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Food Safety and Hyienic Practices of Street Food Vendors in Owerri, Nigeria

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Abstract: The paper examines the food safety and hygienic practices of street food vendors in Owerri, Nigeria. It argues that although street foods play an important role in meeting the food demands of urban dwellers, there are several health hazards associated with them. The study found that women made up 66.67% of the vendors while males made up 33.33%. The average age group was 31-40 years. 23.81% of the vendors prepared food in unhygienic conditions. 42.86% did not use aprons; 47.62% handled food with bare hands and 52.38% wore no hair covering while 61.90% handled money while serving food. 19.05% wore jewelry while serving food and 28.57% blew air into polythene bag before use. 9.52% of the vendors stored food for serving openly in the stalls while 23.81% stored them in the wheelbarrows. 42.86% had leftovers for serving the next day with poor storage facilities. 47.62% of the vendors washed their utensils with dirty water which is recycled and used severally in 28.57% despite the fact that only 9.52% of them complained of water shortages. Thr paper recommends that there is need for health education of these vendors in order to ensure food safety for the consumers.
Keywords: food safety; hygienic; street food; vendors; Owerri Nigeria

INTRODUCTION

Street foods are ready –to-eat foods and beverages prepared and/or sold by vendors, especially on streets and other public places (Muleta and Ashenafi 2001). There is a noticeable increase of food vendors in Owerri, capital city of Imo State in Nigeria as a result of dwindling economy and unemployment. Also there have been rapidly growing and changing food demands by the urban dwellers needing cheaper food in the face of a harsh economy. Types of vending sites encompass stalls, a variety of push-carts, roadside stands, and hawkers depending upon the ingenuity of the individual, resources available, type of food sold and the availability of other facilities (FAO (1990). In spite of numerous advantages offered by street foods, there are also several health hazards associated with this sector of the economy. Multiple lines of evidence reveal that foods exposed for sale on the roadsides may become contaminated either by spoilage or pathogenic micro-organisms (Bryan et al 1992; Ashenafi, 1995; WHO, 1984). Evidently, street vended foods have shown epidemiological links with illness (El-Sherbeeny et al 1985; Saddik et al, 1985; Abdussan and Kafertein 1993). FAO (1997) further stipulates that street foods raise concern with respect to their potential for serious food poisoning outbreaks. The rise of street food vending has created

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health problems like improper and unhygienic handling of food. According to studies done in Africa on street foods, their tremendous unlimited and unregulated growth has placed a severe strain on city resources, such as water, sewage systems and interference with the city plans through congestion and littering adversely affecting daily life (Canet and N'diaye, 1996; Caulliac and Gerbouin-Renolle, (1996). The present study was carried out to determine the food safety and hygienic practices of vendors of street foods in Owerri, Nigeria. This paper sought to address various aspects of hygienic practices like preparation skills, place of preparation of food, environment and location of street food vendors, handling and storage of food; personal hygiene and storage of leftovers.

METHODOLOGY

A descriptive survey design was used to extract answers to questionnaires concerning the current status of food hygiene and sanitation practiced by street food vendors in Owerri, Nigeria. Hygiene, food safety and sanitation were determined by the use of structured interviews, semi-structured questionnaires as well as through observations. Practices such as acquisition of cooking skills, handling of food, place of preparation of food, personal hygiene, environmental conditions, methods of washing utensils and preservation methods of food were studied. Location of the street vendor, utensils used, environment surrounding the street food vendors, general processing of the food and hygienic practices were observed and recorded through an observation checklist. Data was analyzed using the Statistical Package for Social Sciences (SPSS) program version 11. Descriptive statistics such as means and frequencies were used to present the findings.

RESULTS

Table 1 shows that majority of the street food vendors were women (66.67%) who fell into the average age group of 31-40 years (42.85%) with mean age of 41.23 years. Educationally (52.38%) of them had secondary education., 28.57% college education while 19.05% had primary education and below. 95.24% of the vendors operated from stalls along the streets while only 4.76% of those surveyed were mobile.

