

*Full Length Research Paper*

## **Factors influencing consumption of street vended local foods (SVLFs) in Urban Ghana**

**Joyce Afua Sarpong Haleegoah<sup>1\*</sup>, Kofi Osei Akuoko<sup>2</sup>, Peter Dwumah<sup>2</sup>, Kofi Amoako Marfo<sup>3</sup>, John Boulard Forkuor<sup>2</sup>, Benedicta Nsiah Frimpong<sup>1</sup>, Bright Owusu Asante<sup>4</sup> and Lydia Brobbey<sup>1</sup>**

<sup>1</sup>Council for Scientific and Industrial Research - Crops Research Institute, Ghana.

<sup>2</sup>Department of Sociology and Social Work, College of Humanities and Social Sciences, Kwame Nkrumah University of Science and Technology (KNUST), Ghana.

<sup>3</sup>Millennium Development Authority, Ghana.

<sup>4</sup>Department of Agricultural Economics, Agribusiness and Extension, Kwame Nkrumah University of Science and Technology (KNUST), Ghana.

Received 22 September, 2020; Accepted 19 November, 2020

**Street foods are important in meeting dietary and nutritional needs of growing urban populations, contributing to their food security needs. In spite of concerns of nutritional value, affordability and localness of street foods, street food vending enterprise is prolific in urban places with consumers of different socio-cultural and economic statuses. This is because several factors inform people on their food choices. These may include their socio-cultural and economic status and not just the food characteristics. This study was to examine the factors influencing consumption of *Hausa koko*, *Waakye* and *Ga kenkey* referred to as street vended local foods (SVLFs) associated with specific ethnic groups in Ghana. Data was collected from a cross section of 631 urban consumers of SVLFs in Accra, Kumasi and Tamale. Binary probit regression models were used to estimate factors influencing SVLFs consumption. Results showed that consumers were from different social, cultural and economic backgrounds. Food characteristics (such as safety, nutritional value, affordability, convenience and closeness to vendor), social status (including, age, educational level and work status), and cultural factors (like consumer coming from place of food origin and consumption of food from infancy) positively influenced consumption of SVLFs. Food vendors should be aware of these factors to promote consumers' continual patronage of healthy, nutritious and affordable SVLFs in urban Ghana.**

**Key words:** Food choices, Hausa Koko, Waakye, Ga Kenkey.

### **INTRODUCTION**

Food business entrepreneurs are mindful of consumers' food choices and preferences relating to taste, texture

and cultural acceptability. Food has attached strong social meanings and functions. While some foods defined

\*Corresponding author. E-mail: [haleegoahj@yahoo.co.uk](mailto:haleegoahj@yahoo.co.uk).

Author(s) agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

the status of their consumers, others are defined by the class of people who consistently consume them. The pleasure consumers derive from their choice of food is associated with their expectations and experience, and may be influenced by such things as trustworthiness, responsiveness, assurance, empathy, and the physical elements of any food service offering (Narine and Badrie, 2007). Streets foods play a very important role in the sociocultural settings of most urban dwellers due to its affordability and ensuring food and nutritional security (FAO, 2018). Thus, they tend to be abounding in several urban communities in Ghana and across Africa. However, one important issue raised about street foods is safety, regarding the environment within which they are prepared and sold (Hiamey and Hiamey, 2018). The studies on street foods in Ghana are limited to the microbial characteristics of foods (Annan-Prah et al., 2011; FAO, 2016a; Tugli et al., 2019), others focused on factors influencing street food choices (Asiegbu, et al., 2015; Hiamey and Hiamey, 2018). A few focused on social aspect of food quality (Rheinländer et al., 2008), and on the negotiation of street food regulations (Forkuor, 2014) with dearth knowledge on the sociological aspects of street foods. While some of the studies focused on the negative aspects of street foods such as being unsafe, non-nutritious, and not affordable, and not being authentically local, others highlight on the affordability of street foods and their ability to meet dietary requirements of consumers and the localness<sup>1</sup> of such dishes. Nevertheless, the consumption of street foods continued to increase in urban areas in many countries. This implied that consumption decisions are not only based on food characteristics but on several other factors. Factors such as consumers' social status and cultural background, the quality of foods and other external aspects may be included (Asiegbu et al., 2015). However, the available studies are limited on the factors that influenced street vended local foods (SVLFs) consumption in Ghana.

Given the strong ethnic linkage in food choices in Ghana, a better understanding of the underlying factors including sociocultural dimensions on consumption decisions of street vended foods would guide policy in strengthening street food vending enterprises for enhanced income and poverty reduction. This study was to examine the factors influencing the consumption of some specific ethnic related street foods such as "*Hausa koko*", "*Waakye*" and "*Ga kenkey*", hereafter referred to as SVLFs. While *Hausa koko* and *Waakye* are associated with Hausa speaking ethnic groups in Northern parts of Ghana (Photos 1 and 2), *Ga kenkey* is associated with Ga speaking ethnic groups in Accra, Southern Ghana (Photo 3).

