

ASSESSMENT OF AWARENESS ON HEALTH BENEFITS OF SOME HORTICULTURAL PLANTS BY WOMEN HOUSEHOLD CONSUMERS IN FUNTUA LOCAL GOVERNMENT AREA OF KATSINA STATE, NIGERIA

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Abstract

The study assessed the awareness on health benefits of some horticultural plants by women household consumers in Funtua Local Government area of Katsina State. Five out of 10 wards in the area were conveniently selected using simple

random sampling techniques. One hundred women households were

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Introduction

Horticulture is a branch of agriculture that deals with the art, science, technology and business of growing plants. It includes the cultivation of medicinal plants, fruits,

randomly selected for the study. Primary data were collected with the aid of a structured questionnaires. Data obtained was analyzed using descriptive statistics and Correlation test analysis. The results revealed that the women household consumers were within the productive age with the mean of 30 years of age, married with mean household size of 6 persons. Their level of education was high and most of them were full-time house wives. The study revealed that 77% of the women household consumers were aware of the health benefits of some horticultural plants. About 74% cooked the horticultural plants before consumption and the common horticultural plants found are leafy vegetables such as spinach, Maringa and lettuce while onion, tomatoes and pepper were consumed by all the women households. The constraints were spoilage 11% and diarrhea 1%. The relationship between some selected socioeconomic characteristics of the women households' consumers and the awareness of the health benefits of horticultural plants was found to be significant. Women households' consumers should be encouraged to cultivate horticultural plants. Also, there is need for training on proper handling, storage, preservation and utilization of these horticultural plants to reduce spoilage were offered as recommendations.

Keywords: Women; Household; Horticultural Plants; Health Benefits; Awareness; Funtua

nuts, vegetables, seeds, herbs sprouts, mushroom, algae, flowers, seaweeds and non-food crops such as ornamental trees and plants. It also, includes plants conservation, landscape restoration, landscape and garden design construction,

maintenance and arboriculture. Inside agriculture, horticulture contrast with extensive field farming as well as animal husbandry (Schwartz, 1992).

However, horticulture may generally be classified into: Arboriculture which is the planting, selection, care and removal of individual trees, shrubs, vines and other perennial woody plants. Pomology includes the production and marketing of pome fruits. Floriculture includes the production, marketing and maintenance of landscape plants. Finally, olericulture is the study and production and marketing of vegetables and fruits (Schwartz, 1992).

Plants provide a myriad of benefits to people from the provision of food, fibres and building materials to more intangible benefits such as aesthetic, pleasure and improvement of health (Lohr, 2011). Among the benefits provided by plants, health stands as a benefit that is highly valued in modern society and the most valuable asset in life. To relieve the healthcare burden that derives from these developments, governments and other health authorities are actively seeking new ways to prevent disease and promote health' plants that have healing powers. Plants therefore provides a potentially powerful means to relieve the healthcare burden of an aging and increasingly unfit population worldwide (Schwartz, 1992).

There is a growing awareness and recognition by individuals from many different professions of the value of scientific evidence for health benefits of plants and green spices. This evidence can support policy makers and other key community and health decision makers in making well-informed decisions on the use of plants and green spices that optimize the benefits for the community. In addition, evidence can yield

practical guidelines for horticultural therapy and other interventions that make use of health benefits and green spices (Gareth, 2016).

Women nutrition needs change during mensuration, pregnancy, breastfeeding and menopause. A woman's reproductive life means that her nutritional needs differ greatly from those of a man. For example, extra folic acid is needed for the development and growth of new cells. Research suggested insufficient folic acid at the conception and the first trimester of pregnancy can increase the risk of neural defect in the unborn baby, foliate is present in variety of vegetables and fruits. Women needs more iron than men to make up for the amount of iron they lose in their menstrual period. Insufficient iron can lead to anemia. Iron is essentially important during pregnancy, good dietary source of iron are leafy green vegetables (Gareth, 2016).

