



Evaluation of Airtime Usage on the Feeding Pattern of Tertiary Students: A Case Study of Federal College of Agriculture, Ishiagu (FCAI), Ebonyi State, Nigeria

Adeoye-Agomoh, Queen C.*, and Ezenwa, Happiness C.

Department of Human Nutrition and Dietetics. College of Food Science and Touris. Michael Okpara University of Agriculture, Umudike. Abia State. Nigeria.

Corresponding Author's Email: pastorchisom5545@gmail.com Tel:+2348035775545

ABSTRACT

This study examined the food consumption patterns of students in the Federal College of Agriculture, Ishiagu and the influence of mobile phone usage, particularly airtime consumption, on their dietary habits. The study adopted a descriptive cross-sectional design and employed stratified sampling techniques to ensure representation across various academic programmes (Higher National and National Diploma). Data were collected through a combination of structured questionnaires and interviews, allowing for both quantitative and qualitative insights. A total of 359 respondents participated in the survey, comprising 55.8% males and 44.2% females. Most respondents (80.8%) were single, and a majority (72.5%) identified as Christians. The data revealed that mobile phone usage significantly affects students' feeding behaviour, with 74.2% accepting that airtime usage affects their food consumption patterns. The most common pattern of eating observed was "1-0-1" (one meal in the morning and night), representing 49.3% of respondents. This was attributed to lack of money (49.3%), followed by lack of food availability, time constraints, and inadequate cooking knowledge. Health issues (55.7%), academic performance decline (27.6%), and psychological stress (16.7%) were reported as reasons for irregular feeding. Airtime was primarily used for both making calls and buying data (60.7%), indicating a strong digital involvement among students. Interestingly, majority (82.5%) believed that reducing airtime expenses could positively impact their ability to afford better meals. The findings emphasize the relationship between phone usage and nutrition among students, highlighting the need for targeted interventions such as financial literacy, time management education, and food preparation skills to promote healthier eating habits in tertiary institutions.

Keywords: Mobile phone usage, feeding patterns, financial constraints, telecommunications, dietary habits, tertiary education

Article information

Received 8 March 2025

Accepted 20 April 2025

Published 30 April 2025

<https://doi.org/10.26765/DRJAFS14558243>

Citation: Adeoye-Agomoh, Q. C., and Ezenwa, H. C. (2025). Evaluation of Airtime Usage on the Feeding Pattern of Tertiary Students: A Case Study of Federal College of Agriculture, Ishiagu (FCAI), Ebonyi State, Nigeria. *Direct Research Journal of Agriculture and Food Science*. Vol. 13(1), Pp. xx-xxx.

This article is published under the terms of the Creative Commons Attribution License 4.0.

INTRODUCTION

Communication sustains human society through shared interactions, promoting peace, stability, and development across all areas of life (Adewale *et al.*, 2009; Dauda and Pate, 2015). With the world becoming a global village, telecommunication has become a crucial enabler of this process. Rapid innovations, such as the wireless Global System of Mobile communication (GSM), have revolutionized the sector. Communication drives

economies, with ICT now central to socio-economic progress in homes, organizations, and nations (Saba, 2024). In Nigeria, the deregulation of the telecom sector ended years of underdevelopment, allowing private operators like MTN, Airtel, Globacom, and Etisalat to thrive, with millions of subscribers (Chidozie *et al.*, 2015). GSM is now widespread across social classes, offering benefits such as affordability, accessibility, job creation,

entertainment, and national development (Enebeli, 2024). Segun *et al.* (2024) and Saba *et al.* (2024) noted that GSM is the fastest-growing communication system globally.

Food, an essential part of daily life, is influenced by both social and cultural factors (Carson, 2013). Time and money are major constraints to healthy eating among college students (Mishel *et al.*, 2013; Sogari *et al.*, 2018). The transition to university life exposes students to stress and time scarcity, leading to unhealthy habits like poor diets and substance use. These behaviours, though seen as temporary, often persist into adulthood. Environmental factors like fast food availability and lack of affordability further worsen students' dietary patterns (Anderson *et al.*, 2016; Almorai *et al.*, 2024). The physical and psychosocial changes in students make them nutritionally vulnerable (Cheikh Ismail, 2022). Unhealthy eating practices such as meal skipping, fast food consumption, and eating away from home are common (Birch, 2017). Feeding habits are shaped by cost, culture, and college lifestyle factors like stress, alcohol, and physical activity. Mackenbach *et al.* (2018) noted that reduced access to healthy food and the abundance of fast food contribute significantly. The school environment also impacts consumption patterns (Al-Nuaimi and Al-Ghamdi, 2022; Hawkins *et al.*, 2023). In Nigeria, many students prioritize spending on phones and data over food, compromising their nutrition (Lee and Lockheed, 2015; Victor-Aigbodion, 2024). Part of the reason for this could be for academic assessments. Poor eating habits thus pose significant public health and economic concerns. As students begin making independent food choices, affordability often shapes their diet (Adu *et al.*, 2009; Ogundele *et al.*, 2023). Applying the Health Belief Model, this study investigates the use of mobile phones on food consumption patterns among Tertiary students at Federal College of Agriculture Ishiagu, Ebonyi State, Nigeria.

