Journal of Agriculture and Food Sciences
Volume 18, Number 1, April, 2020 pp 82 - 92

ASSESSMENT OF CARBONATED AND HEALTHY DRINKS CONSUMPTION PATTERN AMONG UNDERGRADUATES IN OBAFEMI AWOLOWO UNIVERSITY, ILE- IFE, OSUN STATE

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ABSTRACT

The study assessed carbonated and healthy drinks consumption pattern of the undergraduate students of Obafemi Awolowo University (OAU), IIe – Ife, Nigeria. Random sampling technique was employed in this study. The study relied on primary data which was collected through questionnaires. Data collected were analyzed using mean and percentages. The total number of respondents was 260 undergraduate students, which comprised 102 males and 158 females. Majority (47.3%) of the respondents were between 17 – 20 years old and were single. It was indicated that majority (49.6%) of the respondents has less than ₦10,000 as income level from their monthly stipend. The result indicated that the carbonated drinks that the students consume the most were Fanta and Coke. Majority (38.5%) of the respondents consume fruit smoothies while they sometimes (38.8%) consume zobo drink. The result also reveals that zobo drink has the highest percentage (76.2%) of consumption than other healthy drinks. The major factors influencing healthy drinks consumption based on individual perceptions were taste (40.4%), price (38.9%), preferences (36.2%), and nutritional benefit (35.0%) while price (36.5%), taste (35.8%), preferences (33.5%) and availability on campus (31.5%) were the major factors influencing carbonated drinks consumption based on individual perceptions. It is therefore recommended that the Federal and State Government should ensure proper health education of undergraduates regarding the nutritional benefits of healthy drinks as well as the adverse effects of carbonated drinks.

Keywords: carbonated drinks, healthy drinks, consumption pattern, Obafemi Awolowo University (OAU)

https://doi.org/10.4314/jafs.v18i1.8

INTRODUCTION

Carbonated and healthy drinks constitute a great proportion of beverages consumed by the general populace in Nigeria especially among the youths. National Bureau of Statistics (NBS) indicates that 86.5% of Nigerian students consume carbonated drinks (NBS, 2010). German Engineering Federation ranked Nigeria as the fourth country with the most sales of soft drinks globally. The high rate in consumption carbonated drinks can also be attributed to the

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growing population, urbanization, lack of portable water and climate change (hot weather) among others. The consumption of carbonated drinks among the youths can be attributed to change in lifestyle and dietary habits (Ngwu and Njoku, 2007). The food consumption patterns of Nigerians, for example, have equally shifted from more complex carbohydrate form of traditional diets to refined carbohydrate diets. The neglect of the traditional 'African' foods that provide high levels of dietary fibre in favour of the refined "Western foods" has been implicated in the rising incidence of chronic, diet-related non-communicable diseases such as obesity, diabetes, hypertension, coronary heart disease and stroke (Schmidhuler and Shetty, 2005).

Carbonated drinks are beverages that contain dissolved carbon dioxide. They are composed of high amount of sugar, calories, caffeine and provide no nutrition value. Damle *et al.*, (2011) reported that the active ingredient in carbonated drinks are phosphoric acid (with an acidic pH generally less than three which is same as acetic acid), sugar, caffeine, colouring and flavouring agents. Among the carbonated drinks commonly consumed in Nigeria are *Coca-cola (Coke), Fanta, Sprite, Pepsi, Seven up, malt drinks, and soda etc.* Majority of those who consume carbonated drinks do so because of the taste, flavor without any consideration on the health implications of those drinks. Excessive consumption of these carbonated drinks, however, has negative effect on the body (Vartanian *et al.*, 2007). The high sugar and acid contents of carbonated drinks have consequences for teeth. Studies have shown that regular intake of carbonated drinks can harm the teeth. This is because when carbonated drinks are taken, the sugar remains in the mouth, producing the processes that lead to tooth decay (Birkhead, 2007). The acid in these carbonated drinks further increase the likelihood of developing cavities, because the chemicals as well slowly erode the enamel of the teeth.

The World Health Organization (WHO) has reported that high consumption of free sugars results in a rise in body mass index (BMI). Therefore, WHO recommends that adults and children should reduce their daily intake of free sugars to less than 10% of their daily total energy intake (Pan and Hu, 2011). The high level of this carbonated consumption has some health consequences. Studies show that carbonated drinks intake has adverse effects on bone mineral density (BMD) (Tucker *et al*., 2006) and also an extrinsic factor of dental erosion (Lussi *et al.*, 2004).