<sup>1</sup> Localness refers to the food perceived as a local dish to the consumer. Consumers' perceptions of local may be diverse but for this paper local is referred to the dishes associated with some ethnic groups in Ghana.

## Factors influencing food choices

Modern consumers are extremely diverse, so is their preference for street foods. Consumers, especially low-income earners are faced with diversity of factors in making food choices. Factors such as starvation, palatability, nutrition, family, environment and economics, low literacy on food standards, insufficient information on nutrition and psychological deprivation may be included. Others are emotion, cultural background, education, knowledge and skill, and also media and advertisement (Singh and Kathuria, 2016; Clark and Bagdan, 2019). While such decisions are largely positively influenced by perceived behavioural control, attitudes towards healthy eating, subjective norms, and level of knowledge regarding healthy food, other factors such as routine family habits, food affordability and availability are potential factors preventing access to healthy street foods (Samoggia et al., 2016; Clark and Bagdan, 2019).

Other studies have found attitude (Spence and Townsend, 2006; Prati et al., 2012; Singh and Kathuria, 2016), perceived usefulness (Nocella and Kennedy, 2012), subjective norms which included societal pressure for someone to perform an action and normative beliefs comprising information received through social networking, relatives and local traders (Chikweche and Fletcher, 2010; Chikweche et al., 2012) to influence food choice decisions of consumers positively or negatively, especially those with lower incomes. Empirically, perceived availability in terms of nearness of the food to homes or work places has been found to impact consumers' choice of foods especially of those economically disadvantaged (Mukherjee et al., 2012). In India, consumers were found to be attached to foods within 1 km radius of sale (Ali et al., 2010). Another important economic factor cited in previous studies that influence consumers' food choices is perceived affordability and availability (Asiegbu et al., 2015; Clark and Bagdan, 2019). Other socio-demographic characteristics such as age, gender, level of education and number of children in household, influences consumers' decisions on particular food choice (Asiegbu et al., 2015; Singh and Kathuria, 2016).

In addition to the factors discussed above, this study analysed the extent to which social status and quality characteristics of SVLFs influence consumption in urban Ghana. Thus, it examined how factors such as age, sex, education, worker, student, safe, convenience, closeness to vendor, nutrition, affordability, consumer coming from the place of origin of foods and consumed from infancy, influence the consumption of SVLFs.

## MATERIALS AND METHODS

### Study area

The study was conducted in three urban locations of regions in Ghana. They are Accra (which is also the national capital) in the



**Photo 1.** Hausa Koko Stand in Kumasi.



**Photo 2.** Waakye vendor in Accra.

Greater Accra Region; Kumasi in the Ashanti Region; and Tamale in the Northern Region. These cities were selected because of their metropolitan nature in providing people of different socio-cultural and economic backgrounds for this study.

#### **Data sampling and data collection**

Multi-stage sampling technique was used in the study. In the first stage, metropolitan cities and sub metros were purposively



**Photo 3.** Consumers eating Ga Kenkey and Beans sauce at the street food stand in Tamale.

selected. This was followed by a random sampling procedure from an infinite population of consumers (Louangrath, 2014). Every other consumer who was willing to participate in the survey was selected from the population of all who patronised the SVLFs at the studied foods vending sites, giving every consumer of SVLFs the opportunity to participate in the study. The formula proposed by Louangrath (2014) was:

$$n = \frac{z^2(p)(1-p)}{c^2}$$

Where;

$n$  = minimum sample size needed for accuracy

$z$  = standard normal deviation set at 95% confidence level (1.96)

$p$  = percentage of selecting a response (50%=0.5)

$c$  = confidence interval (0.05= ±5)

In all, a total sample of 631 consumers comprising 403 males and 228 females were selected. Semi-structured questionnaires were administered to consumers by trained enumerators through individual interviews. The questions included socio-demographics characteristics of consumers, the reasons for consuming SVLFs and how consumers define nutrition, safety, affordability and localness of SVLFs among others. The reasons were listed and whether they influenced their decision to consume SVLFs or not was obtained.

#### Data management and analyses

Primary data collected was entered, edited and analysed using Statistical Package for Social Sciences (SPSS) version 16 (SPSS Inc., USA) and STATA software version 15 (Stata Corp., USA) for some further analysis. The analysis included descriptive statistics such as frequencies and cross tabulations of the socio-demographic characteristics of consumers. The factors influencing the regular consumption of the SVLFs was examined using binary

probit models. Major binary choice models that can be used in the analyses included the probit or logit models; however, this study used the probit model because it followed a standard normal distribution which is more adaptable in most statistical procedures unlike the logistic distribution which characterizes the logit model.