METHODOLOGY

Research design

This study adopted a descriptive research design, which focused on analyzing data from a representative sample of the target population. This research was conducted within the Federal College of Agriculture, Ishiagu, Ebonyi State. The institution, commonly referred to as "FCA Ishiagu," is located in Ishiagu, Ivo Local Government Area, Ebonyi State, Nigeria. The study population of about 3000 comprising students enrolled in both the National Diploma (ND) and Higher National Diploma (HND) programmes at the Federal College of Agriculture, Ishiagu. A simple random sampling technique was used to select 359 participants from the study population using Cochran's Formula. This method ensured that each student has an equal chance of being selected, thereby enhancing the reliability and generalizability of the findings. The primary instruments for data collection in this study include

questionnaires and direct interviews. In analyzing the quantitative data, frequencies, simple percentages cross-tabulations of relevant variables were adopted to effectively interpret trends and relationships within the data.

RESULTS

The demographic characteristics of this study in (Table 1), with 55.8% male and 44.2% female respondents, align with national trends in Nigerian tertiary institutions. Similarly, National Bureau of Statistics (NBS, 2019), found similar results that undergraduate new entrants comprised 438,260 males (55.8%) and 346,999 females (44.2%), indicating a higher male enrolment. Regarding marital status, the study found that 80.8% of respondents were single and is consistent with other studies, such as on the living conditions of students in Southwest Nigeria which reported that 93.3% of respondents were single. These comparisons suggest that this study's demographic distribution reflects broader patterns observed in Nigerian tertiary institutions. There were no divorced or separated respondents, indicating that the majority of the respondents were single. The religious affiliation data from this study, indicating that 72.42% of respondents were Christians and 27.58% were Muslims, suggests a predominance of Christianity among the respondents. This distribution contrasts with national estimates, which generally show a more balanced or Muslim-majority population. For instance, a 2018 estimate by The World Fact book reported that Nigeria's population was approximately 53.5% Muslim and 45.9% Christian (CIA World Fact book, 2018; Minnesota Population Centre, 2019; McKinnon, 2021). Similarly, a 2019 report by the Pew Research Centre estimated the Muslim population at 50% and the Christian population at 48.1% (Pew Research Centre, 2019). Furthermore, a 2022 Afro barometer survey found that 54.2% of respondents identified as Christian, while 45.5% identified as Muslim (Afro barometer, 2022). This current figure could be as a result of geographical area. These variations highlight the complexity and regional diversity of religious affiliations in Nigeria. The higher proportion of Christian respondents in this study may reflect the specific demographics of the study area or institution, particularly if it is located in a predominantly Christian region. This underscores the importance of considering regional contexts when interpreting religious affiliation data in Nigeria.

Table 2 depicts the assessment of whether mobile phone usage affects students' feeding patterns, 266 respondents (74.2%) agreed that mobile phone usage affects their feeding patterns, while 93 respondents (25.8%) disagreed. This suggests that a significant majority believe mobile phone usage impacts their feeding habits. Similarly, a study by Shaun *et al.* (2022) found that adolescents with prolonged smartphone use (≥ 300 minutes/day) had higher rates of breakfast skipping and

Table 1: Socio-demographic information of the respondents.

