LIFESTYLE PATTERNS AND NUTRITIONAL STATUS OF UNDERGRADUATE STUDENTS OF UNIVERSITIES IN EDO AND DELTA STATES, NIGERIA

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ABSTRACT

The study examined the life style patterns and nutritional status of students of universities in Edo and Delta States, Nigeria. Specifically, it studied gender differences in lifestyle pattern and nutritional status of undergraduate students and the influence of lifestyle pattern on nutritional status. The study adopted the ex-post facto research design. The population of the study consisted of 93,331 undergraduate students in nine (9) public universities in Edo and Delta States, Nigeria. The multistage sampling technique was used in the study. The balloting sampling technique was used to select 150 undergraduate students from 200 – 400 levels in each Department from two Faculties in each University. The instruments that were used for data collection is an adapted structured questionnaire titled Dietary and Lifestyle Patterns on Nutritional Status of Undergraduates questionnaire (DLPNSUQ). The reliability of the instrument was determined using the internal consistency method, by employing Cronbach Alpha formula. The entire hypotheses were tested using t-test, Univariate Analysis of variance (ANOVA) at .05 level of significance. The result showed that dietary and lifestyle patterns do not change with respect to gender. However, it was uncovered that dietary and lifestyle patterns had significant with individual but no interaction influence on undergraduate students' nutritional status in Edo and Delta States, Nigeria. It was recommended that the Ministry of Health should introduce a comprehensive public health intervention measure including a comprehensive nutritional and health education programme for undergraduate students as it is needed to promote knowledge of healthy lifestyle.

Keywords: Lifestyle patterns, Nutritional Status, Undergraduate, Students

1. INTRODUCTION

Food is an important element needed for survival of every living being. It is needed not only for growth both also for proper functioning of the human body in our day to day pursuit. Among university undergraduates, it is common to find them swayed by food in fashion such as string cheese, biscuits, cake, pizzas, candy, chocolates, sweets, processed meat (bacon), sugary drinks and alcoholic drinks as dictated by their peer group instead of nutrient rich food such as fruits and vegetables, whole grains, lean meats, fish, dairy products, legumes, nuts and seeds. This trend may account for the high rate of consumption of junk food and subsequent deterioration in nutritional status. lifestyle changes are acknowledged as key environmental factors contributing to a wide array of diseases that are of significant public health concern, particularly in developing countries like Nigeria (Modupe, Zha, Segun & Olakunle, 2024).

From the foregoing, it seems that many students depend on junk food which includes high level of refined sugar, white flour, trans-fat and saturated fat, having preservative and colouring agents

for their nutrition. This may be responsible for the cause of non-communicable diseases among undergraduates. Special dietary patterns are often designed for vulnerable groups who may have insufficient nutrition due to poor eating habits. University students can also fall into this category because of lifestyle and environmental changes when transitioning from home to university. The transition from adolescence to adulthood is a critical phase for developing behavioral patterns that influence long-term health and the risk of chronic diseases (Onabanjo 2024). Poor dietary habits have been identified as a significant lifestyle challenge faced by undergraduates during their time in school (Omage & Omuenu, 2018). As widely acknowledged, nutrition is not merely fuel but a crucial aspect of life. Unhealthy eating behaviors, such as failing to consume the recommended five or more servings of fruits and vegetables daily, having low intake of milk and dairy products, skipping meals, and frequently consuming energy-dense, nutrient-poor fast foods, are prevalent among students.

Nutrition is the science that explores how food interacts with an organism to support and sustain health. It involves the various processes through which the body absorbs and utilizes the nutrients needed for its functions, as well as for the growth and renewal of its components. Nutrition also refers to the intake and use of food for growth, metabolism, and repair. Newman (2020) aligns with this view, describing nutrition as the study of the nutrients in food, how the body processes them, and the connection between diet, health, and disease. Similarly, nutrition is understood as the study of how food and beverages impact our bodies, particularly with regard to essential health needs. An addition, it is viewed as the science of food, how the body deals with food and their effect on health.

William and Shiel (2018) submitted that nutritional stages are ingestion, digestion, absorption, transportation, assimilation, and excretion. These are the stages the food eaten passes through to result to the foods chemical known as nutrients. Nutrients are chemical components found in food that supply nourishment which are protein, carbohydrates, fat, vitamins, minerals, fibers and water. Each nutrient performs a specific function in the body. Nutrients are grouped into two: macro-nutrients and micro-nutrients. Macronutrients are nutrients required in large amounts, including carbohydrates, proteins, fats, and water. In contrast, micronutrients are needed in smaller quantities and consist of minerals and vitamins. Nutrient functions in many ways, aiding in growth, maintenance and repair of the body, if there are worn out tissues.

