

Street-Vended Local Food Systems Actors Perceptions on Safety in Urban Ghana: The Case of Hausa *Koko*, *Waakye* and *Ga Kenkey*

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Abstract

Safe foods are those that do not cause any harm after their consumption. Food safety and its relationship with public health are of major concern to many people, especially, because of foods susceptibility to contamination. Literature on local foods addressed the biological processes of ingredients used in their preparation, and the nutritional, physical and safety aspects of foods. Generally, most food vendors and consumers were not concerned about hygienic practices but instead, about the social relations established between them and the aesthetics, the appearance and presentation of food. People do not take food risks seriously since they have several ways of dealing with it. They have different perceptions of food quality and safety. However, hygienic practices must go along with the different perceptions to achieve safety in street-vended local foods. Literature is limited on how actors define safety so that there is continue patronage of street foods in urban areas despite the concerns raised regarding vendors' unhygienic practices. Using three street-vended local foods, Hausa *Koko*, *Waakye* and *Ga Kenkey* as case study, with qualitative and quantitative methods, this paper aimed to provide an understanding of how actors within the street-vended local food systems perceived safety. The study found several definitions of food safety, which showed the multidimensional nature and quality characteristics from key actors. Food safety was perceived in relation to the long processes of cooking; the fact that foods were served and eaten hot; the hygienic environments where foods were prepared and served; and when food eaten did not give any adverse after-effect. Despite these positive dimensions about food safety, some actors' raised some negative concerns. These different dimensions of safety and the activities of all involved in the system, such as regulatory officers, consumers, and food vendors themselves, interact to construct the safety of street-vended local foods in Ghana.

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Keywords

Food Safety, Street-Vended Local Foods, Hausa *Koko*, *Waakye* and *Ga Kenkey*

1. Introduction

Street foods, especially the local ones, have become very important in meeting the preferred nutritional needs of people. This phenomenon of vending local foods in the streets has become popular among low- and middle-income people with increasing urbanization. The situation has arisen mostly because of the pressure of work, which makes people, not only the low to middle income earners spend most of their time outside their homes. Street foods not only provide affordable foods for consumers but are also a means of livelihood for vendors, especially the women (Maxwell, Levin, Armar-Klemesu, Ruel, Morris, & Ahiadeke, 2000; WHO, 2006; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey, 2002). However, one critical concern that has been raised relates to the safety of street foods.

Food safety involves the protection of supply from microbial, chemical, and physical hazards that may occur during all stages of food production including growing, harvesting, processing, transporting, retailing, distributing, storing, preparing and consuming to prevent food borne diseases (WHO, 2007). That is to say, that food should not harm people after its consumption. Street food are ready-to-eat foods or beverages prepared and/or sold in the street and other public places for immediate consumption or at a later time without further processing or preparation (WHO, 2006). Street-vended local foods (SVLFs) are specific local foods associated with some particular ethnic groups in Ghana, which are prepared and sold as ready-to eat foods in the streets.

In the local food discourses, alternative food systems and local food systems assume that foods are safe because they are produced under natural and organic conditions and with a shortened distance between production and consumption (Sonnino, 2009; Willer, Youssefi-Menzler, & Sorensen, 2008; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007; Renting, Marsden, & Banks, 2003). However, in Sub Saharan Africa and Ghana, in particular where the food system is already localized (Field, Masakure, & Spencer Henson, 2011), the locally produced food crops are linked to the consumer mostly through the local markets and the street food systems in urban areas. The dilemma is whether the SVLFs, which are part of the local food system in Ghana, are safe.

