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Perceived Influence of Hibiscus-Tea (Zobo) Intake on Wellbeing of Residents in Ilorin West Local Government Area, Kwara State

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Abstract

Hibiscus tea (Zobo) is a very common drink in Africa especially in Nigeria where adult and young take so as to pass time. However, many do not know the health benefit of this drink, in fact, even the process it passes through is very simple but many do not still know. Majority do not know it has "Hibiscus tea" instead it is best known has "zobo". Therefore, the study investigates perceived influence of hibiscus tea intake on wellbeing of residents in Ilorin West Local Government Area, Kwara State. The objective of the study was to examine if (i) moderation of high blood pressure; and (ii) prevention of cancer are perceived influence of hibiscus tea intake on wellbeing among the residents in Ilorin West Local Government Area, Kwara State. Descriptive research of the survey type was adopted for the study. The target population comprised all residents of Ilorin West Local Government Area, Kwara State. A multi-stage sampling procedure was adopted to select two hundred and five (205) respondents for the study. A researcher-structured questionnaire validated by three experts was used as the instrument. The reliability of the instrument was established through test re-test method and a co-efficient of 0.72r was obtained using Pearson Product Moment Correlation (PPMC). Inferential statistics of Chi-square was used to analysed the data collected @ 0.05 level of significance. The finding of the study revealed that: moderation of high blood pressure was significantly perceived as an influence of hibiscus tea intake on wellbeing with calc. $\chi 2$ value of 103.034 > the crit. $\chi 2$ value of 16.92 at df 9 @ 0.05 alpha level and prevention of cancer was a significant perceived influence of hibiscus tea intake on wellbeing in Ilorin West Local Government Area, Kwara State. Based on the findings the study, it was concluded that moderation of high blood pressure and prevention of cancer are perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State. It was therefore recommended that residents in Ilorin West Local Government Area should encourage people with high blood pressure to drink hibiscus tea to moderate their blood pressure, reduce body weight, increased good cholesterol level and prevent the growth of cancerous cells.

Keywords Perceived, Influence, Hibiscus Tea, Wellbeing and Residents

Introduction

Zobo is a very common drink in Africa especially in Nigeria where adult and young take so as to pass time. However, many do not know the health benefit of this drink, in fact,

even the process it passes through is very simple but many do not still know. Majority do not know it has “Hibiscus tea” instead it is best known has “zobo”. This drink has a lot of benefits on the body if prepared through the right process especially when taken chilled. Hibiscus tea is a herbal tea made as an infusion from crimson or deep magenta-colored calyces (sepals) of the roselle (Hibiscus sabdariffa) flower. It is consumed both hot and cold. It has a tart, cranberry-like flavour. Hibiscus is available as an extract or more often, a tea (Lucie, 2015).

Hibiscus tea is herbal tea that is made by steeping parts of the hibiscus plant in boiling water. It has a tart flavour similar to that of cranberries and can be enjoyed either hot or cold. There are several hundred species of hibiscus, varying by the location and climate they grow in, but Hibiscus sabdariffa is most commonly used to make hibiscus tea (Cahliková, 2015). Research has uncovered a range of health benefits linked to drinking hibiscus tea, showing that it may lower blood pressure, reduce the growth of bacteria, and even aid weight loss (Ali, 2015). The roselle hibiscus used to make the tea is likely originated in Africa (Blunden, 2015).

It is rich phytonutrient profile may be responsible for such reported health effects. For example, the phenolic acid, protocatechuic acid, organic acids (hydroxycitric acid and hibiscus acid) and anthocyanins (delphinidin-3-sambubioside and cyanidin-3-sambubioside) have been listed as important bioactive components within HSL. A compositional analysis of hibiscus calyces found these to be rich in lutein, chlorogenic acids and delphinidin 3-sambubioside. HSL extracts have additionally been found to have antioxidant and antimicrobial properties, a growing body of evidence suggests that herbal teas, including HSL could benefit aspects of preventative and clinical health. For example, one MA of five RCT comprised 390 participants found that HSL had significant effects lowering both systolic and diastolic blood pressure (Cheng, 2016).

Hibiscus tea is usually derived from the dried calyces of the tropical plant Hibiscus sabdariffa L. (HSL) which belongs to the mallow family (Malvaceae). It is thought to be a native of West Africa, but is commonly cultivated across the tropics and sub-tropics including China, Egypt, Mexico, Thailand and the West Indies. HSL is sometimes referred to in English as ‘roselle’ or ‘red sorrel’ and in Arabic as ‘karkade’. This naming is attributed to its colouring with the roselle calyx being a bright red colour and abundant in anthocyanins (Azlan, 2017). It is the calyces (outer parts of the flower) that are most commonly used worldwide, to make hot and cold infusions. HSL is also rich in organic acids and, thus is also referred to as ‘sour tea’ due to these providing a distinctive tart taste. Hibiscus tea is becoming increasingly popular which largely appears to be attributed to its bioactive properties, which could benefit public health. From a historical perspective HSL has been used in folklore and traditional medicines (Andrica, 2015).