Nutrition can be grouped into two, good nutrition and bad nutrition. Good nutrition involves consuming the appropriate quantities of nutrients from healthy foods in the right combinations (Onodugo, 2024). It includes eating whole foods from various food groups throughout the day. Whole foods are unprocessed and natural, free from added or artificial ingredients. They provide the body with macronutrients, which include carbohydrates, fats, and proteins. Good nutrition also requires sufficient intake of micronutrients, including vitamins, minerals, antioxidants, and fiber. Although these nutrients are needed in smaller quantities compared to macronutrients, they are crucial for maintaining health. Consuming a diverse range of fresh fruits and vegetables, whole grains, dairy products, lean proteins, seeds, and nuts is considered proper nutrition and helps meet daily nutrient requirements. Proper nutrition supports overall health and helps prevent various chronic diseases (Olarewaju, Komolafe, Akinwale & Allen, 2024). Conversely, poor nutrition is characterized by diets that either excessively or insufficiently contain certain nutrients. For instance, a diet high in refined and processed foods—such as flour-based products, desserts, candy, and soda—can lead to excessive intake of sugar, fats, sodium, and calories. Additionally, artificial ingredients like fructose, corn syrup, hydrogenated oils, stabilizers,

thickeners, flavorings, and colorings contribute to poor nutrition. Poor nutrition can result in weight gain, bone issues, nutritional deficiencies, and other health problems, including low energy, digestive issues, food allergies, depression, anxiety, and prevalent chronic diseases such as coronary heart disease and cancer. Good nutrition is obtained from healthy dietary and lifestyle patterns.

A lifestyle refers to the way an individual lives, which can be classified as either healthy or unhealthy based on personal behavioral choices. Lifestyle can denote interest, depending on personal behavioural group or culture. Sanni, Elegbede, Adewoye, Durowade, Ipinnimo,, Alabi, and Oni (2024). defined lifestyle as the interests, opinions, behaviors, and behavioral orientations of an individual, group, or culture. It generally reflects an individual's attitudes, way of life, values, or worldview. Lifestyle pattern in the context of this study has to do with people's habit towards consumption of food, exposure to some items and environment (Ndung'u, Kobia & Waudo, 2024). Lifestyle pattern is referred to as healthy when healthy diets including regular breakfast and physical activities are carried out. While unhealthy lifestyle refers to as consumption of unhealthy diets which includes high intake of saturated fats, sugars, salt, fast foods, junk foods, smoking, alcohols consumption, inadequate physical activity combined with insufficient consumption of fruits and vegetables. Unhealthy lifestyle pattern of individuals includes smoking, alcohol consumption, using of hard drugs and lack of physical activities.

The World Health Organization (WHO, 2012) identifies the crucial role of a healthy lifestyle for deterrence of cardiovascular diseases, diabetes, and overweight/obesity. In addition, unhealthy habits, combined with insufficient physical activity, are linked to a higher prevalence of obesity and osteoporosis. However, poor eating habits as lifestyle are established risk factors for Non-Communicable Diseases (NCDs) which is now emerging at an unprecedented rate. The NCDs often share four primary behavioral risk factors—tobacco use, harmful alcohol consumption, insufficient physical activity, and unhealthy diets. These factors are likely to worsen in developing countries, including Nigeria, due to challenging economic conditions. For young people, engaging in regular physical activity and maintaining a healthy diet, including consistent breakfast consumption and adequate intake of fruits and vegetables, can offer significant short- and long-term health benefits. Adopting a healthy lifestyle is crucial for preventing chronic NCDs such as diabetes, cardiovascular diseases, cancer, Alzheimer's disease, and hepatic steatosis (Lupi, Bagordo, Armando, Grass, Piccini, Bergiamini and Dedonno, 2015).

