

Research Article

Assessment of Consumers' Awareness in Food Hygiene and Food Borne Diseases in Koforidua in the Eastern Region of Ghana

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Abstract: The study examined consumers' Awareness in food hygiene and food borne diseases in Koforidua in the Eastern Region of Ghana. The research design for the study was a descriptive survey. The population of the study consists of one hundred (100) consumers. Convenience sampling technique was used to select seventy (70) consumers from the licensed food vendors and thirty (30) consumers from the unlicensed food vendors. Questionnaire was the main instrument for the study. The questionnaire had both open ended and close ended questions was on the consumers' knowledge and perceptions on food borne diseases and the safety of foods. Data gathered checked, edited, coded, processed and analysed using the Statistical Package for Social Sciences (SPSS) version 17. The study concluded that the consumers of vended foods have some knowledge of food hygiene and food borne diseases; however, they ignore the health hazards associated with poor food handling by food vendors and go ahead to patronize the food the vendors provide. The study also indicated consumers patronized street foods because prices were moderate as compared to the formal establishments and ignore the unhygienic conditions at the vending sites. The correlation analysis shows further that consumers patronage ($r=-0.095$) had negative and non-significant relationship with food handling practices. It is recommended that Consumers of vended foods should be educated to help improve upon their knowledge in food hygiene and food borne diseases to enable them make informed choices and also prompt regulatory bodies such as the environmental health officers on unacceptable food handling practices of food vendors. It is also recommended The Metropolitan/Municipal/District environmental health officers should ensure that inspection of street food vendors are carried out effectively, efficiently and regularly so as to monitor the food handling practices of the food vendors' right from the time of preparation to the point of sale.

Keywords: Consumers Awareness, Food, Hygiene, Food Borne Diseases

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1. Introduction

Food vendors unprotecting food from flies, dust and other harmful substances dispose of their solid waste well at most of the vending sites attracted flies to the place [1]. Provision of warm water for washing hands and utensils was a pitfall to the food vendors as well as not washing their hands frequently under running tap water with

liquid soap or detergents. Non-wearing of aprons as well as hair coverings during the preparation and serving of food at the vending sites are all worrisome. [1]. All these issues are always at the blind side of the food consumers affecting their health conditions. The poor food handling practices is likely to have some adverse implications on the health of the consumers of the vended foods. The Food and Drugs Authority, the Ghana Tourist Board and most especially the New Juabeng Municipal Assembly Health officers, should ensure that, street food vendors in Koforidua are well informed on issues bordering food hygiene and food borne diseases and their effects on individuals. The reasons for the various regulations governing their practices should be clearly spelt out to enable them put the knowledge, they acquire into practice. Environmental health officers should ensure that inspection of street food vendors is carried out effectively, efficiently and regularly so as to monitor the food handling practices of the food vendors' right from the time of preparation to the point of sale. This is to ensure that food served to consumers is safe for consumption. Vendors who do not to put the knowledge they have acquired into practice should have their certificates retrieved and signed up for retraining. The training and certification of food vendors must be the hallmark of the Environmental Health Officers to conduct follow up exercises after training programmes to ascertain whether food vendors are putting knowledge, they have acquired into practice to ensure public safety [1]. This is to ensure that food served to consumers is safe for consumption [2].

The ultimate aim of any food service business is to prepare safe and healthy food and serve to customers. In recent times, however, there have been a lot of reported cases of food borne illnesses at the Regional Hospital as a result of the consumption of vended foods. It is for this reason that the researcher deems it crucial to assess what information street food vendors in Oguaa Koforidua have in relation to food handling practices and food safety. Such an assessment has the potential to identify areas that require strengthening in training programmes with regard to ensuring the safety of street foods, especially for those who patronize them. The purpose of this study was to assess consumers' awareness in food hygiene and food borne diseases in Koforidua. The study was guided a research question - How may the consumers' awareness in Koforidua on food hygiene and food borne diseases be assessed? Research Hypothesis - Ho There is no significant relationship between consumers' patronage of food vending sites and food handling practices.