Zobo drink has several health benefits resulting from its proximate, mineral, phytochemical and vitamins compositions. its microbiological quality is however questionable. Though microbial density seldom exceeds tolerant limits for ready-to eat

food. The presence of coliforms depicts poor quality. The occurrence of some microbial isolates indicates a potential health concern to consumers of the products. Most of the isolates are spoilage micro-organisms in dairy products but several of them invaded the product through poor handling and processing routes employed (Adrian, 2015). Hence with improved handling, hygiene of processors and marketers and use of sterile water, spices, flavour the microbial diversity could be reduced. In recent times, there has been an upsurge in the consumption of ready-to-eat food. This is probably due to their convenience. Ready-to-eat foods occur in varieties of food including fruits, fruit juices, nutritional drinks, snacks, etc. Generally, they are food items consumed on purchase from vendor, hawkers and consumed immediately without any further preparation (Ursoniu, 2015).

Fruits are potential source of nutrients, micronutrients, vitamins and fiber for humans. Most of these fruits include watermelon, paw-paw, and pineapples. Hibiscus is high in antioxidants and offers many potential benefits. In particular, it may help promote weight loss, reduce the growth of bacteria and cancer cells and support the health of the heart and liver. Some of these fruits are processed into juice/wine such as pineapple juice, watermelon, paw-paw blend, orange, apple and pineapple. Other essential nutritional drinks consumed by a large number of the populace in Nigeria are kunu and Zobo. Zobo is produced from the dried calyces of Hibiscus sabdariffa which belongs to Malvaceae family. It is an annual erect bushy branched herb found in tropical and semi-tropical regions of the world mainly in West Africa and the East Indies. Hibiscus sabdariffa grows to about 3.5metres in height (Blunden, 2015).

The quality of zobo drink depends mainly on the physio-chemical constituents of the raw materials, water used in their production and the hygienic condition of the processors. Water is a major is a major resource used in the production of this drink from their raw materials. Poor quality with regard to both physio-chemical (colour, pH, turbidity, total suspended solids, total hardness, total alkalinity salinity, electrical conductivity), heavy metals (lead, cadmium, chromium, iron, zinc, copper, nickel, arsenic) and microbial (total heterotrophic bacteria, total fungi, total coliform and fecal coliforms) could also impact on the overall quality of the drink. The environment is which the drinks are processed could also influence the quality especially in the microbial perspectives (Olarubofin, 2017). Zobo drink is a nutritional drink consumed by people in Nigeria. However, the consumption of local beverages could be a potential source of transfer of zoonotic and foodborne pathogens including staphylococcus, Salmonellosis, Brucellosis, Tuberculosis, Shigellosis, Listeriosis, E. coli, infections, etc. (Oranusi, 2012).

Statement of the Problem

Hibiscus is generally thought to be safe when consumed in standard amounts. But using an herbal supplement like hibiscus carries a potential risk of side effects. It has been observed that many people around would say, they cannot take bitter things and many would say they prefer to die than to take herbal things, many take hibiscus tea (Zobo) but

still, they do not know the benefit of it to their health. It became a reality when a patient of high blood pressure was diagnosed due to ill-health. This prompted the researchers to make research and then, came across hibiscus tea. It really worked and helped reduce blood pressure to its lowest stage. The dry Hibiscus flowers used for making Zobo drink also includes the slight number of hallucinogenic properties. Such drinks should not be taken regularly, as some professions would absolutely avoid them. For example, drivers and factory workers who have to work with complex techniques do not want to get even slight hallucinations or feel sleepy at work.

People who are taking pills, syrups and any other medicines should avoid Zobo drink because it can interact with medications and cause addiction or health issues. The Zobo drink can help one relax but it can also cause slower reactions in the body (Olarubofin, 2017). This could lead to relaxation and prevent one from working and performing one's everyday tasks. People will get this side effect and lose their ordinary productiveness. Zobo is generally not recommended for pregnant and breastfeeding women. It was due to this effect the present researcher prompted to carry out research on hibiscus tea and educate many on the benefits of hibiscus tea. However, this research therefore sought to find out perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West, Local Government Area, Kwara State.

