

ASSESSMENT OF THE CONSUMPTION PATTERN OF FRUITS AND VEGETABLES AMONG SECONDARY SCHOOL STUDENTS IN DELTA STATE, NIGERIA

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Abstract

This study assessed consumption pattern of fruits and vegetables among secondary school students in Delta State, Nigeria. Two research questions were answered by the study while two hypotheses were tested. The study adopted descriptive survey research design. The population for the study was 46,286 Senior Secondary School (SSS) II Students. Multistage random sampling technique was used to determine the sample size of 384 SSS II students for the study. The instrument for data collection was structured questionnaire face-validated by four experts while reliability of the instrument achieved using Cronbach Alpha reliability technique which yielded reliability coefficients of 0.91 and 0.88 for Parts B and C of the questionnaire respectively. Data were analysed using Mean and t-test statistics. The results showed that the students

“Often” consumed Fruits and Vegetables. Fruits such as Oranges, Banana, Pawpaw, African star apple (udala) are highly preferred among students while Vegetables such as Carrot, Fluted pumpkin leaf (ugu), Tomatoes and Water leaf are more preferred by the students. There was significant ($p < 0.05$) difference between the mean ratings of Male and Female Students on consumption pattern of Fruits and Vegetables and on preference for consumption of certain Fruits. There is no significant ($p < 0.05$) difference in the mean ratings of Male and Female Students on the preference for consumption of Vegetables. Based on the findings, the study recommended increased availability of all varieties of Fruits and Vegetables in school environment and gardens may stimulate students’ interest in fruits and vegetable consumptions.

Keywords: Nutrition Education, Fruits And Vegetables, Consumption Pattern, Secondary School, Family

Introduction

The primary unit of the society is the family. The family is the social institution consisting of institution of human beings related by way of ties of marriage, blood or adoption (Okonkwo, 2015). According to Macionis (2017), the family unit has been universally perceived as a small but very effective human existential unit and the oldest organization in the history of human existence. Family is saddled with duty of playing the primary function in the individual formation of the child and moulding the behaviours of person within the society (Fadugba, Williams and Aderanti, 2021). The family performs positive features which amongst others encompass reproduction, socialization of youngsters, financial support, religious schooling, companionship, safety, undertaking and academic education of the individuals at all stages of training (UNICEF, 2003), secondary colleges inclusive.

Secondary education is the training obtains after number one education and earlier than the tertiary education among 12 and 18 years (Federal Republic of Nigeria, 2014). Center topics provided in senior secondary schools encompass: English Language, Mathematics, one in all Biology, Chemistry, Physics, one out of Literature in English, Geography, non-vocational studies and Vocational optional such as Agriculture, Accounting, Home Economics, Metal Work, and so forth. Therefore, one in every of vocational non-obligatory subjects provided to students in both Junior and Senior Secondary schools is Home Economics. The National Council for Curriculum Assessment (2013) described Home Economics as a vocational subjects that makes a speciality of how to take care of oneself, others, domestic and your environment. It is a discipline of have a look at that equips people with the knowledge, competencies and mind-set essential for correct family residing and overall performance within the global of work. Home Economics,

according to Oluwaleyimu (2020) is an extensive vocational area of observe that embraces many regions including food and nutrition, domestic management, tourism, child care and development, garb and textiles.

One of the basic needs of family is food. Classes of food include: carbohydrates, proteins, fats, nutrients, minerals and water. Food covers the intake of fruits and vegetables that deliver the vitamins and minerals requirement for healthy living of families and their members. end result are safe to eat and fleshy plant bearing commodities that are sweet or bitter, and suitable for eating inside the uncooked country, which includes apples, bananas, grapes, lemons, oranges, strawberries, watermelon, pear, mangoes, cashew, and pawpaw amongst others (Gollner, 2010). According to Dimelu and Odo (2013), fruits are widely typical as essential additives of a healthy food regimen and adequate consumption could assist accelerate immunity and decrease an extensive variety of illnesses, including weight problems, stroke, cancer and cardiovascular sicknesses among others. Vegetables alternatively are suitable for eating plant-based foods which might be fed on both cooked or uncooked form. A vegetable is any suitable for eating a part of a plant endowed with nutrients and minerals. Fulbright (2004), described veggies as elements of flowers that are ate up by people as meals and part of a meal. Adenegan and Adeoye (2011) investigated fruits intake among university of Ibadan students, Nigeria and discovered that more than 60% of the students desired one form of the fresh end result to the other.