Food is any substance, liquid or solid that provides the body with materials for heat and energy, growth and repair and for regulating the body processes [3]. Food is also any edible or portable substance (usually plant or animal origin) consisting of nourishing and nutritive components such as carbohydrates, proteins, fats, vitamins and minerals which when ingested and assimilated through digestion sustains the body [4]. Food as a composite of natural ingredients normally referred to as nutrients, example protein and carbohydrates, that is needed by man for the maintenance of the body [5]. Food is the fuel which supplies chemical energy to the body to support daily activity and the synthesis of necessary chemicals within the body and is therefore critically needed for survival, growth, physical abilities and good health. For food to perform the intended functions, it must be nutritionally complete and be free of any injurious substances [6]. A lack or insufficiency of food or consumption of food containing inadequate nutrients may result in dietary illnesses including Pellagra, Rickets, Marasmus, Kwashiorkor and Ketosis or food containing harmful bacteria may cause food borne diseases such as Cholera, Dysentery, Hepatitis, Salmonellosis and Typhoid [7].

Before Ghana's independence, the capital city Accra was sparsely populated and meals were prepared and eaten at the family or individual level. Food vending existed only in the form of food prepared at home and sold on a take-away basis. Ghana's independence in 1957 promoted industrial development and brought about new sources of employment. People began to work away from their homes and their traditional working environment. Those who could not carry food to their places of work had to be

catered for. This led to cooked food, snacks and fruits being sold to customers by vendors [8]. Food industry grew rapidly and food vendors could be found around offices, factories, schools, markets, construction sites, beaches, lorry stations, commercial centres, and along almost every street of Accra as well as other cities and towns. The industry has now been recognized as part of the informal sector of the Ghanaian economy. The operations (4 fast food joints, restaurants and chop bars have increased in most communities especially in urban areas). Currently, the increasing number of working populations in the country has caused a lot of changes in the eating habits of people from all walks of life. In view of this many people including children and travelers now eat breakfast lunch and at times supper outside the home [9].

Codex Alimentarius Commission defines “street-vended foods” or “street foods” as ready-to-eat foods prepared and/or sold by vendors and hawkers especially in the streets and other public places [10]. Another study explained street food vending as a prevailing and distinctive part of a large informal sector which is commonly seen in public places, particularly in the cities, and is distinctive in the sense that it provides a basic need to urban inhabitants [11]. Those who prepare and/or sell street foods can be regarded as small-scale operators or micro-entrepreneurs that form part of the informal food sector. This is distinct from the formal-sector food industry in a number of ways because many individuals in the rapidly increasing urban populations of developing countries have not been absorbed into the formal organized labour market, they have a range of self-employed, small scale, income-generating activities, both legitimate and illegitimate, which form the informal sector [10].

According to Food and Drug Authority, hygiene measures adopted in selling street food include the points of sale, whether stationary or mobile should be in good condition and meticulously cleaned, especially surfaces on which the food will be placed. Foods that are displayed for sale should be protected from dust, insects and exhaust fumes with lids, glass panes, plastic sheeting or other materials that are easy to clean and that do not release toxic substances. Again, displayed street food should be protected from contamination by surroundings and kept at appropriate temperatures. For example, food that is served hot should be 60°C or more (high temperature) and food served cold should be 7°C or less (low temperature). Plates and utensils used by customers, whether with leftovers or not, should never be licked by domestic animals, such as dogs and cats. Food to be taken away should be wrapped with plastic or any other appropriate clean material. Newspaper, and cement bag paper are unhygienic wrapping materials and should not come into direct contact with the food [12].