Research Questions

The following research questions were developed to guide the conduct of this study:

1. Will moderation of high blood pressure be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State?

2. Will prevention of cancer be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State?

Research Hypotheses

For the purpose of this study, the following research hypotheses were tested.

H_{o1}: Moderation of high blood pressure will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

H_{o2}: Prevention of cancer will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Objectives of the Study

The main purpose of this study was to investigate the perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West, Local Government Area, Kwara State, Specifically, the objective of the study are to examine if:

1. moderation of high blood pressure would be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

2. prevention of cancer would be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Methodology

Descriptive survey research design was used for the study. According to Orodho (2010), descriptive survey research design is used in preliminary and exploratory studies to allow researchers to gather information, summarize, present and interpret for the purpose of clarification. The design is fitting to a situation where the variables cannot easily be manipulated by the researcher. The design was used by the researchers in gathering information, summarizing, presenting and interpreting information and it involves describing the existing data. The population of this study comprised all 365,235 residents of Ilorin West Local Government Area, Kwara State. (National Population Census, 2006). A multi-stage sampling procedure was employed in this research. In the first stage, random sampling technique was used to select (6) six out of twelve (12) wards which has already been in strata. The six wards were chosen through a balloting method by selecting six rap papers out of twelve (12) rap papers. The selected six (6) wards are, Baboko, Oloje, Ojuekun, Mogaji Ngeri, Wara Oshin/Egbejila and Oko-Erin. In the second stage, a proportionate sampling technique was used to select 0.2% of the wards. Random sampling was used to select 205 respondents for the study.

Table 1: Sample Size of the Selected Wards

Wards	Population	0.2% Sample	Actual Sample
Baboko	11, 652	23.3	23
Oloje	12,543	25.0	25
Ojuekun	21,693	43.3	43
Mogaji Ngeri	30,855	61.7	62
Wara Oshin/Egbejila	10,375	20.7	21
Oko-Erin	15,507	31.0	31
Total	102,625	205	205

The main instrument that was used to gather information from the respondents was a researcher's designed questionnaire titled 'Hibiscus tea as correlate of wellbeing among residents in Ilorin west, Local Government Area, Kwara State". The questionnaire consisted of two sections A and B. Section A elicited information on the demographic characteristics of the respondents, while section B elicited information on the variables under study. The questionnaire was a closed –ended of four-point Likert type of; Strongly

Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). In order to ascertain the validity of the instrument, three (3) drafted copies of questionnaires was given to three (3) experts in Department of Health Promotion and Environmental Health Education, Faculty of Education, University of Ilorin, Nigeria. Their suggestions and comments was used to make the final draft of the instrument. Reliability of the instrument was established by the use of test re-test method. The reliability of the instrument was therefore ascertained by using Pearson Product Moment Correlation (PPMC). A coefficient of 0.72r was obtained which show the instrument is reliable for the study. The researchers carried out the administration of the questionnaire on the respondents with the aid of two research assistants who were trained for the purpose of the research in administrating the instrument. The consent of the respondents was sought before administration of the instrument and those who were not willing to take part in the study were left out. The researchers answered all questions that were not clear to the respondents and translated the questionnaire orally to the respondents who could not read the text. The respondents responded to the item and the researchers collected the questionnaire immediately to avoid loss of instrument. The data collection was sorted coded and subjected to appropriate statistical analysis. Section A which entailed the demographic data of the respondents were described using descriptive statistics of percentage, while the inferential statistics of Chi-square was used to test the postulated null hypotheses at 0.05 alpha level.

Answer to Research Questions

Research Question 1: Will moderation of high blood pressure be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State?

Table 2: Percentile Analysis on Moderation of High Blood Pressure as a Perceived Influence of Hibiscus Tea Intake on Wellbeing

S/N	ITEMS	SA	A	Positive Response	D	SD	Negative Response
1.	Consumption of hibiscus tea effectively lowers blood pressure.	141 (68.8%)	34 (16.6%)	175 (85.4%)	12 (5.9%)	18 (8.8%)	30 (14.7%)
2.	Good blood pressure control with regular intake of hibiscus tea can prevent heart failure.	100 (48.8%)	87 (42.4%)	187 (91.2%)	18 (8.8%)	0 (0.0%)	18 (8.8%)
3.	Hibiscus helps relax blood vessels and reduce high blood pressure.	102 (49.8%)	79 (38.5%)	181 (88.3%)	24 (11.7%)	0 (0.0%)	24 (11.7%)

4.	Antioxidants in hibiscus tea protect the body against damage from oxidative stress and inflammation which contribute to high blood pressure.	101 (49.3%)	86 (42.0%)	187 (91.3%)	18 (8.8%)	0 (0.0%)	18 (0.0%)
	Mean			182 (88.8%)			23 (11.2%)

Table 2 shows that the means positive responses by the respondents to the items is 182 (88.8%), which is greater than the means of negative responses of 23 (11.2%). This implies that moderation of high blood pressure is a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Research Question 2: Will prevention of cancer be a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State?

