



FACTORS INFLUENCING THE STATED PREFERENCE FOR FRUITS AND VEGETABLES: A CASE OF YOUNG ADULTS IN LAGOS STATE, NIGERIA

Ojedokun, A.O. and Bankole, I.Y.

Department of Agricultural Economics and Farm Management, Lagos State University,
Lagos State, PMB 0001, Epe Campus, Lagos State, Nigeria

***Corresponding Author.s Email:** ajibola.ojedokun@lasu.edu.ng

ABSTRACT

The study was carried out to investigate the influence of different attributes on the stated preference for fruits and vegetables among young adults in Lagos State, Nigeria. A multistage sampling technique was used to select 284 young adults from different tertiary institutions. Data were collected using structured questionnaire and analyzed using descriptive statistics and inferential statistics such as a multivariate probit regression model. The study revealed that orange (90.4%), pineapple (60.3%), pawpaw (55.5%), watermelon (58.1%), banana (61.4%), apple (72.8%), tomato (93.0%), onion (73.5%), and carrot (61.8%) were the fruits and vegetables mostly preferred by young adults, respectively. The results further revealed that the general attributes or reasons that informed these choices for fruits and vegetables were young adults' likeness (72.8%), taste (65.4%), and the nutritional benefits (59.9%). In addition, the findings showed that the specific attributes that mostly informed young adults' preference for each fruit or vegetable were their likeness (orange (74.3%), apple (61.4%), tomato (77.2%) and onion (58.8%)), taste of the fruit or vegetable (orange (75.0%), apple (60.7%), tomato (73.0%) and onion (53.3%)), appearance of the fruit or vegetable (orange (52.0%) and tomato (59.0%)), health reasons (tomato (58.1%)), nutritional benefits derived from the fruit or vegetable (orange (54.8%) and tomato (58.1%)), availability of the fruit or vegetable (tomato (54.0%)), and affordability of the fruit or vegetable (tomato (50.7%)). The findings further revealed that taste (orange ($P < 0.05$), apple ($P < 0.10$) and tomato ($P < 0.01$)), availability (tomato ($P < 0.01$) and onion ($P < 0.05$)), and nutritional benefits derived from consuming fruit or vegetable (orange ($P < 0.01$), watermelon ($P < 0.10$), pawpaw ($P < 0.05$), pineapple ($P < 0.05$) and banana ($P < 0.05$)) were mostly the factors that influenced young adults' preference for the different fruits or vegetables. The study concluded that taste, availability and nutritional benefits of fruits and vegetables were the factors influencing preference among young adults in the study area. Based on the findings, the study recommended that if the health security of young adults will be prioritized, then nutritional education must be provided from an early stage.

Keywords: Young, Adults, Fruits, Vegetables, Nutrition, Institution

INTRODUCTION

The increasing urbanization trend in many developing countries, including Nigeria had provided young adults with enough freedom to decide on what they choose to eat. These young adults, while making their choice, are however filled with the urge to consume convenience foods (Olatona *et al.*, 2018). Their expectations for food are influenced by several factors like changing lifestyles, changing eating habits, and the possibility of expanding food choices (Szczepanski, 2016). In addition, the lifestyle changes or nutrition transition resulting from urbanization indicates a shift towards dietary preferences dominated by fast foods and junk foods (Musaiger, 2011). Whilst these foods are tasty, they however contain excess calories and have low nutritive value which are not only unhealthy, but also affect learning ability (Manpreet, 2008), and are risky to the development of young adults. The dismal picture of the consumption of these unhealthy diets spells serious consequences, some of which are increasing rate of non-communicable diseases and behavioural problems among young adults (Manpreet, 2008; Bhaskar and Monica, 2012); thus, contributing to the already increasing health and disease burdens (Gayathri *et al.*,