Respondents	Frequency	Percentage (%)
Socioeconomic Characteristics of the Respondents		
Male	201	55.8%
Female	158	44.2%
Marital Status of the Respondents		
Single	290	80.78%
Married	69	19.22%
Divorced	-	-
Separated	-	-
Religion of the Respondents		
Christian	260	72.42%
Muslim	99	27.58%

Table 2: Information on the mobile phone usage

Mobile phone affect the feeding pattern of students in Federal College of Agriculture, Ishiagu		
Yes	266	74.2%
No	93	25.8%
What the airtime is used for		
Making calls	47	13.09%
Buying data for Browsing	84	23.40%
Both of them	218	60.73%
The impact of airtime usage on their food consumption pattern		
Yes	218	60.72%
No	141	39.28%
The extent of damage caused by mobile phone usage and airtime expenses among students		
Little damage(adverse effect)	63	17.55%
Moderate damage	87	24.23%
High damage	209	58.22%
Alternative for the use of airtime among the students		
Yes	260	72.42%
No	99	27.58%
Total	120	100%

increased consumption of instant noodles, fast food, and sugar-sweetened beverages. Students' allocation of their airtime usage indicates that 47 (13.09%) of the respondents primarily use airtime for making calls, 84 (23.40%) use it to buy data for browsing, and 218 (60.73%) strongly agreed that they use their feeding money to purchase data and make calls. This implies that the majority of respondents prioritize airtime expenditures for both calls and data over food, highlighting the effect of airtime usage on students' food consumption patterns. The findings reveal that 218 respondents (60.72%) agreed that airtime usage affects their food consumption pattern, while 141 (39.28%) strongly disagreed. Additionally, a study by Teo *et al.* (2018) observed that male adolescents engaged in text messaging consumed more palatable snacks compared to those reading articles on their phones. These findings align with the current study, indicating that extensive smartphone use can adversely affect dietary behaviours among students. This indicates that a greater proportion of respondents acknowledge a relationship between airtime usage and their feeding habits. Sixty-three (63) respondents (17.55%) agreed that mobile phone and airtime usage causes little damage to students, while 87 (24.23%) indicated the damage as moderate. Significantly, a majority of 209 respondents (58.22%) agreed that mobile phone and airtime usage has a high

impact on students. This suggests that most respondents acknowledge a considerable level of negative influence caused by mobile phone and airtime usage among students. Two hundred and sixty (260) respondents (72.42%) agreed that there are alternatives to airtime usage among students of the Federal College of Agriculture, Ishiagu, while 99 (27.58%) disagreed. This indicates that the majority of respondents acknowledge the availability of alternatives to airtime usage among FCAI students.

Table 3 shows that below quarter (20.9%) of the respondents eat squarely (morning, afternoon and night) while below average (49.3%) of them say that they eat only in the morning and night, 63 (17.6%) revealed that they only eat in the afternoon while 45 (12.5%) skip morning, afternoon and only eat at night. This implies that more of the respondents skip their afternoon meal i.e. they adopt the "1-0-1" food consumption pattern as students. Furthermore, result revealed that a quarter 177 (49.3%) of the respondents said that the lack of money was the reason why students chooses to derive the pattern of eating while 87 (24.2%) of the respondents replied that lack of food was the reason for the students to eat when they see food, also lack of time to prepare the food was the response of 39 (10.9%) of the respondents. Also 47 of the respondents with the percentage of 15.7% said that

Table 3: Food consumption pattern of students

Respondents	Frequency	Percentage
Current food consumption pattern as a student		
1-1-1	75	20.9%
1-0-1	177	49.3%
0-1-0	63	17.6%
0-0-1	45	12.5%
Reasons for current food consumption pattern as stated above		
Lack of money	177	49.3%
Lack of food	87	24.2%
Lack of time to prepare the food	39	10.9%
Lack of knowledge on how to prepare some food items	47	15.7%
Does current food consumption pattern affect them in anyway?		
Yes	278	77.4%
No	81	22.6%
How food consumption pattern affects them		
Health issue	200	55.7%
Academic performance	99	27.6%
Psychological	60	16.7%
Ways of adjusting current food consumption pattern for better		
Reduce expenses on airtime	170	47.4%
Make out time to prepare the food	99	27.6%
Provision of food items	69	19.2%
Acquire knowledge on how to prepare some food items	63	17.5%
Reduced expenses on airtime can consequently improve food consumption pattern		
Yes	296	82.5%
No	63	17.5%
Total	359	100

lack of knowledge on how to prepare some dishes was the reason for the students to be eating when they see food. This implies that majority of the respondents accepted lack of money to be their reason for skipping meal. Two hundred and seventy-eight (77.4%) of the respondents agree that their current food consumption pattern affects them while 81 (22.6%) disagrees that their current food consumption pattern does not affect them. This indicates that majority (77.4%) of the respondents said that their current food consumption pattern affects them.

