

## An Assessment of Food Safety Knowledge and Practices of Street Food Vendors at Takoradi Market Circle

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**Abstract:** The sale of foods on the street is a common aspect of lifestyle in many countries and very prominent in Ghana. The street food trade has evolved into a large food sector that provides a means of income for the vendors and reasonably priced food to millions of people from all walks of life. However, the hygienic aspects of vending operations are a major source of concern for food control officers. As a result of this, there is the need to determine the food safety knowledge and practices of these street vendors so that the safety of such food can be guaranteed. This research was therefore carried out to assess the food safety knowledge and practices of street food vendors in Takoradi. The respondents were 10% male and 90% female. The result indicated that the street food vendors had fair knowledge of food safety practices but a large portion (70%) of them had no medical clearance certificate. The health and personal hygiene knowledge in this survey showed that majority of the vendors do not have any knowledge on health and personal hygiene. It is therefore recommended that a policy should be put in place to periodically educate food handlers especially vendors because food safety education should not only be triggered by evidences of visible dirt or unpleasant body odour.

**Keywords:** food safety, street food / vendors, Hazard Analysis Critical Control Point (HACCP)

### INTRODUCTION

The term "street food" refers to a wide variety of ready-to-eat foods and beverages sold and sometimes prepared in public places. Street food may be consumed where it was purchased or can be taken away and eaten elsewhere [1]. According to [2], street vended foods are foods and beverages prepared and/or sold by vendors in streets and other public places for immediate consumption or consumption at a later time without further processing or preparation. Globally, street food vending is ubiquitous activity in cities especially large ones such as Bangkok and Mexico [3]. Street foods can be found in clusters around places of work, schools, hospitals, universities, railway stations, bus terminals and taxi ranks in the urban areas.

The sale of foods on the street is a common aspect of lifestyle in many countries and very prominent in Ghana. The street food trade has evolved into a large food sector that provides a means of income for the vendors and reasonably priced food to millions of people from all walks of life [3], and it plays an essential role in the cities and towns of many countries in meeting the demands of the city dwellers [4]. The street food sector has been growing rapidly all over the world and Ghana is no exception. It is greatly acknowledged that street foods play a significant socio economic role in terms of employment

potential, income for women, and in serving the food at reasonable prices to the lower and middle-income groups and sometimes to the high income groups all over the world [5].

According to [6] the street-food trade has been reaching new dimensions in developing countries and is recognized as a phenomenon that has great economical and socio-cultural importance. Street food vending is regarded as informal as most vendors businesses are usually not registered. They are small in nature, and are usually run from homes, street pavements or informal arrangements [7]. [8] also acknowledged that there is an assumption that by their nature, street food contamination is inevitable, yet millions of people depend on this source of nutrition and economic livelihood. A report by the WHO has also indicated that street foods make up an important part of the urban food supply of 74% of the African countries [9].

Food borne illness is a major international health problem and an important cause of reduced economic growth [1]. The problems of food safety in the industrialised world differ considerably from those faced by developing countries. Whereas traditional methods are used for marketing fresh produce in the latter countries, food processing and packaging are the

norm in industrialised countries. In developing countries a large proportion of ready-to-eat food is sold on the streets [9]

The hygienic aspects of vending operations are a major source of concern for food control officers. For example, stands are often crude structures, and running water may not be readily available. Also toilets and adequate washing facilities are rarely available. The washing of hands, utensils, and dishes is often done in buckets or bowls. Disinfection is not usually carried out, and insects and rodents may be attracted to sites where there is no organized sewage disposal. Additionally, food is not adequately protected from flies and refrigeration is usually unavailable [10]. According to [11] food handling personnel play important role in ensuring food safety throughout the chain of food production and storage. Mishandling and disregard of hygienic measures on the part of the food vendors may enable pathogenic bacteria to come into contact with and in some cases survive and multiply in sufficient numbers to cause illness in the consumer [12].

Food has different meanings for different people. People who are starving perceive food as a means of survival, traditionalists consider traditional foods to be part of their heritage, members of some faiths regard certain foods as religious symbols and people entertaining guests view food as a sign of hospitality [13]. It is clear that food does much more than meet a basic physical need. It meets emotional, social, and psychological needs as well. As long as people have walked the earth, they have searched for food and the means to produce it and efforts to improve food resources are likely to continue as long as life exists.

For many people, preparing and eating food are social activities. Food can bring people together, brings family members together at the dinner table, and brings friends together at parties and picnics. When guests come to visit, the host usually offers them something to eat or drink [13]. People often transact business over lunch. In each of these situations, food is part of the social interaction. Just as food plays a part in social life, social life plays a part in eating habits and food choices. For instance, your family members and friends can affect your meal plans and food preferences. Mass media and current trends may affect your grocery purchases. For many people, favourite foods are those they grew up eating at home and often play important roles in family traditions and special occasions [13].