SVLFs safety is an issue because cereals for instance, that form the basis of most of these SVLFs are mostly affected by mycotoxins, especially aflatoxins, particularly, when they are not well dried before and after harvesting and during storage (Bankole & Adebajo, 2003; WHO, 2006). Again, the traditional processing and packaging of these foods raise safety concerns. Through fermentation processes, they become susceptible to contamination due to improper handling and storage (Mensah, Tompkins, Prasar, & Harrison, 1991; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey, 2002; Maxwell, Levin, Armar-Klemesu, Ruel, Morris, & Ahiadeke, 2000; Bankole & Adebajo, 2003; Amoa-Awua, Ngunjiri, Anlobe, Kpodo, Halm, Hayford, & Jakobsen, 2007).

Literature on street foods that mentions local dishes in Africa such as Hausa *Koko*, *Waakye* and *Ga Kenkey* in Ghana is especially concerned with the biological processes of the ingredients used for the preparation of these local dishes, and the nutritional, physical and safety aspects (Mensah, Tompkins, Prasar, & Harrison, 1991; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey, 2002; Bankole & Adebajo, 2003; Amoa-Awua, Ngunjiri, Anlobe, Kpodo, Halm, Hayford, & Jakobsen, 2007). Street foods safety is of public health concerns due to the conditions under which they are handled, prepared and served. They are a major contributor to food borne diseases in most developing countries (Mensah, Tompkins, Prasar, & Harrison, 1991; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey, 2002; WHO, 2006; Rheinlander, Olsen, Bakang, Takyi, Konradsen, & Samuelsen, 2008).

On the other hand, older debates on street foods show that street foods are safe and those who consumed them, depending on their life circumstances and surroundings, do regard them as safe (WHO, 2006; FAO, 1991; Tinker, 1997; Tinker, 1987; Tinker & Fruge, 1982). The poor and low-income earners, whose poor surroundings may influence their perception of street food safety, are not the only people who consumed street foods. People from different socio-economic backgrounds with all levels of income also consumed street foods (Opere-Obisaw, 1998; Annan-Prah, Amewovor, Osei-Kofi, Amoono, Akorli, Saka, & Ndadi, 2011). Therefore, all those who

continually consumed SVLFs in urban areas may have their own perceptions on safety for this continued patronage.

Rheinlander, Olsen, Bakang, Takyi, Konradsen, & Samuelsen (2008) conducted a study on the perception of food safety among consumers and food vendors in Kumasi, Ghana. Using qualitative tools, they found that though vendors and consumers showed some level of knowledge on food safety, generally they based their perception not on hygienic practices but on aesthetics, appearance and presentation of food and also the personal trust between vendors and consumers. Seferiadis (2009) also noted that food vendors did not put their knowledge about food safety into practice. Thus, to achieve the safety of SVLFs in general, hygienic practices must go along with these perceptions. The issue is that, if there are problems with safe and hygienic practices among street food vendors as Rheinlander, Olsen, Bakang, Takyi, Konradsen, & Samuelsen (2008) and Seferiadis (2009) identified, then the foods become a risk to those who continue to consume them in urban areas. In Europe, studies have looked at public's perceptions of food dangers and risks (Frewer, 1996; Knox, 2000; Hansen, 2003; Redmond & Griffith, 2004). Although, these studies show that people do not take food risks seriously, people have strategies to deal with food quality. The FAO advocated five key points that ensure food safety from farm to plate: keep everything clean, separate raw and cooked, cook thoroughly, cook foods at safe temperatures, and use safe water and raw materials (FAO/WHO, 2003). Knowledge and practice of these five key points ensures the safety of street foods at all times.

The question is whether actors of SVLFs are concerned with food safety risks in Ghana. What are their understandings of safety of SVLFs in urban areas? The objective of this paper is to find out the different definitions actors' give to safety regarding the SVLFs. Again, it finds out whether safety is considered in their choice and consumption of SVLFs. A case study of three specific SVLFs in Ghana (Hausa *Koko*—porridge prepared from millet or sorghum, *Waakye*—rice and beans cooked together, and Ga *Kenkey*—meal prepared from corn dough) is used to undertake this study. For the sake of this paper, we refer to Hausa *Koko* as *Koko* and Ga *Kenkey* as *Kenkey*.