Fruits and vegetables are very critical food commodities no longer only in developing us of a like Nigeria however everywhere in the international (Yahaya and Mardiyya, 2019). Fruits and vegetables in line with Layade and Adeoye (2014), are vital additives of wholesome human food plan. They may be accurate assets of vitamins and minerals, vegetable proteins, protective micronutrients and dietary fibres which assist to prevent constipation (Balasubramanian and Ragnathan, 2012). They are ingredients with low electricity density, this is, with few energy with regards to the quantity of the food fed on, which favours renovation of healthy body weight (United State Department of Agriculture [USDA], 2009). Similarly, Uusiku, Oelofse, Duodu, Bester and Faber (2010), said that the intake of fruits and vegetables is not only rich in vitamins, minerals, and nutritional fiber, but also low in calorie required for the everyday functioning of human body. In line

with Nandi and Bhattacharjee, (2005), diets excessive in vegetables and fruits make a contribution to anti-oxidants which can be associated with a reduced cancer and cardiovascular chance. Obisesan (2019) submitted that fruits and vegetables are ingredients with low strength density as they may be true resources of vitamins and minerals with many fitness advantages.

The micronutrients supply by fruits and vegetables are also important for the gold standard functioning of the gastro-intestinal tract as they permit the body to use other nutrients required for its ordinary characteristic like power from fats and carbohydrate (Banwat, Lar, Daber, Audo and Lassa, 2012). World Health Organization (2014) identified some of the fruits and vegetables broadly speaking ate up by using excessive school college students to consist of the citrus, Mango, Apple and Banana whilst veggies which includes African spinach, Fluted pumpkin leaf, Carrot and inexperienced beans are ate up as condiments in food. Hart, *et al* (2005) tested veggies consumption pattern of families in selected areas of the old Rivers kingdom in Nigeria and found that vegetables often fed on had been African spinach (*Amaranthus hybridus*), *Pterocarpus* spp., *Gnetum africanum* and *Piper guineense* leaves.

Excessive intake of fruits and vegetables reduces many persistent sicknesses including stroke, cardiovascular sickness, metabolic disorder and a few cancers (Nwamarah and Otitoju, 2014). Notwithstanding the vast benefits of end result and greens, intake of fruits and greens in Africa is low which range among 70 to 312g per man or woman in step with day relative to the WHO/FAO advocated each day consumption of 400g consistent with individual. Facts from WHO facts sheet confirmed approximately 2.7 million of deaths and 1.8% of global sickness burden international are due to low Fruit and Vegetable consumption. Inadequate intake of Fruit and vegetables is anticipated to reason 14% of gastrointestinal cancer deaths, 31% of coronary heart sickness and 11% of stroke deaths (WHO, 2003). Vitamins-associated assignment is common throughout the globe. Over 800 million humans within the world are undernourished with majority living in growing countries (Food and Agriculture Organization, 2017).

Unhealthy ingesting behaviour, mainly many of the adolescent frequently result in nutrition related illnesses.

A number of those behaviours include horrific ingesting habits, smoking, and alcohol intake

amongst others. The bad dietary pattern and insufficient fruits and vegetables intake a number of the students represent principal hazard elements of micronutrients deficiencies, obese, weight problems, cardiovascular disease, cancer, and different non-communicable diseases inclusive of diabetes, excessive cholesterol, adolescent high blood pressure and poor fitness popularity which may be due to loss of effective nutrition education. Powerful nutrition schooling has the capability to reorient students for healthy ingesting habits. Achor (2014) said that nutrients schooling is that form of training that offers people with knowledge, abilities and self-belief to exchange dangerous meals conduct whilst adopting positive and lasting healthful nutritional practices. Hence, this study assessed consumption pattern of fruits and vegetables among Secondary School Students in Delta State, Nigeria

Purpose of the Study

The main purpose of the study was to assess consumption pattern of fruits and vegetables among secondary school students in Delta State, Nigeria.