The term street food has been defined by [14] as a wide variety of ready-to-eat foods and beverages sold and sometimes prepared, in public places. The WHO also defines street food as any food and beverages prepared and sold by vendors in streets and

other public places for immediate consumption, or consumption at a later time, without further processing or preparation [15]. In many developing countries, street food vendors have formed an integral part of the food supply chain, particularly following the advent of urbanisation [16]. The street food industry has contributed immensely to human and economic development as studies conducted in some of the African countries like Nigeria, Morocco, and Kenya have shown that major street food vendors usually earn above the countries' minimum wage [17, 18]. The socioeconomic role of the street food sector in terms of its potential for employment creation, yielding income particularly for women, and provision of food at affordable cost to lower income groups in the cities has been well documented in several countries [19]. A typical example of this documented evidence is the case of Nigeria where urban city dwellers spend as much as half of their food expenditure on street foods [19]. A research conducted by [19] documented that the street food sector in Nigeria is plagued with challenges. Among these are inadequate supervision and proper monitoring by food safety officers and the enforcement of food hygiene regulation lack of training in food safety and good hygiene practices is also rife among food handlers [20]. Usually, streets foods are stored at improper temperatures and sold from vending sites which include kiosks, make-shift accommodation, and push carts as well as other temporary structures [20]. [21] carried out a research in Quagadogu, Burkina Faso about hygienic status of street food preparation. In their research, it was observed that, street foods are prepared at very dirty surroundings with waste water and garbage disposed nearby, providing nutrient and breeding ground for rodents and vermin. They further observed that, in most cases running water is not available at vending sites, washing of hands and crockery are done in bowls or buckets and sometimes without soap. To make the situation worst, the conditions under which several streets foods are prepared and vended are worsened by weak implementation of relevant environmental and public health regulations [22].

The SADC Food Security Training Project [23], offers a definition of food-borne diseases as "diseases transmitted to human beings through food", whilst [24], defines food-borne disease as "disease that can be identified by the symptoms of infection in the gastrointestinal tract". This may either be caused through food toxicity on or by food-borne infection.

Food-borne disease may have a variety of causes namely, bacteria, virus, parasites, fungus or chemicals. [24], argues that lack of observance of rules for food handling and preparation might cause illness to the consumer, and the adherence to strict standards. Many street food vendors behave in an unhygienic way. A typical example is when street food vendors sell food

to customers after picking their nose without washing their hands and could be a cause of food-borne illness.

A disturbing factor is the increase in the incidence of food-borne diseases worldwide [25], and Ghana has not escaped this trend. This is supported by the statement made by the Director General of the World Health Organisation (WHO). [26] WHO points out that every continent suffers from extremely serious cases of food-borne disease which are related to changes that are taking place in food production and distribution. The Director General points out those outbreaks are as a result of limited resources and lack of training for people moving around selling food. Lack of a safe water supply and basic facilities for safe food preparation are also cited as factors.

To counter this, [27] argues that improvement of street food industry is not a “nice to have”, but an obligation for those involved in the industry. The common route of infection, according to the United Nations Environment Program, is through the ingestion of contaminated food [28], which enter toxins that cause disease. Viruses may exist in the urine, faeces or blood of an infected person, and be transmitted when a victim eats contaminated raw or cooked food.

Food safety has been defined as the conditions and measures that are necessary during the production, processing, storage, distribution and preparation of food to ensure that it is safe, sound, wholesome and fit for human consumption[27]. Food safety remains a critical issue with outbreaks of food-borne illness resulting in substantial costs to individuals, the food industry and the economy [30]. Within England and Wales the number of food poisoning notifications rose steadily from approximately 15,000 cases in the early 1980s to a peak of over 60,000 cases in 1996 [31]. This may be partly attributed to improved surveillance but may equally reflect increased global trade and travel, changes in modern food production, the impact of modern lifestyles, changes in food consumption and the emergence of new pathogens.

In Ghana, Food and Drugs Authority is responsible to ensuring food safety. Under its core mandate, the Food and Drugs Authority is fundamentally tasked with the responsibility of ensuring that all food processors, importers, exporters and vendors are satisfactorily and duly registered under its regulatory and certification framework and to further ensure that such registered parties subsequently and adequately abide by any such regulations as the Authority may deem it fit. This is to primarily and ordinarily help implement the certified and codified food safety and quality assurance standards with ease.