2. REVIEW OF RELATED LITERATURE

Establishing and maintaining healthy eating habits can be manageable by starting with small adjustments to daily routines, which can lead to significant changes in eating patterns and promote lasting, healthy habits (Merispahic, 2018). To cultivate these habits, it is beneficial to include a variety of colorful vegetables, such as red, orange, and dark green ones, in meals. Fruits should be incorporated as main or side dishes or as desserts. A colorful plate typically ensures a higher intake of essential vitamins, minerals, and fiber necessary for good health. Switching from refined-grain foods to whole-grain options is another positive change; for example, opt for whole-wheat bread instead of white bread. Choosing fat-free or low-fat (1%) milk provides the same nutrients as whole milk but with fewer calories and less saturated fat. Incorporate a diverse range of lean protein sources, including beans, peas, eggs, nuts, and seeds. Drinking water helps reduce unnecessary calorie intake, as sugary beverages like soda, energy drinks, and sports drinks are major sources of added sugars and calories. Seafood, rich in protein,

minerals, and omega-3 fatty acids, is a heart-healthy option, with smaller portions being suitable for children. Seafood options include fish like salmon, tuna, and trout, as well as shellfish such as crab, mussels, and oysters. Additionally, limit foods high in solid fats, such as cakes, cookies, and other desserts (often made with butter, margarine, or shortening), pizza, processed meats (like sausages, hot dogs, and bacon), and ice cream. Adopting a healthy lifestyle can enhance overall nutritional status.

Nutritional status is the condition of the body in relation to food consumption and nutrient utilization. It reflects the total impact of an individual's anthropometric measurements, which are influenced by their intake and use of nutrients. This status is assessed through physical, biochemical, and dietary evaluations (Ndung'u, Kobia & Waudo, 2024; Omage & Omuemu, 2018). Nutritional status results from interrelated factors, including the quality and quantity of food consumed and the individual's physical health. Maintaining a good nutritional status is crucial for overall health throughout life. It involves consuming a well-balanced diet that provides all essential nutrients to meet the body's needs, indicating optimal nutrient intake. Conversely, poor nutritional status can arise from inadequate or excessive nutrient intake or poor nutrient utilization. Overeating can also contribute to poor nutritional status. Malnutrition, a specific form of poor nutritional status, is a pathological condition resulting from a relative or absolute deficiency or imbalance of essential nutrients. Malnutrition may occur in four forms which are under nutrition, specific deficiency, imbalanced nutrition and over-nutrition. Nutritional status can be assessed by nutritional assessment methods.

Nutritional assessment involves interpreting data from anthropometric, biochemical, clinical, and dietary sources (often referred to as the ABCD methods) to determine whether an individual or group is well-nourished, over-nourished, or under-nourished. Nutritional assessment can be done using the ABCD methods. These refer to the following: "anthropometry, biochemical, clinical and dietary methods." Anthropometry derives from the Greek words "anthropo," meaning human, and "metric," meaning measurement. It refers to the measurement of physical dimensions and body composition to assess growth and changes in an individual's body. In anthropometry, weight and height are commonly used to identify underweight, overweight and retarded growth. Anthropometry measure entails height, chest circumference and triceps skin fold. Biochemical assessment includes laboratory measurements. The nutritional implications of laboratory values should be evaluated in conjunction with other parameters from a nutritional assessment (Onabanjo, 2024). The clinical method for assessing nutritional status involves identifying physical signs of nutrient deficiencies or inquiring about symptoms that may suggest such deficiencies. Clinical signs include pallor (noted on the palms or conjunctiva), Bitot's spots on the eyes, pitting edema, goiter, and severe visible wasting. The dietary method of assessment, often referred to as the 24-hour recall, involves evaluating past or current nutrient intakes by individuals or groups to determine their nutritional status. This method includes asking about the foods consumed within the past 24 hours and using this data to calculate dietary diversity scores. Dietary diversity measures the number of different food groups consumed over a reference period, typically 24 hours. It is generally recommended that a balanced diet includes six essential food groups daily.

According to Janse-Van & Surujial (2013), female students exercised more than males, and with regard to lifestyle, female students experienced more stress than male students. Male tend to consume more beer and hard liquor, while women students often prefer foods that may support a healthier lifestyle. Female students are generally more inclined to adopt healthy

behaviors compared to their male counterparts. Gender attitudes and behaviors significantly influence dietary habits and physical activity patterns, resulting in different lifestyle choices between males and females. Consequently, male students typically engage in different physical activities compared to female students. Unhealthy eating habits and physical inactivity adversely impact students' lifestyle patterns. According to Masella and Malorni (2017), females generally consume more fruits, vegetables, legumes, and whole foods, although they also eat more sweets and cakes than males. Conversely, males are more likely to drink wine, beer, spirits, and sweet carbonated beverages, often engaging in dietary behaviors that could increase the risk of overweight and obesity. Overweight/obese are higher in males than females.