Specifically, the study:

- 1.Examined consumption pattern of fruits and vegetables among male and female Senior Secondary School Students in Delta State.
- 2.Verified extent of preference for certain fruits and vegetables consumption among Male and Female Senior Secondary School Students in Delta State.

Research Questions

- 1.What are the consumption patterns of Fruits and Vegetables among Male and Female Senior Secondary School Students in Delta State?
- 2.To what extent are certain Fruits and Vegetables preferred for consumption among Male and Female Senior Secondary School Students in Delta State?

Hypotheses

H0₁: There is no significant difference in the mean ratings of Male and Female Senior Secondary School Students on their consumption pattern of Fruits and Vegetables in Delta State.

H0₂: There is no significant difference in the mean ratings of Male and Female Senior Secondary School Students on the extent to which certain Fruits and Vegetables are preferred for consumption in Delta State.

Methodology

Study Area

The study vicinity is Delta State, south-south Nigeria with its administrative headquarter in Asaba. The State is made up of 25 local government areas (LGAs) and a population of 4,675,526 humans (National Bureau of Statistics, 2012).

Design of the Study

Descriptive survey was adopted in carrying out the research work. Descriptive survey design entails researchers' use of questionnaires, interview and remark in order to decide the evaluations, attitudes, choices and perception of the respondents.

Population of the Study

The population for the study was forty six thousand, two hundred and eighty six (46,286) Senior Secondary school II students comprising twenty two thousand, seven hundred and nineteen (22,719) men and twenty three thousand, five hundred and sixty seven (23,567) females students in Public Secondary schools in Delta country (Delta State Ministry of Education, 2019).

Sampling of the Study

Multistage random sampling technique was used to pick out 384 Senior Secondary School (SSS II) students from public schools that constituted the respondents for the study. The primary selection involved purposive choice of the three senatorial districts in the state that are: Delta North, Delta Central and Delta South. The motive for purposive selection of the three senatorial districts become necessary due to the fact that food selection attributes are comparable across all the senatorial districts in the state.

At the second level, two LGAs were randomly selected from each of the three sampled Senatorial districts making six LGAs for the study. Subsequently, Aniocha South and Ika North East LGAs were randomly selected from Delta North. Okpe and Ugelli South LGAs had been randomly selected from Delta central at the same time as Isoko North and Bomadi LGAs were randomly selected from Delta South of the state. The third stage involved purposive choice of three public coeducational Secondary schools from each of the six LGAs making a complete of 18 Secondary schools. The fourth stage of the selection entails purposive choice of all 384 SS II students of Home Economics throughout the 18 sampled schools.

Instrument for Data Collection

The instrument for data collection was established questionnaire evolved by the researcher. The questionnaire turned into three established components A, B and C. Part A achieve data on the private statistics of the respondents (SSS II students of Home Economics teachers). Part B collected statistics on fruits and vegetable intake pattern of end result and greens. Part C was on information of the volume to which fruits and vegetables are favoured for consumption in Delta State. The 5-factor reaction alternatives for part B in assessing fruits and vegetables intake pattern of secondary school students were: Very Often (VO); Often (OF); Occasionally (OC), Rarely (RL) and Not at All (NA) with corresponding weight values of 5, 4, 3, 2, and 1 respectively. The 5-point response alternatives for component C have been: Very High Extent (VHE); High Extent (HE); Moderate Extent (ME); Low Extent (LE) and Very Low Extent (VLE) with corresponding weight values of 5, 4, 3, 2, and 1 respectively.

Validation of the Research Instrument

The instrument become proven through four experts which include two professionals in Home Economics in Delta State University, Abraka, one professional in measurement and evaluation in Delta State University, and one Secondary school Home Economics teachers in Delta State.

Reliability of the Research Instrument

The reliability of the instrument was achieved using Cronbach Alpha reliability which yielded reliability coefficients of 0.91 and 0.88 for parts B and C of the questionnaire respectively.

Method of Data Collection

Data for this study had been accumulated by the researcher with the help of ten research assistants who had been briefed on the management and retrieval of copies of the questionnaire from the respondents. Out of the 384 questionnaires administered to the respondents, 363 copies had been retrieved and considered appropriate which represents 94.5% charge of return.

