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Socio-demographic characteristics, Dietary Practices, and Nutritional Status Among Undergraduates in Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria.

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Abstract

Background: Patterns of nutritional behaviors adopted in childhood and adolescents are mostly continued in adult life and increase the risk of development of many chronic diseases.

Objectives: This study was designed to assess the dietary practices and nutritional status among students of Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria.

Methodology: The design of this study employed a cross-sectional study on 432 students at Michael Okpara University of Agriculture, Umudike. Simple random sampling was used in the selection of the students. Questionnaire was used to collect students' information about their dietary practices. Qualitative 24-hours dietary was also adopted. Then BMI and WHR was used to determine the nutritional of respondents. The data was analyzed using SPSS and descriptive statistics such as mean, standard deviation, frequencies and percentage was used to present the result.

Results: The result revealed majority (89.9%) of the respondents skipped meals and out of the 89.9% that skip meal 69.4% skipped lunch and 69.9% of respondents skipped meal because they could not afford it. The study also revealed low consumption of vegetables and fruits among respondents of which about 69.7% and 71.3% consumed vegetables and fruits once a week. The result showed that 12.5% of respondents consumed Okpa as breakfast. Body mass index of the respondents revealed that 11.3% underweight, 72.9% normal weight, 17.8% of the respondents were overweight while 3.9% were in obesity grade one and waist hip ratio of the respondents revealed that 6.1% of the female respondents are at risk of cardiovascular diseases while 1% of the males are at risk of cardiovascular diseases.

Conclusion: The study reviewed that more than half of the respondents ate twice a day. Majority of the respondents skipped meal and out of the majority more than half skips lunch and they skipped meal because they cannot afford it. Greater percentage of the respondents engaged in snacking every day.

Keywords: Food; socio-demographic; nutritional status; dietary practices; students.

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Highlights/Key Messages

- Meal skipping was highly prevalent
- Financial constraints
- Fruit and vegetable consumption
- Daily snacking
- Nutrition interventions are needed to improve healthy eating behaviors among university students.

1.Introduction

Dietary practices are defined as the quantities, proportions, variety, or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed. (USDA, 2016b). It is also a participant's preference in food consumption or behaviors of dietary habits and can be classified as good dietary practices and poor dietary practices. (Worku *et al.,* 2015). Eating is a part of daily life, and eating habits are formed *posteriori*. Dietary content may include attitudes toward food, eating behavior, and food preferences. Dietary patterns represent the diversity, magnitude and/or blend of foods in diets (Sánchez *et al.,* 2018) when measured over a period of time, it is also a useful determinant in assessing food exposure, nutritional status, and health outcome(s) in populations (Herzog *et al.,*2015).

Dietary practice (DP) is the general profile of food and nutrient consumption which is characterized on the basis of the usual eating habits. Eating behavior is an important aspect of life as it can affect long term health outcomes because unhealthy eating habits such as consuming nutrient deficient food, skipping meals, and a lack of timely diet are understood to cause various health problems and nutritional deficiencies (El AW *et al.,* 2015). In contrast, an adequate nutrition and the consumption of quality food can contribute to sustaining the physical well-being and mental stability of individuals (Bagordo *et al.,* 2013; Hilger *et al.,* 2017). Likewise, a healthy diet is understood to play a significant role in the lives of university students; that is, a considerably large population group which could be targeted to prevent numerous health problems (Hilger *et al.,* 2017). The analysis of dietary patterns gives a more comprehensive impression of the food consumption habits within a population. It may be better at predicting the risk of diseases than the analysis of isolated nutrients or foods because the joint effect of various nutrients involved would be better identified. Also, since nutrient intakes are often associated with certain dietary practice, single-nutrient analysis may be confounded by the effect of dietary practices (Kapka-Skrzypczak *et al.,* 2012).