Alkazemi (2018) stated that male students consume meat, chicken, turkey, and fish per day compared to female students. Males are also found to drink more sugary drinks than female students. A higher proportion of female students was reported to have regular consumption of potato chips and fatty, salty snacks and eating sweets, such as cakes, chocolates, and candies, more than twice a day. More female students usually felt good enough to shop and cook compared to male students. Both genders show equally unhealthy dietary habits. University students' life transition often results in poor nutrition and unhealthy weight gain. There are little differences in gender in the very low rate of healthy nutrition. However, the healthier eaters are more pronounced in males compared to females. On the other hand, female students exhibited greater nutritional knowledge than male students. Male students consumed fast food and meat products more often and consumed fruits and vegetables less often compared to female students. Female students are more concerned about their body weight than the male students or may have higher health awareness, enhanced nutrition knowledge and better understanding about what comprises a healthy diet. Females consumed fish, eggs and meat than males. Males are more likely to be underweight and stunted while females are more likely to be overweight and to have higher B.M.I. Females are also less likely to exercise for 1 hour or more per day (Darling, Sunguya, Ismail, Manu, Canavan, Assefa, Sie, Fawzi, Sudfeld and Guwattude, 2019). Conclusively, unhealthy dietary and lifestyle patterns may likely influence the nutritional status of the students. Thus, the aim of the study is to investigate the influence of lifestyle patterns on nutritional status of undergraduate students in universities in Edo and Delta States.

A cross sectional study was conducted by Pozar and Pozar (2018) with the aim of assessing the relationship between lifestyle and nutritional status among adolescents. The study also determined the difference between the habits of the students that attend the Medical and Technical Schools in Vojvodina. The results showed that the students of the medical school are thinking about health, physically less active, and have a higher percentage of underweight students (10%). With appearance is satisfied with 44% of respondents one-third believe that they have overweight and should lose a weight. The knowledge about the importance a healthy lifestyle in students of medical school affect consciousness in selecting foods, the desire to control their own weight but does not influence to the regular physical activity.

The survey was conducted as a cross-sectional study in which 119 (56.9%) students participated from the medical high school in Novisad, 44 male (37.0%) and 75 female (63%) and 90 (43.1%) students from Technical High School in Subotica, 53 male (70.0%) and 27 female (30.0%). The study included 107 (51.2%) male, and 102 (48.8%) female students of the total 209. The respondents were from different parts of Vojvodina. According to the research results of the students are 8.6% underweight (BMI 18.5), 7.5% of male and 9.8% of female, 10% of medical students and 6% of technical school students. Normal weight (BMI. 18.5-25.9) had

74.6% of students, 71% of male and 78.4 of female. In the higher percentage of technical school students (75.5%). Overweight (BMI 25-29.9) was 15.3% of students, 20.5% of male and 9.8% of female (p=0.024). There is no significant difference in the incidence of overweight and schools. Obese (BMI 30 and above) was 1.4% of the students, 0.9% of male and 1.9% of female, who were identified as students of Technical School.

Obtained results also revealed that majority of pharmacy students had three meals during the day (60.7%) and two meals (28.3%), without statistically significant difference between the genders. The regular breakfast habit was reported by 80.9% of the students, where statistically significant difference among genders was noticed (p=0.04). The habit of skipping the breakfast was more pronounced in male pharmacy students. Beside main meals, the snack consumption was also reported by the students. The frequency of daily snacking among students was 19.3%, while 40.9% consumed snacks between meals once or twice per week, with no gender differences. The results of the study suggested no gender differences in reported fruits consumption, daily intake of fruits was statistically higher in female students (p<0.05). Concerning fried food consumption, the result showed that more than 80% of pharmacy students rarely or 1-2 times per week use this type of food but the result that 6% of students reported eating fried food every day is of concern. Two lifestyle habits, alcohol and tobacco consumption, were recorded. According to obtained results, daily consumption of alcohol was not common among students.

