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Utilization of Common and Lesser-Known Vegetables for Human Diet among Women in Oyo West Local Government Area of Oyo State

Adefunke Taiwo Adebimpe[1], Stella Oyenike Oyewo[1], Adijat Wuraola Lhameed[2], Patience Abosede Olunusi[3]*

[1]Emmanuel Alayande University of Education, Nigeria
[2]Oyo State College of Agriculture and Technology, Nigeria
[3]Tai Solarin University of Education, Nigeria

*Correspondence: E-mail: funketaiwo29@gmail.com

ABSTRACT

Background: Green leafy vegetables are of great nutritional value and constitute greatly to human diet. However, studies showed that some vegetables are lesser-known despite their nutritional value.

Research Methods: This study was designed to determine the level of consumption of lesser known and common vegetables among women of child bearing age in Oyo west LGA, Oyo state. The research adopted descriptive design of the survey type and was guided by three research objectives. The population comprises of mothers in Oyo west Local Government Area of Oyo state. One hundred and fifty (150) women were selected using simple random sampling technique from targeted population. The instrument used for the data collection was structured questionnaire. Data were analyzed using simple percentage.

Research Result: The findings showed that the following lesser-known vegetables Lactuca capensis (yanrin), solonum amenicainum (odu) cassava leaf (manihot esculenta) were not frequently consumed despite their nutritional value.

Conclusion: The reasons for non-consumption of these lesser-known were given largely based on negative views expressed by residents of their communities towards these vegetables. And nutritional contents of lesser-known vegetables should be given as health talks in out-patient clinics in hospitals in view of encouraging patients to consider them and as publicity for these vital vegetables was primarily recommended.

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1. INTRODUCTION

Edible plant portions, vegetables are often prepared before being consumed by humans along with other foods. Some are also used as fodder crops for domesticated animals. It includes seeds like pulses but excludes other plant-based foods including fruits, nuts, and cereal grains. Because of their many culinary uses and unmatched nutritional value, green leafy vegetables are valued parts of diets all across the world (Aslam et al., 2020). Because they are the primary source of micronutrients in the diet, aside from fruits, leafy vegetables are a crucial category in food-based approaches and may help to greatly reduce the burden of "hidden hunger." Also, they can be used to boost dietary diversity and quality to achieve sustainable healthy diets, which benefits everyone within the food system (Ejoh, et al., 2019).

Vegetables, one of the most important food groups in Nigerian diets, and they vary greatly depending on the area. They used to be more common, and Nigerians, particularly those living in rural areas, ate a lot of different green leafy vegetables (Ejoh et al., 2019). However, the variety of vegetables consumed has decreased recently, as seen by the over-reliance on a few number of green leafy vegetable species that make up the majority of people's diets. Many traditional green vegetables are being overlooked, particularly the wild and uncultivated varieties, many of which are regrettably considered weeds. They continue to fall into disuse because to date they have received less attention than cultivated ones yet they have vital nutrients for humans.

According to USAID (2018), stunting, or decreased growth owing to malnutrition, affects an estimated 37% of children under the age of five (5). In Nigeria, the prevalence of stunting rises with age, reaching a peak of 46% among children aged 24 to 35 months. An estimated 512,000 pregnant and lactating women in Nigeria likely experienced acute malnutrition through April 2023 and required treatment, while an estimated 5.93 million children under the age of five likely experienced acute malnutrition between May 2022 and April 2023, including 1.6 million severely malnourished individuals who required treatment (Food and Agriculture Organization, 2023). In Nigeria, hidden hunger is a third burden of disease, in addition to undernutrition and overnutrition, which now make up the double burden of disease. Iron and vitamin A deficiency (VAD) continue to be major public health issues in Nigeria, especially in the country's rural areas. Depending on the area, the prevalence of vitamin A insufficiency in Nigerian children under five ranges from 5.3% to 29.5% (Adamu, Jiya, & Ahmed, 2016). Green leafy vegetables that are easily accessible and widely available could improve the micronutrient quality of poor diets, particularly for groups that lack access to animal-based foods due to financial constraints (Icard-Vernière, Olive, & Picq, 2015).