2017). However, to combat and mitigate the health and disease burdens experienced among young adults, there is a need to promote the consumption of healthy diets (Williams *et al.*, 2020), and evidence has been provided through research which showed the numerous health benefits emanating from consuming diets rich in both fruits and vegetables (Van and Pivonka, 2000; Stan *et al.*, 2008). Fruits and vegetables (FVs), according to Bjelland *et al.* (2013) and Sachdeva *et al.* (2013), are very important as they prolong satiety and provide a diversified, tasty, flavoured, low-caloric, and protective, micronutrient rich diet which is very beneficial to the human body. In addition, they are very rich in dietary fibre and other micronutrients such as vitamins and minerals, which are necessary for the proper functioning of the body (Uusiku *et al.*, 2010). They also play important roles in the prevention of several chronic and non-communicable diseases if consumed regularly and sufficiently (Volken *et al.*, 2012). Despite the importance of FVs, several authors opined that their intake still remain far below the minimum recommendation of 400g *per capita* per day (Ruel *et al.*, 2005; Banwat *et al.*, 2012; Ogundari and Arifalo, 2013; Pem and Jeewon, 2015; Global Burden of Disease Collaborators, 2019). The low consumption of FVs could be due to a poor perception or preference for FVs among consumers, especially young adults. This is because consumers' preferences have the potential to define the pattern of their expenditure for an offer. In fact, Layade and Adeoye (2014) submitted that preference has the potential to influence consumers' decisions with respect to what they choose to purchase or consume. Consumers' expectations are driven by a desire for fresh, exciting flavours, a pursuit of health and wellness as well as a demand for transparency and authenticity (Szczepanski, 2016). Consumers today want more than an offer – they want the value that comes with the offer. They also want convenience and quality, which according to Mugaonkar *et al.* (2011) are major factors responsible for the shift that is being observed in the market.

Several studies have been conducted on preferences for FVs in Nigeria, some of which include consumer preference for watermelon varieties (Adeoye and Balogun, 2012); consumption purchasing behavior for fruits and vegetables (Ohen *et al.*, 2014), and consumer preferences for leafy vegetable (Ajijola *et al.*, 2014). Whilst these studies were either conducted at an aggregated level or focused on the socio-economic characteristics that influenced preference, this particular study focused on FVs at a disaggregated level and also considered physiological attributes (likeness, affordability and health reasons) and intrinsic food properties (taste, appearance/attractiveness and nutritional benefits) that could influence preference for FVs in its estimation. This is because Köster (2009), opined that preference for food is a result of a myriad of interacting factors which includes psychological factors, environmental factors, intrinsic and extrinsic food properties. Doing this is pertinent because, according to Laureati (2022), an understanding of the factors responsible for shaping preference and choice especially from an early age will not only help tackle unhealthy eating habits but can also aid in the prevention of non-communicable diseases. Also, an understanding of the preference for FVs at a disaggregated level can help design social market interventions that will influence consumption of FVs severally (Kpodo *et al.*, 2015). It is against this background that this study identified the preference for FVs among young adults and determined the factors that influence preference for FVs among young adults in Lagos State, Nigeria.

MATERIALS AND METHODS

Study Area

This study was carried out in Lagos State, Nigeria. Lagos State, which is one of Nigeria's 36 States, is the most populous and smallest in area (Aliyu and Amadu, 2017; Tangwa *et al.*, 2019), is located between latitude 6°31'27.77"N and 3°22'45.14"E, and borders Ogun State to the east and north making it the only Nigeria State to border only one State. Lagos State, with an estimated population of 15,388,000 people, has the largest proportion of young adults between the ages of 15 and 35 in the country (Federal Ministry of Youth and Sports Development, 2019; Macrotrends, 2022). The State has different higher institutions, comprising of Federal-owned, State-owned and Private-owned institutions, where young adults can be adequately and appropriately surveyed. Lagos State offers a wide range of



fresh FVs that are widely sold at several markets by market agents or vendors to the majority of the population. In addition, there are several supermarkets where FVs are imported from different parts of the world to supplement local production in Lagos State. These markets offer a wide range of FVs (including tropical fruits, leafy greens, tomatoes, peppers and onions), which are consumed by people of all ages, tribe and region who consider these FVs to be an essential part of a healthy diet.

Sampling Technique and Sample Size

A multistage sampling procedure was used for this study. The first stage involved a stratification of the tertiary institution in Lagos State into Private-, State- and Federal-owned institutions. In the second stage, two tertiary institutions were randomly selected from each stratum. The third stage involved a random selection of a Faculty/School/College from each institution. The fourth stage involved a random selection of a Department from each Faculty/School/College, respectively. In the fifth stage, a Level was randomly selected from each Department. Finally, the sixth stage involved the sampling of all students in each respective Level to arrive at a sample size of 284 respondents.

Data Collection

Primary data were collected from each respondent using a well-structured questionnaire. The information collected include types of FVs preferred, and attributes that could influence respondents' preference for FVs. It is noteworthy that the FVs used were those available in the market during the survey period. However, for this study, only 272 copies of the questionnaires collected were found useful for analysis and discussion.

