Assessment of Food Security, and Dietary Patterns of Academic Staff of Michael Okpara University of Agriculture Umudike, Abia State

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ABSTRACT

Background: *Food insecurity reflects adverse social and psychological effects on health and also associated with poor dietary patterns. Hence, a need to address the dietary patterns and food security status of individuals is crucial.*

Objective: *The study determined the socioeconomic and demographic characteristics of the respondents, the food consumption patterns of the staff using a dietary diversity score questionnaire and determine the relationship between dietary patterns and socio-economic characteristics of the respondents.*

Methods: *Cross sectional study was adopted in this research using semi semi-structured food security questionnaire and household dietary diversity scores questions for adults to obtain data from the respondents, SPSS version 21 was used to analyze the data obtained using descriptive and inferential statistics.*

Results: *The result revealed that only 31.2% of the respondents were unable to eat healthy and nutritious food at a time due to lack of money or resources and 68.8% of the respondents ate healthy food during the last four weeks. Additionally, 26% of the respondents are food insecured while majority 74% are food secured. Furthermore, 56.8%) of the respondents have a medium dietary diversity score while 41% have a high dietary diversity score. However, the results depict positive significant relationship between dietary patterns and income, and between the dietary patterns and their education (p=0.001, R=.322) and (p=0.001 r=445) respectively.*

Conclusion: *Most of the respondent adhere to healthy eating habit. However, it is recommended the University staff should continue to adopt healthy eating habit to enhance work performance and productivity.*

Keywords: Food insecurity, dietary pattern, diet diversity, nutritional and health status

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INTRODUCTION

During a worldwide food crisis in the middle of the 1970s, concerns of international food issues gave rise to the idea of food security (1). Food security is de‧ned as a condition that exists when all people, at all times, have physical and economic access to suf‧cient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (2). The four fundamental components of this de‧nitional framework are availability, access, use, and stability (3). According to Food and Agricultural Organization, around 800 million people worldwide or slightly more than one in nine were undernourished and many of them are from Africa and various parts of Asia (4).

The United Nation report on food security revealed that approximately 733 million people faced hunger in 2023, driven by factors such as environmental changes and economic crises. The report warned that if current trends continue, an

estimated 582 million individuals could be chronically undernourished by 2030, with half of these cases occurring in Africa (5). However, it is impossible to overstate the signi▪cance of food security given that 870 million people worldwide consume fewer calories than they need and that deprivation has numerous negative effects on both mental and physical health (6). According to Food and Agricultural Organization, Nigeria faces food security challenges, with 33.1 million at risk of food insecurity. Factors include economic hardship, high inflation, and conflicts contribute to this crisis. The Northeastern states are particularly affected, with prolonged conflict, high inflation, and climate-related shocks leading to chronic food insecurity (7). A hungry population is a less productive one, food security is so important that it not only improves the nutritional health of the people living in a country, but also helps to maximize that nation's economic potential (8). Food insecurity is linked to unhealthy eating habits and has negative social and psychological repercussions (9,10). Thus, it is necessary to address each person's eating habits and level of food security. An analysis of a study found a negative correlation between eating habits and food security (11). Unhealthy weight and poor eating habits increase a person's chance of developing several illnesses, including cardiovascular diseases (12).

Food insecurity has been associated with poor diet quality and reduced consumption of healthy food groups, especially when it comes to the amount of fruits and vegetables consumed, according to studies on the connection between food security and dietary patterns (13,8). The number of studies examining the connection between food insecurity and dietary patterns has signi▪cantly increased in recent years due to the growing interest in the signi▪cance of food insecurity as a social predictor of health (7). Numerous factors, such as biology, culture, food availability, and lifestyle, influence dietary habits (8). As a result, it's critical to evaluate them in light of more general aspects that may have an impact on dietary consumption in addition to looking into context-speci▪c dietary patterns. Food insecurity among low-income households was linked to a signi▪cantly greater prevalence of diabetes, especially among women, according to research employing population- representative data from Canada and the US (14,15). Furthermore, The Nigerian Food Security Index (NFSI) study indicates that food security is becoming a bigger problem across the country, with access to enough nutritious food being threatened by steep increases in poverty (16). Additionally, each family member must have access to enough safe food to meet their nutritional needs (17). When there is accessibility, availability, and utilization of safe and nutritious food for consumption, food security at the household level can enhance people's nutritional status and health outcomes (18).