#### Empirical strategy of factors influencing consumption of SVLFs

Consumer behaviour relates with how people bought, what they bought, when they bought and why they bought (Srujana, 2012). This theory combined different disciplines; psychology, sociology, anthropology and economics. The process consumers go through while purchasing a product is complex, since many internal and external factors have effect on their buying decisions. The consumer behaviour theory studies how people decided to spend their money, given their preferences and budget constraints and provided better understanding of how individuals' tastes and incomes among other factors influence the demand curve. It has been classified into rational and moral based theories (Eide, 2013). The rational based theories assumed that consumers weigh the costs and benefits associated with the consumption of the product during the decision-making process. Hence, consumers evaluated several factors in order to achieve their utility maximizing objective. The moral based theories however posit that consumers considered moral implications in their decision-making processes. This study examines the factors influencing the consumption of specific SVLFs, "Hausa koko", "Waakye" and "Ga Kenkey", which are ethnic-based Ghanaian local dishes sold in the streets.

This study denoted decision to consume these SVLFs by "strivenfd", which is modelled as consumer's choice and based on the utility maximization theory (Rahm and Huffman, 1984; Foxall and James, 2003). A consumer decided to consume a local dish if the utility derived is greater than not consuming ( $U_{i1} > U_{i0}$ ). This decision is a binary one and outcomes are mutually exclusive. This

**Table 1.** Description of variables in model and a-priori expectations.

Variable	Definition	Unit
<i>Strtvenfd</i>	Consumption of SVLFs	1 if consumes SVLF; 0, otherwise
<i>AGE</i>	Age	Years
<i>SEX</i>	Sex	1 if consumer is male; 0, otherwise
<i>EDUC3</i>	Educational level	1 if consumer has attained secondary education; 0, otherwise
<i>EDUC4</i>	Educational level	1 if consumer has attained tertiary education; 0, otherwise
<i>WORKER</i>	Occupation; worker	1 if consumer is a worker; 0, otherwise
<i>STUD</i>	Occupation; student	1 if consumer is a student; 0, otherwise
<i>SAFE</i>	Safety of food	1 if food is safe; 0, otherwise
<i>CONVEN</i>	Consume based on its convenience	1 if food is convenient; 0, otherwise
<i>CLOSVEND</i>	Closeness to vendor	1 if consumer is close to vendor; 0, otherwise
<i>NUTRI</i>	Consume based on the nutrition	1 if food is nutritious; 0, otherwise
<i>AFFORD</i>	Affordability	1 if food is affordable; 0, otherwise
<i>FROMLOC</i>	Consumer from origin of food	1 if food is from the locality of consumer; 0, otherwise
<i>CONINF</i>	Consumes from infancy	1 if food is consumed from infancy; 0, otherwise

result in a binary dependent variable,  $C_i$  which assumed the value “1” if a consumer decided to consume “*strtvenfd*” and “0” if otherwise. The basic utility function depended on demographic characteristics, perceived risk and quality characteristics, social status and socio-cultural factors-  $X$  (such as age, sex, education, worker, student, safe, convenience, closeness to vendor or availability, nutritious, affordability, consumer coming from the place of origin of food and consumed from infancy) and an error term having mean to be zero specified as:

$$U_{i1}(X) = \alpha_1 X_i + \delta_{i1} \quad \text{for consumption} \tag{1}$$

$$U_{i0}(X) = \alpha_0 X_i + \delta_{i0} \quad \text{for no consumption} \tag{2}$$

Thus observing a value, 1 will yield a probability,

$$P_r = (C_i = 1 / x_i \alpha_i) = 1 - H(-x_i \alpha_i) \tag{3}$$

and for observing 0, could be given by,

$$P_r = (C_i = 0 / x_i \alpha_i) = H(-x_i \alpha_i) \tag{4}$$

Where  $H$  is a continuous and strictly increasing cumulative distribution function, which takes a real value and returns a value which ranges from 0 to 1.

Thus, the parameters in the model in Equations 3 and 4 are obtained using the maximum likelihood estimation procedure. The dependent variable is an unobserved latent variable which is related to

$$C_i \text{ as } C_i = \alpha_j X_{ji} + \delta_i \tag{5}$$

where  $\delta_i$  is a random error term.

The observed dependent variable is determined by whether the predicted  $A_i^*$  is greater than 1 or otherwise as specified in equation 6 as:

$$C_i = 1 \text{ if } C_i^* > 0 \text{ and } C_i = 0 \text{ if } C_i^* \leq 0 \tag{6}$$

where  $C_i^*$  is the threshold value for  $C_i$  and is assumed to be normally distributed.

Following Maddala (2005), the probit model adopted for the study is specified as:

$$P_i = P(C_i^* < C_i) = P_i = P(C_i^* < \alpha_0 + \alpha_j X_{ji}) \tag{7}$$

where  $P_i$  is the probability that an individual will make an objective choice by consuming “*strtvenfd*” or not and  $C_i$  is the dependent variable.