Data Analysis

Data for this study were analyzed using both descriptive and inferential statistics. The descriptive statistics used were frequency distribution, percentage and mean. The inferential statistics used was multivariate probit regression.

Multivariate Probit regression model

The probit model estimates the probability of preferring FVs for an individual respondent and measures this likelihood after controlling the relevant variables used in the model. The dependent variable was defined as a dichotomous variable with the values 1 for those who prefer and 0 for those who do not prefer. To estimate the preference equations for all the FVs, the simplest and most straightforward estimation procedure would be to estimate each probit equation separately. The multivariate probit model was structured as follows:

$$y_{im}^* = \beta_m' X_{im} + \epsilon_{im}, m = 1, \dots, M \quad (1)$$

$$y_{im}^* = 1 \text{ if } y_{im}^* > 0 \text{ and } 0 \text{ otherwise} \quad (2)$$

$\epsilon_{im}, m = 1, \dots, M$ are error terms distributed as multivariate normal, each with a mean of zero, and variance-covariance matrix V , where V has a value of 1 on the leading diagonal and correlations $\rho_{jk} = \rho_{kj}$ as off diagonal elements. The X_{im} is a vector of explanatory variables and β_m are unknown parameters to be estimated. The probability function of the probit model is usually the standard normal density which provides predicted values within the range (0, 1). Therefore, a multivariate model allowing for the possible contemporaneous correlation in the decisions to choose the different FVs was specified as follows:

$$y_{ij} = x_{ij}' \beta_j + \epsilon_{ij} \quad (3)$$

Where

i = observation of respondent;

j = the number of FVs ($j = 1, \dots, 9$ for the different FVs);

ϵ_{ij} = unobserved error term;

y_i = FVs preferred by respondent;

Prob ($y_i = j$) = probability of preferring any of the selected FVs;



$$y_{ij}^* = \alpha_{ij} + \sum_{n=1}^{n=7} \beta_{nj} X_{ni} + \varepsilon_{ij} \quad (4)$$

Where: y_{ij}^* is a set of n-latent variables underlying each of the preference for FVs such that $y_j = 1$ if $y_j^* > 0$; 0 otherwise.

β = the coefficients' vector;

X_i = vector of attribute characteristics for FVs,

where:

X_1 = likeness (dummy 1 = yes and 0 = no);

X_2 = taste (dummy 1 = yes and 0 = no);

X_3 = appearance/attractiveness (dummy 1 = yes and 0 = no);

X_4 = affordability (dummy 1 = yes and 0 = no);

X_5 = availability (dummy 1 = yes and 0 = no);

X_6 = health reasons (dummy 1 = yes and 0 = no);

X_7 = nutritional information received (dummy 1 = yes and 0 = no);

ε_i = Error term

RESULTS AND DISCUSSION

Preference and General Attributes for Preferring Fruits and Vegetables (FVs) among Young Adults

The result on Table 1 showed that the fruits mostly preferred by majority of the respondents are orange (90.4%), apple (72.8%), banana (61.4%), pineapple (60.3%), watermelon (58.1%) and pawpaw (55.5%). This is in congruence with another study which reported orange, pineapple and apple as the most preferred fruits (Olatona *et al.*, 2018). The result further revealed that the general attributes that influenced respondents' preference for fruits are likeness for the fruits (72.8%), the taste of the fruit (65.4%) and the nutritional benefits derived from the fruit (59.9%). This is quite similar to the findings of Layade and Adeoye (2014) and Olatona *et al.* (2018), where, in their different studies, they reported taste, health benefits and availability as the reasons for respondents' choice of fruits. Also, the result showed that the vegetables mostly preferred by the respondents are tomato (93.0%), onion (73.5%) and carrot (61.8%). In addition, the result revealed that the attributes that influenced respondents' choice for the vegetables are likeness for the vegetables (71.3%), taste of the vegetables (66.2%) and nutritional benefits derived from consuming the vegetables (55.1%). This is similar to the results of Hart *et al.* (2005), who in their study reported availability, taste and nutritional knowledge as the reasons for consuming vegetable.