2. Methodology

Three SVLFs namely *Koko*, *Waakye* and *Kenkey* were used as case study. Qualitative tools such as individual interviews, focus group discussions (FGDs) and observations were used for primary data collection. Again, a semi-structured questionnaire was used to obtain quantitative data. Data was collected from key actors in the local food systems. They were environmental health officials (EHOs), food vendors and consumers. The researcher informed actors about the objectives of the study and asked for the consent of those willing to participate in it. Questions for both qualitative and quantitative data collection looked at the general characteristics of actors and actors' definition of safety of foods. The questions also addressed whether they had suffered any ill effects after the consumption of the case foods or knew someone who had suffered any ill effect after consuming these foods.

In all 54, food vendors, 18, consumers and 8, EHOs were involved in the individual interviews and observations. The FGDs for food vendors involved 21 participants in total (Three FGDs for each of the studied foods vendors). All the women in the FGDs were also part of the individual interviews and observations. The FGDs for EHOs had 31 participants (two focus groups from Kumasi, Bantama sub Metro and Accra, Okai Koi north sub Metro). The semi-structured questionnaire survey covered 631 consumers of the three studied foods.

2.1. Location

The study was conducted in three cities in Ghana namely: Accra, Kumasi and Tamale. Two sub-metros within the cities were randomly selected and cooperating food vendors and consumers along the major streets in these communities were interviewed and observed. Available EHOs at the metropolitan offices and those who operated at the sub metros were also observed and interviewed with similar guiding questions.

2.2. Data Analyzes

The Data collected from respondents were transcribed and its content analyzed to describe recurring and non-recurring themes that related to research questions. Statistical package for social sciences (SPSS) version 16 was used to analyze data from semi structured questionnaire survey of consumers using descriptive statistics.

3. Results

3.1. Key Actors

Sampled food vendors were mostly women with two men. These men were *Kenkey* vendors from Tamale central and Bantama sub-metros. All food vendors (*Koko*—12, *Waakye*—19 and *Kenkey*—23 totaling 54) interviewed and observed operated on a micro scale with one sale point and one or no assistant employed.

However, few (13%) of them had two or more sales points with several assistants and workers who helped in the preparation and sale of food. These exceptions were mostly vendors of *Waakye* and *Kenkey*. Most vendors prepared foods at home in open kitchens; few (7%) had sheds and enclosed places at home or on the street side and at the sale point.

In terms of education, most (58%) vendors had primary level education, 20% had secondary and tertiary education whilst 22% had no education at all (Table 1).

Over 67% of vendors' fell within the 21 and 40 age group. Their experience in food vending business was from six months (the shortest time) to over 70 years (the longest).

Consumers' characteristics from survey responses are shown in Table 2. Survey results confirm those from individual interviews and observations. About 64% of consumers were males whilst 36% were females. Consumers' age ranged between 10 and 64 years with most (67.7%) of them falling between ages 21 and 40. Most (74.3%) consumers had secondary and tertiary education. The consumers had diverse occupations, which included government or salaried workers, traders, artisans, students, farmers and others (Table 2).

The duration for the consumption of the three foods was explored. Most (61.1% *Koko*, 58.7% *Waakye* and 55.0% *Kenkey*) consumers had ate these foods for 20 years or more (Table 3).

In relation to the frequency of consumption, some of the respondents consumed *Koko* every day (34.8%), *Waakye* twice a week (27.8%), while 26.1% consumed *Kenkey* once a week (see Table 4). From the observations, most of the females who patronized these SVLFs buy and take away instead of consuming it at the sale point.

The 39 (23 males and 16 females) regulatory officers or environmental health officers (EHOs), interviewed during individual interviews and FGDs had their two or three year diplomas from the various schools of Hygiene in the country. They had an average of five years experience in their jobs and their ages ranged between 27 and 56.