Food insecurity is a signi▪cant health disparity that affects people's ability to control chronic diseases linked to their diet. (19) For instance, people with type 2 diabetes may struggle to control their diet by purchasing cheap, high- calorie, nutritionally de▪cient foods instead of healthier options like vegetables, lean meats, and whole grains (20). Low-income families may neglect necessary medications or delay medical care, leading to costly hospital stays and malnutrition (21,22). Addressing this issue is crucial for promoting healthy diets and lowering chronic illness rates. Families experiencing food insecurity, including adults, kids, and pets, often resort to unhealthy food or modify their diet by cutting back on food intake (23).

METHODOLOGY

Study design

A cross-sectional research design was used for this survey

Study area

This study was conducted at Michael Okpara University of Agriculture, Umudike, located at Ikwuano local government, Abia State, Nigeria. Its headquarters is in Isiala Oboro. The name Ikwuano etymologically indicates that there are four different ancient kingdoms that make up the community called Ikwuano. These include Oboro, Ibere, Ariam/Usaka, and Oloko. It is an area of 281 km2 and a population of 137,993 at the 2006 census. It is made up of about 60 villages and communities. It lies between latitude 5 241N and 5 301N and between the longitudes of 7 321E and 7 371E.

Population of the study

The study comprised of the academic staff of Michael Okpara University of Agriculture,Umudike, Abia State.

Inclusion and exclusion criteria

The study included only Academic staffs who gave their consent.

Sample size

The sample size used in this study is 316. This was the number of questionnaire distributed for obtaining data from the participants.

Sampling procedure

This study adopted the multistage sampling method. The first stage was the purposive selection of different colleges in the universities. These include College of Applied Food Science and Tourism, Physical and Applied Science, Animal Science and Animal Production, Natural Sciences, Crop and Soil Sciences and Natural and Environmental Management Sciences, College of Engineering and Engineering Technology and School of General Studies. Simple random sampling was used to randomly select eighteen departments among four Colleges and twenty participant was selected in each department. Two research assistants from the Department of Human Nutrition and Dietetics were recruited and trained on questionnaire administration, the use of survey instruments and interviewing for the study.

Informed consent and ethical approval

Before the collection of data, the participants were informed of the objective and requirements for the study and given the assurance that every piece of information obtained would be handled confidentially. They were assured that the data they provided would be solely used for research purposes, and would be carefully handled thereby avoiding exposure to a third party, verbal informed consent was obtained from the participants before including them for the study. Ethical approval for this study was obtained from the health and research ethics community of the Federal Medical Centre. (FMC) in Umuahia, Abia State, Nigeria.

Validation of questionnaire

A well-structured questionnaire was validated by lecturers in the department of human nutrition and dietetics, Michael Okpara University of Agriculture, Umudike, assess appropriateness, content clarity and comprehensiveness of the study.

Data collection method

Data was collected by means of a well-structured 9-item household food insecurity assess scale questionnaire and a dietary diversity score questionnaire approved by USAID/FAO designed to obtain information on the socio- demographic and socioeconomic characteristics of the respondents, food security status, and dietary patterns of the respondents (24).

The questionnaire contained different sections. Section A comprised of questions regarding the socioeconomic and demographic data of the respondents, while section B adopted the nine- item food security module questionnaire from the US Household Food Insecurity Access Scale (HFIAS) measurement tool to derive the food security status of the respondents (25) and lastly, the section D contains food dietary diversity score questions that was used to determine the dietary patterns of the respondents and their dietary diversity score (24).