Table 1: Distribution of Respondents Based on Fruits and Vegetable Preference and General Attributes towards Fruits and Vegetables

Characteristics of FVs	Frequency	Percentage
Fruits preferred*		
Orange	246	90.4
Watermelon	158	58.1
Pawpaw	151	55.5
Pineapple	164	60.3
Banana	167	61.4
Apple	198	72.8
Tangerine	121	44.5
Grape	113	41.5
Cucumber	131	48.2
Lemon	79	29.0
Lime	80	29.4
Garden egg	105	38.6
Vegetables preferred *		
Tomato	253	93.0
Onion	200	73.5
Cabbage	105	38.6
Spinach	102	37.5
Lettuce	84	30.9
Carrot	168	61.8
Okra	103	37.9
Pumpkin	121	44.5
Waterleaf	103	37.9
Celosia	103	37.9
Afang	72	26.5
Bitter leaf	99	36.4
Scent leaf	73	26.8
Garlic	103	37.9
General attributes for Fruit Preference*		
Likeness	198	72.8
Taste	178	65.4
Appearance	122	44.9
Season	98	36.0
Texture	96	35.3
Affordability	121	44.5
Availability	103	37.9
Health reasons	125	46.0
Nutritional benefits	163	59.9
Information by family and friends	125	46.0
General attributes for Vegetable Preference*		
Likeness	194	71.3
Taste	180	66.2
Appearance	119	43.8
Season	88	32.4
Texture	95	34.9
Affordability	124	45.6
Availability	103	37.9
Health reasons	130	47.8
Nutritional benefits	150	55.1
Information by family and friends	114	41.9



Source: Field Survey, 2022

Note: * represents multiple response

Specific Attributes for Preferring FVs among Young Adults

The result on Table 2 showed the specific reasons and attributes for each fruit and vegetable preferred by respondents. The result revealed that majority of the respondents who preferred orange mostly preferred it because of its taste (75.0%), their likeness for orange (74.3%), nutritional benefits derived from consuming orange (54.8%), its appearance (52.2%), while some others preferred orange because of health reasons (47.1%), it is available (46.0%), it is affordable (46.0%), and it is in season (43.4%). The result also showed that some of the respondents who preferred watermelon preferred it because of its taste (47.1%) and their likeness for watermelon (43.8%). In addition, the result showed that some of the respondents who preferred pawpaw preferred it because of its taste (42.6%) and their likeness for pawpaw (41.9%). Similarly, the result revealed that some of the respondents who preferred pineapple preferred it because of its taste (50.0%) and their likeness for pineapple (48.9%). The result also showed that some of the respondents who preferred banana preferred it because of their likeness for banana (49.6%) and its taste (48.9%).

Furthermore, the result revealed that respondents who preferred apple mostly preferred it because of their likeness for apple (61.4%) and the taste of apple (60.7%), while some others who preferred the fruit preferred it because of its appearance (45.2%), nutritional benefits derived from consuming apple (44.1%) and its availability (40.4%). In addition, the result revealed that respondents mostly preferred tomato because of their likeness for the vegetable (77.2%), the taste of tomato (73.2%), its appearance (59.9%), the nutritional benefits derived from consuming tomato (58.1%), its availability (54.0%), health reasons (51.5%) and it is affordable (50.7%), while some others who preferred tomato preferred it because it is in season (49.3%), its texture (44.5%) and the information received about the vegetable (43.0%). Also, the result revealed that respondents who mostly preferred onion preferred it because of their likeness for onion (58.8%) and its taste (53.3%), while some others who preferred onion preferred it because of its nutritional benefits (45.6%) and appearance (41.9%). Lastly, the result showed that some of the respondents who preferred carrot preferred it because of their likeness for carrot (49.6%) and its taste (43.4%).

Determinants of the Preference for FVs among Young Adults

The result of the multivariate probit model as presented on Table 3 revealed that the log-likelihood function was -1183.0489, the Wald chi-square was 333.91 and the Prob>chi-square was 0.0000 indicating that the entire model was significant at the 1 per cent level of significance. These diagnostic variables and the level of significance reveal the fitness of the entire model.