Table 3: Percentile Analysis on Prevention of Cancer as a Perceived Influence of Hibiscus Tea Intake on Wellbeing

S/N	ITEMS	SA	A	Positive Response	D	SD	Negative Response
5.	Hibiscus tea extract limits cell growth and reduces mouth cancer.	78 (38.0%)	103 (50.2%)	181 (88.2%)	18 (8.8%)	6 (2.9%)	24 (11.7%)
6.	Regular intake of hibiscus tea helps reduce breast cancer in women.	52 (25.4%)	112 (54.6%)	164 (80.0%)	29 (14.1%)	12 (5.9%)	41 (20.0%)
7.	Hibiscus tea contains antioxidants which have anti-cancer properties.	100 (48.8%)	34 (16.6%)	134 (65.4%)	65 (31.7%)	6 (2.9%)	71 (34.6%)
8.	Stomach cancer can be reduced with the intake of hibiscus tea.	76 (37.1%)	52 (25.4%)	128 (62.5%)	35 (17.1%)	42 (20.5%)	77 (37.6%)
	Mean			152 (74.2%)			53 (25.9%)

Table 3 shows that the means positive responses by the respondents to the items is 152 (74.2%), which is greater than the means of negative responses of 53 (25.9%). This implies that prevention of cancer is a perceived influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Test of Hypotheses

H_{01}: Moderation of high blood pressure will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Table 4: Chi-square analysis on Moderation of High Blood Pressure as a Perceived Influence of Hibiscus Tea Intake on Wellbeing

Variable	N	Df	Cal. χ^2 value	Crit. χ^2 value	P value	Remark
Moderation of high blood pressure as a perceived influence of hibiscus tea intake on wellbeing	205	9	103.034	16.92	0.000	$H0_1$ Rejected

Table 4 shows the calculated Chi-square value of 103.034 which is greater than the critical Chi-square value of 16.92 (Cal. χ2 val. > Crit. χ2 val.) with a degree of freedom of 9 at 0.05 alpha level. Since the calculated χ2 value is greater than the critical value, the null hypothesis which stated that moderation of high blood pressure will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State is rejected. This implies that moderation of high blood pressure is a significantly perceived influence of hibiscus tea intake on wellbeing in Ilorin West Local Government Area, Kwara State.

H_{02}: Prevention of cancer will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State.

Table 5: Chi-square Analysis on Prevention of Cancer as a Perceived Influence of Hibiscus Tea Intake on Wellbeing

Variable	N	df	Cal. χ^2 value	Crit. χ^2 value	P value	Remark
Prevention of Cancer as a Perceived Influence of Hibiscus Tea Intake on Wellbeing	205	9	78.171	16.92	0.000	$H0_4$ Rejected

Table 5 shows the calculated Chi-square value of 78.171 which is greater than the critical Chi-square value of 16.92 (Cal. χ2 val. > Crit. χ2 val.) with a degree of freedom of 9 at 0.05 alpha level. Since the calculated χ2 value is greater than the critical value, the null hypothesis which stated that prevention of cancer will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State is rejected. This implies that prevention of cancer is a significantly perceived influence of hibiscus tea intake on wellbeing in Ilorin West Local Government Area, Kwara State.

Discussion

Hypothesis one revealed that the calculated Chi-square value of 103.034 which is greater than the critical Chi-square value of 16.92 (Cal. χ2 val. > Crit. χ2 val.) with a degree of freedom of 9 at 0.05 alpha level. Since the calculated χ2 value is greater than the critical value, the null hypothesis which stated that moderation of high blood pressure will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State was rejected. This implies

that moderation of high blood pressure is a significant perceived influence of hibiscus tea intake on wellbeing in Ilorin West Local Government Area, Kwara State. This finding is in line with the finding of Go, (2016) and World Health Organization, (2015) which stated that hibiscus tea decreased systolic and diastolic blood pressure by an average of 7.58 millimeters of mercury (mm Hg) and 3.53 mmHg, respectively. While hibiscus tea may be a safe and natural way to help lower blood pressure, it is not recommended for those who are taking medications to treat high blood pressure, as it may interact with these drugs it may help to reduce both systolic and diastolic blood pressure. High blood pressure, clinically known as hypertension, affects more than 75 million Americans, an estimated 1 billion individuals worldwide, and is a serious, life-threatening health condition.