However, Customers should be provided with means to wash their hands, including washing under running water or individual bowls with water and detergent soap. Reheated food should never be returned to the refrigerator, it should be consumed or what is left should be thrown away [13]. A study reported that printed papers were the major packaging media in street foods in Nairobi [14]. A similar study also observed that 6% of street food vendors in Cape Coast Ghana use newsprints, and 20% polythene bags to package food. Ready to eat food naturally contains some levels of both harmful and safe bacteria [15]. However, the provision of favourable conditions allows bacteria to grow to sufficient numbers to cause health problems [16]. Out of the eight most cited sources of food contamination. The study affirmed that isolated cross contamination as the most singular source responsible for food contamination. Cross contamination is the process where harmful bacteria are transferred to food [17]. The transfer could be direct contact between one food and another; from food handlers who do not wash their hands between handling raw and cooked food; or indirect contact, which is between equipment and improper storage practices [3]. Green and Selman (2005) also noted that the most common source of food contamination is humans especially when the hand gets into contact with food items. The Center for Disease Control (CDC) indicated that hands are the cause of most enteric virus transmissions [18].

A study opined that the major food contamination sources are water, air, dust, equipment, sewage, insects, rodents and human activities. Contamination of raw materials can also occur from the soil, live animals, external surface and internal organs of animals [3]. Food can be contaminated through the following ways:

- Chemicals that entered the foods accidentally during the growth, preparation or cooking of the food for instance those from pesticides and clearing fluids.
- Germs (harmful bacteria) that have entered the food from humans, animals or other sources of the bacteria themselves or the toxins produced in the food. Thus, the greatest numbers of cases of food poisoning are caused by harmful bacteria.
- Bacteria and viruses that have come from people, animal, insects, raw food, rubbish, dust, water and air. The bacteria or toxins produced in the food causes the food to become harmful [3].

Owing to conditions under which street foods are sold, there is concern that food may be contaminated by heavy metals and pesticide residues. These contaminants may come from the utensils, raw materials, or transport methods used and may also occur due to the lack of appropriate storage facilities [19].

A study carried out in Accra revealed that street food vendors purchased their pots and other utensils from both formal and informal manufacturers/retailers. Some of the street food samples had higher levels of lead, cadmium, arsenic, mercury, and copper than average food samples, suggesting possible leaching from the utensils. Further tests showed that lead from the pots obtained from informal manufacturers could leach into the food. These pots are manufactured using scrap metal that could come from diverse sources such as derelict cars, car batteries and industrial machinery, which are obviously not suitable for use with foods. Therefore, their continued use must be discouraged [19]. Microbiological analysis of samples of certain street-vended foods have shown high levels of total Coliforms and in some cases the presence of pathogenic bacteria such as *Salmonella* spp., *Staphylococcus aureus*, *Clostridium perfringens*, and *Vibrio cholera* [20, 21]. Numerous studies have been documented on the potential contamination of street foods by pathogenic microorganisms [22]. A study on the microbial quality of street foods in Accra, Ghana found evidence of *Shigella sonnei*, *Enteroaggregative Escherichia coli* and *Salmonella arizonae* in some of the food samples found houseflies in most of the street food stalls in Nairobi [19, 23]. Another study found houseflies in 54.8 % of the vending stalls. This implies that food contamination is most likely to occur despite efforts to keep the stalls clean. This is due to the fact that houseflies are believed to pass on pathogens mechanically onto food. *Salmonella tphinurium* and *Shigella*, for instance, can multiply in the gut of flies and be excreted for weeks or longer [14].

Food stalls often lack the necessary storage (refrigeration and cooking) facilities to prevent contamination by bacteria. Limited access to clean water and improper waste disposal practices increases the risk of contamination being passed on to customers. Adequate temperature in cooking and storage of foods is important to minimize the growth of bacteria and the food that cannot maintain within the safety temperature zone may act as incubator for pathogenic bacteria whether the food is raw, partially cooked or fully done bacteria from dirty dish washing waters and other sources on utensil surfaces constitute a risk for contamination during food vending [24-26].