Thus, the safety of food can be achieved by the introduction of the Hazard Analysis Critical Control Point (HACCP) [20], and this concept provides a logical and systematic basis for food safety. According to [32, 33] WHO (1999), application of HACCP has clear benefits and can enhance food safety and prevent cases of food-borne diseases. Maintaining a clean and healthy environment for food production is very vital in the catering industry so that the food served to consumers will not cause any illness for food service employees [1]. Sanitation and hygiene must become a way of one’s life because street food vendors must develop the habit of keeping utensils, equipments, tools, working surfaces (chopping boards and working counters) and the kitchen clean always. Work surfaces are covered with thousands of microorganisms that cannot be seen with the naked eyes and the best way to be sure that microorganisms have been destroyed is to sanitize all surfaces[33], thus to clean with a product that kills all micro organisms.

Chemical compounds from industrial pollution of the environment may enter into the food chain and cause food poisoning. Chemicals likely to contaminate food are herbicides, insecticides, fungicides and or pesticides as well as veterinary medicines and growth promoters. Common chemicals associated with food poisoning include: accumulation of Lead in the tissues of animals that graze close to smelting plants or lead containing substances and may also occur from the usage of water that has been in contact with lead pipes. Arsenic used in herbicides, rodenticides and insecticides when it is used to spray fruits during growth, occasionally finds its way into food chain. The uses of copper pans to store food, particularly acid foods, which may dissolve harmful amounts of copper, are not exempted. Some “natural” substance are toxic if they are eaten with food.

More often than not, foods such as milk, cream, cheese, eggs, and all its products, poultry, pork, beef, lamb, beef burgers, meat pie, stew, sausages and minced dishes as well as shell fish and fish dishes that contain fish and shell fish are susceptible to food borne diseases.

It is very necessary for people in the food handling industry to have knowledge about food safety and the ways, through which food contamination may occur. This will help them to protect their foods against possible or potential contamination. For this reason, education is very important. Without education it will be impossible for people to become aware of all these. Since food poisoning cause diseases and even death, the acquisition of food safety knowledge in this area is extremely crucial [34]. To be a good food handler one cannot do without education, both professional and academic.

In Ghana, the boom of street food vending occurred after the post-independence era. Promotion of industrial development brought about new sources of employment, with people working increasingly away from their home environment. The operations of fast food joints, restaurant and chopbars have increased in the Ghanaian community, especially in urban areas[35]. A research carried out indicated that there are about 60,000 food vendors of ready-to-eat foods in Accra[33]. This shows the significant

proliferation of street food vending in the country. This sudden increase in street food vending comes with a subsequent challenge on the food safety. As a result of this, there is the need to determine the food safety knowledge and practices of these street vendors so that the safety of such food can be guaranteed. This research therefore aims at assessing the food safety knowledge and practices of street food vendors at Takoradi market circle.

## RESULTS AND DISCUSSIONS

**Table1: Health and Personal Hygiene Practices of Street Food Vendors in Takoradi City (n = 50)**

<b>a. Cleaning of Selling Environment</b>		
<b>Subject</b>	<b>No. of Responses</b>	<b>%</b>
Before Selling	19	38.0
After Selling	10	20.0
In Between Selling	8	16.0
Before and After Selling	13	26.0
<b>Total</b>	<b>50</b>	<b>100</b>
<b>b. Hand Washing Requirement</b>		
Clean Water	15	30.0
Soap with Clean Water	23	46.0
Hand Towel	1	2.0
Disinfection Solution	11	22.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>c. Reasons for Washing Hand</b>		
Touching Money	14	28.0
Handling Garbage	12	24.0
Blowing Nose	6	12.0
Using the Wash Room	18	36.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>d. Attendance of Medical Check-up</b>		
Every Six Months	15	30.0
Once a Year	14	28.0
Not at All	21	42.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>e. Inspection by Food and Drugs Authority</b>		
Every Six Month	7	14
Once a Year	9	18
Every Two Years	5	10
Never	29	58
<b>Total</b>	<b>50</b>	<b>100.0</b>

Source: Field Work, 2016

The result shows that most (38%) of the vendors clean their environment before commencing selling, while 26% do clean their environment in between selling. This also indicates that most of the vendors after selling do not clean the environment but rather do so the next selling day before commencing selling.

In terms of hand washing requirements, a large portion of 23 representing 46% do wash their hands with soap and clean water while 2% use just use hand

towel to clean their hands. 22% and 30% use disinfection solution and clean water only respectively to clean their hands. This result also shows that street food vendors in the Takoradi city have quite a good hand washing practice.

There are several reasons why vendors do wash their hands, 36% wash their hands after using the washroom while 24% wash their hands after handling garbage. It is quite to note that even some of them (28%) do wash their hands after handling money.

Despite this impressive hand washing practice, it was revealed that 75% of the street food vendors do

not have a medical clearance certificate, a situation which is very alarming and ought to be checked.