Method of Data Analysis

Data gathered were analysed with the use of descriptive evaluation of mean (\bar{x}) and standard deviations in answering the research questions while hypotheses were tested with t-test statistics at 0.05 degree of significance. The criterion reference point (reduce-off cost) of 3.00 on 5-point score scale. Hence, any item with suggest mean value of 3.00 and above means "Often" or High Extent" as the case may be at the same time mean value of less than 3.00 suggest "Not Often" or Low Extent". The null hypothesis of no significant difference is accepted while p-value is or equal 0.05 degree of significance. Alternatively, the hypothesis of no significant difference is rejected when p-value was much less than 0.05 level of significance.

Results

Research Question One

What are the consumption patterns of Fruits and Vegetables among Male and Female Senior Secondary School Students in Delta State?

The data for answering research question three are presented in Table 1.

Table 1: Descriptive Statistics of the Consumption Pattern of Fruits and Vegetables by Senior Secondary School Students in Delta State.

S/N	Item Statements	Male 172		Female 191		X_G	SD_G	Rmk
		X_M	SD_M	X_F	SD_F			
1	I Consume leafy Vegetables in soups.	4.79	0.40	4.52	0.58	4.65	0.52	Often
2	I normally consume Fruits such as mango, banana, as appetizers before meal.	2.63	0.93	2.23	0.92	2.42	0.94	Rarely
3	I take Fruits and Vegetables because of the nutritional benefits.	4.41	0.49	3.47	1.00	3.92	0.93	Often
4	I eat Fruits and Vegetables as my parents or guidance provide them for me.	3.36	0.66	3.05	0.95	3.20	0.84	Often
5	I am forced by parents to eat certain Fruits and Vegetables because I don't like them.	2.41	0.75	2.81	0.73	2.62	0.77	Rarely
6	I eat Fruits and Vegetables such as mangos, bananas, carrots, cucumber, oranges	4.63	0.48	4.52	0.50	4.57	0.49	Often
7	I eat any type of fruit	4.16	0.81	3.58	1.36	3.85	1.17	Often
8	My parents incorporate Fruits and Vegetables into our family meals whenever I am home	4.10	0.64	4.28	0.82	4.19	0.75	Often
	Cluster Summary	3.81	0.52	3.56	0.61	3.68	0.58	Often

Note: X_M = Mean of males; X_F = Mean of females; X_G = Grand Mean; SD = Standard Deviation.

The result presented in Table 1 showed that the Secondary School Student Response scores on items 1, 3, 4, 6, 7 were 4.65, 3.92, 3.20, 4.57, 3.85 and 4.19 respectively larger than cut-score scale of 3.00 . This indicates that the 6 items identified in the table are the consumption pattern of fruits and vegetables among secondary School students in Delta state. On the other hand, items 2 and 5 had values of 2.42 and 2.62 respectively less than the fixed point value of

3.00. This shows that the 2 items in the Table are patterns of unusual use of Fruits and Vegetables.

The average mean of male students is 3.81 which is higher than the female student average of 3.56. This shows that male secondary school students have high fruit and vegetable consumption patterns for Delta State High School students. The standard deviation values of the 8 items ranged from 0.49 to

Hypothesis One

H0₁: There is no significant difference in the mean ratings of Male and Female Home Economics Students on their consumption pattern of Fruits and Vegetables in Delta State.

Table 2: t-test of Independent Sample on Consumption Pattern of Fruits and Vegetables by Male and Females Senior Secondary School Students in Delta State

SN	Groups	N	Mean (X)	SD	t- Cal	Level of Sig.	Decision
1.	Male	172	3.81	0.52			
2.	Female	191	3.56	0.61	3.59	0.05	Sig.

Note: Sig. = Significant at 0.05

The result indicates that there is a significant difference ($p < 0.05$) between the average responses of male and female students in their fruit and vegetable consumption pattern in Delta State.

Consequently, the null hypothesis of no significant differences ($p < 0.05$) in the average responses of male and female students is rejected.

Research Question Two

To what extent are certain Fruits and Vegetables preferred for consumption among Male and Female Senior Secondary School Students in Delta State?