The street/informal food consumers come from all levels of society with respect to age, gender, social and income status. Many people are patronizing street foods since it plays an important role in helping them to meet their energy and nutrient needs. Consumers in urban areas spend less time to prepare food and pay up to 30% more for food compared to their rural counterparts [27]. In Accra for instance, 40% and 25% of the

household budget is spent on street foods by low- and high-income groups respectively [28]. The report further indicated that children especially school children purchased and consumed a high proportion of street/informal foods.

People of all age groups consume street foods in Africa and other parts of the world however, there may be differences in the type of clientele depending on locality. While it is often thought that children under five years are fed from home, many mothers working at the markets in Accra also bought some food from vendors to feed their babies [19]. A study on customer surveys revealed that the main consumers of street foods in most countries were other members of the informal sector, such as fellow hawkers and hustlers and casual wage laborers. Other important categories of customers were children and students, office workers, and housewives. The studies also found that street foods were consumed across all income groups and the proportion of the daily household food budget spent on street foods was high, ranging from (25%) in Bogor to (47%) in Chonburi, Thailand. Other studies found that most of the consumers of street foods were from the low- or middle-income group [19].

The majority of consumers of street foods in West Africa were however found to be male [30]. A study conducted in Ghana that the age range of consumers of vended foods ranged from 10 to 60 years. Studies conducted in India, Indonesia and Nigeria revealed that the range of the ages of street food consumers was 10 through 40 years [31]. A different result was also realized from studies conducted in Ghana with an age range from 23 to 48 [32]. Other studies revealed that street foods are reported to play a considerable role in the daily diet of low-income male urban workers in Nairobi [33]. A significant number are professionals and represent the diverse ethnic groups in the countries concerned. The consumers also include the illiterate as well as people who have achieved a variety of educational levels. The street foods have been shown to contribute a substantial proportion of the daily requirement of energy and protein (25%-50%) for adolescents attending schools and urban market women [34, 35]. In Nigeria, the nutritional value however depends on the ingredients used and how they are prepared, stored and sold [36]. Most consumers are unable to protect themselves from possible health hazards since they are not well informed about food safety. Some studies revealed that the people who depended on street foods were often more interested in its convenience than its safety, quality and hygiene [19, 37]. A study conducted in Accra Ghana revealed that consumers were aware of the unhygienic conditions of street food and its subsequent health dangers but ignored these dangers and continued to patronize these foods due to time constraints affordable prices and proximity to the place of work or institutions [38].

2. Materials and Methods

2.1. The Study Area

Koforidua is the capital of the Eastern Region of Ghana and it lies in the New Juaben Municipality. In recent times, Koforidua has been experiencing a rapid population growth. According to the Statistical Service, the population of Koforidua in the 2000 census was 87315. This rapid growth rate can be attributed to a number of factors which include: Natural population increase and migration of people to the regional capital [39]. This implies that majority of the people both young and old come to Koforidua for various reasons; for instance, to seek employment opportunities, medical care, education, visit places of interest, trade and also do some shopping. Due to the above reasons, and the period, they spend in the capital, such people require a variety of fresh low-cost foods to eat. This is due to the fact that, street food and most especially chop bars provide a variety of foods and have become popular and has therefore led to their rapid growth. Furthermore, the informal food sector is increasingly becoming social joints for patrons especially during lunch time and evenings and at the same time offer employment to the

disadvantaged. Most vending sites lack basic sanitary facilities like toilets, hand wash basins, supply of pipe borne water and waste disposal systems. The nature of their structures makes maintenance and cleaning difficult and therefore form good breeding sites for disease vectors such as flies, rats and cockroaches. All these may result in the contamination of foods [40]. Among the foods prepared and sold by the food vendors are; “fufu”, “banku”, “akpele” “omotuo” (rice balls), “kokonte”, “gari” and beans among others all of which are served with various types of soup and stew.