The uncultivated and wild species of vegetables which are largely regarded as weeds continue to receive less attention than cultivated ones yet they have vital nutrients for humans. Thus, this study assessed the utilization or consumption of lesser-known and common vegetables among women in Oyo West Local Government Area of Oyo state.

Specifically, the study sought to:

a. Assess the frequency of consuming lesser-known vegetables among women in Oyo West Local Government Area of Oyo state.
b. Assess the frequency of consuming common vegetable among women in Oyo West Local Government Area of Oyo state.
c. Investigate reasons for not taking lesser-known and common vegetables among women in Oyo west local government area of Oyo state.

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1.1. Literature Review

Vegetables are edible parts of the plants which are usually cooked before consumption with other foods for humans and some as fodder crops for domesticated animals. In order to determine the trend in fruit and vegetable intake before, during, and after the implementation of a set of nutrition-sensitive food system interventions addressing accessibility, affordability, and acceptability to increase fruit and vegetable consumption over a one-year period in low-income urban and periurban females in Vietnam and Nigeria, Pastori et al. (2023) used the Diet Quality Questionnaire to assess fruit and vegetable food group consumption among 600 Vietnamese (Hanoi) and 610 Nigerian (Ibadan) females. The fruit and vegetable score remained constant over time, with a little rise noted following the intervention period, particularly in urban Vietnam and Nigeria. Periurban, Vietnam showed a decline in the overall score. Variations in the likelihood of consuming specific fruit and vegetable groups over time were noted, particularly within the fruit categories, most likely as a result of seasonal availability. The researchers came to the conclusion that during the interventions, the percentage of females in both countries who ate fruit and vegetables increased slightly.

In a study by Sirfan, et al., (2020) examining the consuption of fruits and vegatable by female students of International Islamic University Malaysia, Kuantan. The data suggest that majority of students eat only one serving of fruit and vegetable per day, which is less than the levels recommended by the Malaysian Dietary Guideline. Just 9.0% of students consumed two servings of fruits daily, and 6.5% consumed three servings of vegetables daily, which is the recommended amount. Fruit and vegetable consumption were shown to be significantly hampered by their lack of availability and lack of flavor, respectively. In conclusion, it was discovered that most female university students did not consume enough fruits and vegetables. The researchers' approach was quantitative.

According to a population-based descriptive cross-sectional survey of 368 pregnant women between the ages of 15 and 49, conducted in Patani L.G.A., Delta State, Okogba, et al., (2023), 221 (60.1%) of the respondents agreed that a maternal diet high in vegetables during pregnancy lowers the risk of gestational diabetes, hypertension, preterm birth, and fetal growth restriction. The three most readily available vegetables in the respondent's community were water leaf 151 (41.0%), bitter leaf 173 (47.0%), and ugau leaf 257 (69.8%). In the seven days before the survey, 19.9% of the respondents did not eat any vegetables, 26.6% ate them seven times, and 13.9% ate them three times. The researchers concluded that vegetable consumption is highly nutritious especially during pregnancy. And this established a high rate of consumption by women in Delta state.

According to Okyere et al. (2023), Ghanaian women consumed 13.1% of the required amount of fruits and vegetables as advised by the World Health Organization. This was mentioned in a study that looked at the relationship between Ghanaian women's risk of hypertension and their intake of fruits and vegetables. Stata version 14 was used to conduct bivariate and multivariate logistic regression analysis. According to the study's findings, there is no meaningful correlation between Ghanaian women's risk of hypertension and their intake of fruits and vegetables.

In a research including women between the ages of 18 and 40 who were of reproductive age, In a qualitative study, Kehoe et al. (2019) found that mothers were aware of the health benefits of fruits and vegetables and indicated a desire to increase their consumption for both themselves and their children. Additionally, the researchers observed that a number of factors influence the consumption of fruits and vegetables by Indian women of reproductive age, including: (1) Personal factors; women's preferences for particular foods; for example,

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wild green leafy vegetables were widely available and grew abundantly in the area, but they claimed that members of their communities viewed them as "dirty" or "poor people's food." 2) Household dynamics: women stated that their husbands or their mothers and fathers-in-law made choices regarding their diet. (3) Social and Cultural Norms: Women discussed how it was customary for males to purchase at the market and, as a result, decide what foods were eaten in the home. (4) Workload: Women reported that their daily activities had an impact on their appetite for certain items, such as fruits and vegetables. (5) Time constraints: The women's daily schedule included a significant amount of time spent at work and traveling to the farm for work. (6) Environmental elements, such as the time of year. Fruit and vegetables were said to be scarce, costly, and frequently of low quality throughout the summer. (7) Cost; women stated that cost was a major factor in terms of the fruit and vegetables they consumed. The foregoing evidenced by Kehoe, et al., (2019) established that women consumed more of common vegetables than lesser-known or wild vegetables, as they classed them as food for lower class in society or for the poor.