**The empirical model**

The empirical model is simplified in the Table 1 and explicitly specified as:

$$\Pr(\text{strtvenfd}_i = 1 | x) = \alpha_0 + \alpha_1 \text{AGE} + \alpha_2 \text{SEX} + \alpha_3 \text{EDUC3} + \alpha_4 \text{EDUC4} + \alpha_5 \text{WORKER} + \alpha_6 \text{STUD} + \alpha_7 \text{SAFE} + \alpha_8 \text{CONVEN} + \alpha_9 \text{CLOSVEND} + \alpha_{10} \text{NUTRI} + \alpha_{11} \text{AFFORD} + \alpha_{12} \text{FROMLOC} + \alpha_{13} \text{CONINF} + \delta_i$$

**Table 2.** Sex, age, educational level and occupation of consumers.

Characteristic	Frequency	Percentage
<b>Sex</b>		
Male	403	63.9
Female	228	36.1
<b>Age range</b>		
5-20	159	25.2
21-40	427	67.7
41-60	42	6.7
61-80	3	0.5
Mean age 26.5, Minimum 10 and Maximum 64		
<b>Educational Level</b>		
No Education	61	9.7
Primary	62	9.8
Secondary	219	34.7
Tertiary	250	39.6
Vocational	39	6.2
<b>Occupation</b>		
Unemployed	73	11.6
Govt. worker/ paid salary	135	21.4
Trader	99	15.7
Artisan	47	7.4
Student	247	39.1
Other (driver, driver mate, farmers, NGO, private)	30	4.8
N=631		

## RESULTS AND DISCUSSION

### Consumer characteristics

Results from the consumer survey indicated that consumers were from different social, cultural and economic background and status (women and men, office workers, construction workers, students and non-school going children). Majority (63.9%) of respondents were males and 36.1% females with ages ranging between 10 and 64 years. Most (67.7%) of the respondents fell between the 21 and 40 age group and had an average age of 27 years (Table 2). Majority (74.3%) of the respondents had secondary or tertiary education and is consistent across different occupations including government, salaried workers, traders, artisans, students, farmers etc. with 12% of unemployed consumers patronising SVLFs. The findings suggested that SVLFs are patronised and consumed by people from all socio-economic backgrounds (Annan-Prah et al., 2011).

The three foods consumers' diverse ethnic backgrounds from the different locations of study are presented in Tables 3 and 4. Generally, people of the

Akan tribes (Agona, Akuapem, Akwamu, Akyem, Asanti, Bono, Fante, Kwahu, Wassa and Sefwi people) of Ghana constituted 46% of consumers, followed by those of the Northern tribes (these included several tribes such as Dagomba, Nanumba, Maprusi, Moore, Frafra, Nankani, Balsa, Kusaal, Grusi, Wali and Birifo etc) who formed about 36 % of respondents. Table 3 shows the ethnic background of *Hausa koko*, *Waakye* and *Ga kenkey* consumers. The results showed that the majority of consumers had Akan ethnic background. This was followed by those with Northern Ghanaian ethnic backgrounds. In Tamale, consumers of the Northern tribes dominated but in Accra and Kumasi, those of the Akan tribes dominated. There were also some respondents from the West African region, particularly Nigeria and Burkina Faso. This showed the diverse ethnic background of consumers of all three SVLFs and is in confirmation with findings of foreigners' patronage of street foods (Annan-Prah et al., 2011).

The distribution of location of respondents by ethnicity is presented in Table 4. The results showed that majority of respondents were from the Akan tribe for Accra (49%) and Kumasi (85%). However in Tamale, majority (75%) of respondents were of the Northern tribe with only 16%

**Table 3.** Ethnicity of Consumers by SVLFs.

Consumption of SVLFs	Akan	Ga/Adangbe	Ewe	Northern tribes	Mixed tribes	Total
<b>Hausa koko</b>						
No	52	18	13	34	3	120
Yes	238	28	47	194	4	511
Total	290	46	60	228	7	631
<b>Waakye</b>						
No	18	9	2	19	0	48
Yes	272	37	58	209	7	583
Total	290	46	60	228	7	631
<b>Ga kenkey</b>						
No	39	6	12	51	3	111
Yes	251	40	48	177	4	520
Total	290	46	60	228	7	631

**Table 4.** Location by consumers ethnicity.

Location	Ethnicity of consumers (%)					Total
	Akan	Ga/Adangbe	Ewe	Northern tribes	Mixed tribes	
Accra	49	16	16	17	1	100 (227)
Kumasi	85	4	4	5	1	100 (164)
Tamale	16	1	7	75	1	100 (240)
Total	48	7	10	36	1	100 (631)

from the Akan tribes (Table 4). The reason why people of the Akan tribe do not dominate in Tamale may be because, though Tamale is a Metropolis, people from the Northern tribe form majority of the population compared to Accra and Kumasi where the Akan tribes dominated the population.

### Summary statistics of relevant variables

Table 5 presented the summary statistics of variables used in the probit regression models. The average age of respondent was 27, indicating that the consumers of SVLFs are generally young. The females constituted a lower percentage of the sample (36%) whereas the males constituted 64% of the sample. This low proportion involvement of women may be related to food association with women's self- image because of their traditional role as food providers and thus, may not be involved much in consuming street foods to protect this image. However, previous study has shown their involvement in SVLFs vending because of this role (Haleegoah et al., 2016). Thirty-five percent of consumers completed secondary education while 40% completed tertiary. Respondents

constituted 55% workers and 40% students. Again, 67% of the respondent consumed *Hausa koko*, 72% consumed *Ga kenkey* while 78% consumed *Waakye*.