Table 3: Descriptive Statistics of Extent to which certain Fruits and Vegetables are Preferred for Consumption among Male and Female Senior Secondary School Students in Delta State

S/N	Fruits	Male 172		Female 191		X _G	SD _G	Rmk
		X _M	SD _M	X _F	SD _F			
1	Oranges	4.68	0.65	4.67	0.47	4.67	0.56	HE
2	Tiger nuts	4.63	0.48	4.67	0.56	4.65	0.52	HE
3	Pawpaw	4.21	0.69	4.62	0.78	4.42	0.77	HE
4	African star apple (<i>udala</i>)	4.58	0.59	4.24	1.15	4.40	0.94	HE
5	Pineapple	4.37	0.98	4.43	1.00	4.40	0.99	HE
6	Banana	4.37	0.58	4.38	0.78	4.37	0.69	HE
7	Cashew	4.47	0.75	4.29	0.76	4.37	0.76	HE
8	Mango	4.42	0.81	4.28	0.76	4.35	0.79	HE
9	Apple	4.31	0.92	4.29	0.82	4.30	0.87	HE
10	Watermelon	4.05	1.14	4.42	0.72	4.25	0.96	HE
11	Tangerine	4.41	0.49	4.00	0.87	4.20	0.74	HE
12	Coconut	4.36	0.74	3.75	0.97	4.04	0.91	HE
13	Walnuts	4.15	0.58	3.77	1.23	3.95	0.99	HE
14	Black pear (<i>ube</i>)	3.84	0.81	3.52	1.05	3.68	0.95	HE
15	Guava	3.09	0.97	2.72	0.84	2.90	0.92	LE
16	Avocado pear	2.99	0.92	2.62	0.65	2.79	0.81	LE
17	Sour sop	2.47	0.81	2.23	0.68	2.34	0.76	LE
18	Grape	2.16	0.81	2.32	0.64	2.25	0.73	LE
19	Lemon	2.42	0.74	1.95	0.48	2.17	0.66	LE
	Cluster Summary	3.89	0.76	3.75	0.80	3.82	0.73	HE
	Vegetables							
20	Carrot	4.79	0.52	4.28	0.76	4.52	0.70	HE
21	Fluted pumpkin leaf (<i>ugu</i>)	4.47	0.59	4.47	0.66	4.47	0.63	HE
22	Okra	4.26	0.71	4.32	0.83	4.29	0.78	HE
23	Tomatoes	4.26	0.54	4.24	0.52	4.25	0.53	HE
24	Water leaf (<i>Talinumtriangulare</i>)	4.36	0.66	4.15	0.71	4.25	0.69	HE
25	African spinach (green)	4.21	0.76	4.13	0.83	4.17	0.80	HE
26	Bitter leaf (<i>Vernoniaamygdalina</i>)	4.05	0.99	3.72	1.20	3.87	1.12	HE
27	Cabbage	3.62	0.80	3.86	1.12	3.75	0.99	HE
28	Garden egg	2.47	1.14	2.91	1.15	2.70	1.16	LE
29	Scent leaf	2.94	0.82	2.04	0.48	2.47	0.80	LE
30	Cucumber	2.15	0.67	2.38	0.72	2.27	0.70	LE
31	Garlic	2.05	0.88	1.90	0.52	1.97	0.72	LE
32	Ginger	2.00	0.79	1.90	0.60	1.95	0.70	LE
	Cluster Summary	3.51	0.75	3.40	0.77	3.45	0.79	HE

Note: X_M = Mean of males; X_F = Mean of females; X_G = Grand Mean; SD = Standard Deviation; HE = High Extent, LE = Low Extent.

Table 3, showed that 14 of the 19 identified fruit are favorite fruits and their corresponding values include: preferred based on their mean values that were greater than the cut-off point of 3.00. The students' Mango (4.35), Watermelon (4.25), Apple (4.30), Pineapple (4.40), Pawpaw (4.42), Oranges

(4.67), Tangerine (4.20), Cashew (4.37), African star apple (old) (4.40), Banana (4.37), Coconut (4.04), Black pear (ube) (3.68), Walnuts (3.95) and Tiger nuts (4.65). On the other hand, the remaining 5 fruits identified in the Table were low-preferred foods that included: Guava (2.90), Avocado pear (2.79), Grape (2.25), Lemon (2.17) and Sour sop (2.34).