Table 1: Characteristics of food vendors in Owerri, Nigeria

Parameter	**Frequency (*n*=63)**
Age (years)	
21 – 30	9(14.29%)
31 – 40	27(42.85%)
41 – 50	18(28.57%)
51 – 60	9(14.29%)
Sex	
Male	21(33.33%)
Female	42(66.67%)
Educational attainment	
None	9(14.29%)
Primary	3(4.76%)
Secondary	33(52.38%)
College	18(28.57%)

To be continued…

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Parameter	**Frequency (*n*=63)**
Type of vendor	
Stationary	60(95.24%)
Mobile	3(4.76%)

The vending sites were spread between wooden stalls (28.57%0, canopies (28.57%) or metal containers (19.05%). One third of the street food vendors surveyed said that they prepared the food they sold at the stalls (Table 2). Knowledge for food vending was acquired by self teaching by trial and error in (47.62%) of the street vendors. Only (4.76%) of the vendors surveyed admitted to formal training in food handling and vending while 47.62% acquired their knowledge by observation or taught by their parents.

Table 2: Characteristics of vending sites

Parameter	**Frequency *n*=63(%)**
Type of vending site	
Wooden	18(28.57)
Canopy	18(28.57)
Container	12(19.05)
Polythene	6(9.52)
Truck /Wheelbarrow	3(4.76)
Zinc	3(4.76)
Place of preparation of food	
At home	21(33.33)
At the stall	42(66.67)
Food vending knowledge acquisition	
Self Taught	30(47.62%)
Taught by parents	24(38.10%)
Observation of Others	6(9.52%)
Formal Training	3(4.76%)

The food handling practices of the vendors are shown in Table 3. Sixty (95.24%) of the vendors admitted that they washed food before cooking while 61.90% warmed the food before serving it to the customers. It was noted that some of the food were prepared on same surface more than twice by 85.71% of them. The preparation surfaces were dirty in 33.33% of those surveyed. 80.95% claimed that they washed the preparation surface before reuse while 72.42% of them reused oil for frying. We observed that 23.81% of the vendors prepared food in unhygienic conditions. Only 42.86% used apron while cooking or serving food while 47.62% handled food with bare hands. 52.38% wore hair covering and 19.05% wore jewelry while handling food. It was observed that 61.90% were handling money while serving food and 28.81% of the vendors blew air into polythene bag before use. Food was mainly served in metal plates (61.90%).while most of them (71.43%) stored their food in covered warmers or utensils. Leftovers were consumed or stored for use next day. Only 33.33% of them could afford storage in refrigerators when power is available.

Table 3: Food-handling practices

Parameter	**Frequency *n*=63(%)**
Preparation of food	
Wash food before cooking	60(95.24)
Food heating before serving	39(61.90)
Prepared on same surfaces more than twice	54(85.71)

To be continued…

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Parameter	**Frequency *n*=63(%)**
Unhygienic condition	15(23.81)
Preparation surface	
Clean	42(66.67)
Dirty	21(33.33)
Wash surface before use surface	51(80.95)
Reuse oil for frying	45(72.42
Personal hygiene	
Use of apron	27(42.86)
Handles food with bare hands	30(47.62)
Has long finger nails	6(9.52)
Hair covering	33(52.38)
Handling money while serving food	39(61.90)
Wears jewelry	12(19.05)
Blows air into polythene bag before use	18(28.57)
Serving food	
Metal plates	39(61.90)
Plastic plates	15(23.81)
Enamel plates	12(19.05)
Plastic bags	27(42.86) mainly for takeaway
Food storage	
Openly in the stalls	6(9.52)
Wheelbarrows	15(23.81)
Covered utensils/warmers/coolers	45(71.43)
Leftovers	
Consumed	15(23.81
Stored for use next day	27(42.86)
Where stored	
In refrigerator	21(33.33)
Plastic container	6(9.52)
Cupboards	6(9.52)

Table 4 shows the care of utensils by the vendors. It is significant to note that 47.62 % cleaned their utensils with dirty water while 28.7% washed their utensils severally with water before replacement.