3.2. Actors' Perceptions of the Safety of Street-Vended Local Foods

Respondents were asked if they suffered diarrhea or any other health problem from eating any of the SVLFs or knew anyone who suffered any health problem in the past two years. The responses showed that most of the respondents had not suffered diarrhea or any other health problem and did not know of anyone who got diarrhea or any other health problem from eating *Koko*, *Waakye* or *Kenkey* implying that these foods were safe.

From Table 5, most (94%) respondents had not suffered any diarrhea after eating *Koko* and most (97%) did not know of anyone who got diarrhea after eating *Koko*. The few (6%) who had any other health problem and few who knew people (3%) who had, mentioned such ailments as stomach pains or aches, cholera, typhoid, vomiting and heartburns.

In the case of *Waakye*, 85% of respondents had never experienced diarrhea from eating the food, while 90% did not know of any person who suffered diarrhea from eating *Waakye*. The few (10%) complained of stomach abdominal pains, dysentery, fever, indigestion, bloated stomach, heartburns, typhoid, body weakness and

Table 1. Educational level of food vendors—individual interviews and observations.

Educational level	No.	%
No schooling	12	22
Primary	31	58
Secondary and above	11	20
Totals	54	100.0

Table 2. Background characteristics of consumers.

Sex	Frequency	%
Female	403	36.1
Male	228	63.9
Age range*		
5 - 20	159	25.2
21 - 40	427	67.7
41 - 60	42	6.7
61 - 80	3	0.5
Educational level		
No education	61	9.7
Primary	62	9.8
Secondary	219	34.7
Tertiary	250	39.6
Vocational	39	6.2
Occupation		
Unemployed	73	11.6
Govt. worker/paid salary	135	21.4
Trader	99	15.7
Artisan	47	7.4
Student	247	39.1
Other (drivers, driver's mates, farmers, NGO, private)	30	4.8
N =	631	100.0

Note: *Mean age is 26.5, Minimum 10 and Maximum 64; **Mixed groups include those from Nigeria and Burkina Faso, and cross-ethnic groups from different tribes in Ghana.

Table 3. Years of consumption of Hausa *Koko*, *Waakye* and *Ga Kenkey*.

Length of consumption	Hausa <i>Koko</i>		<i>Waakye</i>		Ga <i>Kenkey</i>	
	Frequency	%	Frequency	%	Frequency	%
Up to 2 years	29	5.7	20	3.4	25	4.8
Up to 5 years	47	9.2	58	9.9	60	11.5
Up to 10 years	123	24.1	163	28.0	149	28.7
Up to 20 years	121	23.7	145	24.9	151	29.0
Over 20 years	191	37.4	197	33.8	135	26.0
Total	511	100.0	583	100.0	520	100.0

Table 4. Regularity in consumption of Hausa *Koko*, *Waakye* and *Ga Kenkey*.

Regularity	Hausa <i>Koko</i>		<i>Waakye</i>		Ga <i>Kenkey</i>	
	Frequency	%	Frequency	%	Frequency	%
Everyday	178	34.8	80	13.8	76	14.7
Thrice a week	89	17.4	130	22.5	109	21.0
Twice a week	84	16.4	161	27.8	132	25.5
Once a week	72	14.1	124	21.4	135	26.1
Once a month	66	12.9	80	13.8	56	10.8
Once a year	22	4.3	4	0.7	10	1.9
Total	511	100.0	579	100.0	518	100.0

Table 5. Diarrhea or any ailment from eating local street foods.

You get diarrhea		Know of one getting diarrhea		You get any ailment		Know of any one getting any ailment		
Hausa <i>Koko</i>								
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
No	545	94	542	94	561	97	562	97
Yes	34	6	37	6	18	3	17	3
Waakye								
No	527	85	467	75	562	90	561	90
Yes	95	15	155	25	59	10	61	10
Ga <i>Kenkey</i>								
No	507	88	489	85	542	95	542	95
Yes	66	12	84	15	31	5	31	5

nausea. Few (10%) knew of people who suffered other health problems including some of the ailments mentioned already as well as cholera and food poisoning (one case each). Several factors might cause food poisoning but for this paper, respondents noted that it might probably be from the chemicals used on beans. The other health problem was running stomach, which respondents indicated, was due to excessive consumption of pepper, often associated with *Waakye*.