Data analysis

Data obtained from the questionnaire were coded and entered into a computer using the IBM SPSS (version 20). The socio economic and demographic characteristics were analyzed using frequency and percentage while the food security status and dietary patterns was also analyzed using the frequency and percentage. The dietary diversity of the respondents was gotten from the different food groups they had indicated. Respondents with a total mark of 1-3 points were graded as low dietary diversity, 4-6 points as medium dietary diversity and 6 and above as having a high dietary diversity. The food security status of the respondents was analyzed using a nine HFIAS food security scale questions. The HFIAS scoring questions including; uncertainties about food supply, insufficient food quality and intake and the grouping; food secure, mildly food insecure, moderately food insecure and severely food insecure was adopted in this study. Respondents with a low number of yes indicated in the questionnaire was attributed being food secure whereas respondents with higher number of yes were graded as being food insecure. Also, the relationship between dietary patterns and socio-economic characteristics was analyzed using correlation analysis (25).

RESULTS

Socio-demographical characteristics

Table 1 shows the socio- demographical characteristics of the respondents, This showthat (58.4%) were between the age ranges 30-34 years. Half of the respondent (52.7%) were male. Almost all the respondent 85.2 were Christians while 62.9% were Igbo, some respondents (48.9%) were married, more than half of the respondent (79.2%) have a family size of 4-6. Some respondents (61.8%) were living in 2-3 bedroom apartment while respondents living in a duplex were minority (8.5%). Additionally, its unveil that 58.4% of the respondent population completed tertiary institution with Master degree and 46.8% earn between N101,000-150,000. Few of the respondent (14.5%) were traders while (12%) were artisans, some respondents (11.7%) were self- employed and 10.4% were civil servant.

Table 1: Demographic and socio-economic characteristics of the respondents

Demographic and socio-economic characteristics	Frequency (316)	Percent (100%)
Age(years)		
25-29	70	22.4
30 – 34	185	58.4
above 35	61	19.2
Male	166	52.7
Female	150	47.3
Religion		
Christianity	270	85.2
Muslims	46	14.8
Ethnicity		
Igbo	198	62.8
Hausa	33	10.4
Yoruba	45	14.2
Others	40	12.6
Marital status		
Single	62	19.6
Married	153	48.6
Separated	22	6.9
Divorced	79	24.9
Family size		
1 – 3	66	20.8
4-6	250	79.2
Type of Housing		
Duplex	27	8.5
1 bedroom flat	41	12.9
2–3-bedroom flat	195	61.8
Room and parlor self-contain	53	16.7
Staff Educational Quali·cation		
B.Sc.	71	22.7
M.Sc.	185	58.4
Ph.D.	60	18.9
Spouse Education		
OND -HND	123	45.3
B.Sc.	112	23.0
M.Sc.	71	22.7
Ph.D.	10	9

Table 1 (cont'd): Demographic and socio-economic characteristics of the respondents

Demographic and socio-economic characteristics	Frequency (316)	Percent (100%)
Staff Income (₦)		
50,000 - 100,000	17	5.4
101,000- 150,000	101	31.9
151,000 - 200,000	156	49.2
above 200,000	42	13.6
Spouse Income(₦)		
50,000 - 100,000	55	22.9
101,000- 150,000	155	15.0
151,000 - 200,000	60	40.1
above 200,000	46	20.0
Spouse Occupation		
Artisan	65	12.0
civil servant	133	50.4
self employed	53	15.6
Trader	65	22.0

Food security questionnaire

Table 2 reveal the household food security assessment scale of the respondents, this shows that (68.8%) of the respondents ate healthy and nutritious food during the last four weeks while 31.2% were unable to eat healthy and nutritious food at a time because of lack of money or resources. About 47% of the respondents are food-secured, some of the respondents (27%) are moderately food-secured and 22.4% of the respondents are food insecure. This was determined using the HFIAS scoring criteria and analysis.

Foodconsumptionpattern of the respondents

Figure 1 shows the food consumption pattern of the respondents, this reveal that majority (99.7%) of the respondents consumed food from the cereal food groups while 46.4% of the respondents consume foods from white tubers, (61.5%) consumed dark green vegetables while 1.3% consumed other vegetables. However, only 38.5% of the respondents did not consume dark green veggies whereas 98.7% did not consume other vegetables. Furthermore, 98.4% of the respondents consumed flesh meat while only about 1.6% of them did not consume it. Majority (76.3%) consumed milk and milk product while 97.5% consumed foods from the oil and fat food group, some (41%) of the respondent diversify their diet by consuming from the food group.