DISCUSSION

The demographic distribution of respondents, as shown in (Table 1), indicates that males made up the majority of participants more than the females. Although gender differences may not directly influence dietary habits, studies have shown that male students are more likely to exhibit poor dietary patterns due to reduced attention to meal planning and reliance on fast food (Feraco *et al.*, 2024). The majority of the respondents were single, which is a significant factor influencing food consumption, as single students often experience food insecurity due to financial limitations and lack of knowledge of cooking. Religious affiliation plays a role in shaping dietary behaviours, as certain religions influence food choices and eating patterns (Major-Smith *et al.*, 2023). The findings show that Christianity (72.42%) was the major religion among respondents, followed by Islam (27.58%). Since both religions have fasting traditions, dietary restrictions may influence food choices and nutrient intake among

students (Major-Smith *et al.*, 2023). In (Table 2), the impact of mobile phone usage on students' feeding patterns is a critical concern in nutrition and health. A majority of the respondents (74.2%) agreed that mobile phone usage affects their feeding patterns. This is in line with recent studies that indicate high screen time, including mobile phone use, is associated with disordered eating behaviours, increased snacking, and meal skipping among (Barros, 2023) Excessive phone usage may interfere with regular meal timing, reduce mindful eating, and contribute to poor dietary choices, ultimately affecting overall nutritional status. The allocation of airtime usage among respondents shows that a significant proportion (60.73%) use their feeding money to buy data and make calls. This financial diversion towards mobile phone expenses can contribute to food insecurity and malnutrition, as students may prioritize non-food expenses over balanced meals (Ahmad *et al.*, 2021). The results further indicate that 60.72% of respondents acknowledged that airtime usage affects their food consumption pattern. This supports the argument that financial mismanagement among students can lead to inadequate nutrient intake and increased reliance on low-cost, nutrient-poor foods (Ukegbu *et al.*, 2019).

The extent of damage caused by mobile phone and airtime usage among students was perceived to be high by 58.22% of respondents. Research has shown that high mobile phone dependency is linked to increased stress levels, reduced physical activity, and poor sleep quality, all of which can negatively impact dietary habits and metabolism (Nikolic *et al.*, 2023). Increased screen time has also been associated with a higher risk of obesity and

metabolic syndrome due to sedentary behaviour and disrupted eating patterns (Michell, *et al.*, 2024). Interestingly, 72.42% of respondents agreed that alternatives to airtime usage exist among FCAI students. Alternative communication methods, such as campus-based Wi-Fi services and subsidized data plans, could help students allocate more financial resources to nutritious food purchases. Institutions should implement nutrition education programmes that emphasize budgeting skills and the importance of prioritizing food expenditure over non-essential expenses to enhance students' nutritional well-being (UNICEF-WFP, 2025).

The results in (Table 3) indicate that students at the Federal College of Agriculture, Ishiagu (FCAI), follow different food consumption patterns, with a majority (49.3%) adopting the "1-0-1" pattern—eating only in the morning and at night. This finding aligns with studies showing that meal skipping, particularly lunch, is common among students due to time constraints, financial difficulties, and lack of food availability (Feraco *et al.*, 2024). Research suggests that meal skipping can have significant implications for energy balance, cognitive function, and overall health, as missing a meal—especially lunch—can lead to decreased concentration, fatigue, and increased susceptibility to nutrient deficiencies (Zeballos and Todd, 2020; Rathakrishnan *et al.*, 2021). A reasonable portion of the respondents (17.6%) reported consuming only an afternoon meal ("0-1-0"), while 12.5% skipped both breakfast and lunch, eating only at night ("0-0-1"). Skipping breakfast has been widely associated with reduced academic performance and metabolic disruptions, including impaired glucose metabolism and increased risk of obesity (Ma *et al.*, 2020). Research further suggests that individuals who consume meals late at night may experience disruptions in their circadian rhythm, leading to poor digestion, weight gain, and altered lipid metabolism (Jakubowicz *et al.*, 2021). The meal frequency and timing patterns observed in this study could predispose students to nutritional inadequacies and long-term health risks.

The results highlight that financial limitations were the most significant determinant of students' food consumption patterns, with 49.3% of respondents stating lack of money as the primary reason for their eating habits. This finding is similar to previous studies that have linked financial insecurity to irregular meal consumption and poor diet quality among university students (Ukegbu *et al.*, 2019). Food insecurity in tertiary institutions has been recognized as a major barrier to proper nutrition, leading students to rely on inexpensive, energy-dense foods that lack essential nutrients, which may contribute to micronutrient deficiencies and diet-related diseases (Lopez *et al.*, 2023). Aside from financial issues, 24.2% of students attributed their irregular eating habits to a lack of food availability, which may be linked to food supply challenges within student environments. Limited access to diverse, affordable, and nutritious food is a major factor that shapes food choices among students, influencing their dietary patterns and nutritional health (Gherasim, 2020).