Healthy eating practices encourage optimal health, growth, and intellectual development as well as the prevention of diseases, whereas unhealthy eating habits can lead to malnutrition (Allom and Mullun, 2013). Studies in both developed and developing countries have identified some poor dietary practices namely; skipping breakfast, increased intake of high calorie snack, eating outside the home, consumption of soft-drink among adolescents and low consumption of fruits, vegetables and use of supplements (Sarkar *et al.,* 2015). Young people are typically more likely to establish poor eating habits. University students' diets tend to be unhealthy, with a high intake of fast food, sweets, and beverages with added sugar. They also tend to skip meals, especially breakfast, and consume less fruit and vegetables, milk, fish, and other healthy options (Tatter, 2018). The challenging eating practices like skipping of meals (especially breakfast) which leads to higher level of snacking among undergraduates due to time restrictions and development of dietary habits and food preferences over time, particularly during adolescence, affects nutrient and energy consumption (Afolabi *et al.,* 2013).

The student lifestyle is usually related to a higher risk of unhealthy behaviors, such as excessive smoking, alcohol, and illicit substance use. Together with a high level of stress, sedentary behavior, and poor dietary practices, this behavior may overall contribute to poorer mental and physical health. Feeding is a phenomenon that human cannot do without; humans feed because it is essential for survival. Dietary practice of students most especially university students is of great necessity, due to the fact that nutritional intake gives the students‟ energy and balance they need for proper functioning. Adolescence is a critical stage in life

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that is associated with both physiological and psychological changes that not only impact nutritional wellbeing but also future risk of disease (, (Ambrosini, 2013; Hu *et al.,* 2016; Aparicio *et al.,* 2017; Das *et al.,* 2017).

students are youth who had just graduated from secondary education and therefore, experiencing leading an independent life for the first time could be a challenging endeavor for them (Ramlee, *et al*., 2019). The college years are filled with many significant changes for students. One of the most prominent changes that college students face is making one's own food choices (Hu *et al.,* 2016).

This study aims to assess the socio-demographic characteristics, and dietary practices among students at Michael Okpara University of Agriculture, Umudike.

MATERIALS AND METHODS

Study Design

The design of this study used was a cross sectional study as well as comparative study of undergraduates both males and females in Michael Okpara University of Agriculture, Umudike, Abia state.

Study Population

The study population consists of all the students in Michael Okpara University of Agriculture, Umudike, Abia State. According to MOUAU Annex library, MOUAU consist of 11 colleges and 22508 students.

Sampling and Sample Technique

Taro Yamane model for determination of population (Yamane, 1973) was used to determine the sample for the study. Undergraduates in Michael Okpara University of Agriculture Umudike, Abia State were purposively selected then six (6) colleges (CAFST, COLPAS, COED, COLMAS, COLNAS, CEET) were randomly selected out of the eleven (11) colleges that make up the study area. In the second stage, two (2) departments each from the 6 selected colleges (Human nutrition and Dietetics, Over the years, the nutrition transition has progressively accelerated the incidence of non-communicable diseases worldwide particularly among adolescents. The dual burden of undernutrition and over-nutrition among adolescent populations significantly impacts outcomes in adulthood (Hu *et al.,* 2016). Undoubtedly, most college and university

Food Science and Technology, Statistics, Mathematics, Computer Education, Home Economics Education, Entrepreneurship Studies, Industrial Relations and Personal Management, Microbiology, Biochemistry, Computer Engineering and Civil Engineering) were randomly selected. In the third stage thirty (36) students were also randomly selected from each of the selected department, thus the sample size was 432.

Ethical Declarations

Informed Consent/ Ethnical Approval

Permission on behalf of the students was obtained from the Heads of Department. The purpose of the study was carefully explained to subjects in the school and those who agreed to be investigated were selected for detailed study. Ethical approval was gotten from Federal Medical Center (FMC), Umuahia, Abia State (FMC/QEH/G.596/VOL.10/604)

Data Collection

Data was collected using pretested questionnaires. The questionnaires were validated by lecturers in the Department of Human Nutrition and Dietetics, Michael Okpara University of Agriculture, Umudike, Abia State. Before the questionnaires was administered to the participants, the questions were explained to ensure that the respondent understood the questions. When collecting the information, it was checked properly to ensure they properly filled it. The questionnaire consists of student's characteristics; socio-demographic data (student's composition, age, sex, occupation, marital status), and dietary practices questions.

24-hours Dietary Recall

The study employed a qualitative 24-hours dietary and it was an open-ended question about what the respondents

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ate in the last 24-hours.