Relationships between food consumption patterns and food security status of the respondents (Pearson Correlation)

Table 3 reveal relationships between dietary patterns and food security status of the respondents, This indicates that there was a positive signi·cant relationship between dietary patterns and income ($p=0.001$), additionally, a signi·cant positive relationship ($p<0.005$) exist between the dietary patterns of the respondents and their education and the dietary patterns of the respondents and spouse education, spouse occupation and spouse income respectively.

DISCUSSION

This study reveals that the socio-demographical characteristics of respondents differ from a similar study, which found majority of respondents to be female and aged between 30-40 (26). The fact that Christianity is the most common religion in the East

Table 2: Food security questionnaire

Variables	Frequency (316)	Percentage (100%)
Worried and lacked food and resources		
Yes	125	39.4
No	191	60.6
Ate unhealthy due to lack of resources and food		
Yes	99	31.2
No	217	68.8
Ate few kinds of food cause of no money		
Yes	132	42.0
No	184	58.0
Skipped meal because of money and resources		
Yes	63	19.9
No	253	80.1
Ate less because of lack of money or other resources		
Yes	78	24.9
No	238	75.1
household ran out of food because of a lack of money or other resources		
Yes	106	33.4
No	210	66.6
Went hungry cause of no food		
Yes	138	43.5
No	178	56.5
Went a whole day without food		
Yes	65	20.5
No	251	79.5
Food security status of the respondents		
food secure	148	47
Moderately Food secure	70	27
food insecure	71	22.4
Severely food insecure	27	8.5

Table 3: Relationships between food consumption patterns and food security status of the respondents (Pearson Correlation)

	Correlation coef·cient (r)	P value
Income	$.322^{**}$	0.798
Education quali·cation	$.445^{**}$	0.850
Spouse education	$.391^{**}$	0.998
spouse occupation	$.862^{**}$	0.876
spouse income	$.543^{**}$	0.366

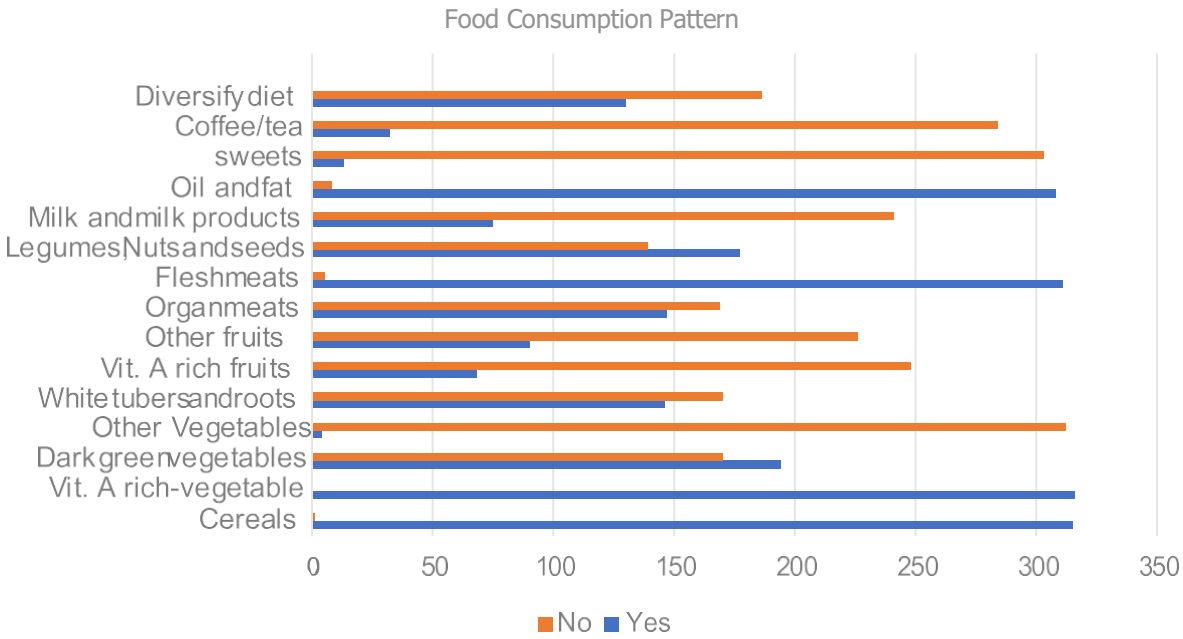

Figure 1: Food consumption pattern of the respondents

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and that it is an Igbo land may be the reason for the rise in religious and ethnicity values. The study also found that few of the respondents have high family size of three to ·ve childrens per family (27). Disparities in job speci·cation and income contribute to poor dietary consumption and nutritional knowledge (9,28). However, 58.4% of respondents have higher education, which can help them make informed decisions about food choices for healthy living (20).