The mean of male students is 3.89 which is slightly higher than the female students of 3.75. This suggests that male secondary school students are more likely to use Fruit than female students in Delta State. The standard deviation values of the 19 fruit items in the Table range from 0.52 to 0.99 indicating that the respondents' responses were close to the mean and one another.

The result in Table 3 also showed that 8 of the 13 selected vegetables had a Highly Preferred Level to be eaten based on their mean values greater than the 3.00 cut point value on the 5-point rating scale.

Hypothesis Two

H0: There is no significant difference in the mean ratings of Male and Female Senior Secondary School Students on the extent to which certain Fruits and Vegetables are preferred for consumption in Delta State.

Therefore, the students' most preferred vegetables with their corresponding values include: Bitter Leaf (3.87), African Spinach (green) (4.17), Tomato (4.25), Fluted Pumpkin leaf (4.47), Water Leaf (4.25), Carrot (4.52), Okra (4.29) and cabbage (3.75). On the other hand, the 5 remaining vegetables identified at Thabulani were the most popular for students to eat including: Garden Egg (2.70), Scent Leaf (2.47), Cucumber (2.27), Ginger (1.95) and Garlic (1.97).

The mean of male students is 3.51 which is slightly higher than the female student number of 3.40. This has shown that male secondary school students are more likely to eat vegetables than female High School students in Delta State. The standard deviation values of the 13 vegetable items in Table from 0.51 to 1.16 mean that respondents' responses are close to the mean and one another.

Table 4: T-test of Independent Sample of Male and Female Senior Secondary School Students on the extent to which certain Fruits and Vegetables are preferred for consumption in Delta State

SN	Fruits	N	Mean (X)	SD	t- Cal	Level of Sig.	Decision
1.	Male	172	3.89	0.37			
2.	Female	191	3.74	0.52	2.43	0.05	Sig.
SN	Vegetables	N	Mean (X)	SD	t- Cal	Level of Sig.	Decision
1.	Male	172	3.50	0.43			
2.	Female	191	3.42	0.54	1.81	0.05	NS

Note: **Sig** = Significant at 0.05; **NS** = Not Significant at 0.05

The t-test results in Table 4 showed that the t-calculated (t-cal) value of 2.43 is greater than the t-critical (t-tab) value of 1.96 at 361 degree of freedom. This has shown that there is a significant difference (p <0.05) between the mean ratings of responses of male and female students in terms of their choice of fruit consumption in Delta State. Therefore, the null hypothesis of no significant

differences (p <0.05) in the mean ratings of male and female students' responses to fruit intake is rejected in the second hypothesis.

The result in Table 4 also showed that the t-calculated (t-cal) value of 1.81 is less than the t-critical (t-tab) value of 1.96 at 361 degree of freedom. This meant that there was no significant

difference ($p < 0.05$) between the mean ratings of male and female students in terms of their choice of vegetable consumption in Delta State. Therefore, the null hypothesis of no significant differences ($p < 0.05$) in the mean rating of male and female students by preferring vegetarian diets is accepted in the secondary hypothesis.

Discussion of Results

The findings identified six (6) fruit and vegetable consumption patterns among senior secondary school students in Delta State which included; eating vegetable Leaves, taking fruits and vegetables for their nutritional benefits, eating fruits and vegetables as provided by parents and guardians, eating a variety of fruits and vegetables and including fruits and vegetables in the family diet. The findings of this study on fruit and vegetable consumption patterns are consistent with a report by Hart, *et al* (2005) who studied that home vegetable consumption patterns in selected areas of the old Rivers State in Nigeria and found that vegetables commonly eaten were African spinach (*Amaranthus hybridus*), *Pterocarpus*, *Gnetum africanum* leaves. The World Health Organization (2014) has found that fruits and vegetables are consumed as a result of natural availability, the availability of fruits and vegetables such as citrus, mangoes, apples and bananas and vegetables such as African spinach, fluted pumpkin leaf, Carrot and green beans. . eaten as condiments in food. It has therefore been shown that students' consumption of fruits and vegetables is enhanced by learners' knowledge of fruits and vegetables.