Furthermore, the proportion of respondents who consumed *Hausa koko* because of convenience constituted about 55% with only 0.7% of the respondents consuming because of closeness to the *Hausa koko* vendor. Also, 58% of the respondents attested to the nutritional value of the foods. Likewise, majority of the respondents (65%) perceive *Hausa koko* to be affordable and 42% also indicated they have been consuming the food since infancy. With regards to *Waakye*, 68% indicated they were closer to the vendor with 62% finding the food to be convenient, 77% attested to its nutritional value and 60% indicating that it was safe. With regards to affordability, the food originating from ones' locality and being consumed from infancy, accounted for 66, 36 and 43% of consumers respectively.

In the case of *Ga kenkey*, 54 and 58% of the respondents indicated that it was convenient and of nutritional value respectively. The Table 5 further showed that 65% of the sample indicated *Ga kenkey* was safe and 64% believed it was affordable. Again, results showed that, 52% of the respondents said consumers

**Table 5.** Variables summary statistics.

Variable	Mean	S.D.
Age	27	8.49
Secondary education	0.35	0.48
Tertiary education	0.40	0.49
Worker	0.55	0.50
Student	0.40	0.49
Consume <i>Hausa koko</i>	0.67	0.47
Consume <i>Waakye</i>	0.78	0.41
Consume <i>Ga kenkey</i>	0.72	0.45
Convenience of <i>Hausa koko</i>	0.55	0.50
Closeness to <i>Hausa koko</i> vendor	0.07	0.26
<i>Hausa koko</i> nutritious nature	0.58	0.50
<i>Hausa koko</i> affordability	0.65	0.48
<i>Hausa koko</i> is from ones locality	0.06	0.24
<i>Hausa koko</i> consumed from infancy	0.42	0.49
Convenience of <i>Waakye</i>	0.62	0.49
Closeness to <i>Waakye</i> vendor	0.68	0.47
<i>Waakye</i> nutritious nature	0.77	0.42
<i>Waakye</i> safety	0.60	0.49
<i>Waakye</i> affordability	0.66	0.47
<i>Waakye</i> is from ones locality	0.36	0.48
<i>Waakye</i> consumed from infancy	0.43	0.50
Convenience of <i>Ga kenkey</i>	0.54	0.50
Closeness to <i>Ga kenkey</i> vendor	0.50	0.50
<i>Ga kenkey</i> nutritious nature	0.58	0.50
<i>Ga kenkey</i> safety	0.65	0.48
<i>Ga kenkey</i> affordability	0.64	0.48
<i>Ga kenkey</i> is from ones locality	0.52	0.50
<i>Ga kenkey</i> consumed from infancy	0.35	0.48

came from the locality where the food originated, 35% also attested they had been consuming *Ga kenkey* since infancy, while 50% also found the vendors to be closer to them or food available to them.

### Factors influencing the consumption of SVLFS

#### *Hausa Koko*

Table 6 presented the Probit regression estimated for the factors influencing respondents' decision to consume *Hausa koko* regularly. The results showed that the consumption of *Hausa koko* is significantly influenced by factors such as age, sex, being a student, convenience of the food, its nutritious value, affordability, consumer coming from the place of origin of food and its consumption from infancy. These results corroborated with the findings by Asiegbu et al. (2015) on street foods and Clark and Bagdan (2019) on several factors influencing food choices in general. These factors were positively related with *Hausa koko* consumption except for age and sex.

The age of the consumer negatively influenced decision to consume *Hausa koko*. Consequently, an increase in age decreased the probability of the consumption of *Hausa koko*. This implied that *Hausa koko* is more likely to be consumed by young consumers than older ones. This presented huge prospects for investors of the *Hausa koko* industry as the young generation constitutes a greater proportion (57%) of the population (Ghana Statistical Service, 2019); hence, investments into improving *Hausa koko* production and sale has the tendency of yielding the needed returns. Sex of respondent had a significant negative effect on the decision to consume *Hausa koko*. This implied that females are less likely to consume *Hausa koko* compared to males. This is because generally, women like to cook and hence were more involved in the preparation and consumption at home as compared to the men. The results further showed that students were more likely to consume *Hausa koko*, this was significant at the 1% level. Results showed that convenience of *Hausa koko* sold on the street was significant at 1% level; implying that the convenience of the food result in a 0.51%



**Table 6.** Probit Estimates of Factors Influencing Consumption of *Hausa koko*.

Variable	Coefficient	Robust S.E	M.E
Age	-0.01**	0.01	-0.01
Sex	-0.31***	0.12	-0.31
Secondary education	-0.07	0.18	-0.07
Tertiary education	-0.18	0.16	-0.18
Worker	0.56	0.18	0.56
Student	0.40***	0.19	0.40
Safe	0.38	0.61	0.14
Convenience	0.51***	0.13	0.51
Closeness to vendor	0.22	0.19	0.22
Nutritious	0.43***	0.13	0.43
Affordability	0.48***	0.13	0.48
Food from ones locality	0.62*	0.32	0.62
Consumed from infancy	0.88***	0.14	0.88
Constant	-0.68**	0.31	

Asterisks \* = 10% significance level; \*\*= 5% significance level; \* \*\*= 1% significance level, M.E. denote Marginal Effect.