The anthropometric assessment (height, weight of the respondent) was used to assess the nutritional status which was obtained using heightometer and bathroom scale respectively. Weight and height were used to calculate their body mass index (BMI). BMI was classified as follows:

Classification **BMI (kg/m^2)**

- Under-weight < 18.5
- Normal weight 18.5 – 24.9
- Over weight 25.0-30.0
- Obesity 30 and above

(WHO, 2012)

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

WHR

Female	**Male**
• Low risk — <0.8	Low risk<0.9
• Moderate risk — 0.8-0.85	Moderate risk —0.9-0.95
• High risk — >0.85	High risk — >0.95

(WHO, 2012)

Data Analysis

BMI and WHR were derived from the weight and height, waist circumference and hip circumference data of the respondents. BMI was calculated as weight on kilograms, divided by height in meter square (kg/m2) and WHR was calculated by dividing the waist circumference by the hip circumference.

Statistical Analysis

The data collected was sorted and analyzed statistically using SPSS (Statistical Package for Social Science). Descriptive statistics such as mean, standard deviation, frequencies and percentage were used to summarize the data.

RESULTS

Table 1 shows the Socio-demographic characteristics of respondents. The study revealed that majority of the respondents were males (69.7%), while the rest were females (30.3%). Based on marital status, 95.8% of the respondents were singles while 4.2% were married. The distribution of the religion of the respondents are observed that majority of the respondents were Christians (91.2%), while 8.8% of the respondents were Muslims. The lgbo tribe had the highest population of 89.8%, followed by the Yoruba tribe with 10.2%. Majority of the respondents stayed off campus (66.2%), 27.1% in the hostel, 3.9% other places while 2.8% at home with parents.

Table 1 Socio demographic characteristics of respondents

Variables	**Frequency (F)**	**Percentage (%)**
Total	**432**	100
Gender		
Male	301	69.7
Female	131	30.3

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Total	**432**	**100**
Marital status		
Single	414	95.8
Married	18	4.2
Divorced	-	-
Total	**432**	**100**
Religion		
Christianity	394	91.2
Muslim	38	8.8
Traditional worshipper	-	-
Others	-	-
Total	**432**	**100**
Ethnicity		
Yoruba	44	10.2
Igbo	388	89.8
Hausa	-	-
Others	-	-
Total	**432**	**100**
Year of study		
100L	51	11.8
200L	202	46.8
300	125	28.9
400	54	12.5
500	-	-
Others	-	-
Total	**432**	**100**
Place of residence		
Hostel	117	27.1
Off campus	286	66.2
Home with parents	12	2.8
Others	17	3.9
Total	**432**	**100**

Table 2a & 2b shows the dietary practice of the respondents. Result revealed that 55.6% of the respondents ate twice a day, 24.1% ate three time a day while 10.9% ate once a day. The study revealed that 63.2% ate enough meal each day while 36.8% do not. Based on respondents who do not eat enough meal each day, 13.9% were attributed to food not enough while 22.9% no time to prepare. Majority (89.9%) of the respondents skip meals while10.2% do not skip meals. Out of the 89.9% that skip meal 69.4% skipped lunch, 10.2% skipped breakfast and dinner respectively. Based on the reason for skipping meal, 69.9% of respondents skipped meal because they could not afford it while 19.9% skipped meal due to limited time to prepare. About 40% of the respondents who took snacks in-between meals indicated meat pie, 23.1% moi moi while 16.4% okpa. However, 10.2% indicated nuts and other types of snacks respectively. Greater percentage (69.7%) of the respondents engage in snacking every day, 20.4% once in two days while few (10%) twice in a week. Based on frequency of vegetable intake about 69.7% consume vegetable once a week, 15.5% three times a week while 10% consume vegetable five times a week. However, very few (4.9%) don't take vegetable. The study revealed that fruit consumption of the respondent was high once a week with 71.3%, twice a week with 16.7%, four times a week with 8.1% and three times a week with 3.9%. About 50.9% of the respondents eat when they are hungry, 40% eat when food is available while very few (9%) eat at will.