1.2. Research Gap

The reviewed literatures expressly justified the consumption of fruits and vegetables by women of child bearing age. The forgoing literatures revealed women in higher institutions, pregnant women, women in middle- and low-income countries and all women of child bearing age do consume vegetables. And there are multiple factors affecting fruit and vegetable consumption among women which includes personal, cultural, social, environmental, cost among others. This study is a contribution to the body of knowledge by assessing the utilization or consumption of specific lesser-known and common vegetables among women in Oyo West Local Government Area of Oyo state.

2. METHODS

2.1. Research Method

This study adopted a quantitative method – Primary data was collected for analysis in fulfillment of the study objectives. Women of child bearing age were selected randomly from Oyo West Local Government Area of Oyo State. Survey questionnaires were administered in person. This study also adopted a positivism philosophy- methodical approach results from positivism's emphasis on a well-defined framework for research, which includes data analysis and empirical experimentation, it facilitates the formulation of trustworthy and broadly applicable conclusions.

2.2. Research Strategy

An open and closed-ended questionnaire was designed. The study consisted of One hundred and fifty (150) women selected randomly from Oyo West Local Government Area of Oyo State. Women were considered for this study because they are typically responsible for managing the household, including cooking in the Yoruba culture (Muraina & Ajímátanraẹjẹ, 2022) thus, vegetables is routine in the preparation of family meals.

2.3. Data Collection

Primary data was collected through the survey questionnaire designed in reflection of the research objectives. The questionnaires consist of two sections; section A on socio-demographic characteristics while section B was based on research objectives. Data collected includes information that was helpful in satisfying the research aim.

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2.4. Ethical Consideration

Every appropriate approval was requested and was granted. The knowledge of senior colleagues was sought prior to the primary data gathering exercise through interviews. Then all recommended corrections were implemented. The inclusion, exclusion criteria and all other necessary terms and conditions were stated in the preamble of the survey questionnaire for participants consent. Also, participants autonomy, informed consent and confidentiality would be maintained. Data will be anonymized and securely stored to protect participants' identities during data collection.

2.5. Method of Data Analysis

The data was entered into a spreadsheet of the Microsoft Excel and exported to the Statistical Package for Social Sciences (SPSS) to perform descriptive analyses on the various study variables based on the research objectives. Descriptive statistics was presented using tables, and proportions (%) whenever appropriate.

2.6. Vegetables Considered for This Study

The following vegetables were considered based on the findings from the field survey, as they were mentioned at once by respondents in the area of study.

Lesser-Known Vegetables	Common Vegetables
Ebolo (Crassocephalumrubens)	Ewedu (Corchorus olitorious)
Yanrin (Launaenchtaraxacifolia) wild lettuce	Tete (amaranthus hybridus)
Worowo	Igbo (solanurn macrocarpon Gbogbo) African egg plant
Amunututu (Basella alba)	Ugwu (telferiaoccidentails)
Odu (Solanum americanum)	Ewuro (venonia amygdalina)butter leaf
Osun (Solanum acthiopicum)	Okro (abelmoschus esculentus)
Ilasa (Okroleaf) (Abelmoschus esculentus)	Soko (celosia argentea)
Cassava leaf (Manihot esculenta)	Gbure (talinum triangulare)water leaf
Ajefawo (Celosia leptostachya)	
Eku (Brachystegiaeurycoma)	

