local Government Area of Rivers State. The regression equation suggests that any increase in the frequency of junk-food consumption may lead to a corresponding increase in body weight. The frequency of junk-food consumption accounts for approximately 1.2% of the observed variations in respondents' body weight. The relationship is statistically significant at the .05 alpha level, leading to the rejection of null hypothesis two.



Discussion

The findings presented in Table 2 indicate that the junior secondary students exhibited a high level of awareness regarding various types of junk food. Specifically, they showed considerable awareness of chin-chin ($M=3.02$, $SD=1.34$) and biscuit ($M=3.00$, $SD=1.33$), followed closely by doughnut ($M=2.96$, $SD=1.32$), meat pie ($M=2.94$, $SD=1.31$), puff-puff ($M=2.88$, $SD=1.33$), buns ($M=2.87$, $SD=1.33$), diet ($M=2.81$, $SD=1.33$), eggroll ($M=2.77$, $SD=1.41$), pancake ($M=2.69$, $SD=1.33$), shawarma ($M=2.67$, $SD=1.26$), sausage roll ($M=2.64$, $SD=1.24$), pizza ($M=2.59$, $SD=1.26$), and wafers ($M=2.56$, $SD=1.31$). The overall mean rating of 2.72 ($SD=0.81$) suggests that the respondents' level of awareness regarding junk food exceeded the criterion mean score of 2.50. This finding aligns with the results of Kaur and Hegde's (2008) epidemiological survey, which focused on exploring awareness and eating behaviours among children aged between 4 and 15 years from rural schools in and around Mangalore, India. The study, conducted in 2008, employed a random sampling method to select samples and utilized questionnaires for data collection. The results revealed a high prevalence of fast food consumption across all age groups and genders, with a significant percentage of children purchasing snacks for themselves, often available within school premises. Additionally, the study highlighted that a majority of children were influenced by television advertisements, perceiving the advertised food items as healthy.

The data indeed indicate a high frequency of consumption of various junk-food items among the respondents, which aligns with similar findings from other studies, including those conducted in Uttar Pradesh and the United States. The comparison with previous research helps to contextualize the findings and strengthens the validity of the results. It highlights the consistency of findings across different geographical locations and populations, suggesting a broader pattern of high junk-food consumption among adolescents and its potential impact on health outcomes. The references to studies by Kaur et al. (2016) and Pereira et al. (2005) provide additional support for the observed trends in junk-food consumption and its implications for body weight. This reinforces the importance of addressing unhealthy dietary habits among adolescents and implementing interventions to promote healthier eating behaviours. The findings underscore the need for targeted interventions and educational programs aimed at reducing the consumption of junk food among junior secondary students to mitigate the associated health risks and promote overall well-being.

The findings from Table 5 and providing relevant references to support the results regarding the relationship between junk-food awareness and bodyweight among junior secondary students in Obio/Akpor Local Government Area of Rivers State. The data indeed suggest a significant inverse relationship between junk-food awareness and bodyweight, indicating that increased awareness of junk food is associated with a reduction in body weight among the respondents. The regression analysis and associated statistical tests provide robust evidence supporting the observed relationship, with the findings aligning with similar studies conducted in different contexts. The reference to the study by Gao et al. (2014) adds further support by highlighting the potential impact of nutrition education on improving dietary behaviours, particularly among parents. Aggarwal and Bhatia (2008) underscore the importance of junk-food awareness about obesity and overweight prevalence among adolescents. The findings from these studies complement the results of the current study, emphasizing the significance of promoting junk-food awareness as part of broader efforts to address unhealthy dietary behaviours and mitigate the risks of obesity and related health issues among youth populations. The integration of relevant literature strengthens the interpretation of the findings and provides valuable context for understanding the implications of junk-food awareness on body weight among junior secondary students. It underscores the importance of targeted interventions and educational programs aimed at enhancing junk-food awareness and promoting healthier dietary choices among adolescents.