Similar trends were observed with consumers of *Kenkey*. While 88% had not suffered diarrhea from the consumption of *Kenkey*, 12% of consumers had suffered diarrhea and 85% did not know of anyone who had suffered any ill effects from consuming *Kenkey*. Few (5%) complained they had suffered other health problems or knew someone who had other than diarrhea.

In sum, majority of respondents had not experienced diarrhea or any other health problems and did not know of anyone who had experienced diarrhea or any other health problems from consuming *Koko*, *Waakye* or *Kenkey*. However, the few that experienced any health problems and knew others that had experienced ill effects from consuming these foods should raise safety concerns. This implies that any other perceptions should not replace hygienic practices that go to explain the safety of food. They should go hand in hand to ensure that SVLFs are safe for consumption.

Consumers had varied understanding of safety of the three SVLFs. The analysis of data showed that safety in relation to *Koko* was linked to the hygienic conditions of the environment where food was prepared and the point of sale as well as the wholesomeness of ingredients used for preparation. Safety was again, seen in the cleanliness of vendors and their experience in preparation of food. If the correct ingredients were combined and food was well prepared or well cooked, then it was perceived as safe.

Furthermore, when foods were served and eaten hot then they were considered safe because all the contaminants would have been destroyed through boiling or the long hours of cooking. If after eating there were no immediate health problems or ailments, then foods were safe. Proper packaging and storage of food to avoid contamination also rendered it safe for consumption. A few consumers, who were not concerned so much about safety, mentioned that once they were satisfied, the food was safe. Again, to some consumers, the use of indigenous ingredients made the SVLFs safe for consumption.

However, consumers' raised safety concerns for instance, in relation to the poor handling of foods, the source of water used to prepare *Koko* and the presence of flies around the place where food was sold. Others perceived that after food regulators had certified vendors, their foods were safe for consumption. Here consumers placed their trust in the public regulatory system. In other words, they trusted that regulatory bodies made sure hygienic practices were enforced and environment for preparation and sale were clean before certifying food vendors to sell foods to the public and this made foods safe for consumption.

The trends were similar for the other foods. With *Waakye*, those who concerned it was not safe related this to the poor handling of food when serving customers, unhygienic surroundings, the use of too much of "kawu" (saltpeter—potassium nitrate) and baking soda—sodium bicarbonate. Further, *Waakye* was not considered safe

when it was served hot in polythene bags. This was because of concern about the effect of heat on the polythene bag and its effect on food.

With *Kenkey*, the fear was about the use of uncooked pepper; tomato and onion grinded and served to accompany it. If there was too much pepper, it may result in stomach upsets for some consumers and if the ingredients used were unwholesome or contaminated, they may cause some ailments. The percentage responses of consumers of the three studied SVLFs presented (**Tables 6-8**) confirm results of the individual interviews.

In addition, respondents raised other safety concerns through the individual interviews. One major concern

Table 6. Perceived safety of Hausa *Koko*.

Perception of safety	Frequency	%
No answer/Not sure/Don't know	97	15.4
It is not safe-poor handling, food hygiene is questionable, source of water, sugar attracting flies	117	18.5
Hot food/prepared or cooked well and served hot	112	17.7
Hygienic environment (preparation, sale point)	85	13.5
It is safe	101	16.0
Not giving any health problems	63	10.0
Well packaged with covering against flies	21	3.3
Cleanliness of vendors and their experience	18	2.9
Indigenous foodstuffs used	7	1.1
When it satisfies me	5	0.8
Vendors need to be certified and regulated, well-educated to improve safety	3	0.5
From the streets safety is questionable	2	0.3
Total	631	100.0

Table 7. Perceived safety of *Waakye*.