i. Orange

The result showed that the coefficient of likeness was positive and statistically significant at the 1 per cent level of significance. This implies that respondents will more likely prefer orange because of their likeness for the fruit. The positive relationship between preference for orange and likeness is not far-fetched as it is expected for consumers to prefer what they admire or take a fancy to over items that they do not fancy. This is in congruence with Harahap *et al.* (2019), who submitted that as consumers' taste or likeness for a good increase, the frequency of request for that good will also increase and vice-versa. The result also showed that the coefficient of taste was positively significant at 5 per cent level of significance, indicating that respondents are more likely to prefer orange if they like its taste. As a matter of fact, Wismer (2014) and Yahia *et al.* (2019), reported that consumers will highly appreciate fruits because of their tastefulness. In addition, the result showed that the coefficient of availability was positive and statistically significant at 10 per cent level of significance, implying that respondents will more likely prefer orange because it is available. This is true as an item that is readily available has the potential to induce consumers' preference for it. Kpodo *et al.* (2015), further noted that availability is a key variable



of interest which aids respondents' preference for fruits. Lastly, the result revealed that the coefficient of nutritional benefits was positively significant at 1 per cent level of significance. This indicates that respondents will more likely prefer orange because of the nutritional benefits they derive from consuming it. According to Jesionkowska *et al.* (2009) and Asioli *et al.* (2019), health-related attributes like nutritional content of fruits is considered an important intrinsic attribute that induced consumers' preference for fruits.



Table 2: Distribution of Respondents Based on Specific Attributes for Fruits and Vegetables

Specific attribute	Orange	Watermelon	Pawpaw	Pineapple	Banana	Apple	Tomato	Onion	Carrot
Likeness	202 (74.3)	119 (43.8)	114 (41.9)	133 (48.9)	135 (49.6)	167 (61.4)	210 (77.2)	160 (58.8)	135 (49.6)
Taste	204 (75.0)	128 (47.1)	116 (42.6)	136 (50.0)	133 (48.9)	165 (60.7)	199 (73.2)	145 (53.3)	118 (43.4)
Appearance	142 (52.2)	86 (31.6)	93 (34.2)	93 (34.2)	90 (33.1)	123 (45.2)	163 (59.9)	114 (41.9)	100 (36.8)
Season	118 (43.4)	61 (22.4)	71 (26.1)	82 (30.1)	67 (24.6)	97 (35.7)	134 (49.3)	91 (33.5)	77 (28.3)
Texture	107 (39.3)	55 (20.2)	73 (26.8)	72 (26.5)	60 (22.1)	91 (33.5)	121 (44.5)	81 (29.8)	74 (27.2)
Affordability	125 (46.0)	65 (23.9)	72 (26.5)	81 (29.8)	77 (28.3)	100 (36.8)	138 (50.7)	102 (37.5)	84 (30.9)
Availability	125 (46.0)	67 (24.6)	74 (27.2)	83 (30.5)	83 (30.5)	110 (40.4)	147 (54.0)	105 (38.6)	80 (29.4)
Health reasons	128 (47.1)	70 (25.7)	77 (28.3)	81 (29.8)	73 (26.8)	102 (37.5)	140 (51.5)	107 (39.3)	82 (30.1)
Nutritional benefits	149 (54.8)	82 (30.1)	88 (32.4)	97 (35.7)	96 (35.3)	120 (44.1)	158 (58.1)	124 (45.6)	96 (35.3)
Information by family and friends	100 (36.8)	53 (19.5)	59 (21.7)	66 (24.3)	60 (22.1)	86 (31.6)	117 (43.0)	82 (30.1)	76 (27.9)

Source: Field Survey, 2022

Note: The figures in parenthesis are the percentages

Table 3: Determinants of Preference for Fruits and Vegetables

Variable	Orange	Watermelon	Pawpaw	Pineapple	Banana	Apple	Tomato	Onion	Carrot
Likeness	0.637*** (3.12)	-0.119 (-0.85)	0.226 (1.51)	0.165 (1.11)	0.051 (0.36)	0.076 (0.51)	0.695*** (3.50)	0.204 (1.36)	0.253* (1.86)
Taste	0.398** (1.96)	0.205 (1.46)	-0.131 (-0.84)	-0.131 (-0.85)	0.115 (0.79)	0.300* (1.94)	0.598*** (3.08)	0.214 (1.52)	0.069 (0.53)
Appearance	0.146 (0.70)	0.129 (0.92)	-0.082 (-0.54)	0.072 (0.48)	-0.085 (-0.60)	0.358** (2.30)	0.413* (1.81)	-0.222 (-1.41)	0.099 (0.71)
Affordability	0.162 (0.73)	-0.144 (-1.01)	-0.137 (-0.90)	-0.182 (-1.18)	0.163 (1.14)	0.134 (0.86)	0.099 (0.45)	0.292* (1.81)	-0.028 (-0.20)
Availability	0.385* (1.67)	0.193 (1.33)	-0.170 (-1.09)	0.327** (2.11)	0.262* (1.79)	0.174 (1.08)	0.548** (2.14)	0.584*** (3.27)	-0.066 (-0.44)
Health reasons	0.047 (0.21)	0.148 (1.00)	0.136 (0.87)	0.000 (0.00)	-0.128 (-0.85)	0.168 (1.03)	0.370* (1.86)	0.122 (0.81)	0.115 (0.85)
Nutritional benefits	0.639*** (2.93)	0.278* (1.92)	0.360** (2.29)	0.315** (2.00)	0.312** (2.11)	0.032 (0.20)	0.098 (0.50)	0.244 (1.60)	0.122 (0.88)
Wald Chi-square	333.91								
Prob>Chi ²	0.0000								
Log-Likelihood	-1183.0489								