Horticultural plants are nutritious and with abundant health benefits as they protect, cure diseases and boost body immunity. Hence, the study assessed the awareness of health benefits of some horticultural plants by women household consumers in Funtua Local Government of Katsina State. The specific objectives are to: i. describe the socio-economic characteristics of women in the study area, ii. determine the awareness of women household to the health benefits of horticultural plants, iii. examine the types of horticultural plants consumed, iv. know the compositions and health benefits of some horticultural plants, v. identify the usage pattern of the horticultural plants and vi. know the constraints encountered in the usage of horticultural plants.

Study Hypothesis

Ho = there is no significant relationship between awareness of health benefits of horticultural plants and the socioeconomic characteristics of women household consumers.

MATERIALS AND METHODS

The Study Area

The study was conducted in Funtua Local Government of Katsina State located between latitude $11^{\circ} 12'N$ to $11^{\circ} 70'N$ and longitude $7^{\circ} 12'E$ to $7^{\circ} 42'E$. It is bordered by Giwa Local Government Area to the South, Faskari Local Government Area to the North, Bakori and Danja Local Government Areas to the East and Dandume Local Government Area to the West. Funtua has a population of 420,110 people (NPC, 2012). The people are predominantly Hausa/Fulani by tribe. The total annual rainfall is about 1000mm while minimum and maximum temperature is $19^{\circ}C$ and $32^{\circ} C$ respectively. Generally, the climate varies considerably according to months and seasons. A cool dry season (Harmattan) from December to February followed by a hot dry season from March to May. A warm wet season from June to September, a less marked season after rains during the months of October to November which is characterized by decreasing rainfall and a gradual lowering of temperature (Abaje, 2007).

The Local Government Area is generally composed of undulating plains which generally rise up to about 600-700m above sea level. The vegetation of the area is Sudan Savanna which combines the characteristics and species of both the Guinea and Sahel Savanna. The people are predominantly peasant farmers who engaged in cultivation of various types of crops such as maize, millet, sorghum, vegetables and fruits. They also rear animals such as goats, sheep and poultry. Other activities engaged by Funtua people are trading and handwork (Abaje, 2007).

Sampling Procedure and Sample Size

Funtua Local Government Area consists of 10 wards out of which 5 wards namely: Mau-Gamji, Makera, Sabon-Gari, Tudun-Iya and Unguwar-Ibrahim were purposively selected using simple random

sampling technique. A total of 20 women households were selected from each of the selected wards to make a sample size of 100 respondents for the study by the use of convenience sampling technique.

Data Collection

Both primary and secondary information were used for the study. The primary data were obtained by the administration of structured questionnaire while secondary information was sourced from internet, journals, past projects and other literature relevant to the study.

Data Analysis

The data were analyzed using descriptive statistics (frequency, percentage and mean) and correlation analysis was used to determine the relationship between awareness of health benefits of horticultural plants and socioeconomic characteristics of women household consumers.

RESULTS AND DISCUSSION

Respondents Socioeconomic Characteristics

Results in Table1 show the distribution of respondents according to their socioeconomic characteristics. The results show that the respondents were within the range of 21, 30 and 40 years respectively with the mean of 30 years. This implies that most of the women household consumers of horticultural plants were young in their reproductive ages. As such, they require maximum consumption of horticultural plants for the supply of nutrients to boost their body immune system. Lohr (2011), reported that during reproductive years women are at risk for iron deficiency because they lose 20-40mg iron

each month during menstruation and during pregnancy the recommended daily amount increased to 27mg due to increased blood volume and the needs of the developing child. Iron is found in plant foods such as spinach

As indicated in Table 1, married women constituted about 42%, as the highest among the respondents in the study area. This implies that the benefits of horticultural plants are highly needed to protect them from disease, to boost their body immune system and prepare them during menstruation and pregnancy. According to Gareth (2016), the benefits of a diet rich in vegetables include healthy weight gains and maintenance, controlled blood pressure and reduced risks of anemia.