Additionally, 10.9% of the respondents reported lack of time to prepare meals as a reason for their eating habits, indicating that academic workload and tight schedules may prevent students from preparing home-cooked, balanced meals. This agrees with studies that have found a negative correlation between academic stress and students' dietary habits, with many students opting for fast food and ready-to-eat meals due to time constraints (Laska *et al.*, 2021). Furthermore, lack of knowledge on food preparation was stated by 15.7% of respondents as a reason for their current food consumption patterns. Inadequate culinary skills have been associated with increased reliance on processed and convenience foods, which often contain high levels of unhealthy fats, sugar, and sodium (Kohanmoo *et al.*, 2024). Nutrition education and cooking skill development programmes could help students improve their food choices, fostering better meal preparation habits and enhancing overall dietary quality (Colton and Nightingale, 2020).

Majority of the respondents accepted that their food consumption pattern affects them, which suggests that irregular meal patterns may be having reasonable impact on their health, well-being, and academic performance. Previous research highlights prove that meal skipping and inadequate nutrition can result in poor concentration, fatigue, mood disturbances, and weakened immune function (Almoraie *et al.*, 2024). Additionally, studies have shown that students experiencing food insecurity are more likely to report higher levels of stress, anxiety, and depression, further emphasizing the importance of staple food access for overall student well-being (Ikuemonisan, 2024). From the findings of this study, it is crucial to implement interventions aimed at improving students' nutritional status. Tertiary institutions and government agencies should consider policies that provide affordable meal plans, food subsidy programmes, and nutrition education to promote healthy eating behaviours among students. Encouraging budgeting skills, meal planning, and cooking literacy can also contribute to better dietary habits and overall well-being (Silva *et al.*, 2023).

Conclusion

This study reveals that mobile phone and airtime usage significantly impact students' feeding patterns at the Federal College of Agriculture, Ishiagu. A majority of respondents were male and single, factors linked to financial constraints affecting dietary habits. Religious affiliations, mainly Christianity (three quarter) and Islam (about a quarter of the population), may also influence eating patterns. A substantial population acknowledged that mobile phone usage affects their feeding habits, with more than average admitting they allocate feeding money to airtime and data. This financial diversion can lead to food insecurity, nutrient deficiencies, and poor health. Additionally, over half of the respondents agreed that airtime usage influences their food consumption, emphasizing the role of financial management in nutrition.

The study found that a little below average of students follow a "1-0-1" eating pattern (morning and night meals only), while minority eat only at night. Key factors include financial difficulties, food unavailability, time constraints, and lack of cooking skills. These contribute to meal skipping and inadequate nutrition. Moreover, majority reported that their food consumption patterns negatively affect them, with consequences such as decreased academic performance, fatigue, and nutrient deficiencies. Additionally, majority perceive mobile phone and airtime usage as having a high impact on their well-being, further exacerbating dietary challenges. To address these challenges, tertiary institutions and policymakers should implement interventions promoting financial management, nutrition education, and food security. Subsidized meal plans, financial literacy programmes, and cooking skill training could help students prioritize proper nutrition while balancing phone usage. These strategies are essential for improving dietary habits, health, and academic performance.