The results depicted in Table 6 reveal a notable positive correlation between the frequency of junk-food consumption and bodyweight among junior secondary students in Obio/Akpor Local Government Area of Rivers State ($\text{Beta}=0.110$). As illustrated by the regression equation $y=42.95+2.338x$ in Figure 6, any increase in the frequency of junk-food intake may correspond to a rise in bodyweight among the participants. The R-square value of 0.012 in Table 6 suggests that the frequency of junk-food consumption explains approximately 1.2% of the variance in the respondents' body weight. Furthermore, the outcomes presented in Part C of Table 6 demonstrate a significant association between the frequency of junk-food consumption and bodyweight among these students ($F_{1, 383}=4.668$, $p<0.05$), leading to the rejection of null hypothesis two at the 0.05 alpha level. These findings are consistent with previous research. For instance, Pereira et al. (2005) conducted a comprehensive 15-year prospective

analysis, known as the CARDIA study, which revealed a direct relationship between the frequency of fast-food consumption and changes in body weight among both black and white individuals, with significant associations observed in both demographic groups. Additionally, alterations in fast-food consumption patterns over the 15 years were significantly linked to changes in body weight and insulin resistance. Obbagy and Essery (2012) conducted a review focusing on the interplay between the food environment, dining out, and body weight. Their findings indicated that the increased presence of fast-food establishments is associated with higher BMI while consuming fast food is linked to a heightened risk of weight gain, overweight, and obesity. Specifically, their review highlighted a strong association between consuming one or more fast-food meals per week and obesity, underscoring the significant impact of junk-food consumption on body weight. These insights emphasize the importance of implementing interventions to promote healthier dietary behaviours.

Conclusions

According to the study findings, it was determined that the awareness level of junk food among Junior Secondary Class 3 (JSC3) students was higher than average. Specifically, students showed high awareness of items such as chin-chins, biscuits, doughnuts, and meat pies, indicating a recognition of foods categorized as junk. This suggests that their awareness of unhealthy food options may influence their frequency of consuming such items. Despite this awareness, the students still frequently consumed junk food items like burns, spring rolls, and eggrolls, indicating a consistent pattern of junk-food consumption regardless of awareness levels. In terms of managing their body weight, most students reported consuming more vegetables, protein, fruits, and fiber-rich foods. This suggests that they are making efforts to adopt healthier dietary practices to manage their body weight, although these practices were found to be only slightly above average. The study conducted in Obio/Akpor Local Government Area (LGA) of Rivers State revealed compelling findings regarding the relationship between junk-food awareness, frequency of consumption, and body weight among junior secondary students. Firstly, a significant inverse relationship was observed between junk-food awareness and body weight. This suggests that as students become more aware of the detrimental effects of junk food, they are likely to reduce their consumption, potentially leading to improved weight management. The study also found a significant positive relationship between the frequency of junk-food consumption and body weight among the same group of students. This indicates that students who consume junk food more frequently tend to have higher body weights. These findings highlight the importance of addressing junk-food consumption among students to foster healthier dietary habits and promote better weight management practices. The study underscores the need for interventions aimed at raising awareness about the health risks associated with junk food consumption and encouraging healthier food choices among junior secondary students. Through addressing these issues, educators and policymakers can contribute to the promotion of healthier lifestyles and the prevention of obesity and related health problems among students.

Recommendations

Based on the findings of the study the following recommendations were made:

1. The students in the secondary schools should be made aware of the junk-food sold in the eateries and restaurants in the LGA. This development implies that their awareness of food that is junk is likely to aid in minimizing the regularity of consumption of such food.
2. The teachers of home economics should teach the students to know that an increase in the regularity of the consumption of junk-food could lead to an increase in their body weight. They should know that being overweight is associated with some chronic diseases.
3. The home economics teachers should educate the students to learn to manage their bodyweight, by eating more vegetables, protein, fruits and fibre-rich food among others. This could help to reduce the probability of the occurrence of some diseases associated with an increase in bodyweight.

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