2.2. Research Design

The research design for the study was a descriptive survey. The design was chosen because it has the merit of gathering various responses from a wide range of people. It also enables one to have a clear picture of events and people’s behaviour on the basis of the data gathered for a particular period of time. Descriptive survey research thus determines and reveals the way things are and is directed towards the determination of the nature of a situation as it exists at the time of the study. Hence, the use of the descriptive survey is justified since the study sought to find and analyze a current food handling situation in the informal food industry in Oguaa Koforidua Central in the New Juaben Municipality of the Eastern Region of Ghana. According to Neumann (2007), survey research asks respondents about their beliefs, opinions, characteristics and past and present behavior.

2.3. Population of the study

The population of the study included all food vendors selling cooked food in Koforidua in the New Juaben Municipality. The study required data on the food handling practices of the food vendors from the time of preparation to the point of sale. The target population was the food vendors who cook and sell food on site and the consumers of the vended foods.

2.4. Sample and Sampling Techniques

Convenient sampling technique was used to select one hundred (100) consumers for the study. They constituted 70 consumers from the licensed food vendors and 30 consumers from the unlicensed food vendors. The convenience sampling is a technique in which a sample is drawn from the population that is readily on hand, or convenient. A convenient sampling is where a researcher stands outside a shopping center and hands out survey questionnaire to people or interview them as they walk in [41].

2.5. Instrument for the study

Questionnaire was the main instrument for the study. The questionnaire has both open ended and close ended questions on the consumers’ awareness in food hygiene and food borne diseases in Koforidua. Open ended questions were unstructured to which respondents gave any answer to enable researchers learn how a respondent think to discover what is actually important to him or her or an answer to a question with many possible answers. Close ended questions are known to provide control over the participant’s range of responses by providing specific response alternatives [42]. The reason for using the questionnaire as an instrument of data collection was based on the fact that it provided a wider coverage of the sample and also facilitated the collection of large amounts of data [43].

2.6. Data Analysis

The researchers checked, edited, coded, and processed the data gathered using the Statistical Package for Social Sciences (SPSS) version 17. Responses were gathered by using both open ended and close ended questions, categorized, and coded before the SPSS

was used to analyze the data. Correlation between Consumers' Patronage of Food Vending Sites and Food Handling Practices was tested using Pearson correlation.

3. Results

The researchers administered questionnaires to consumers to find out their knowledge and perceptions of food hygiene and food borne diseases.

Table 1. Regular Patronage of Vending Sites

Regular Patronage	Frequency	Percentage
Yes	98	98
No	2	2
Total	100	100

As indicated in [Table 1](#), Ninety-eight percent (98%) of the consumers ate their food at the vending sites with only (2%) not eating from the vending sites.

Table 2. Low Affordable Prices Attract Consumers to Vending Sites

Affordable Prices of Food	Frequency	Percentage
Yes	82	82
No	18	18
Total	100	100

According to [Table 2](#), among the consumers who ate from the vending sites 82% indicated they were attracted by the low and affordable prices of food sold by the vendors. The remaining 18% did not agree with the majority.

Table 3. Food at Vending Site is of Good Quality

Food is Good Quality	Frequency	Percentage
Yes	90	90
No	10	10
Total	100	100

As shown in [Table 3](#), Ninety percent (90%) of the consumers thought the quality of the food they served was okay. Only 10% of the consumers did not think the quality of the food served was okay.

Table 4. In which Ways are the Food of Good Quality

Quality	Frequency	Percentage
Tasty	26	26
Filling	28	28
Nutritious	22	22
Enough	14	14
Not Nutritious	10	10
Total	100	100

Reasons advanced for accepting the food were: tasty (26%), filling (28%), nutritious (22%) and (14%) said the food was enough in quantity. The remaining (10%) of the

consumers held the opinion that food sold at vending sites were not nutritious as shown in [Table 4](#).