The result showed that 69.4% of the respondents ate at home, 20.4% at the restaurant while very few (10.2%) eat at a friend's house. Based on getting food during school

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hours, majority (61.8%) of the respondents prepare the food themselves while (38.2%) get food from the vendor. About 59.7% consume water before or after meal, 17.1% soft drink, 15.7% consume beverages after meal while few (7.4%) consume alcohol.

Table 2a: Dietary Practice of Respondents

Variables	Frequency (F)	Percentage (%)
The number of meals you have each day		
Once	47	10.9
Twice	240	55.6
Three	104	24.1
Others	41	9.5
Total	**432**	**100**
Eat enough meal each day		
Yes	273	63.2
No	159	36.8
Total	**432**	**100**
Reason for not eating enough meal		
Food not enough	60	13.9
No time to prepare	99	22.9
Food not appetizing	-	-
No reason	-	-
Others	-	-
Total	**159**	**36.8**
Skipping meals		
Yes	388	89.9
No	44	10.2
Total	**432**	**100**
Meals skipped		
Breakfast	44	10.2
Lunch	300	69.4
Dinner	44	10.2
Breakfast+lunch	-	-
Breakfast+dinner	-	-
Lunch+dinner		
Total	**388**	**89.8**
Reason for skipping meal		
Limited time to prepare	86	19.9
Cannot afford it	302	69.9
Fasting on religious reasons	-	-
Others	-	-
Total	**388**	**100**
Types of snacks taken in-between meals		
None	-	-
Meat pie	173	40
Moi moi	100	23.1
Okpa	71	16.4
Nuts	44	10.2
Others	44	10.2
Total	**432**	**100**
The number of snacking in a week		
Everyday	301	69.7
Once in 2 days	88	20.4
Twice in a week	43	10
Others	-	-

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Total	**432**	**100**

Table 2b: Dietary Practice of Respondents

Variables	Frequency (F)	Percentage (%)
Frequency of vegetable intake		
None	21	4.9
Once	301	69.7
Twice	-	-
Three times	67	15.5
Four times	-	-
Five times	43	10
Total	**432**	**100**
Frequency of fruit intake		
None	-	-
Once	308	71.3
Twice	72	16.7
Three times	17	3.9
Four times	35	8.1
Five times	-	-
Total	**432**	**100**
Eating of food		
At will	39	9
When hungry	220	50.9
When less busy	-	-
Once food is available	173	40
Others	-	-
Total	**432**	**100**
Where you eat meal		
Restaurant	88	20.4
At home	300	69.4
Friends house	44	10.2
Others	-	-
Total	**432**	**100**
Getting food during school hours		
From vendors	165	38.2
Prepare myself	267	61.8
Prepare by spouse	-	-
Prepared by children	-	-
Others	-	-
Total	**432**	**100**
Type of liquid consumed or after meal		
Water	258	59.7
Soft drink	74	17.1
Alcohol	32	7.4
Beverage	68	15.7
Pal wine	-	-
Others	-	-
Total	**432**	**100**

Table 3 showed 24 hours dietary recall of the respondents. The result showed that 12.5% of respondents consumed Okpa as breakfast while 6.7% consumed Okpa as dinner. About 6.7% ate rice during breakfast, 16.7% ate rice during lunch while 7.4% dinner. Few of the respondents (2.5%) ate yam with palm

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oil/stew during breakfast while 2.5% during dinner. About 7.6% of the respondents ate rice/bean as breakfast, 9.3% as lunch while 6.3% as dinner. Few (1.6%) of the respondents ate yam and beans as breakfast, 6.7% as lunch while 2.8% as dinner. The study showed that 4.4% of respondents ate potatoes as breakfast while 4.2% as dinner. About 6.3% of respondents ate beans and pap as breakfast while 7.6% ate beans and pap as dinner. 3.2% of the respondent ate Melon soup and akpu as breakfast while 6% ate melon soup and akpu as dinner.