A half of studied population (50.2%) reported rare alcohol drinking, while 26.9% of students never drink. As expected, the alcohol consumption was statistically significantly higher in the male compare to the female students (p<0.05). Also, consumption of tobacco was not common among European pharmacy students. The most of the students reported being non-smokers (93.1%). More than half of participated students (56.5%) eat daily with friends and family without a difference in gender. Interestingly, the simple question regarding balanced nutrition was answered correctly only by 58.4% students. Results regarding dietary supplements were reported. It was found that 19.3% of the students use, with vitamins and minerals supplements as the most commonly used. Basic principle of balanced nutrition was recognized by 58.4% of population.

A polit study was carried out by Thilakarathne, Wijesinghe (2011) to determine the association between nutritional status and lifestyle practices of primary school children in the Colombo district. A cross-sectional study involving 1347 children was conducted on randomly selected 8 schools in Colombo. Lifestyle practices were assessed using a questionnaire. Height and weight were measured and height-for-age, weight-for-age and body-mass-index for age were used to define stunting, underweight and obesity respectively. The prevalence of stunting and underweight was 3.8% and 16.6% respectively.

Nnamdi, Bukola, Kayode, Olalere, Ikwuta, Tolulope & Olaitan (2024) examined the influence of dietary practices on the nutritional status of children in Ilorin Metropolis, Nigeria. The findings showed that dietary practices by mothers significantly influence the body max index of children (at p<0.05), with undernutrition being more prevalent. Overweight and normal children were the least associated with dietary practices (at p<0.05). The study also found that the dietary practice of children is affected by mothers aged at first birth (at p<0.05), suggesting that mothers aged at first birth can contribute to formulating policies on right dietary practices to enhance nutrition security, especially for young mothers between 18 and 25 years old. The

findings provided insights into strategic interventions to enhance dietary practices and eradicate all forms of malnutrition associated with undernutrition in children under five years old.

Many undergraduates are responsible for managing their own diets for the first time when they move away from home. As a result, university students often experience significant nutritional transitions and are notably impacted by changes in their eating habits. Skipping of breakfast and eating in-between meals are common among university students. In addition, due to their youthful exuberance, students adopt various negative lifestyles, such as heavy alcohol consumption, drug misuse and abuse, as well as poor physical activities, all of which impaired their nutritional status (Dada, Ajayi & Adedeji, 2024).

The researcher has observed that majority of undergraduate students are always falling sick during examination and other stress time. It could be that they are malnourished, pale and not strong enough to withstand stress. Individual and population who are well fed, eat well-balanced and nourished meals are healthy, nourished, more productive, and strong enough to withstand any type of stress, no matter the level of stress they undergo. Poor nutritional status which falls into the age group of youths will affect their health during adulthood and predispose them to chronic diseases later in life. The continuous unhealthy dietary and life style patterns of undergraduate students can lead to poor nutritional status that can affect their health and academic performance. Therefor undergraduate students are prone to inadequate diets which is the problem of the study.

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance
1. There is no significant difference in the lifestyle pattern of male and female undergraduate students in universities in Edo and Delta States, Nigeria
2. There is no significant difference in the nutritional status of male and female undergraduate students in universities in Edo and Delta States, Nigeria
3. There is no significant influence of lifestyle pattern of undergraduate students on their nutritional status in universities in Edo and Delta States, Nigeria?

3. METHOD OF STUDY

The design that was adopted in the study was ex-post facto research design. The population of this study consisted of 93,331 undergraduate students in nine (9) Public Universities in Edo and Delta States, Nigeria. Three (3) public universities in Edo State: Ambrose Alli University, Ekpoma, Edo State University, Uzairue, University of Benin, Benin City and six (6) public universities in Delta State: Delta State University, Abraka, Federal University of Petroleum Resources, Effurun and Nigerian Maritime University, Okerenkoko, University of Delta, Agbor, Delta University of Science and Technology, Ozoro and Dennis Osadebe University Asaba. The population record were obtained from the Student Affair units of the universities in Edo and Delta States.

A sample of 150 students from five Universities were drawn for the study while the sampling technique that was used to select the sample size in this study was the multistage sampling technique. In the first stage, five Public Universities in Edo and Delta States were used. Five universities, two in Edo State and three in Delta State were selected through purposive sampling technique. From the five public universities selected in Edo and Delta States, balloting

was used to select two faculties in each university, having ten faculties from five Universities. The reason why the researcher chose three universities in Delta State and two in Edo State is because Delta has more universities than Edo State. Delta State has 6 public universities while Edo State has 3 public universities. In the second stage dealing with the ten faculties selected, simple random sampling technique was used to select one Department each from two faculties in each University, having ten Departments. In the last stage, from the ten Departments selected, systematic random sampling technique was used to select fifteen (15) students in each Department from two Faculties in each University, having 30 students from each University. Altogether, 150 students from five Universities were used for the study.