Table 5. Hygienic Conditions under which Food is Prepared

Unhygienic Conditions	Frequency	Percentage
Yes	66	66
No	28	28
Not sure	6	6
Total	100	100

In [Table 5](#), the opinion of the consumers on the conditions under which food was prepared at the vending sites, 66% of the consumers stated that food at the vending site was prepared under unhygienic conditions. Twenty-eight percent (28%) however said the food was prepared under hygienic conditions while 6% were not sure. All the 100 consumers agreed that food vendors should maintain the safety and quality of the food they sold to the general public.

Table 6. Food is Cheap at the Vending Site because of Poor Sanitation

Cheap food due to poor Sanitation	Frequency	Percentage
Yes	32	32
No	66	66
Not sure	2	2
Total	100	100

On the issue of whether the food was cheap at the vending sites because of poor sanitation, 32% said yes, 66% said no and the remaining 2% reported they were not sure as indicated in [Table 6](#).

Table 7. Satisfaction with the Environmental Conditions under which Food is Prepared

Satisfied with Environmental conditions	Frequency	Percentage
Yes	20	20
No	32	32
Not Always	48	48
Total	100	100

On the issue of environmental conditions at the under which food is prepared at the vending sites, the data shown in [Table 7](#) above revealed that 32% of the consumers were not satisfied while 20% said they were satisfied and 48% said they were occasionally satisfied giving a total of 68% consumers showing some degree of satisfaction. On whether any consumer had ever fallen sick after eating at the vending sites, 48% said yes while 52% said no.

Table 8. Diseases Suffered by Consumers after Eating Food

Disease	Frequency	Percentage
Diarrhoea	10	10
Stomachache	48	48
Typhoid fever	20	20
Cholera	16	16
No Response	6	6
Total	100	100

As shown in Table 8, some diseases consumers suffered from after eating at the vending sites were 10% suffered from diarrhoea, 48% had stomach ache and 20% developed typhoid fever. Some consumers 16% were down with cholera and 6% did not respond.

Table 9. Symptoms Exhibited by Victims

Symptoms	Frequency	Percentage
Vomiting	38	38
Diarrhoea	30	30
All of them	28	28
Don't know	2	2
Total	100	100

According to Table 9, the symptoms associated with diseases contracted after eating at the vending sites included: vomiting (38%); an associated symptom of food borne diseases, diarrhoea (30%) as a symptom, vomiting and diarrhoea (28%); 2% could not describe any symptoms. All consumers were of the view that construction sites should be approved by the relevant authorities before they were allowed to begin construction. Again, all consumers were of the opinion that environmental officers should inspect vending sites regularly to inspect the operations of the vendors. All consumers agreed that all food vendors who did not meet the minimum requirements of the Municipal Assembly should be refused license.

3.1. Hypothesis

Table 10. Correlation between Consumers' Patronage of Food Vending Sites and Food Handling Practices

Variables	Correlation coefficient (r)	P- value
Knowledge of food safety regulations	- 0.095	0.346

Dependent variable: food handling; Level of significance is 0.05

The correlation analysis shows further that consumers patronage had a negative correlation coefficient ($r=-0.095$) with food handling practices of vendors at 0.05 level of significance.

4. Discussions

4.1. Awareness of consumers on food hygiene and food borne diseases

The researchers wanted to find out what the knowledge of consumers is with regard to food hygiene and food borne diseases. The findings of the study revealed that 82% of the consumer's patronized food at the vending sites mainly because prices were

affordable compared to food sold at the formal food establishments. This is in agreement supported by a similar study that street foods feed thousands of people daily with a large range of foods that are relatively cheap and easily accessible [44]. Consumers were of the view that food at the vending sites was nutritious, filling and tasty [28]. Street foods play significant nutritional role for consumers, particularly for middle and low-income sectors of the population, who depend on it for their main food intake [19]. Street foods provide nutritionally balanced diets, sufficient in quantity and presenting options for variety and choice for consumers, particularly from middle and low-income sectors of the population, who depend heavily on them [13].