Notwithstanding the risks associated with excessive consumption of carbonated drinks, there are some benefits derivable from their consumption. Carbonated drinks can help in relieving stomach aches and even help people who are suffering from nausea or indigestion. Other benefits include improvement of swallowing ability, relieving constipation, decrease in risk of heart diseases and provision of energy (Mattes, 2006).

Healthy drinks (beverages), on the other hand, are drinks made from crops and fruits. They are classified as healthy drinks because they are devoid of artificial ingredients unlike the carbonated drinks. The common healthy drinks in Nigeria are soy milk made from soya beans, *kunun zaki* made either from millet (*Pennisetum typoidum*), sorghum (*Sorghum bicolor*), or maize (*Zea mays*); zobo made from dried Roselle plant flowers (*Hibiscus*

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sabdariffa) and *pito* brewed with red or white sorghum malt and/or maize; it becomes alcoholic when it is allowed to ferment.

Healthy drinks provide a lot of benefits to the body. Some of the benefits associated with the consumption of health drinks include reduction in the risk of heart disease, lowering risk of diabetes, reduction in the risk of cancer, enhances calcium intake, brain enhancement and detoxification (Hasler, 2002).

There have been several studies on malnutrition and obesity among undergraduates in Nigeria (Akesode and Ajibode, 2000; Ben-Bassey *et al*., 2007; Akinpelu *et al.*, 2008; Olumakaiye, 2008; Ojofeitimi *et al.*, 2011; Maruf *et al*., 2013) but studies on the consumption of carbonated/soft drinks among youths in Nigeria are limited. Fadupin *et al.,* (2014) in their study on the Knowledge, attitude and consumption pattern of alcoholic and sugar sweetened beverages among undergraduates in a Nigerian University found out that high consumption of alcoholic and sugar sweetened beverages (SSBs) remains a public health problem among the young adults. The study found a significant relationship between frequent consumption of sugar sweetened beverages by the respondents and being overweight and asserts that frequent consumption of sugar sweetened beverages could contribute to being overweight.

Meanwhile, Ansa *et al*., (2008) also did some work on soft drink consumption and overweight/obesity among Nigerian adolescents. The study aimed at assessing the magnitude of soft drink consumption in a cross section of adolescents in Nigeria and determining its association with obesity and overweight. The study revealed that there is no statistically significant association between the amount of soft drinks consumed and obesity/overweight.

Sholeye *et al*., (2018) also carried out a study on Snacking and sweetened beverage consumption among adolescents in Sagamu, Southwest Nigeria. The result indicated that the consumption of refined sugars was high among respondents, indicating presence of unhealthy dietary habits and recommended that concerted efforts at nutrition education through the school system should be made to reduce the risk of non-communicable diseases among adolescents.

This study therefore attempts to investigate the consumption pattern of carbonated and healthy drinks among undergraduate students of Obafemi Awolowo University, Ile – Ife, Nigeria.

It specifically assessed the;

1. socio-economic characteristics of the undergraduates in the study area,
2. frequency of carbonated and healthy drinks consumption among OAU undergraduates, availability and consumption of healthy drinks among OAU undergraduates and
3. factors influencing carbonated and healthy drinks consumption.

MATERIALS AND METHODS

The study was conducted at the Obafemi Awolowo University, Ile-Ife Osun State Nigeria. It currently has a student population of about 35,000, comprising of both students with physical

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disability and those without physical disabilities in undergraduate, post-graduate, full and part time study programs. The university has 13 faculties and 82 departments (Ijadunola, 2019).

Simple random sampling technique was employed in selecting undergraduates for the study. The random selection was executed using interval method of selecting a student at every 5th contact. The study focused only on undergraduate students because they are believed to exhibit demographics that are different from those of the postgraduate students. This is based on observation that postgraduate students are often working-class people, are married, and are more conscious of their feeding habits because of their age, exposure, and level of education (Bakare and Olumakaiye, 2016). Therefore, a total of 260 undergraduates from different departments were used for the study.

The study relied on primary data which was collected through a personally administered questionnaire. The respondents were interviewed and their responses were taken and recorded. Descriptive statistics were used to analyse data for the study.