The instruments for data collection was adapted questionnaire from the work of Omage and Omuemu (2018). The questionnaire was retitled "Lifestyle Patterns on Nutritional Status of Undergraduates questionnaire (LPNSUQ)". The instrument was divided into three sections A, B and C. Section A: Demographics –elicited bio data information of the students such as the name of their universities, gender, age and levels. Section B was Lifestyle Pattern Questions (LPQ). The items in part 1 of Section B was adapted from Omage and Omuemu (2018) article of Food and Nutrition. The original instrument contained 29 – items. The items in part 2 of Section B were adapted from the JPS Health and Fitness developed by Besim (2019) to assess the lifestyle of the respondents. The original instrument contained 15 items. The items in the instrument were organized in accordance with the research questions developed to guide the study. The items were rated on a four points Likert scale, namely: Always (A), Not Often (NO), Often (O), Not At All (NAA). The selected items were modified to reflect work related to dietary and lifestyle patterns of undergraduate students within the universities. For instance, item 2 on dietary pattern reads: "I prefer eating breakfast everyday". This changed to: "I eat breakfast everyday". Similarly, item 12 (DP12) originally reads: "I prefer skipping breakfast to lunch". This was changed to: "I skip breakfast to lunch". The four scales assessing dietary and lifestyle pattern respectively were integrated into the questionnaire titled: Lifestyle Pattern on Nutritional Status Questionnaire (LPNSQ) by the researcher. The questionnaire (LPNSQ) was designed for undergraduate students to provide a self-report on their lifestyle patterns. The reliability of the instruments was determined using the internal consistency method, by employing Cronbach Alpha formula. The instrument was adjudged reliable since the reliability coefficient was higher than 0.75.

The independent t-test for two sample means was used to test hypotheses 1 and 2 at 0.05 level of significance The Univariate Analysis of Variance (ANOVA) was used to test hypotheses 3. All the hypotheses were tested at .05 level of significant. If P-value is less than or equal to .05, the null hypothesis was rejected but if P-value is greater than 0.05, the null hypotheses were accepted. The entire hypotheses were tested at 0.05 level of significance.

4. RESULTS
The result of the test of hypotheses are presented below

Hypothesis 1: There is no significant difference in the lifestyle pattern of male and female undergraduate students in Universities in Edo and Delta States, Nigeria.

Table 1: t-test Summary Analysis on Lifestyle Pattern of Male and Female Undergraduate students in Universities in Edo and Delta States, Nigeria

Variables	Gender	(n=273)	$\bar{X}$	S.D	t-cal.	Sig	Remarks
Lifestyle pattern	Male	71	2.54	.825			
					-367	. 284	Reject null hypothesis
	Female	79	2.58	.744			

Result in Table 1 shows that the calculated t-value of 367 is statistically significant (p<0.05). Therefore, the null hypothesis which states that is no significant difference in the lifestyle pattern of male and female undergraduate students in Universities in Edo and Delta States, Nigeria is rejected while the alternate is accepted. This implies that sex (gender) has significant difference in the lifestyle pattern of male and female undergraduate students in Universities in Edo and Delta States, Nigeria

Hypothesis 2: There is no significant difference in the nutritional status of male and female undergraduate students in Universities in Edo and Delta States, Nigeria

Table 2: t-test Summary Analysis on Nutritional Status of Male and Female Undergraduate Students in Universities in Edo and Delta States, Nigeria

Variables	Gender	(n=273)	$\bar{X}$	S.D	t-cal.	Sig	Remarks
BMI	Male	71	22.9840	3.84165			
					-2.299	.008	Reject null hypothesis
	Female	79	24.6307	4.81029			

Result in Table 2 shows that the calculated t-value of 2.299 is statistically significant (p<0.05). Therefore, the null hypothesis which states that there is no significant difference in the nutritional status of male and female undergraduate students in Universities in Edo and Delta States, Nigeria is rejected while the alternate is accepted. This implies that sex (gender) has significant difference in the nutritional status of male and female undergraduate students in Universities in Edo and Delta States, Nigeria