Perception of safety	Frequency	%
No answer/Not sure/Don't know	50	7.9
Hygienic environment (preparation, sale point)	135	21.4
Hot food/cooked well and served hot	145	23.0
Not giving any health problems	124	19.7
It is not safe-poor handling, served near gutters, <i>kawu</i> (saltpeter) used, coloring used, served hot in plastic bag	81	12.8
It is safe	43	6.8
Cleanliness of vendors	24	3.8
It is not inorganic/no chemicals used by farmers/indigenous foodstuffs used	13	2.1
From the streets safety is questionable	7	1.1
When it satisfies me	5	0.8
Well packaged	2	0.3
Vendors need to be certified and regulated for safety	2	0.3
Total	631	100.0

Table 8. Perceived safety of Ga *Kenkey*.

Perceptions of safety	Frequency	%
No answer/Not sure/Don't know	86	13.6
Hot food/cooked well and served hot	127	20.1
It is not safe-uncooked and unwholesome pepper, onions and tomatoes, too much cassava, too much fermentation	112	17.7
Not giving any health problems/nutritious	91	14.4
Hygienic environment (preparation, sale point)	89	14.1
It is safe	78	12.4
Cleanliness of vendors'	18	2.9
Well packaged and stored	17	2.7
When it satisfies me	5	0.8
Local, wholesome and indigenous foodstuffs used	4	0.6
Vendors need to be certified and regulated	3	0.5
From the streets safety is questionable	1	0.2
Total	631	100.0

was about the use of milling machines for fresh vegetables accompanying *Kenkey*. Their concern was that the machines might be rusty and this might pose health hazards to consumers since they served the milled vegetables fresh. Vendors indicated that consumers would have preferred the traditional method of grinding vegetables using the grindstone, which brings out better the taste of the food and perceived to be safer but vendors considered it tedious and time consuming. There is however, the opportunity to use domestic food processors for blending such raw vegetables for consumption but few vendors could afford them as they operated on a micro scale.

Additionally, with the desire to operate economically and thus provide affordable foods, food vendors might not buy fresh, wholesome food ingredients, especially vegetables to be used fresh. Stale vegetable salads might also pose health problems to consumers. Furthermore, respondents were also concerned about the incorrect use of agro chemicals and the effect of fertilizer on food produce as well as the kinds of preservatives used in the canned food ingredients used in preparing these dishes. Chemical residues might cause health problems for consumers.

3.3. Regulatory Bodies and Food Safety

With all these concerns and consumers' demands, the regulatory bodies are set to ensure local foods are safe for the public. The individual interviews, FGDs and observations brought to light the activities of the main regulatory body, environmental health officers (EHOs) in the local food system in urban places. The EHOs of the various cities were mandated to regulate activities of street food vendors. This they did through the medical screening that food vendors should undergo every year and the inspection of their kitchens, sale points and serving utensils before they issued or renewed licenses.

Their regular inspections and monitoring of the activities of food vendors ensured the wholesome provision of food to the public. The areas checked included the raw food stage (where ingredients were obtained and stored), processing and preparation environments (kitchen structures, plates and cups used to serve consumers and refuse storage), where the foods were served, water sources and the personal hygiene of vendors. They made routine inspections of the areas that would put the wholesomeness of public foods at risk. They cautioned, advised and educated vendors on personal hygienic practices, clean kitchens and sales environments and prosecuted recalcitrant vendors.

Although these regulations were intended for all food vendors in the country, regulatory bodies at some locations were yet to implement them, In Tamale, for instance, the analysis revealed that the medical screening exercise was introduced in 2010 and targeted only restaurants, chop bars (traditional caterers), and drinking bar owners who operated in permanent structures. It did not cover the street food vendors. However, in Accra and

Kumasi, all food vendors were screened together with the restaurants, chop bars and drinking bars owners before they were licensed.