The result in Table 1 shows that 62% of the respondents were within the range of 1-5 household size while 4% constituted about 15 and above with the mean of 6 persons household size in the study area. This implies that women household size in the study area had moderate family size. The size of the family is a matter of great importance not only for the country as a whole but also for the welfare and health of the individual, family and community. Welch and Graham (1999) opined that family size is an important determinant of whether a family or individual is in poverty because family size depends on family income, cost of children, food security, wages, government transfers and preferences.

According to Table 1 the attainment of women by tertiary education was the highest with 35% followed by Qur'anic education with 31% while secondary and primary education were 28% and 6% respectively. Welch and Graham (1999) suggest that women having education are the more likely to consume more horticultural plants such as fruits and vegetables for their nutritive value.

Table 1 reveals that 47% of occupation of the women households' consumers of horticultural plants were mainly house wives followed by civil servants with 33% while students, trading and artisan having 10%, 9% and 1% respectively. The result further indicated that most of the women occupation is house wife. This is because traditionally women in north especially Hausa/Fulani women are not allowed to work even though they were educated. Since women account for half of a country's potential talent base, a nation competitiveness in the long term also depends considerably on how it educates and make use of its women. According to US Report (2005), a rise in female employment could significantly boost growth and per capital.

Table 1: Distribution of respondents based on their socioeconomic characteristics (n=100)

Variable	Frequency	Percentage	Mean
Age (years)			
10-20	7	7.0	30 years
21-30	50	50.0	
31-40	40	40.0	
41-50	3	3.0	
Marital Status			
Single	36	36.0	
Married	42	42.0	
Divorced	16	16.0	
Widowed	6	6.0	
Household Size (persons)			
1-5	62	62.0	6 persons
6-10	27	27.0	
11-15	7	7.0	
>15	4	4.0	

Educational Status			
Qur'anic Education	31	31.0	
Primary Education	6	6.0	
Secondary Education	28	28.0	
Tertiary Education	35	35.0	
Occupation			
House wife	47	47.0	
Trading	9	9.0	
Artisan	1	1.0	
Civil Servant	33	33.0	
Students	10	10.0	

Source: Field survey, 2019.

Awareness on Health benefit of Horticultural Plants by Women Households

Table 2 reveal the benefit of horticultural plants where 77% of the respondents were aware of health benefit of horticultural plants while 23% were unaware. Horticultural plants play a valuable role in food systems by diversifying diets and fostering increased dietary consumption of micronutrients and other plants products known to benefit human health (Demment *et al.*, 2003). In the same vein, Sommer and West (1996) reported that the perceived benefit of eating and dietary change includes weight control, being healthy, improved quality of life and disease prevention.

Also in Table 2, the women view on the quantity of horticultural plants needed to derived health benefit was determined where 55% of the respondents indicated much quantity while 32% and 13% indicated moderate and small quantity respectively. This result implies that much quantity is needed to derive the health benefit of horticultural plants.

Thus, in traditional herbs and horticultural plants as well no exact amount or measurement needed for consumption. Consumption of horticultural plants such as vegetables, fruits and pulses are essential for enhancing the health and productivity of populations (Aphane *et al.*, 2002).

Table 2: Distribution of women households' consumers based on health benefit of horticultural plants (n=100)

Variables	Frequency	Percentage
Health Benefit of Horticultural Plants		
Aware	77	77.0
Unaware	23	23.0
Quantity of Horticultural plants needed to derive health benefit		
Much	55	55.0
Moderate	32	32.0
Small	13	13.0

Source: Field survey, 2019.

Horticultural Plants Consumed by Women Households

Table 3 show some of the horticultural plants consumed by women households in the study area. Onion, Tomatoes and Pepper were consumed 100%. This is because the three horticultural plants were consumed in all the women households as the basic ingredients for soup and stew. It follows by Spinach 60%, Maringa 50; Cucumber 40%, Watermelon 35%, Lettuce 30% Pawpaw and Cabbage 25% each and Carrot 20%. According to Gareth (2016), the benefits of a diet rich in vegetables include healthy weight gains and maintenance, controlled

blood pressure and reduced the risks of anemia. The fact that they are women, eating vegetables during pregnancy is not just good for the baby but essential for pregnant mothers and those planning to get pregnant to remain healthy as well.