**Table 7.** Probit estimates of factors influencing consumption of *Waakye*.

Variable	Coefficient	Robust S.E.	M.E
Age	-0.02***	0.01	-0.01
Sex	-0.13	0.13	-0.03
Secondary Education	0.14	0.18	0.04
Tertiary Education	0.37**	0.17	0.09
Worker	-0.18	0.18	-0.05
Student	-0.20	0.20	-0.05
Safe	0.28**	0.13	0.08
Convenience	0.34***	0.13	0.09
Closeness to vendor	-0.34	0.14	-0.03
Nutritious	0.33**	0.14	0.09
Affordability	0.30**	0.13	0.08
Food from ones locality	0.15**	0.14	0.04
Consumes from infancy	0.59***	0.14	0.15
Constant	0.46	0.34	

Asterisks \*\*= 5% significance level; \*\*\*= 1% significance level, M.E. denote Marginal Effect.

increase in the probability of consumption of the food. Again, nutritional value of *Hausa koko* positively influenced its consumption. This attested that consumers perceive the *Hausa koko* to be quite nutritious hence, are more inclined to purchase and consume it. The result further showed that affordability positively and significantly influenced the consumption of *Hausa koko*. An increase in affordability by one Ghana Cedi would lead to a 0.48% increase in the probability of consumption. This finding confirmed studies, which indicated street foods affordability and thus a food security source for many urban dwellers (FAO, 2016b; Imathiu, 2017). Also, consumers who came from

localities where *Hausa koko* originated influenced the consumption of *Hausa koko* positively. This is not surprising because of the social network implications of this variable, knowing the people who prepare the food boost the confidence in consumers to purchase *Hausa koko*. Furthermore, the results showed that the consumption of *Hausa koko* from infancy increases the tendency of consumption by 0.88%.

### **Waakye**

Table 7 presented the probit regression estimated for the

**Table 8.** Probit estimates of factors influencing consumption of *Ga kenkey*.

Variable	Coefficient	Robust S.E.	M.E
Age	-0.03***	0.01	-0.01
Sex	0.14	0.13	0.04
Secondary education	-0.14	0.18	-0.04
Tertiary education	-0.01	0.16	-0.01
Worker	0.23	0.19	-0.07
Student	0.16	0.22	0.05
Convenience	0.24***	0.14	-0.01
Nutritious	0.69***	0.14	0.04
Safe	0.18	0.13	0.06
Affordability	0.64***	0.14	0.20
Food from ones locality	0.07	0.14	0.02
Consumed from infancy	0.54***	0.17	0.15
Closeness to vendor	0.49***	0.14	0.15
Constant	-0.27	0.34	

\*\*= 5% significance level; \*\*\*= 1% significance level, M.E. denote marginal effect.

factors influencing respondents' decision to consume *Waakye*. The results showed that the age of consumer negatively and significantly influences the decision to consume *Waakye*. This implied that a unit increase in age would result in a 0.01% decrease in the probability of one to consume *Waakye*.

Similar to Hausa koko, this inferred that the young are more likely to consume *Waakye* as compared to the old. Attaining tertiary education positively influenced the decision to consume *Waakye*, denoting that the probability to consume *Waakye* is high among consumers who attained tertiary education. This is as expected because of the generally busy life style of tertiary students; they tend to have high affinity for SVLFs of which *Waakye* is a major delicacy because of its high nutritional value (Tugli, et al., 2019). Furthermore, the safeness of *Waakye* had a significant and positive effect on the decision to consume *Waakye*. The perception that *Waakye* is safe increased the probability of the respondent to consume the food by 0.08%. Food safety has serious implications on health (Annan-Prah et al., 2011; FAO, 2016a), hence any sign of safety of a particularly food will have positive effect on its consumption.

Again, the results indicated that convenience of *Waakye* positively influenced its probability of consumption by 0.09%. Similarly, the nutritional value of *Waakye* positively influenced consumption at 5% level. When *Waakye* sold on the street is affordable the more likely its consumption is expected to increase as affordability as a factor, positively and significantly influenced consumption. A Cedi increase in affordability will increase the probability to consume *Waakye* by 0.08%. *Waakye* coming from consumers' locality and its consumption from infancy had positive and significant effects on the decision to consume.

### **Ga Kenkey**

Table 8 presented the probit regression estimated for the factors influencing respondents' decision to consume *Ga kenkey*. The results showed that the consumption of the food is significantly influenced by factors such as age, convenience of the food, nutritional value, and affordability, consumption from infancy as well as closeness to a vendor, which designated the availability of food, and were all positively related with *Ga kenkey* consumption except the age of the consumers.