The study showed that 1.4% ate garri and ogbono soup as breakfast while 9.5% ate garri and ogbono soup as lunch. (9.5%) of the respondents ate bread and akara as breakfast while 7.4% ate break and akara as dinner. The study showed that (2.1%) ate garri and okro soup as breakfast and (3.9%) as dinner. About (7.9%) of the respondents ate akara and pap as breakfast while few 1.9% as dinner. The study showed that 1.9% of the respondents ate moi moi as breakfast. The study showed that about 1.9% of the respondent ate garri and bitter leaf soup as breakfast while 8.6% as dinner. About 1.2% of the respondent ate yam pottage while 3.5% ate yam pottage. The study showed that 7.6% ate bread and tea as breakfast while 1.4% ate bread and tea as dinner. About 6% of the respondent ate beans and plantain as breakfast while 3.0% ate beans and plantain as dinner. The study showed that 3.7% ate spaghetti as breakfast while 4.6% ate spaghetti as dinner. About 5.3% of the respondent ate noodles as breakfast while 6.7% ate noodles as dinner. The study showed that about 1.6% of the respondents ate garri and vegetable soup as breakfast while 10.9% ate garri and soup as dinner. About 2.8% of the respondents took soaked garri as breakfast while 8.6% as lunch.

Table 3: 24-hour dietary recall of respondents

	Breakfast		**Lunch**		**Dinner**	
Food Consumed	**F**	**%**	**F**	**%**	**F**	**%**
Okpa	54	12.5	-	-	29	6.7
Rice	29	6.7	72	16.7	32	7.4
Yam with palm oil/stew	11	2.5	-	-	24	5.6
Rice/beans	33	7.6	40	9.3	27	6.3
Yam/beans	7	1.6	29	6.7	12	2.8
Potatoes	19	4.4	-	-	18	4.2
Beans & pap	27	6.3	-	-	33	7.6
Melon soup & akpu	14	3.2	37	8.6	26	6.0
Garri and ogbono soup	6	1.4	41	9.5	20	4.6
Bread and akara	41	9.5	-	-	32	7.4
Garri and okro soup	9	2.1	26	6.0	17	3.9
Akara and pap	34	7.9	-	-	8	1.9
Moimoi and pap	8	1.9	-	-	-	-
Garri &bitter leaf soup	8	1.9	23	5.3	37	8.6
Yam pottage	5	1.9	-	-	15	3.5
Bread &tea	33	7.6	-	-	6	1.4
Beans &plantain	26	6.0	27	6.3	13	3.0
Spaghetti	16	3.7	-	-	20	4.6
Noodles	23	5.3	53	12.3	29	6.7
Garri/veg. soup	7	1.6	47	10.9	13	3.0
Soaked garri(cassava source)	22	5.1	37	8.6	21	4.9
Total	**432**	**100**	**432**	**100**	**432**	**100**

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Table 4 shows the nutritional status of the respondents. Result from the Body mass index of the respondents revealed that 11.3% underweight, 72.9% normal weight, 17.8% of the respondents were overweight while 3.9% were in obesity grade one. The prevalence of obesity among the male and female respondents in this study was 2% and 8.4% respectively.

Table 4 BMI status according to sex of respondents

Body mass index (kg/m^2)	Male		Female		Total	
	F	%	F	%	F	%
Underweight	32	10.6	17	13	49	11.3
Normal weight	234	77.7	81	61.8	315	72.9
Overweight	29	9.6	22	16.8	51	11.8
Obesity class I	6	2	11	8.4	17	3.9
Obesity class II	0	0.0	0	0.0	0	0.0
Obesity class III	0	0.0	0	0.0	**0**	0.0
Total	**301**	**100**	**131**	**100**	**432**	**100**

Results from the waist hip ratio of the respondents revealed that 6.1% of the female respondents are at risk of cardiovascular diseases while 1% of the males are at risk of cardiovascular diseases.

Table 5 Waist Hip Ratio of the respondents

Waist Hip Ratio	Male		Female		Total	
	F	%	F	%	F	%
Normal	298	99	123	93.9	421	97.5
At risk	3	1	8	6.1	11	2.5
Total	**301**	**100**	**131**	**100**	**432**	**100**

Discussion

This study provides insight into socio-demographic characteristics, and dietary practices among students at Michael Okpara University of Agriculture Umudike, Abia State Nigeria. This study revealed that more than half of the respondents ate twice a day. The study is in line with Oguizu *et al.* (2019) which reported that majority of the respondents ate at least twice daily. The study outcomes showed that more good proportion of respondents ate enough meal each day while few dd not. According to Miller (2014) food cost is commonly mentioned as a significant issue in choosing and/or arbitrating dietary intake among students. Studies revealed that many students skipped breakfast after considering the cost. A substantial number of students have the habit of having lunch instead of breakfast intentionally so they can save. As most students in the public university hail from the lower middle socio-economic class; they received a meager amount of money from their homes to survive.