Source: Data Analysis, 2023

Note: *, **, and *** represents 10%, 5% and 1% level of significance, respectively; and the figures in parenthesis are the z-values



ii. Watermelon

The result showed that the coefficient of nutritional benefits was positively significant at 10 per cent level of significance. This indicates that respondents will more likely prefer watermelon because of the nutritional benefits they derive from consuming it. This further means that young adults who are highly conscious of their health will more likely prefer watermelon when compared to young adults who are less conscious of their health. According to Mai and Hoffmann (2012), a relatively high consciousness of one's health can drive a health-related food choice, that is, it can help a consumer make a food choice by taking into cognizance health-related attributes over non-health-related attributes.

iii. Pawpaw

The result showed that the coefficient of nutritional benefits was positively significant at 5 per cent level of significance. This indicates that respondents will more likely prefer pawpaw because of the nutritional benefits they derive from consuming it. The positive relationship is not far-fetched as many young adults have a knowledge of the benefits of papaya on the skin and also in preventing cholesterol buildup, treating stomach ache and ringworm infections (Amao, 2018).

iv. Pineapple

The result showed that the coefficient of availability was positive and statistically significant at 5 per cent level of significance. This implies that the likelihood of respondents preferring pineapple will increase if it is readily available. Ismail *et al.* (2017), noted that pineapples are readily available all year round, and this could very well induce young adults' preference for the fruit. In addition, the result revealed that the coefficient of nutritional benefits was positively significant at 5 per cent, indicating that respondents will more likely prefer pineapple because of the nutritional benefits they derive from consuming pineapple. This shows that young adults who attach more value to their health will prefer pineapple because of the benefits they can get from its consumption. Such benefits could include enhancement of weight loss, prevention or treatment of nausea, constipation, and throat infection (Amao, 2018). This is similar with another study which found out that consumers attached more value to many intrinsic attributes of fruits like nutritional value (Heng and House, 2018).

v. Banana

The result showed that the coefficient of availability was positively significant at 10 per cent, indicating that respondents will more likely prefer banana if it is readily available. This is similar to the result of Amao and Ayantoye (2014), where they stated that households preferred a food item because the food item was readily available for purchase. The result also revealed that the coefficient of nutritional benefits was positively significant at 5 per cent level of significance, implying that respondents will more likely prefer banana because of the nutritional benefits they derive from its consumption. When consumers are aware of the nutritional information of a food item or the nutritional benefits derived from consuming a food item, they tend to prefer such food items. This may be as a result of such benefits as described by Sampath *et al.* (2012), which include mood improvement, and the promotion of healthy bones and muscles.

vi. Apple

The result showed that the coefficient of taste was positively significant at the 10 per cent level of significance. This indicates that respondents will more likely prefer apple because of its taste. This further suggests that respondents would more prefer apple if they perceive it to be sweet over the ones that are perceived to be sour. This is similar to a study conducted on dried mango where it was reported that some respondents preferred more sweet dried mango over the sour type (Sulistyawati *et al.*, 2020). The result also showed that the coefficient of appearance was positively significant at 5 per cent level of significance, implying that respondents will more likely prefer apple because of its appearance. The positive relationship between appearance and preference is not farfetched; this is because consumers would naturally prefer a food item over another should they find it attractive. In fact, Leon *et al.* (2006), submitted that appearance is not only the first sensation that is perceived by consumers, but it also is a tool that consumers use to either accept or reject an offer. This also corresponds to the result of Alhassan *et al.* (2015), who reported physical appearance as the most important attribute influencing preference for a food item.