The EHOs had operational challenges, which might hamper their effectiveness to enforcing food safety regulations in the country. The challenges included inadequate logistics, poorly motivated staff, non-compliance of some food vendors and ineffective court system to prosecute recalcitrant vendors among others. The need for more education of food vendors and continual monitoring of their activities was paramount to ensure compliance with safety regulations. Again, food vendors who had several workers were unwilling to pay for their medical screening due to the added cost involved and the risk that some workers would leave their employment after obtaining the screening certificate to start their own business.

Consumers of local foods, also important actors in the local street food systems, required that foods were prepared and served under hygienic conditions to render them safe for consumption. Through their advice, complaints, or even refusal to accept some foods, they communicated these needs to food vendors. With the availability of improved technologies (glass and plastic containers to store foods, thermal containers, use of polythene bags as gloves, use of ladles instead of bare hands, fabricated food stands etc.) food vendors were able to meet these demands for food safety from regulators and consumers.

In relation to food ingredients, food vendors selected food ingredients that met the demands of consumers. Some consumers indicated that cassava in *Kenkey* rendered it unsafe while others liked it because it gave a preferred texture. Therefore, some *Kenkey* vendors for example, preferred the use of old stock maize because that produced good quality *Kenkey* that consumers preferred as safe without the addition of cassava dough. With *Waakye*, due to consumers' complaint of stomach discomforts, besides other reasons, vendors stopped using local brown cowpea for its preparation.

With the preparation methods, the use of improved heating methods allowed food to be served hot at all times and this is a food safety requirement. *Waakye* vendors especially used gas stoves at sale points to keep sauces hot and it allowed the regular and continual preparation of food in relatively smaller quantities to be sold hot at all times.

Packaging of local foods had much improved food safety especially with the availability of polythene and plastic technologies. The replacement of calabashes and *Calathea lutea* (broad leaves used for wrapping food) with polythene bags, plastic bowls and cups were major safety measures. The unhealthy and unhygienic ways vendors used leaves resulted in EHOs preventing their use to wrap food. The reason for replacing calabash was its tendency to get moldy during the rainy season when there was not much sunshine to dry it as well as several consumers' continual use of the same calabash.

Again, it was observed that most vendors used plastic bags as gloves if they had to use their hands to touch food. Most vendors prepared and sold food at clean and hygienic environments with the use of wood, metal, plastic, and glass especially at the sale points. For *Koko*, several polythene sheets were used to cover bulk quantities in aluminum containers to keep the food hot. Vendors made sufficient quantities that would be sold within a short time so they did not get cold. *Waakye* and *Kenkey* that were not kept in thermal containers were kept under several polythene sheets in aluminum pans and covered well, again, to keep them hot. Ordinary tables had given way to raised, netted and roofed stands. There were also fabricated plastic, metal and glass stands in which foods were sold.

Most of these improvements in the local foods presentations ensured safety but came with a cost, which vendors shifted to consumers because of the relatively large amount of capital required. For instance, one would have to pay for the Styrofoam bowl popularly called take-away bowl before it was used to serve a customer. Because most of these food vendors are constrained by capital, they might compromise on some of these safety requirements. Despite these, to remain in business, among several other factors, vendors endeavored to satisfy the standard requirements and when supervised by regulatory officers they ensured the safety of SVLFs in urban areas.

4. Discussions

4.1. Defining Food Safety

Actors' considered the safety of SVLFs with the standards of the WHO, that defines food safety as protecting the food supply from microbial, chemical and physical hazards that may occur during all stages of food production to consumption to prevent food borne ailments. Food vending is within the preparation, storage and con-

suming stage of this process of protecting food from hazards. To our respondents, if food consumed did not lead to illness, then it was safe. This was achieved when foods were prepared and sold in a clean environment by vendors with a clean appearance. The finding that SVLFs are safe is in conformity with other studies with similar conclusions (Tinker & Fruge, 1982; Tinker, 1987, 1997; FAO, 1991; WHO, 2006).