The negative effect of age implied that older persons were less likely to consume *Ga kenkey* than younger ones and was significant at the 1% level. This may be due to many of the respondents being Akan's. The older Akan's perceive of *Ga kenkey* (kenkey in general) as a fasting food during funerals. Again, the convenience of *Ga kenkey* significantly and positively influenced the decision to consume it. With respect to nutritional value of *Ga kenkey*, the results depicted that consumption of *Ga kenkey* is positively influenced by consumers' perceived nutritional value of the food. This is because consumers perceived *Ga kenkey* as nutritious with the accompaniments noted in a previous study (Haleegoah et al., 2016). In addition, the affordability of *Ga kenkey* sold on the street showed positive significant effects on its consumption. This means that people are more likely to consume *Ga kenkey* because they find it to be more affordable.

Similar results were found with consumption of *Ga kenkey* from infancy as well as closeness to the vendor. This implied that an individual who had been consuming *Ga kenkey* since childhood was more likely to continue consuming it. This is because consumers generally develop a taste for certain food they have been exposed

to culturally, which has the tendency of enhancing future consumption of the same food whenever the opportunity arises. The results showed that largely, food attributes (safeness, nutritional value, affordability, convenience and closeness to vendor or availability), social status (age, educational level and work status), and cultural factors (food coming from consumers' locality and consumption of food from infancy) influence the consumption of SVLFs. These results confirmed the finding of others that several factors influenced the choice of foods (Asiegbu et al., 2015; Clark and Bagdan, 2019). From the probit regression results, factors such as the convenience of *Hausa koko*, closeness to vendor, nutritional value, affordability, and food eaten from infancy have positive influence on the consumption of *Hausa koko*. The food from the consumers' ethnic origin also has a positive influence on the regular consumption of *Hausa koko*, whereas age and sex of consumer have negative influence. While age is significant at 5% significant level, sex is at 1% significant level. For *Ga kenkey* consumption, all the factors had positive influence except convenience and eaten from infancy. Factor such as age, convenience of the food, nutritional value, and affordability, consumption from infancy and closeness to a vendor significantly influenced the consumption of *Ga kenkey* positively. Therefore, for the consumption of SVLFs such as *Hausa koko*, *Waakye* and *Ga kenkey*, the demographic, social status and culture characteristics of the consumers, and the consumer perceived risk and quality characteristics such as convenience, closeness to vendor, the safety, nutritional value, affordability and cultural characteristics of the foods are the influencing factors considered by consumers in their decisions to consume street foods.

## Conclusions

This study examined the factors influencing the consumption of SVLFs among consumers in three regional capital cities in Ghana. Using data from 631 consumers comprising 403 males and 228 females, the probit regression model was used to estimate the factors influencing consumption of major SVLFs such as *Hausa koko*, *Waakye* and *Ga kenkey*. The results showed that the consumption of SVLFs is positively influenced by a set of factors that describes quality characteristics of the food (such as safeness, nutritional value, affordability, convenience and closeness to vendor or food availability), social status (including age, educational level and work status), and cultural factors (such as the consumer coming from the place of origin of the food and consumption of food from infancy). Consumers as rational and moral beings would base their choices on all or several of these factors. It is imperative to consider these factors in designing strategies for promoting the consumption of SVLFs particularly so because of its importance in the society in the wake of the increasing

urban population coupled with the changing dietary lifestyle of society. These influencing factors are the reasons for the continual patronage of SVLFs despite the negative attributions associated with them. The import of this result is that consumers make choice of food based on these factors and their experiences therefore policy to strengthen local food vending should consider these factors in order to ensure their continual patronage. Food vendors should consider these factors in their manoeuvring to ensure the persistence of SVLFs in urban areas.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

## ACKNOWLEDGEMENTS

The authors are grateful to Ernest Sober Boadu for coordinating data collection and all enumerators for their time and dedication in collecting such quality data. We wish to express our profound gratitude to all the consumers contacted within the three study locations; Greater Accra, Kumasi and Tamale for their openness and cooperation in sharing true experiences with the team.

## REFERENCES

- Ali J, Kapoor S, Moorthy J (2010). Buying behaviour of consumers for food products in an emerging economy. *British Food Journal* 112(2):109-124.
- Annan-Prah A, Amewowor DHAK, Osei-Kofi J, Amoono SE, Akorli SY, Saka E, Ndadi HA (2011). Street Foods: Handling, Hygiene and Client Expectations in a World Heritage Site Town, Cape Coast, Ghana. *African Journal of Microbiology Research* 5(13):1629-1634.
- Asiegbu CV, Lebelo SL, Tabit FT (2015). The Food Safety Knowledge and Microbial Hazard Awareness of Consumers of Ready to Eat Street Vended Foods. *Food Control* 60:422-429.
- Chikweche T, Fletcher R (2010). Understanding factors that influence purchases in subsistence markets. *Journal of Business Research* 63(6):643-650.
- Chikweche T, Stanton J, Fletcher R (2012). Family purchase decision making at the bottom of the pyramid. *Journal of Consumer Marketing*, 29(3):202-213.
- Clark LF, Bogdan A (2019). The Role of Plant-Based Foods in Canadian Diets: A Survey Examining Food Choices, Motivations and Dietary Identity. *Journal of Food Products Marketing* 25(7):1-23.
- Eide B (2013). Consumer Behaviour Theories – Purchasing Organic Food. Aarhus University Department of Business Administration, April, 2013. Available at: <https://pdfs.semanticscholar.org/ff23/b09d6f62a6b5ff7a6901dc4772087ce2af07.pdf>
- Food and Agriculture Organisation (FAO) (2016a). A Women's Business: Street Foods Stories from Accra. A Short Documentary by Food and Agriculture Organisation (FAO), filmed and edited by Stefano Marras Available at: <http://www.fao.org/nutrition>
- Food and Agriculture Organisation (FAO) (2016b). Street Food Vending in Accra, Ghana. Field Survey Report 2016. Stefano Marras, Mohamed Ag Bendeck, Amos Laar (eds.) Food and Agriculture Organisation (FAO) of the United Nations Regional Office for Africa, 2016.
- Food and Agriculture Organisation (FAO) (2018). The State of Food Security and Nutrition in the World: Building Climate Resilience for