The findings showed that the most popular fruits among the students were: orange, banana, African star apple (old), pineapple, avocado pear, cash, mango, apple, watermelon, tangerine, coconut, walnuts and black pear (*ube*). Consistent with the findings, Ibeawuchi, *et al* (2015) reported that major fruits produced and consumed in Nigeria include mango, pineapple, corn, banana, oranges, guavas, papayas, and vegetables include onions, tomatoes, okra, peppers, amaranthus, carrot, watermelon, *Corchorus olitorus* (*ewedu*), *Hibiscus*, *sabdariffa* (*sobo*), *Adansonia digitata* (*baobab* leaves). Favorite fruits among students are: guava, lemon, sour sow, grape and lime. Students' favorite vegetables include: carrot, soft pumpkin, okra, tomato, water leaf, African spinach (*green*), bitter leaf and cabbage. While the least popular vegetables are: garden egg, fragrant leaf, cucumber, ginger and garlic. Adenegan and Adeoye (2011) investigated fruit intake among students at the University of

Ibadan, Nigeria and found that more than 60% of students prefer one type of fresh fruit to another. The findings of this study are consistent with those of Layade and Adeoye (2014) who studied the use of fruits and vegetables among students Oyo State Higher Institutions also found that, the most popular fruit for students was banana (34%) and the most preferred was cashew (1%).

The most popular vegetables were pumpkin leaves (32%) and the most preferred was celosia (20%). Only 37% of students ate recommended fruits and vegetables. The World Health Organization (2014) has identified some of the fruits and vegetables most commonly used by high school students as including oranges, mangoes, apples and bananas and vegetables such as African spinach, fluted pumpkin leaf, carrot and green beans are eaten as an ingredient in the diet. Hart *et al* (2005) examined the pattern of home vegetable use in selected areas of the old Rivers State in Nigeria and found that the most commonly eaten vegetables are African spinach (*Amaranthus hybridus*), *Pterocarpus* spp., *Gnetum africanum* and leaves *Piper guineense*. These were used primarily in various edible soups as a staple in starchy foods. Some of the dishes in which leafy vegetables were eaten were pottage in those areas where vegetables were widely used, and in some cases, stews were all households under investigation. On the other hand, Olayinka, Ilesanmi and Ijarotimi (2014) investigated the decision to eat fruit among young people at a School in Ibadan, South West Nigeria and found that fruit intake was shown to be low among students in the study area. Therefore, students especially like certain fruits especially those with sweetness like orange, tiger nuts, pineapple, banana, mango and cashew. It is expected that sweet fruits will be selected for high school students.

Conclusion

This study assessed consumption pattern of Fruits and Vegetables among Secondary School Students in Delta State, Nigeria. The results showed that students were accustomed to eating Fruit and Vegetables with leafy vegetables, eating Fruits and Vegetables for nutrition, and eating Fruits and Vegetables as provided by parents and caregivers in the area. The result also showed that Fruits such as oranges, bananas, African star apple, pineapple, avocado, cashew, mango, apple, watermelon, tangerine, coconut, walnuts and black pear (*ube*) are very popular among students while Vegetables such as Carrot, Fluted pumpkin leaf (*ugu*), Okra, Tomato, Water Leaf, African spinach (*green*), spicy leaf and

cabbage are popular among students. Results from the findings of the hypotheses showed that there was a significant difference ($p < 0.05$) between the mean ratings of Male and Female students' responses that favor male in their use of Fruits and Vegetables in Delta State. There was a significant difference ($p < 0.05$) between the mean ratings of Male and Female students' responses in favour of male based on their preference for the use of certain Fruits in Delta Province. There was no significant difference ($p < 0.05$) between the mean ratings of Male and Female Students responses according to the level of their choice of Vegetable consumption.

Recommendations

Based on the findings and conclusions drawn from the study, the following recommendations are made:

1. Adequate supply of various Fruit and Vegetable charts and their nutritional benefits in classrooms, libraries and laboratories in High Schools may stimulate student acceptance and consumption of Fruits and Vegetables to live a healthy lifestyle.
2. There should be more availability of all kinds of Fruits and Vegetables in the school area and gardens to arouse students' interest in the consumption of fruits and vegetables.

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