REFERENCES

- Adewale, A., Adewoyi, B. and Ogunla, K. (2009). *Fundamentals of Media Communication (Design Production and Utilization)*. Lagos: Ziklag Educational Publishers.
- Adu O. B., Falade A. M., Nwalutu E. J., Elemo B. O., and Magbagbeola O. A. (2009). Nutritional status of undergraduates in a Nigerian University in Southwest Nigeria. *International Journal Medicine and Medical Sciences*.2009; 1: 318- 324.
- Afrobarometer (2022). Religious Affiliation in Nigeria. https://en.wikipedia.org/wiki/Religion_in_Nigeria
- Ahmad, N., Shahnawaz, S K., and Alam, Z. (2021). Food Insecurity: Concept, Causes, Effects and Possible Solutions. *IAR Journal of Humanities and Social Science*, 2(1): 105-113. 10.47310/ijarjhss.v02i01.016.
- Almoaraie, N. M., Alothmani, N. M., Alomari, W. D., and Al-amoudi, A. H. (2024). Addressing nutritional issues and eating behaviours among university students: a narrative review. *Nutrition Research Reviews*, 1–16. Published online by Cambridge University Press. doi:10.1017/S0954422424000088
- Al-Nuaimi, S.R. and Al-Ghamdi, S.G. (2022). Sustainable Consumption and Education for Sustainability in Higher Education. *Sustainability*, 14 (12), 7255. <https://doi.org/10.3390/su14127255>
- Anderson, D. A., Shapiro, J. R., and Lundgren, J. D. (2016). The freshman year of college as a critical period for weight gain: An initial evaluation. *Eating Behaviours*, 4, 363–367.
- Barros, A.K.C., de Jesus, G.M., Vieira, G.O. and Dias, L. A. (2023). Use of screens and intake of unhealthy food among children and adolescents: association with physical activity in a cross-sectional study. *BMC Nutrition* 9, 104 (1):1-9. <https://doi.org/10.1186/s40795-023-00763-4>
- Birch, L. L. (2017). Development of food preferences. *Annual Review of Nutrition*, 19, 41–62.
- Carson, K. L. and Wenrich, T.R. (2013). Health and nutrition beliefs, attitudes, and practices of undergraduate college students: a needs assessment. *Clinical Nutrition*, 17:62-70.
- Cheikh Ismail, L., Osaili, T. M., Mohamad, M. N., Hashim, M., Stojanovska, L., Al Daour, R., Nader, D., Alrayis, H., Alzaabi, N. S., Elbarag, L., Binkhadim, S., Jarrar, A. H., Al Dhaheri, A. S., and Hasan, H. (2022). Psychosocial factors affecting dietary habits of university students: A cross-sectional study. *Heliyon*, 8(6), e09768. <https://doi.org/10.1016/j.heliyon.2022.e09768>
- Chidozie, F., Odunayo, L., and Ajayi, O. (2015). Deregulation of the Nigerian Telecommunication Sector: Interrogating the Nexus Between Imperialism and Development. *Academic Journal of Interdisciplinary Studies*. 4 (1), 173-184. 10.5901/mjss.2015.v4n1p173.
- CIA World Factbook (2018). Religion in Nigeria. https://en.wikipedia.org/wiki/Religion_in_Nigeria
- Colton, K. K., and Nightingale, L. M. (2020). Influence of cooking skills and nutritional training on dietary choices of incoming chiropractic students. *The Journal of Chiropractic Education*, 34(2), 156–163
- Danesh, K., Shashikala, J. and Umesh, N.D. (2020). Psychological Impact on the Eating Behaviors of University Students. *South Asian Journal of Social Studies and Economics*, 8, 132-141. 10.9734/SAJSSE/2020/v8i430225.
- Dauda, S. and Pate, U. (2015). Cross Cultural Communications, Peace Education and Development in Nigeria. *The Online Journal of Communication and Media* – January 2015, 1, (1), 11-16.
- Enebeli, J. P. (2024). Information and communication technology (ICT), globalization and impending challenges. *Global Journal of Pure and Applied Sciences*, 30(1), 95–100. <https://doi.org/10.4314/gjpas.v30i1.9>