Although Rheinlander, Olsen, Bakang, Takyi, Konradson, & Samuelsen (2008), found that consumers and food vendors did not base their perception of safety on hygienic practices but on aesthetics, the appearance and presentation of food, and also on the personal trust between vendors and consumers, this trust implies the former requirements. This is because results of this study confirm that these perceptions are based on what consumers defined as safe. Consumers construct safety based on these definitions, which are in line with the standardized definition of safety. If foods are tasty, and vendors appeared neat, consumers develop trust through constant interactions; above all, if foods do not give consumers any illness, then they are safe.

4.2. Assessing Definitions with FAO Five Keys

Again, actors have the knowledge that foods cooked for a long time and eaten hot are safe, which is part of FAO/WHO's five keys for assessing food safety (FAO/WHO, 2003). Actors' definitions may not meet all these five keys for instance; they may not know the source of water for the preparation of *Koko* or *Kenkey*. All these keys are practices that food vendors must be aware of and must practice to ensure food safety. If other actors, especially consumers have this knowledge also but cannot see or experience some of them being practices by food vendors, then they have to rely on trust as Rheinlander, Olsen, Bakang, Takyi, Konradson, & Samuelsen (2008) noted. Results of this study show that this trust is not only between consumers and food vendors but also between them and the regulatory system.

4.3. Actors' Food Safety Concerns

The finding that some actors raised safety concerns about SVLFs confirms other studies that show that street foods were the major source of many food borne diseases in Ghana (Mensah, Tompkins, Prasar, & Harrison, 1991; Mensah, Yeboah-Manu, Owusu-Darko, & Ablordey, 2002). Vendors' have some constraints in their engagement with SVLFs but as people, who want to ensure safety, they interact and relate to address these concerns and constraints to minimize some of the risks. This enables SVLFs to continue to grow in the ever-growing urbanized population in Ghana. Amoa-Awua, Ngunjiri, Anlobe, Kpodo, Halm, Hayford, & Jakobsen (2007) noted that if people applied good management practices (GMP) and hazard analysis critical control points (HACCP), our traditional foods would become safe for consumption.

Most of the food vendors went through informal training before their certification and on-the-job training is given them, often through donor-sponsored projects (Tomlins & Johnson, 2004; Tortoe, Johnson, Ottah-Atikpo, & Tomlins, 2013). However due to their low educational levels, vendors should not operate without supervision. Continual training and monitoring of their activities would ensure that they adhere to good management practices at the critical control points. As noted earlier, most of the problems occur at the sales handling points, which require most serious attention to ensure that street foods in general are safe.

5. Conclusion

SVLFs are safe. What respondents defined as safe was in line with the accepted definition of safe foods. They considered the three studied foods to be safe, based on several criteria including some of the five food safety keys advocated by FAO (FAO/WHO, 2003). Consumers, for instance, may not know if vendors were using these practices and that is the reason why appearances and trust featured in their definition of safety. Thus, hygienic practices and aesthetics, appearance and presentation of food as well as the personal trust between vendors and consumers and consumers trust in the regulatory system must go hand in hand.

This is realized through the continual interactions and linkages among key actors (vendors, consumers, and regulatory bodies) in the local food systems. Through their demands and the efforts of food vendors in addressing these demands, safety is constructed. This is enhanced with the availability of improved technology, which food vendors use to bring about changes in local foods as well as to meet safety requirements.

Generally, there have been some improvements in the street-vended food system due to the interactions among actors. However, there is still more room for improvement because some vendor are not able to meet all

these demands. Moreover, many join and leave the system easily so continued education and monitoring should be encouraged to ensure that they provide safe food all the time for the public.

SVLFs achieve the purpose of providing preferred nutritional needs and a means of livelihoods for urban dwellers thus, ensuring continued patronage and growth in urban Ghana. Attempts to improve this system in Ghana should address the constraints to sustain the development of local foods.

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