RESULTS AND DISCUSSION

Selected Personal Characteristics of Respondents

The result in Table 1 revealed that majority (60.8%) of the undergraduate students surveyed were female. Majority of the respondent were between 17-20 years old and were single. It was indicated that majority (49.6%) of the respondents has less than ₦10,000 as their income level from their monthly stipend while 32.3%, 10%, 3.8%, 3.1% and 1.2% of the respondents has between ₦10,000-₦19,000, ₦20,000-₦29,000,₦30,000 - ₦39,000, more than ₦50,000 and ₦40,000 – ₦49,000 respectively as income level from their monthly stipend. It was found that the students study disciplines include Art (16.9%), Science (16.2%), Agriculture (10.8%), Administration (10.8%), Education (10%), Technology (10%), Law (8.5%), Social science (5%), Basic medical (4.6%), Pharmacy (1.9%) etc. It was also observed that majority (78.1%) of the respondents were Christians and were Yoruba's (85%).

Carbonated Drinks Consumption

Table 2 depicts the results of the frequency of carbonated drinks consumption. It indicated that the majority (38.1%, 31.5%, 34.6%, 39.2%, 31.9% and 36.5%) of the students consume coke, pepsi, seven up, fanta, sprite and malt respectively. The result indicated that the carbonated drinks that the students consume the most were coke and fanta.

Healthy Drinks Consumption

Table 3 also shows that majority (38.5%) of respondents rarely consume fruit smoothies while they sometimes (38.8%) consume *zobo* drink. Also, 61.2%, 38.5% and 38.2% never consume *Pito, Kunun zaki* and soy milk drinks respectively. This may be as a result of the unavailability of these drinks within the campus.

Healthy Drinks availability and consumption

Table 4 shows the frequency of healthy drinks availability and consumption among the students. It indicates that Fruits Smoothies are both available and also consumed (62.3%) on the campus. Also, *Zobo* drink has the highest percentage (76.2%) of consumption than other

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healthy drinks. This may be because it is cheap. From the result, Soy milk were also available and were consumed by 45.4% of the surveyed students on campus while *Pito* drink was the least available and consumed.

Factors Influencing Healthy Drinks Consumption

The result from table 5 indicates that the main factors influencing Healthy Drinks consumption based on individual perceptions were taste (40.4%), price (38.9%), preferences (36.2%), and nutritional benefit (35.0%) while influence of friends (14.6%) and advertisement (12.3%) were not considered as the main factors influencing Healthy Drinks.

Factors Influencing Carbonated Drinks Consumption

Table 6, indicates that majority of the respondents believed that these few points which includes price (36.5%), taste (35.8%), preferences (33.5%) and available on campus (31.5%) were the major factors influencing carbonated drinks consumption based on individual perceptions while influence of friends (16.9%) and season (16.2%) were not considered as major factors influencing carbonated drinks consumption based on individual perceptions.

CONCLUSION AND RECOMMENDATIONS

The study revealed that all undergraduate students interviewed indulge in carbonated and healthy drink consumption to varying degrees. carbonated and healthy drinks consumption pattern is increasing among undergraduate students. From the consumption pattern it was observed that the majority of the students consume carbonated drinks over healthy drinks. These carbonated drinks have detrimental effects. Therefore, it is recommended that:

- the Federal and State Government should ensure proper health education of undergraduates regarding the nutritional benefits of healthy drinks as well as the adverse effects of carbonated drinks in order to equip them with necessary nutrition information and knowledge.
- there should be a general elective on physical health and nutrition education to engage every student in compulsory physical fitness exercise.

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APPENDIX

Table 1: Socio-economic characteristics of respondents

Characteristics	Frequency	Percent
Gender		
Female	158	60.8
Male	102	39.2
Age Category (years)		
≤16	7	2.7
17-20	123	47.3
21-24	96	37
25-28	31	12
>29	3	1.2
Marital Status		
Married	14	5.4
Single	243	93.5
Divorced	3	1.2
Religion		
Christian	203	78.1
Islam	53	20.4
Traditional	2	0.8
Other	2	0.8
Ethnic Group		
Yoruba	221	85.0
Igbo	25	9.6
Hausa	3	1.2
Others	7	2.7
Faculty of Study		
Science	42	16.2
Agriculture	28	10.8
Art	44	16.9
Law	22	8.5
Basic medical	12	4.6
Administration	28	10.8
Education	26	10.0
Technology	26	10.0
Social science	13	5.0
Nursing science	1	.4
Pharmacy	5	1.9
Biochemistry	1	.4
Botany	2	.8
Accounting	1	.4
Zoology	1	.4
Clinical science	1	.4
Environmental design	2	.8
International relation	1	.4
Linguistics and African Language	1	.4
English	1	.4