Hypothesis two revealed that the calculated Chi-square value of 78.171 which is greater than the critical Chi-square value of 16.92 (Cal. $\chi 2$ val. > Crit. $\chi 2$ val.) with a degree of freedom of 9 at 0.05 alpha level. Since the calculated $\chi 2$ value is greater than the critical value, the null hypothesis which stated that prevention of cancer will not significantly be perceived as an influence of hibiscus tea intake on wellbeing among residents in Ilorin West Local Government Area, Kwara State is rejected. This implies that prevention of cancer is a significant perceived influence of hibiscus tea intake on wellbeing in Ilorin West Local Government Area, Kwara State. This corroborates with report of Spade, (2018) which reported that test-tube studies have found impressive results regarding the potential effects of hibiscus extract on cancer cells. In one test-tube study, hibiscus extract impaired cell growth and reduced the invasiveness of mouth and plasma cell cancers. Another test-tube study reported that hibiscus leaf extract prevented human prostate cancer cells from spreading. Hibiscus extract and its components have also been shown to inhibit the growth of other types of cancer cells in test-tube studies, including breast, stomach, and skin cancer. Hibiscus is high in polyphenols, which are compounds that have been shown to possess powerful anticancer properties (Trusted Source, 2019).

Conclusion

Based on the findings of the study, the following conclusion was drawn:

Taking hibiscus tea contributes to moderation of high blood pressure among residents in Ilorin West Local Government Area, Kwara State. Also, taking hibiscus tea tends to reduces risk of having cancer among residents in Ilorin West Local Government Area, Kwara State.

Recommendations

Based on the results of the findings the following recommendation were drawn:

1. Residents in Ilorin West Local Government Area, should encourage people with high blood pressure to drink hibiscus tea to moderate their blood pressure.

2. Residents in Ilorin West Local Government should take hibiscus tea regularly to prevent the growth of cancerous cell.

Reference

Adrian, R., O. & Miller, Y. (2015). "In Praise of Red Drink: The Origin Story Behind Soul Food's Most Iconic Beverage". *First We Feast. Retrieved 8 February 2019.*

Ali, B., H., Al Wabel, N. & Blunden, G. (2015). Phytochemical, Pharmacological and Toxicological Aspects of Hibiscus Sabdariffa L.: *A Review. Phytother Res 19: 369-375.*

Blunden, T. (2015). The Efficacy of Sour Tea (Hibiscus sabdariffa L.) on Selected Cardiovascular Disease Risk Factors: *A Systematic Review and Meta-Analysis of Randomized Clinical Trials. Phytother Res 34: 329-339.*

Cahliková, S., Lucie, M., Ali, Y., Badreldin, Y., Blunden, E. & Gerald, T. (2015). "Anthocyanins of Hibiscus sabdiffera Calyces from Sudan". Natural Product Communications. 10 (1): 77–79.

Cheng, L., C., Chou, S., T., Lo, H., Y., Li, C., C. & Chou, P., C. (2016). Exploring the Effect and Mechanism of Hibiscus sabdariffa on Urinary Tract Infection and Experimental Renal Inflammation. *J Ethnopharmacol 194: 617-625.*

Hadi, A., Pourmasoumi, M., Kafeshani, M., Karimian, J. & Maracy, M., R. (2017). The Effect of Green Tea and Sour Tea (Hibiscus Sabdariffa L.) *Supplementation on Oxidative Stress and Muscle Damage in Athletes. J Diet Suppl 14: 346-357.*

Lucie, E. (2015). Chemopreventive properties and molecular mechanisms of the bioactive compounds in Hibiscus sabdariffa Linne. *Curr Med Chem 18: 1245-1254.*

Serban, C., Sahebkar, A., Ursoniu, S., Andrica, F. & Banach, M. (2015). Effect of Sour Tea (Hibiscus sabdariffa L.) on Arterial Hypertension: *A Systematic Review and Meta-Analysis of Randomized Controlled Trials. J Hypertens 33: 1119-1127.*

World Health Organisation (2015). Hibiscus sabdariffa Meal Improves Iron Status of Childbearing Age Women and Prevents Stunting in Their Toddlers in Northern Ghana. Nutrients 11: 198.

Wu, H., Y., Yang, K., M. & Chiang, P., Y. (2018). *Roselle Anthocyanins: Antioxidant Properties and Stability to Heat and pH. Molecules 23: 1357*