- Food Security and Nutrition. Food and Agriculture Organization of the United Nations Rome, 2018. ISBN 978-92-5-130571-3.
- Forkuor JB (2014). Regulation of Street Foods in Kumasi: Stakeholder Practices and Perceptions. Ph.D. Thesis, Department of Sociology and Social Work, Faculty of Social Science, College of Humanities and Social Sciences, Kwame Nkrumah University of Science and Technology.
- Foxall GR, James VK (2003). The behavioral ecology of brand choice: How and what do consumers maximize? *Psychology and Marketing* 20(9):811-836.
- Ghana Statistical Service (2019). Ghana Living Standards Survey round 7 (GLSS 7) Report. Accra. P 321.
- Haleegoah J, Ruivenkamp G, Essegbey G, Frempong G, Jongerden J (2016). Street-Vended Local Foods Transformation: The Case of Hausa koko, Waakye and Ga Kenkey in Urban Ghana. *Advances in Applied Sociology* 6:90-100.
- Hiamey SE, Hiamey GA (2018). Street Food Consumption in a Ghanaian Metropolis: The Concerns Determining Consumption and Non-consumption. *Food Control* 92:121-127.
- Imathiu S (2017). Street-Vended Food: Potential for improving food and nutrition security or risk factor for food borne diseases in developing countries. *Current Research in Nutrition and Food Sciences* 5(2):55-65.
- Louangrath P (2014). Sample Size Determination for Non-Finite Population. *Southeast-Asian Journal of Sciences* 3(2):141-152.
- Maddala GS (2005). *Introduction to Econometrics* 3<sup>rd</sup> Edition. John Wiley and Sons Ltd.
- Mukherjee A, Satija D, Goyal TM, Mantrala MK, Zou S (2012). Are Indian consumers brand conscious? Insights for global retailers. *Asia Pacific Journal of Marketing and Logistics* 24(3):482-499.
- Narine T, Badrie N (2007). Influential Factors Affecting Food Choices of Consumers When Eating Outside the Household in Trinidad, West Indies. *Journal of Food Products Marketing* 13(1):19-29.
- Nocella G, Kennedy O (2012). Food health claims—What consumers understand. *Food Policy* 37(5):571-580.
- Prati G, Pietrantoni L, Zani B (2012). The prediction of intention to consume genetically modified food: Test of an integrated psychosocial model. *Food Quality and Preference* 25(2):63-170.
- Rheinländer T, Olsen M, Bakang JA, Takyi H, Konradsen F, Samuelsen H (2008). Keeping up appearances: Perceptions of street food safety in urban Kumasi, Ghana. *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 85(6):952-964.
- Rahm MR, Huffman WE (1984). The adoption of reduced tillage: The role of human capital and other variables. *American Journal of Agricultural Economics* 66(4):405-413.
- Samoggia A, Bertazzoli A, Hendrixson V, Glibetic M, Arvola A (2016). Women's Income and Healthy Eating Perception. *Advances in Gender Research* 22:165-191.
- Singh A, Kathuria LM (2016). Understanding drivers of branded food choice among low income consumers. *Food Quality and Preference* 52:52-61.
- Spence A, Townsend E (2006). Examining consumer behaviour toward genetically modified (GM) food in Britain. *Risk Analysis* 26(3):657-670.
- Srujana K (2012). A Project Report on a study on Consumer Buying Behaviour at HYDERABAD. A Project Report submitted to JNTUH in partial fulfilment of the requirement for the award of the degree of Master of Business Administration. July, 05, 2012. <https://www.scribd.com/doc/99175193/A-Project-Report-on-Consumer-Buying-Behaviour>
- Tugli LS, Essuman EK, Kortei NK, Nsor-Atindana J, Nartey EB, Ofori-Amoah J (2019). Bioactive Constituents of Waakye: A Local Ghanaian Dish Prepared with *Sorghum bicolor* (L.) Moench Leaf Sheaths. *Scientific African* 3:e00049.