3. RESULTS AND DISCUSSION

3.1. Result

Table 1. Frequency of Consumption of Lesser-Known Vegetables

S/N	Common Vegetables and Their Botanical Name	Never		Once in six Month		Once a Month		Once a Week	
		Freq	%	Freq	%	Freq	%	Freq	%
1.	Ebolo (*Crassocephalumrubens)*	25	16.7	56	37.3	51	34.0	18	12.0
2.	Yanrin (*Launaenchtaraxacifolia) wild lettuce*	80	53.3	40	26.7	16	10.7	14	9.3
3.	Worowo	46	30.7	71	47.3	16	10.7	17	11.3
4.	Amunututu (*Basella alba)*	13	8.7	77	51.3	25	16.7	35	23.3
5.	Odu (*Solanum americanum)*	74	49.3	30	20.0	26	17.3	20	13.3
6.	Osun (*Solanum acthiopicum)*	71	47.3	55	36.7	19	12.7	5	3.3
7	Ilasa(Okroleaf) (*Abelmoschus esculentus)*	24	16.0	82	54.7	27	18.0	17	11.3
8.	Cassava leaf (*Manihot esculenta)*	113	74.3	9	6.0	22	14.7	6	4.0
9.	Ajefawo (*Celosia leptostachya)*	39	26.0	44	29.3	51	34.0	16	10.7
10.	Eku (*Brachystegiaeurycoma)*	34	22.6	37	24.7	46	30.7	33	22.0

Source: Field Survey, 2019

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Result from Table 1 shows that 16.7% never ate Ebolo, 37.3% ate Ebolo once in six months, 34% ate Ebolo once a month while 12% ate Ebolo once a week. A little above average (53.3%) never ate Yanrin and 26.7% ate Yanrin once in six months while 10.7% ate Yanrin once in a month, and 9.3% ate Yanrin once a week. Worowo vegetable was never eaten by 30.7% of the women and 47.3% ate it occasionally while 10.7% ate it once in a month. A small proportion (8.7%) of the respondents never ate Amunututu and 51.3% ate it occasionally while 16.7% ate it once a month and 23.3% ate Amunututu once a week. A little below average (49.3%) of the women never aye Odu and 20% of the women ate Odu occasionally, whereas17.3% ate Odu once a month and 13.3% ate Odu once a week. Less than half (47.3%) of the respondents never ate Osun and 36.7% ate Osun occasionally, whereas 12.7% ate Osun once in a month and 3.3% of the women are Osun once in a week.

Ilasa was never consumed by 16.0% of the women and more than half (54.7%) of the women consumed it occasionally, however, 18.0% of the women ate Ilasa once a month and 11.3% consume Ilasa once in a week. Majority (15.3%) of the women had never consumed cassava leaf and 6.0% consumed cassava leaf once in a week. A little above a quarter (26.0%) of the respondents had never tasted Ajefawo and 29.30% of the respondents consume Ajefawo once in a month and 40.7% of the respondents consumed it once a week. Eku was never consumed by 22.7% of the women whole it was consumed by 24>7% of the women occasionally. However, 30.7% of the women consumed Eku once in a month and 22.0% of the respondents consume Eku once in a week.

Table 2: Frequency of Consumption of Common Vegetables

S/N	Common vegetables and their botanical name	Frequency of consumption			
		Never Freq (%)	Once in a six Month Freq (%)	Once a Month Freq (%)	Once a Week Freq (%)
1.	Ewedu (*Corchorus olitorious)*	5(3.3)	31(20.7)	2(1.3)	112(74.7)
2.	Tete (*amaranthus hybridus)*	10(6.7)	34(22.7)	31(20.7)	75(50.0)
3.	Igbo (solanurn macrocarpon Gbogbo) African egg plant	21(140)	51(34.0)	51(34.0)	27(18.0)
4.	Ugwu (telferiaoccidentails)	3(2.0)	55(36.7)	53(35.3)	39(26.0)
5.	Ewuro (venonia amygdalina) butter leaf	12(8.0)	47(31.3)	61(40.7)	30(20.0)
6.	Okro (abelmoschus esculentus)	18(12.0)	38(25.3)	26(17.3)	68(45.3)
7.	Soko (celosia argentea)	11(7.3)	28(18.7)	34(22.7)	77(51.3)
8.	Gbure (talinum triangulare) water leaf	4(2.1)	43(28.7)	67(44.7)	36(24.0)