- Farheen, Nureen, Z., and Tanveer F. (2018). A Study on Dietary Habits on College Students and to Create Awareness on Dietary Pattern among Adolescents. *International Journal for Research in Applied Science and Engineering Technology (IJRASET)*, 6(III), 1482-1489. www.ijraset.com. ISSN: 2321-9653.
- Feraco, A., Gorini, S., Camajani, E., Filardi, T., Karav, S., Cava, E., Strollo, R., Padua, E., Caprio, M., Armani, A., and Lombardo, M. (2024). Gender differences in dietary patterns and physical activity: an insight with principal component analysis (PCA). *Journal of translational medicine*, 22(1), 1112. <https://doi.org/10.1186/s12967-024-05965-3>
- Gherasim, A., Arhire, L. I., Niță, O., Popa, A. D., Graur, M., and Mihalache, L. (2020). The relationship between lifestyle components and dietary patterns. *The Proceedings of the Nutrition Society*, 79(3), 311–323. <https://doi.org/10.1017/S0029665120006898>.
- Hawkins, G., Chung, C., Hertz, M., Antolin, N. (2023). The School Environment and Physical and Social-Emotional Well-Being: Implications for Students and School Employees. *The Journal of school health*, 93 (9): 799-812. 10.1111/josh.13375.
- Ikuemonisan, E. S. (2024). Mediating effect of mental stress in the impact of food insecurity on academic performance of undergraduate students in Nigeria. *African Journal for the Psychological Study of Social Issues (AJPSSI)*, 27(2):137-175.
- Jakubowicz, D., Wainstein, J., Tsameret, S., and Landau, Z. (2021). Role of high energy breakfast "big breakfast diet" in clock gene regulation of postprandial hyperglycaemia and weight loss in type 2 diabetes. *Nutrients*, 13(5), 1558.
- Kohanmoo, A., Hashemzadeh, M., Teymouri, M., Zare, M. and Akhlaghi, M. (2024). Food insecurity is associated with low diet quality and unhealthy cooking and eating habits in Iranian women. *Journal of Health, Population and Nutrition*, 43(1), 10.1186/s41043-024-00533-3. ISSN: 2072-1315. 10.1186/s41043-024-00533-3.
- Kuhnlein, H. V., Erasmus, B., and Spigeliski, D. (2020). Indigenous peoples' food systems and well-being: Interventions and policies for healthy communities. *FAO*.
- Laska, M. N., Lenk, K., Lust, K., McGuire, C. M. Porta, C. M. and Stebleton, M. (2021). Sociodemographic and health disparities among students screening positive for food insecurity: Findings from a large college health surveillance system. *Preventive Medicine Reports*, 21, 101297. ISSN 2211-3355. <https://doi.org/10.1016/j.pmedr.2020.101297>. (<https://www.sciencedirect.com/science/article/pii/S2211335520302552>)
- Lee, V.E. and Lockheed, M.A. (2015). The effects of mobile phones on achievement and attitudes of undergraduates in Nigeria. *Comparative education review* (34)2: 209-321.
- Lopes, S. O., Abrantes, L. C. S., Azevedo, F. M., Morais, N. S., Morais, D. C., Gonçalves, V. S. S., Fontes, E. A. F., Franceschini, S. D. C. C., and Priore, S. E. (2023). Food Insecurity and Micronutrient Deficiency in Adults: A Systematic Review and Meta-Analysis. *Nutrients*, 15(5): 1–14, 1074. <https://doi.org/10.3390/nu15051074> .
- Ma, X., Chen, Q., Pu, Y., Guo, M., Jiang, Z., Huang, W., Long, Y., and Xu, Y. (2020). Skipping breakfast is associated with overweight and obesity: A systematic review and meta-analysis. *Obesity research and clinical practice*, 14(1), 1–8. <https://doi.org/10.1016/j.orcp.2019.12.002>