The findings revealed that the majority of the respondents skipped meals, with lunch being the most commonly skipped meal among respondents who reported meal skipping. This pattern may be attributed to demanding academic schedules, lectures spanning midday, financial constraints, or limited time available for meal preparation and consumption. University students often prioritize

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academic activities over regular eating, making lunch particularly susceptible to omission. Similar findings have been reported in previous studies among university students, where lunch was identified as the meal most frequently skipped due to time constraints, busy class schedules, and limited financial resources (Omotola et al., 2024). The observation that lunch was the most skipped meal in this study does not agree with the earlier report that breakfast was the most skipped meals among Nigerians and in which skipping of meals among the individuals was mainly attributed to lack of time (Afolabi *et al.,* 2013). Similarly, Ruka *et al.* (2015) study revealed that majority of the respondents sometimes skipped lunch. Frequent meal skipping, particularly lunch, may reduce overall dietary quality, and contribute to inadequate nutrient intake thereby not meeting the daily dietary recommendations, increases the likelihood of unhealthy snacking or fast-food consumption later in the day, and adversely affect academic performance and long-term health outcomes. Skipping of meal has been identified as a lifestyle factor that inhibits good nutrition practices.

The study revealed that skipping of meals among respondents was mainly attributed to lack of economic access to food items which contradicts the study by Afolabi *et al.* 2013 which reported that skipping of meals among individuals was mainly attributed to lack of time. Greater percentage of the respondents engage in snacking every day. El- Mouty (2016) consequently stated that students tend to adopt a coping up strategy by cutting expenses incurred on breakfast. Consequently, they have some light snacks (including biscuits, dry cake, tea, and coffee) before sleeping. Often, they had to hurry to attend class in the morning skipping breakfast though in many cases, they preferred to have lunch directly instead of breakfast.

Based on frequency of vegetable and fruit intake the study findings showed that more half of respondents consume vegetable once a week. While that of fruit consumption, a higher proportion of respondent consumed fruit once a week. The findings of this study, however, is in agreement with Otuneye *et al.* (2017) study which reported that students consumed less of fruits and vegetables. The study also revealed that few take soft drink before and after meal, and very few consumed beverages and alcohol after meal. Consuming soft drink could be a refreshing experience but the fact remains that it only supplies individuals with majorly empty calories (Okudu *et al.*, 2013). The low incidence of alcohol use observed in this study was quite different from an earlier report on adults of South East Nigeria which indicates regular smoking and high level of alcohol consumption in the adult population (Obot, 2010). However, this result is in line to the study conducted by Fadupin *et al.* (2015) which reported a low incidence of alcohol use among adults in Ibadan. The low incidence of alcohol could be considered a healthy lifestyle among the study population. Alcohol has been described as the most commonly used psychoactive drug in Nigeria (Gureje *et al.,* 2007). The study findings from the 24-hours dietary recall revealed that it was a low consumption of protein. Low consumption of protein results in malnutrition and thus increases susceptibility to infections whilst infection is recognized to have a synergistic relationship with malnutrition (Yekeen *et al.,* 2013).

The findings of this study showed that the majority of the respondents had a normal body mass index (BMI), while a smaller proportion were underweight, overweight, or had class I obesity. The predominance of normal BMI among the students suggests that most maintained a healthy weight status despite the nutritional and lifestyle challenges commonly associated with university life. However, the coexistence of underweight and overweight/obesity reflects the double burden of malnutrition, a growing public health challenge in many low- and middle-income countries, including Nigeria, where undernutrition and overnutrition coexist among young adults (World Health Organization, 2024).