Source: Field survey, 2019

Results from Table 2 shows that 3.3% never consumed Ewedu, 20.7% consumed occasionally, 1.3% consumed Ewedu once in a month whole 74.7% consumed Ewedu once a week. 6.7% of the respondents never consumed green vegetables, 20.7% consumed green vegetables a week. 14% never consumed Igbo vegetables 34% consumed Igbo occasionally, 34% consumed Igbo once a month while 18% consumed Igbo once in a week. Ugwu vegetable was never consumed by 2%, 36.7% consume Ugwu occasionally, 35.3% consumed Ugwu once a month whole 26% consumed Ugwu once a week, 8% of the respondents never consumed Ewuro, 31.3% consumed Ewurooccasionally, 40.7% consumed Ewuro once a month while 20% consumed Ewuro once a week. For Okro (Ila) 12% never consumed Okro, 25.3% consumed Okro occasionally, 17.3% consumed Okro once a month while 45.3% consumed Okro once a week. For Soko vegetable, 7.3% never consumed Soko vegetable, 18.7% consumed Soko

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occasionally, 22.7% consumed Soko once a month whole 51.3% consumed Soko once a week, 2.7% of the respondents never consumed Gbure vegetables, 28.7% consumed Gbure occasionally, 44.7% consumed Gbure once a month while 24% consumed Gbure once a week.

Table 3. Reasons for not Eating above Lesser-Known Vegetables

S/N	Reasons	Yes		No	
		Frequency	(%)	Frequency	(%)
1	I have no taste for them	75	50.0	75	50.0
2	Not readily available	65	43.3	85	56.7
3	Too expensive	39	26.0	111	74.0
4	For health reasons	60	40.0	90	60.0
5	Other people in my locality don't eat	68	45.3	82	54.7
6	Others	61	40.7	89	59.3

Results from Table 3 shows that 50% agreed that they have no taste for eating some lesser-known vegetables 43.3% confessed that vegetables are not readily available in their environments, 26% said that vegetables are expensive for them to buy while 60.0% gave health reasons for not taking vegetables. 54.7% did not take the lesser-known vegetables because of other people in their locality.

3.2. Discussion

The findings of the study revealed that majority of respondents do not eat lesser-known vegetables. Result shows that some of the lesser-known vegetables were not frequently consumed 53.3%, 49.3% and 75.3% never ate Yanrin (lactuca capensis), Odu (solanum amenicannum) and cassava leaf (manihot esculenta) respectively. The findings are constant with the study by Ayinde et al 2016, which found neglected vegetables as indigenous vegetables that are rich sources of phytochemicals and possess significant medicinal attributes which are useful for human health. The findings also corroborate with the results of Kehoe, et al., (2019) which showed that women neglected wild and lesser-known vegetables which they considered 'dirty' or 'poor people's food.

Findings from Table 2 revealed frequency consumption of common vegetables by women resident in Oyo West Local Government Area of Oyo State. They frequently consume Ewedu, Tete, Ugwu, Okro, Soko, Bitter leaf, and Gbure (water leaf) as these are common vegetables in the area. This finding is in confines of the findings of Okogba, et al., (2023) which revealed that Ugu leaf 257 (69.8%), Bitter leaf 173 (47.0%) and water leaf 151 (41.0%) were the most available vegetable in the respondent's community.

Also, the findings showed that 50% agreed that they have no taste for eating some lesser-known vegetables. 54.7% did not take the lesser-known vegetables because of other people in their locality. And this corroborates with the findings of Kehoe, et al., (2019) there are multiple factors affecting vegetable consumption among women of reproductive age in which includes personal factors which he stated that women's own likes and dislikes of certain foods, for instance, wild green leafy vegetables grew abundantly locally were considered 'dirty' or 'poor people's food' in their communities. They also revealed that women appetite for some foods including fruit and vegetables was affected by the daily activities they performed.

4. CONCLUSION

This study being an assessment of the consumption of lesser-known and common vegetables among women in Oyo West Local Government Area of Oyo state aimed at contributing to the body of knowledge concludes that; Women in Oyo West Local Government

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Area of Oyo state do not consume lesser-known vegetables as they consume common vegetables, this due to the pre determined views on these vegetables as not popular and dislike without considering the nutritional content of these lesser-known vegetables. Also, due to their immediate communities negative views on these vegetables without fact. Various reasons were given for not consuming the lesser-known vegetables, these include non-availability. Women frequently consume common vegetables are they a popular and readily available in local markets and shops.