Hypothesis 3: There is no significant influence of lifestyle pattern of undergraduate students on their nutritional status in universities in Edo and Delta States, Nigeria

Table 3: ANOVA Analysis on Lifestyle Pattern Influence on Nutritional Status of Undergraduates of Universities in Edo and Delta States, Nigeria

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2.634[a]	3	.878	1.219	.305
Intercept	6.634	1	6.878	711.108	.000
Lifestyle_pattern	**5.634**	**3**	**6.784**	**7.219**	**.000**
Error	105.160	146	.720		
Total	967.000	150			
Corrected Total	107.793	149			

a. R Squared = .024 (Adjusted R Squared = .021)

Result in Table 3 shows that the calculated f-value of 7.219 for influence of lifestyle pattern is significant since the probability value (p-value) is less than 0.05 alpha level (p<0.05). Thus, the null hypothesis is rejected. This showed that there is a significant influence of lifestyle pattern of undergraduate students on their nutritional status in universities in Edo and Delta States, Nigeria.

5. DISCUSSION

There is no significant difference in the lifestyle pattern of male and female undergraduate students in Universities in Edo and Delta States, Nigeria. Perhaps the reason the result shows no obvious difference in the lifestyle pattern of male and female undergraduate students in Universities in Edo and Delta States, Nigeria could be traced to equal level of human right freedom available to university students to choose their association, who to be with and not be with, where to go and where no to go, where to live on campus or off campus among others. The freedom of lifestyle pattern to live is further exacerbated by the freedom of many students who are not living on campus in students' hall of residence but outside the campus. For male and female students, living outside the campus, many have complete freedom over their movement, their social life and thereby tend to make decisions on what they considered satisfactory for them. The result agrees with that of Firdous and Mohsin (2018) who found that the lifestyle patterns faithfully interconnected with nutritional habits, physical activity, weight management and BMI. Unhealthy food habits and physical inactivity affects the lifestyle patterns of students. The result corroborates that of Olfert, Barr, and Colby (2019) who found that considering the potential role of sex in key lifestyle behavior categories during college, as sex differences were found in all four areas investigated: Nutrition, physical activity, sleep, and stress.

The result shows that there is a significant influence of dietary pattern of undergraduate students on their nutritional status in Universities in Edo and Delta States, Nigeria. The result corroborates that of Sasikala and Chanchalor (2016) who found that malnutrition in students among the boys whereas in girls may be due to economic status of parents and family lack of knowledge on nutritional importance and among the boys poor in dietary habits and their frequent consumption of snacks and fast food. The result is not in consonance with that of Hakim, Muniandy and Danish (2012) who found that there is no association found between both gender in breakfast, fruits, vegetables and fast-food intake.

This shows that there is a there is a significant influence of lifestyle pattern of undergraduate students on their nutritional status in universities in Edo and Delta States, Nigeria. The result corroborates that of Pozar and Pozar (2017) who found that there is a correlation between the position of one's own body weight and body mass index and also with dieting. The result is in line with that of Cakar, Sladjana, Djordjevic (2018) who found that European pharmacy students have some unsatisfactory eating habits and nutritional knowledge which is already related to their inadequate nutritional status. The result further supports that of Thilakarathne, Wijesinghe (2011) who found that frequency of consuming fast foods was significantly high among boys studied. The result agrees with that of Uros, Sladjana, Bojana, Brizita (2012) who found that the frequency of daily snacking among students was 19.3%, while 40.9% consumed snacks between meals once or twice per week, with no gender differences. Based on the findings, the researcher concluded that the level of food security among undergraduate students in universities in Edo and Delta State was low. Sex difference do not

exist in lifestyle patterns of male and female undergraduate students on their nutritional status in universities in Edo and Delta States, Nigeria.

6. RECOMMENDATIONS

The findings led to the recommendations that were made below:

1) To raise awareness of healthy diets and lifestyle choices, the Ministry of Health should implement comprehensive public health intervention measures, such as a thorough nutritional and health education program for undergraduate students.
2) The students' bursary programme funded by the Edo State government should be extended to support students from disadvantaged households who are challenged with having a sufficient nutritional balance.
3) All parties involved in addressing food insecurity and malnutrition in Edo State and the nation at large must mainstream nutrition into their initiatives, policies, and programs. Reversing the unacceptable low food consumption and nutritional status of pupils requires additional financing and sincere attention to nutrition as a major factor of development.

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