Some studies revealed that the people who depend on street foods are often more interested in its convenience than on the question of its safety, quality and hygiene [19]. However, in this study 66% of the consumers reported that food at the vending sites were prepared under unhygienic conditions and as such could easily be contaminated. In the present study it was assumed that most consumers patronized street food because of its proximity to their places of work. Some of the consumers reported they sometimes suffered from food borne diseases after eating from the vending sites. This has been confirmed in another study that dietary behaviours in the context of nutrition transition: a systematic review and meta-analyses in two African countries revealed that consumers were aware of the unhygienic conditions of street foods and its subsequent health dangers but ignored these dangers and continued to patronize these foods due to time constraints and proximity to the place of work or institutions [45].

The consumer's knowledge of food borne diseases in the present study was adequate since majority of them were able to identify some food borne diseases and even went further to mention their symptoms. They mentioned such diseases symptoms as diarrhea, stomach pains, typhoid fever and cholera. They raised the concern that this may be as result of the unhygienic environmental conditions under which they prepared and sold their food. These findings are in contrast with a study conducted in South Africa which revealed that some of the consumers mentioned malaria and scabies as examples of food borne diseases [5]. The findings in this study (Table 6) on the issue of consumer's high knowledge of food borne diseases may be due to the fact that all the consumers used were literates.

All consumers were aware that, construction of vending sites should be approved by relevant authorities to make sure they met laid down the standard requirements. Foods should be prepared in a place set aside exclusively for that purpose, while the place of preparation should be kept clean at all times and should be far from any source of contamination such as rubbish dumps, wastewater, dust and animals) [4]. This implies that vending stalls should be designed and constructed so that they are easily cleaned and maintained. Environmental health officers should visit vending sites regularly to inspect their operations and vendors who did not meet minimum standards should be condemned a closed down. The respondents admitted that for food to be safe for human consumption, it should always be covered to protect them against entry of flies and other harmful insects. On the issue of whether they deem it important that all food vendors should be trained, they responded that food vendors should be trained and given license to operate [4].

4.2. The hypothesis states that there is no significant relationship between consumer's patronage of food vending sites and food handling practices.

The hypothesis which stated that there is no significant relationship between consumer's patronage food vending sites and the hygienic conditions of the vending site was retained. The correlation analysis shows further that consumers patronage ($r=-0.095$) had negative and non-significant relationship with food handling practices. The inverse relationship could be as a result of proximity of vending sites to the consumers and affordable prices of food sold by the vendors. Therefore, there was no significant

relationship between consumers' patronage and food handling practices. Earlier study supported the findings of this research that people who depend on street foods were often more interested in its convenience than the safety, quality, and hygiene of food [19]. Again, consumers were aware of the unhygienic conditions of street food and its subsequent health dangers but ignore the dangers and continue to patronize street vended foods due to time constraints, affordable prices, and proximity [45].

5. Conclusions and Recommendations

The study concluded that the consumers of vended foods have some knowledge of food hygiene and food borne diseases; however, they ignore the health hazards associated with poor food handling by food vendors and go ahead to patronize the food the vendors provide. The study also indicated consumers patronized street foods because prices were moderate as compared to the formal establishments and ignore the unhygienic conditions at the vending sites. It is recommended that Consumers of vended foods should be educated to help improve upon their knowledge in food hygiene and food borne diseases to enable them make informed choices and also prompt regulatory bodies such as the environmental health officers on unacceptable food handling practices of food vendors. It is also recommended The Metropolitan/Municipal/District environmental health officers should ensure that inspection of street food vendors are carried out effectively, efficiently and regularly so as to monitor the food handling practices of the food vendors' right from the time of preparation to the point of sale. This is to ensure that food served to consumers is safe for consumption. Vendors who do not put the knowledge they have acquired into practice should have their certificates retrieved and signed up for retraining to avoid consumers patronising unhygienic food.

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