Based on the findings and conclusion above, the following are recommended, the nutritional contents of lesser-known vegetables should be given as health talks in out-patient clinics in hospitals in view of encouraging patients to consider them and as publicity for these vital vegetables. The government could make a policy in the ministries of health both in Oyo state and the federal level of government. Entrepreneurs with interest in vegetables should explore all vegetables with vital nutritional content and invest in publicity of all vegetables. Also, educational institutions of higher learning should consider same frequency of teachings for all vegetables with vital contents either lesser-known or commonly known.

Sensitization campaigns should be considered by relevant government and non-governmental organizations in educating local communities of the nutritional contents these neglected variety of vegetables regarded as lesser-known for a nutritious diet daily.

5. REFERENCES

Adamu, A., Jiya, N., & Ahmed, H. (2016). Prevalence of Vitamin A deficiency among malnourished children in Usmanu Danfodiyo University Teaching Hospital, Sokoto, Northwestern Nigeria. *Pakistan Journal of Nutrition*, 15(9): 821-828.

Aslam, T. M., Jamshaid, I., Ashraf, K., Zaidi, F., Khalid, S., & Noureen, S. (2020). Health benefits and therapeutic importance of green leafy vegetables (GLVs). *European Academic Research,* 8(7): 4213-4229.

Ejoh, S. I., Wireko-Manu, F. D., Page, D., & Renard, C. M. (2019). Traditional green leafy vegetables as underutilised sources of micronutrients in a rural farming community in south-west Nigeria II: consumption pattern and potential contribution to micronutrient requirements. *South African Journal of Clinical Nutrition*, 46-51. https://doi.org/10.1080/16070658.2019.1652964

Food and Agriculture Organization. (2023). *IPC Acute Malnutrition- May 2022 - April 2023*. Rome: United Nations Food and Agriculture Organization.

Icard-Vernière, C., Olive, F., & Picq, C. (2015). Contribution of leafy vegetable sauces to dietary iron, zinc, vitamin a and energy requirements in children and their mothers in Burkina Faso. *Plant Foods for Human Nutrition*, 70(1): 63-70.

Kehoe, S., Dhurde, V., Bhaise, S., Kale, R., Kumaran, K., Gelli, A., et al. (2019). Barriers and facilitators to fruit and vegetable consumption among rural Indian women of reproductive age. *Food and Nutrition Bulletin*, 87–98.

Muraina, L. Ọ., & Ajímátanraẹjẹ, A. (2022). Gender relations in indigenous Yorùbá culture: Questioning feminism action and advocacy. *Third World Quarterly*, 44(9): 2031–2045. Doi: https://doi.org/10.1080/01436597.2023.2213171

Okogba, L., Moyegbone, J., & Adjene, J. (2023). Pattern of vegetable consumption among pregnant women attending primary health care facilities in Patani Local government area of Delta State, Nigeria. *European Journal of Nutrition & Food Safety* , 98-108.

Okyere, J., Ayebeng, C., Owusu, B. A., & Dickson, K. S. (2023). Fruits and vegetable consumption, and its association with hypertension among women in Ghana: a cross-sectional study. *Public Health Nutrition*, 27(1): e19. Doi: 10.1017/S1368980023002896

DOI: https://doi.org/10.17509/jafn.v6i2.84602
p- ISSN 2797-068X e- ISSN 2797-0698

Pastori, G., Brouwer, I., Siemonsma, M., Verhoef, H., Huong, L. T., Xuan, T. T., et al. (2023). Fruit and vegetable intake of females before, during, and after introduction of 3 bundled food system interventions in urban Vietnam and Nigeria. *Current Developments in Nutrition,* 8(1):102050. Doi: 10.1016/j.cdnut.2023.102050.

Sirfan, A., Hamirudin, A. H., & Sidek, S. (2020). Assessment of fruit and vegetable consumption among female university students. *Food Research*, 1451-1460.

USAID. (2018). Nigeria: *Nutrition Profile* . Washington, D.C.: USAID.

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