- Mackenbach, J., Charreire, H., Glonti, K., Bárdos, H., Rutter, H., Compennolle, S., Bourdeaudhuij, I., Nijpels, G., Brug, J., Oppert, Jean-M., and Lakerveld, J. (2018). Exploring the Relation of Spatial Access to Fast Food Outlets with Body Weight: A Mediation Analysis. *Environment and Behaviour*, 51(4). 001391651774987. 10.1177/0013916517749876.
- Major-Smith, D., Morgan, J., Emmett, P., Golding, J., Northstone, K. (2023). Associations between religious/spiritual beliefs and behaviours and dietary patterns: analysis of the parental generation in a prospective cohort study (ALSPAC) in Southwest England. *Public health nutrition*, 26(12), 2895–2911. <https://doi.org/10.1017/S1368980023001866>
- McKinnon, A. (2021). Christians, Muslims and Traditional Worshipers in Nigeria: Estimating the Relative Proportions from Eleven Nationally Representative Social Surveys. *Review of Religious Research*. <https://doi.org/10.1007/s13644-021-00450-5> 1 3
- Michelle, I-Hsuan L., Sefa, A. C. and Klaus, A. (2024). The fattening speed: Understanding the impact of internet speed on obesity, and the mediating role of sedentary behaviour. *Economics and Human Biology*, 55, 101439, ISSN 1570-677X. <https://doi.org/10.1016/j.ehb.2024.101439>.
- Minnesota Population Centre (2019). Integrated Public Use Microdata Series, International: Version 7.2 "Nigeria General Household Survey 2010–2011". Minneapolis, MN: IPUMS. <https://doi.org/10.18128/D020.V7.2>
- Mishel, L., Schmitt, J., and Shierholz, H. (2014). Wage Inequality: A Story of Policy Choices. *New Labour Forum*. 23. 26-31. 10.1177/1095796014544325.
- National Bureau of Statistics (NBS) (2019). There are more males in Nigerian tertiary institutions – NBS. <https://newswirengr.com/2022/05/01/there-are-more-males-in-nigerian-tertiary-institutions-nbs>
- Nikolic, A., Bukurov, B., Kocic, I., Vukovic, M., Ladjovic, N., Vrhovac, M., Pavlović, Z., Grujicic, J., Kisic, D. and Sipetic, S. (2023). Smartphone addiction, sleep quality, depression, anxiety, and stress among medical students. *Frontiers in public health*, 11, 1252371. <https://doi.org/10.3389/fpubh.2023.1252371>
- Ogbuoshi C. L. (2015). Assessing the Cost Implication of Using GSM By Undergraduate Students In Nigeria: A Case Study Of ESUT Students.9: 119-132.
- Ogundele, A., Aleru, O. E., Ifeoluwa, O. B. and Gbenro, O. E. (2023). Drivers of food choice, meal pattern, and lifestyle habits among undergraduate students in Lead City University, Ibadan, Oyo State, Nigeria. *World Nutrition*. 14 (2). 66-78. 10.26596/wn.202314266-78.
- Pew Research Centre (2019). Religious Composition of Nigeria. https://en.wikipedia.org/wiki/Religion_in_Nigeria
- Rathakrishnan, B., Bikar Singh, S. S., Kamaluddin, M. R., Yahaya, A., Mohd Nasir, M. A., Ibrahim, F., and Ab Rahman, Z. (2021). Smartphone Addiction and Sleep Quality on Academic Performance of University Students: An Exploratory Research. *International Journal of Environmental Research and Public Health*, 18(16), 8291. <https://doi.org/10.3390/ijerph18168291>.
- Saba, C.S., Ngepah, N. and Odhiambo, N.M. (2024). Information and Communication Technology (ICT), Growth and Development in Developing Regions: Evidence from a Comparative Analysis and a New Approach. *Journal of the Knowledge Economy*, 15 (3), 14700–14748. <https://doi.org/10.1007/s13132-023-01571-8>
- Seun, R. and Jang, H. and Oh, H. (2022). Smartphone Usage Patterns and Dietary Risk Factors in Adolescents. *The Journal of Nutrition*. 152 (5). 10.1093/jn/nxac098.
- Segun, A., Zhang, B., Mary, A. M., Kibenja, D., Ma, J., Said, S., Adeniyi, I., and Barrow, L. F. (2024). Exploring the relationship between dietary patterns and obesity among Nigerian adults: a cross-sectional study. *BMC public health*, 24(1), 1319. <https://doi.org/10.1186/s12889-024-18792-4>
- Silva, P., Araújo, R., Lopes, F., and Ray, S. (2023). Nutrition and Food Literacy: Framing the Challenges to Health Communication. *Nutrients*, 15(22):1-25. 4708. <https://doi.org/10.3390/nu15224708>
- Sogari, G., Velez-Argumedo, C., Gómez, M. I., and Mora, C. (2018). College Students and Eating Habits: A Study Using an Ecological Model for Healthy Behaviour. *Nutrients*, 10(12), 1823. <https://doi.org/10.3390/nu10121823>
- Teo, E., Goh, D., Vijayakumar, K. M., and Liu, J. C. J. (2018). To Message or Browse? Exploring the Impact of Phone Use Patterns on Male Adolescents' Consumption of Palatable Snacks. *Frontiers in psychology*, 8, 2298. <https://doi.org/10.3389/fpsyg.2017.02298>
- Ukegbu, P., Nwofia, B., Ndudiri, U., Uwakwe, N., and Uwaeqbute, A. (2019). Food insecurity and associated factors among university students. *Food and Nutrition Bulletin*, 40(1), 271-281. doi:10.1177/0379572119826464
- UNICEF. (2022). Adolescent nutrition: A review of policies and programs. United Nations Children's Fund.
- UNICEF-WFP (2025). Accelerating progress for school age children and adolescents through integrated school health and nutrition programming A UNICEF-WFP collaboration in Eastern and Southern Africa. United Nations Children's Fund.
- Victor-Aigbodion, V. (2024). A Cross-Sectional Survey of Eating Self-Efficacy in Nigerian University Students. *International Journal of Home Economics, Hospitality and Allied Research*, 3(1): 365-377. DOI: <https://doi.org/10.57012/ijhr.v3n1.028>
- Zeballos, E. and Todd, J. (2020). The effects of skipping a meal on daily energy intake and diet quality. *Public Health Nutrition*, 23 (18), 1-10. 10.1017/S1368980020000683.