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History	2	.8
Total Income/month (₦)		
<10,000	129	49.6
10,000 – 19,000	84	32.3
20,000 – 29,000	26	10.0
30,000 – 39,000	10	3.8
40,000 – 49,000	3	1.2
>50,000	8	3.1

Source: Field Survey, 2019

Table 2: Frequency of Carbonated Drinks Consumption

S/N	Type	Never		Rarely		Sometimes		Often		Always	
		Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
1	Coke	15	5.8	73	28.1	99	38.1	47	18.1	26	10
2	Pepsi	24	9.2	118	45.4	82	31.5	25	9.6	11	4.2
3	Seven up	27	10.4	107	41.2	90	34.6	27	10.4	9	3.5
4	Fanta	9	3.5	79	30.4	102	39.2	53	20.4	17	6.5
5	Sprite	27	10.4	110	42.3	83	31.9	28	10.8	12	4.6
6	Malt	21	8.1	89	34.2	95	36.5	37	14.2	18	6.9

Source: Field Survey, 2019

Table 3: Frequency of Healthy Drinks Consumption

S/N	Type	Never		Rarely		Sometimes		Often		Always	
		Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
1	Fruit smoothies	56	21.5	100	38.5	69	28.5	21	8.1	14	5.4
2	Zobo	21	8.1	82	31.5	101	38.8	37	14.2	19	7.3
3	Pito	159	61.2	66	25.4	24	9.2	10	3.8	1	.4
4	Kununzaki	100	38.5	89	34.2	50	19.2	12	4.6	9	3.5
5	Soy milk	94	38.2	97	37.3	54	20.0	15	5.8	2	.8

Source: Field Survey, 2019

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Table 4: Healthy Drinks availability and consumption

S/N	Types	Available on campus		Consumed on campus		Both		None	
		Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
1	Fruits smoothies	47	18.1	16	6.2	162	62.3	35	13.5
2	Zobo	41	15.8	11	4.2	198	76.2	10	3.8
3	Pito	24	9.2	25	9.6	48	18.5	163	62.7
4	Soy milk	41	15.8	30	11.5	118	45.4	71	27.3
5	Kunun zaki	42	16.2	30	11.5	112	43.1	76	29.2

Source: Field Survey, 2019

Table 5: Factors Influencing Healthy Drinks Consumption

S/N	Factors	Strongly Agree		Agree		Disagree		Strongly Disagree	
		Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
1	Price	96	38.9	88	33.8	56	21.5	20	7.7
2	Available on campus	78	30.0	136	52.3	38	14.6	8	3.1
3	Available at home	68	26.2	121	46.5	61	23.5	10	3.8
4	Taste	105	40.4	108	41.5	36	13.8	11	4.2
5	Preferences	94	36.2	118	45.4	41	15.8	7	2.7
6	Health condition	78	30.0	108	41.5	56	21.5	18	6.9
7	Influence of friends	26	10.0	63	24.2	133	51.2	38	14.6
8	Season	31	11.9	105	40.4	97	37.3	26	10.0
9	Smell	54	20.8	104	40.0	84	32.3	18	6.9
10	Nutritional benefit	91	35.0	114	43.8	48	18.5	7	2.7
11	Production and handling	73	28.1	113	43.5	84	24.6	10	3.8
12	Advertisement	44	16.9	84	32.3	100	38.5	32	12.3

Source: Field Survey, 2019

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Table 6: Factors Influencing Carbonated Drinks Consumption

S/N	Factors	Strongly Agree		Agree		Disagree		Strongly Disagree	
		Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
1	Price	96	36.5	95	36.5	51	19.6	18	6.9
2	Available on campus	82	31.5	100	38.5	56	21.5	22	8.5
3	Available at home	71	27.3	108	41.5	62	23.8	19	7.3
4	Taste	93	35.8	107	41.2	44	16.9	16	6.2
5	Preferences	87	33.5	107	41.2	52	20.0	14	5.4
6	Health condition	70	26.9	88	33.8	80	30.8	22	8.5
7	Influence of Friends	38	14.6	75	28.8	103	39.6	44	16.9
8	Season	37	14.2	93	35.8	88	33.8	42	16.2
9	Smell	43	16.5	94	36.2	86	33.1	37	14.2
10	Nutritional benefit	66	25.4	93	35.8	74	28.5	27	10.4
11	Production and handling	58	22.3	103	39.6	77	29.6	22	8.5
12	Advertisement	48	18.5	85	32.7	88	33.8	39	15.0

Source: Field Survey, 2019

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