vii. Tomato

The result revealed that the coefficient of likeness was positively significant at 1 per cent level of significance. This indicates that respondents will more likely prefer tomato because of their likeness for it. The likeness for tomato among respondents could be due to tomato containing more dry matter with good flavor (Butt *et al.*, 2004). The result further revealed that the coefficient of taste was positively significant at 1 per cent level of significance, meaning that respondents will more likely prefer tomato because of its taste. Taste is a very important intrinsic attribute of food because consuming food is a matter of pleasure and only few people eat food whose taste they do not like (Grunert *et al.*, 2000; Verbeke, 2006). The result also revealed that the coefficient of appearance was positive and statistically significant at the 10 per cent level of significance. This indicates that the likelihood of respondents preferring tomato will increase if they perceive it to be attractive. The sensory valuation of sight plays a vital role in preference as consumers of a product will be positively inclined towards the product that they find attractive, while product dirtiness or uncleanness may put them off. Hence, the more attractive tomato is, the better the respondents' intention to prefer it. According to Dinnella *et al.* (2016) and Šugrova *et al.* (2020), the way tomato is presented was a factor that influenced the choice or acceptance of young people for it. In addition, the result showed that the coefficient of availability was positively significant at 5 per cent. This implies that the probability of respondents preferring tomato will increase if it is readily available. Young adults will more likely prefer fresh tomato once they perceive it to be adequate and readily available, however, if otherwise is the case, they tend to switch to other forms (Yaro, 2012). Lastly, the result revealed that the coefficient of health reasons was positive and statistically significant at 10 per cent level of significance. This implies that respondents will more likely prefer tomato because of an underlying health concern. According to Roininen *et al.* (2001) and Vannoppen *et al.* (2002), health is believed to be a dimension that is very important for many consumers such that they form preferences based on health as motivated by expectations of both a longer life and one of higher quality.

viii. Onion

The result revealed that the coefficient of affordability was positive and statistically significant at 10 per cent level of significance. This indicates that respondents will more likely prefer onion because they can afford to purchase it. This further implies that respondents will not prefer onions if they perceive it to be expensive, and hence could cause young adults to withdraw from purchasing it for consumption purposes. According to Bihan *et al.* (2010), when consumers perceive fruits and vegetables to be unaffordable, the number of consumer for such fruits and vegetables reduces. The result also showed that the coefficient of availability was positively significant at 1 per cent level of significance. This implies that respondents will more likely prefer onion if it is readily available. The positive relationship between availability and preference for onion shows that young adults will more likely prefer onion if it is readily available than if it is not readily available. This is in congruence with a similar study which identified availability as an important variable when choosing vegetables (Kpodo *et al.*, 2015).

ix. Carrot

The result showed that the coefficient of likeness was positive and statistically significant at 10 per cent level of significance. This means that respondents will more likely prefer carrot because of their likeness for the vegetable. The positive relationship between likeness and choice or preference for carrot could be due to the quality of the carrot as perceived by the consumer (Schifferstein *et al.*, 2018).

CONCLUSION AND RECOMMENDATIONS

The study concluded that orange, pineapple, pawpaw, watermelon, banana, apple, tomato, onion, and carrot were the fruits and vegetables mostly preferred by young adults. Also, the specific attributes that mostly informed young adults' preference for different fruits or vegetables were their likeness, taste, appearance, health reasons, nutritional benefits derived from consuming them, and affordability. In addition, taste, availability, and nutritional benefits were the factors that mostly



influenced young adults' preference for different fruits and/or vegetables in the study area. The study therefore recommended that:

- i. If the health security of young adults will be prioritized, then nutritional educational must be provided from an early stage. This can be achieved through ensuring that schools' curricula for children of early age accommodate the necessity for fruits and vegetables in the diet of children, or through the "health care-mother relationship" especially during post-natal periods.
- ii. Also, the common fruits and vegetables that are mostly preferred by young adults should be made available at all times. This can be done by ensuring that adequate and appropriate storage facilities are built to ensure that fruits and vegetables are available both during the on season and off season periods.
- iii. In addition, efforts should be made to ensure that the taste of fruits and vegetables are enhanced. This can be done through the introduction of new varieties with improved taste attribute by breeding or research institutes.

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