The study found that minority of respondents were worried about their lack of food or resources, while majority was not worried. This contradicts a study by (29) that found none of the respondents ate limited food due to lack of resources (29). According to Kassy et al., (30) in their study carried out in Enugu, Nigeria, majority of the respondents ate few meals due and skipped meals due to ecomnomic instability. Only few of the respondents' households ran out of food or resources, while majority did not (29). This is attributed to the majority of respondents and spouses earning enough to support their families, active work, and cultural differences in eating habits. The ·ndings also align with a study in Oregon, U.S.A., where few of university members were worried about food scarcity (31).

According to Leung et al (32), food insecurity can

increase the risk of chronic diseases like obesity, hypertension, cardiovascular diseases, and diabetes, and may be associated with food insecurity in adulthood. Poor mental health and work performance, including high rates of depression and anxiety, are also associated with food insecurity (33). Michael Okpara University's academic staff are food-secured, with majority being food-secured and few are moderately food-secured. Additionally, only few of the respondents are food-insecured. This is low compared to similar studies in the U.S. and Ethiopia (31,3). In another study in Akwa Ibom state, Nigeria, the majority of respondents consume a high amount of carbohydrates, particularly cereals, which are easily accessible and locally produced (34).

The versatility of dark green vegetables makes it easy to be consumed either in a main dish or as a side dish. According to Federal Government of Nigeria (FGN) & International Institute of Tropical Agriculture (IITA) report on National Food Consumption and Micronutrient Survey 2021, majority of the respondents did not consume any Vitamin A-rich fruits and also many of the respondents who did not consume other fruits were dominant. Only few of the respondents consumed Vitamin A-rich fruits and other fruits(35).

Food and Agricultural Organization and World Food Program (4), noted that vegetables are herbaceous plants that can be aromatic, bitter or tasteless. Indigenous vegetables are plant species that are important for the sustainability of economies, human nutrition and health, and social systems but are yet to attain global recognition as major vegetable commodities (36), Again, vegetables have proven to have nutritive value in terms of having high carbohydrate, protein, vitamins and minerals in comparison to that of exotic vegetables (37).

The study found that more than half of respondents consumed different kinds of food from the food group, while few were not conscious of eating from or have any idea about it. This is contrary to a similar study at the University of Ibadan, where only few of respondents had consume from the food group (38). Diversifying diet by consuming different kinds of food from the food group is often associated with better nutritional status, while the opposition contributes to nutrient intake inadequacy (39,40,41). Income was found to have a positive relationship with dietary patterns, but this does not fully agree with previous studies. Konstatin et al., (42) reported that in Burkina Faso, better-educated respondents with better economic situations are more likely to consume healthy diets and are on their way to the next stage of the nutrition transition. Caroline et al., (43) in their study on validity and reliability of food security measures, revealed that in Brazil, a signi▪cant relationship was found between income and dietary patterns, suggesting that the level of education of a spouse can influence dietary choices.

CONCLUSION

The result from the study revealed that the prevalence of food insecurity among academic staff of Micheal Okpara University was low, However, majority of the participants were food secure. Most of the respondents had a medium dietary diversity score while more than one-third of the respondents had a high dietary diversity score, and only a minute percentage of the respondents had a low dietary diversity score. Additionally, majority of the respondents consumed major foods from these food groups: cereals, dark green vegetables, fresh meat, ▪sh, legumes, seeds and nuts, fats and oils. It is essential to know that eating from different food groups do not only promote nutrient diversity but also contribute to nourishing the body with almost all the necessary nutrient required for growth development and repair of worn out tissue.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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