Table 3: Distribution of some Horticultural Plants consumed by Women Households
* Multiple Responses

Variables	Frequency	Percentage
Onion	100	100
Tomatoes	100	100
Pepper	100	100
Spinach	60	60
Maringa	50	50
Watermelon	35	35
Lettuce	30	30
Cucumber	40	40
Pawpaw	25	25
Carrot	20	20
Cabbage	25	25

Source: Field survey, 2019.

Compositions and Health Benefits of some Horticultural Plants

Table 4: indicate the compositions and health benefits of some horticultural plants. Micronutrients deficiencies and associated complications resulting from poor dietary quality, hinder the development of human capacity and creativity which is the foundation for economic growth and ultimately, poverty alleviation. Horticultural plants play a valuable role in food system by diversifying diets and

fostering increased dietary consumption of micronutrients and other plants products known to benefit human health (Demment et al., 2003).

Table 4: Distribution of compositions and Health Benefits of some Horticultural Plants

Horticultural plants	Compositions	Health Benefits
Onion (' <i>Allium cepa</i> ' L)	All vitamins and minerals are present.	Apart from giving delicious flavor, onion is medicinal. It cures bronchitis, respiratory disorders, pneumonia and cold. The oil in onion is anti-biotic, decongestant, anti-asthmatic, heart and arterial protector, diuretic and carcinogenic.
Tomatoes (' <i>Solanum lycopersium</i> ' L)	Fresh tomatoes contain almost 94% water, vitamin C, minerals like potassium, iron, magnesium and phosphorus	Tomatoes increase urine output and purify the blood which aid kidney function.
Cabbage (' <i>Brassica Oleracea</i> ' L)	Rich in beta-carotene (pro vitamin A and vitamin C and also minerals such as potassium, calcium, phosphorus, iron and magnesium.	It heals ulcer and capable of preventing formation of malignant tumors and even stop their growth, cure hypertension or fluid retention (edema).
Cucumber (' <i>Curcumins sativa</i> ' L)	Cucumber contains 96% water, eating it is just like drinking glass of water. Also, contain provitamins A, B, C and E.	Good alkalizer (neutralizes excess acidic waste), laxative, diuretic (increase urine output) and depurates (facilitate the elimination of waste substance from bloodstream through

Watermelon (<i>'Citrullus lanatus'</i>)	It contains less vitamin C, foliates, iron, potassium, beta-carotene (pro-vitamin A), vitamin B, and vitamin BC	either urine or sweat. Also rich in preventing obesity, diabetes and constipation. It is hydrating, remineralizing, alkalizing, diuretic and laxative. It is well tolerated by diabetic patients because of its low sugar content.
Pawpaw (<i>'Carica papaya'</i> L)	Pawpaw contains 88.8% water. The pulp provides 10.3% of RDA of vitamin C, 18% vitamin A and B. It is rich in minerals such as potassium, calcium, magnesium, phosphorus and iron.	Pawpaw is recommended in cases of stomach disorders such as in difficult digestion, gastritis and intestinal disorders and parasites particularly Tenia (Tape worm).
Carrot (<i>'Daucus carota'</i> L)	Carrot contains 25% water, vitamin A, B, C and D. also, rich in minerals like potassium, calcium, magnesium, phosphorus and iron.	Carrot is very useful in diseases of the retina and of the eyes in general, skin disorders, gastritis, excess of gastric acid colitis and in the prevention of cancer and ulcer.
Source: Field survey, 2019.		

The Usage pattern of the Horticultural Plants by the Women Households and Constraints

Result in Table 5 show the usage pattern of the horticultural plants and constraints where 74% of the women household used it cooked, 21%

used it raw while 5% used it processed. This implies that majority of the women household consumers' uses cooked horticultural plants. This is because the common horticultural plants found are leafy vegetables such as spinach, Maringa, lettuce, guave and mango, leaves or stem and they are mostly consumed cooked. The increased demand for horticultural products in the developed world is driven by the recognized health benefits of a diet sufficient in fruits, vegetables (including vegetable-based oils) and nuts. Many vegetables and fruits are rich in beneficial phytonutrients including lycopene, beta-carotene and other antioxidant compounds that can reduce the risk of chronic disease by protecting against free-radical mediated damage (Southon, 2000).