The prevalence of overweight and obesity observed in this study was lower than that reported in earlier Nigerian studies by Odenigbo et al. (2011), Adienbo et al. (2012), and Fadupin et al. (2015). The lower prevalence may be attributed to differences in study populations, dietary habits, physical activity patterns, socioeconomic characteristics, and increasing awareness of healthy lifestyle practices among university students. Nevertheless, the presence of overweight and obesity among some of the respondents remains a public health concern because excess body weight acquired during young adulthood often persists into adulthood and is associated with an increased risk of non-communicable diseases such as hypertension, type 2 diabetes mellitus,

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cardiovascular disease, and certain cancers (World Health Organization, 2024; World Obesity Federation, 2024).

Gender differences in BMI were also evident in this study, with female respondents exhibiting a higher prevalence of overweight and obesity than their male counterparts, whereas underweight was slightly more common among females. These findings are consistent with reports from Nigeria and other sub-Saharan African countries, where women have consistently been reported to have a higher burden of overweight and obesity than men. Biological factors, hormonal influences, lower levels of physical activity, cultural perceptions of body size, and dietary behaviours have been suggested as major contributors to these gender differences (NCD Risk Factor Collaboration, 2024; World Obesity Federation, 2024). Although the prevalence observed in the present study is lower than that reported by Fadupin et al. (2015), the higher burden among female students underscores the need for gender-sensitive nutrition education and lifestyle interventions within tertiary institutions.

The waist-to-hip ratio findings further support the generally favourable nutritional status of the respondents, as the majority had a normal waist-to-hip ratio, with only a few respondents classified as being at risk of cardiovascular disease. Female students exhibited a higher prevalence of abdominal obesity than males, suggesting greater central fat accumulation among women. Central obesity is recognized as a stronger predictor of cardiometabolic risk than BMI alone because it reflects visceral fat accumulation, which is closely associated with insulin resistance, dyslipidaemia, hypertension, cardiovascular disease, and premature mortality (Ross et al., 2020; World Health Organization, 2024).

The relatively low prevalence of abdominal obesity compared with previous Nigerian studies may be related to the younger age of the respondents and the predominance of normal BMI within the study population. Nevertheless, unhealthy dietary practices, meal skipping, frequent consumption of fast foods, and sedentary lifestyles commonly observed among university students may contribute to progressive weight gain and increased cardiometabolic risk over time if preventive measures are not implemented. Universities therefore provide an important setting for promoting healthy eating, regular physical activity, and nutrition education to prevent obesity and other nutrition-related chronic diseases during early adulthood.

Limitations

The limitations of this study are as follows: This study relied on just qualitative self-reported 24 hours dietary recall rather both quantitative and qualitative and other methods of assessing dietary practices such as food frequency questionnaire (FFQ), weighed food record. The study also relied of self-report which there could be biased. The study was restricted to only six (6) colleges out of 11 colleges which can result to incomplete data collection and analysis.

CONCLUSION

A cross-sectional study was carried out among 432 respondents of Michael Okpara University of Agriculture Umudike, Abia State who were studying at different year and courses. Some of them were resident in hostels, off campus and some were from homes. The socio economic and demographic status, dietary practices, food security status and nutritional status among university students were explored in this study. From the study, more than half of the respondents ate twice a day. Majority of the respondents skipped meal and out of the majority more than half skips lunch and they skipped meal because they cannot afford it. Greater percentage of the respondents engaged in snacking every day. The study findings revealed a low consumption of vegetables and fruits with majority of the respondents' consumed vegetables and fruits once a week. The study also revealed a low consumption of animal protein.

Recommendations

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

Raise awareness, educate and sensitize leaders and the authorities in the field of nutrition and the entire community in understanding every aspect related to access, availability, preparation and utilization to meet individual physiological needs.

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Proper agricultural intervention programs will not only help improve nutritional status, but also help alleviate poverty in the extreme households.

Policy issues addressing environmental sustainability and a healthy stimulating environment must also be given priority.

Government efforts to improve these will lead to a healthy and active life among the students.

Further research should be conducted to better understand the systemic pathways to student poverty and food insecurity.

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Author Contributions

CVE: Conception, methodology, data analysis, investigation, data curation, writing original draft, manuscript preparation and revision.
OH: Validation, methodology, supervision, data analysis.

UBI: Investigation, resources, supervision, manuscript preparation and revision

MMO: Investigation, resources

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