**Table 2: Food Handling Practices of Street Food Vendors in Takoradi (n=50)**

<b>a. Food Warming Practice</b>		
Cover with Polythene bag	9	18.0
Keep in Ice Chest	22	44.0
Heat when Cold	14	28.0
Continuous Heating on Stove	5	10.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

Source: Field Work, 2016

About 42% of the vendors indicated that left over food is eating at home, while 20% had no left over; meaning all the food is sold out. This is quite interesting because, in the unfortunate situation of food poisoning, the rate of spread can easily be checked and monitored.

Regarding the means by which food is kept warm, 10% of the respondents continuously heat the food on stove which may reduce the nutrient content of the food, while 44% keep the food in food warmer which is a good practice while 18% cover the food with a polythene bag to keep the food warm.

**Table 3: Food Safety Knowledge and Training of Street Food Vendors in Takoradi (n=50)**

<b>a. Attendance of Food Safety Workshop</b>		
<b>Subject</b>	<b>No. of Responses</b>	<b>%</b>
Less than Six Month	10	20.0
More Than Six Month	8	16.0
More than a Year	4	8.0
Never	28	56.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>b. Where Food Safety Knowledge was Obtained</b>		
Home	22	44.0
Senior High School	11	22.0
Tertiary School	2	4.0
Media	15	30.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

Source: Field Work, 2016

The result shows that quite large numbers (44%) of the vendors obtain knowledge on food preparation and food safety from the home. This observation calls for serious training and workshop to be organised for the vendors since this knowledge is so traditional. The results on food safety knowledge is quite revealing because 56% of the vendors interviewed have never been to food safety workshop training due to the fact that they are not aware of the existence of such workshops. Even though a lot of them taught themselves (34%) how to cook, it is heart-warming to note that a sizeable number have also obtained some formal training in food preparation and food safety; 42% from National Vocational Training Institute; 18% from senior high school and 6% from tertiary education.

It was revealed that 60% of the vendors have never received complaint of food poisoning from any of their customers, while 24% do experience food poisoning once a while. 60% had no idea about regulatory hygienic standards that they needed to abide by while 40% had knowledge of this and therefore abided by it.

The study further shows that most of the street food vendors are not exposed to any form of training and are additionally not aware of any regulatory requirement that they need to satisfy. This accounts for the high number of them not having any form of medical authorisation or certificates. Food safety authorities therefore have a lot to do in this regard. There is an urgent need to ascertain the medical conditions of the food vendors. The present study has revealed the knowledge and practices of street food vendors in Takoradi city. The hands are the most important vehicles for the transfer of pathogenic organisms from faeces, nose, skin or other sites to food. The vendors interviewed because the organisms such as *Salmonella typhi*, *non-typhi salmonella*, *Compylobacterspp* and *E. coli* can survive on fingers tips and other surfaces for varying periods of time and some cases after hand washing [36]. The health and personal hygiene knowledge in this survey showed that the majority of the vendors do not have any knowledge on health and personal hygiene so they must be educated periodically and should not only be triggered

by evidences of visible dirt or objectionable body odour.

**Table 4: Food Poisoning Experience of Street Food Vendors in Takoradi (n=50)**

<b>a. Complaint on Food Poisoning</b>		
<b>Subject</b>	<b>No. of Responses</b>	<b>%</b>
Once	2	4.0
Twice	6	12.0
Once a While	12	24.0
Never	30	60.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>b. Complaint on Poor Hygienic Environment</b>		
At Times	14	28.0
Always	5	10.0
Once	10	20.0
Not at All	21	42.0
<b>Total</b>	<b>50</b>	<b>100.0</b>
<b>c. Customer Patronage</b>		
1-100	16	32.0
100-150	5	10.0
150-200	16	32.0
More than 200	13	26.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

Source: Field Work, 2016

## CONCLUSIONS / RECOMMENDATIONS

It was revealed that 75% of the street food vendors do not have medical clearance certificate and therefore have not obtained any medical certification. This to some extent poses some level of health risk to the populace. Food vending is in numerous style and food vendors are reached by people in such a way that if care is not taken the rate of food poisoning will be very alarming. The research therefore recommends the following and if adhered, will be of benefit to both the consumer and the food handler.

1. Routine medical examination of food handlers must be carried out by health officers in the development of strategic plans towards regulating safe street food handling, preparation and vending.
2. Food safety training should be organised on routine basis for the street food vendors since this would strengthen their knowledge and increase their food safety practices.
3. Good use should be made of the media such as radio and television since it was revealed that quite a sizable number of the street vendors hear about food safety through that means.
4. Further studies should be carried out to assess the contamination levels of street food prepared and sold within the city.

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