Also, Table 5 indicate the usage of horticultural plants by the women household consumers and constraints where 11% faced the problem of spoilage while 1% faced the problem of diarrhea. This result implies that majority of the women household consumers of horticultural plants were not having any constraints. The problems observed could be as a result of handling and individual body system. The improvement on the method of handling and proper combination of horticultural plants in diet will resolve the problem. Fiber especially helpful in regulating a woman's digestive system. Fiber is also important for reducing a woman's risk of gestational diabetes. Some vegetables that are can provide fiber include: Avocados, Sweet potatoes, Spinach, Cooked carrots, Broccoli and Sweet corn (Gareth, 2016).

Bananas are rich in minerals prominent among which are potassium, magnesium and iron. Banana is nutritious and medicinal fruit good for coronary disease, it prevents heart attack. It has abundant vegetable fiber that lower cholesterol level. It also relieves intestinal disorders

such as diarrhea in children as well as in adults. It also helps to neutralize and eliminate the excess uric acid that causes arthritis and gout (Wikipedia, 2016).

Table 5: Distribution of women household consumers based on the usage pattern of horticultural plants (100)

Variables	Frequency	Percentage
Use pattern of Horticultural Plants		
Cooked	74	74.0
Raw	21	21.0
Processed	5	5.0
Constraints faced in using the Horticultural Plants		
Spoilage	11	11.0
Diarrhea	1	1.0
No problem	88	88.0

Source: Field survey, 2019.

Correlation Test Analysis

Table 6 indicates a test of relationship between awareness of health benefit of horticultural plants and socioeconomic characteristics of women household consumers. The result show that age, household size, occupation and education were significant only marital status had no significant relationship with the women household consumers' awareness on the health benefit of horticultural plants. This implies that the older the women household the more they need to know the health benefit of what they will consume to improve their health and fitness.

Similarly, the higher the household size, occupation and education the more the awareness of health benefit of horticultural plants.

Spinach is very rich in vitamin A, C and folic acid. Also, it contains mineral such as magnesium and iron. In addition to providing strength to muscles, it protects the retina (eye vision). It is highly recommended for anemic patients, pregnancy, elevated cholesterol level, renal disorders, physical activities and growth (UN Report, 2004).

Table 6: Correlation Test between some selected socioeconomic characteristics of women households' consumers of horticultural plants and their awareness of health benefit of horticultural plants (n=100)

Variables	Coefficient	P-values	Remarks
Age	0.612	0.000	S
Marital Status	-0.031	0.757	NS
Household Size	0.773	0.000	S
Occupation	0.727	0.000	S
Education	0.516	0.000	S

Correlation is significant at 0.01 level.

CONCLUSION AND RECOMMENDATIONS

The findings from the study indicated that the women households' consumers were at active productive age group and married with mean household size of 6 persons. Their level of education was high and most of them were full-time house wives. The findings further revealed that the women household were fully aware of the health benefit of horticultural plants. Among the horticultural plants consumed, onion,

tomatoes and pepper were consumed by all the women household. The horticultural plants were cooked before consumption. The problems of spoilage and diarrhea as observed were as a result of handling and individual body system which could be resolve by improvement on the method of handling and proper combination of horticultural plants in diet. The relationship between some selected socioeconomic characteristics of the women household consumers and the awareness of the health benefit of horticultural plants was found to be significant with only marital status been insignificant. This is because the older the women households' consumers, the more they need to know the health benefit of what they will consume to improve their health and fitness. As such, horticultural plants are the solutions to adult, pregnancy, growth and aging.

Women household consumers should be motivated and encouraged to establish backyard garden so as to fast track the cultivation of horticultural plants to make them readily available. Also, there is need for training on proper handling, storage, preservation and utilization of these horticultural plants to reduce spoilage as a result of their perishable nature. These were offered as recommendations.

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