Table 4: Care of equipments

Parameter	**Frequency *n*=63(%)**
Cleaning of utensils	
With warm soapy water	3(4.76)
With cold soapy water	51(80.95)
Clean water	33(52.38)
Dirty water	30(47.62)
How many times water is used before replacement	
Once	33(52.38)
Twice	9(14.27)
Severally	18 (28.57)
What is used for cleaning utensils?	
Bucket	6(9.52)

To be continued…

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Parameter	**Frequency *n*=63(%)**
Basin	48(76.20)
Water put on plate and washed (mainly mobile vendors)	6(9.52)

In Table 5 it is noted that 38.10% of the street vendors operated in dirty environment and 33.33% had no garbage receptacles. Majority of them (95.24%) got their water supply from nearby boreholes.

Table 5: Environment, Waste disposal and Water supply

Parameter	**Frequency (*n*=63)**
Environment	
Clean	39(61.90)
Dirty	24(38.10)
Waste disposal	
Where?	
Bush	15(23.81)
Waste bin	48(76.20)
When?	
Daily	48(76.20)
Twice weekly	9(14.29)
Weekly	6(9.52)
Presence of garbage receptacle	42(66.67)
Presence Water container	27(42.86)
Water supply	
From home	30(47.62)
From nearby borehole	60(95.24)
Any water shortages	6(9.52)

The commonest foods prepared in the stalls were fried plantain, fried or pounded yam, rice and beans while the most foods sold were beans, rice, garri/pounded yam and fried yam.

Types of food sold at stalls

Beans	51(80.95)
Rice	42(66.67)
Garri/pounded yam	33(52.38)
Fried yam	33(52.38)
Fish /chicken	30(47.62)
Water	30(47.62)
Drinks	24(38.10)
Fried plantain	18(28.57)
Akara/Agidi	15(23.81)
Tapioca/cassava chips	6(9.52)
Ukwa	3(4.76)
Bread /tea	3(4.76)
Meat /Nkwobi	3(4.76)
Pepper soup	3(4.76)

DISCUSSION

The street food industry plays an important role in developing countries in meeting the food demands of the urban dwellers. Street foods feed millions of people daily with a wide variety of foods that are relatively cheap and easily accessible (Latham, 1997). However there are significant reports of health problems that have been associated with these street foods (Muleta and Ashenafi (2001); Ashenafi (1995); El-Sherbeeny et al (1985); Abdussalam and Kaferstein, (1993); Mensah et al (2002) and Omemu and Aderoju (2008). Street foods are sources of nutrition for many low-income groups at affordable prices in large urban areas. Nevertheless, there are also several health hazards associated with them. These foods could be main vehicle for transmission of severe and fatal diseases that could be life threatening. Contamination of these foods could result from pre or post cooking contamination from the food handlers. Street food vendors are often unlicensed, untrained in food safety, food hygiene and sanitation, and work under crude unsanitary conditions (FAO 1990). Muinde and Kuria (2005) in their study in Nairobi, Kenya found that over thirty-five percent of the vendors belonged to the age category of 20-25 years. Sixty percent of the vendors were male while 40% were female. Sixty-two percent of the vendors interviewed had primary education and below, 36.3% had secondary education while only 1.3% had college education. In our study we found women made up 66.67% of the vendors while males made up 33.33% who fell into the average age group of 31-40 years with mean age of 41.23 years. This is in contrast with their findings. In Accra the street food trade was conducted by children aged >10 years and by women aged <52 years. In this study in Accra the street vendors were found to be mainly women (Mensa et al 2002) which is consistent with findings in our study. Educationally, 19.05% our vendors had primary education and below. 52.38% of them had secondary education while 28.57% had college education A total of 38 of the vendors (33.3%) had received no formal education. Knowledge for food vending was acquired by self teaching by trial and error in 47.62% of the street vendors. Only 4.76% of the vendors admitted to formal training in food handling and vending while 47.62% acquired their knowledge by observation or taught by their parents. Muinde and Kuria (2005) reported that most (61%) of the vendors in Nairobi acquired cooking skills from observation, 33.3% were taught by their parents while 6.3% gained the skills by trial and error (self taught). Omemu et al (2008) noted in their study at Abeokuta, Nigeria that few vendors (12%) acquired the knowledge of food preparation by formal training. Hygiene during handling and cooking of street foods is very important. According to FAO (1997), food handlers should have the necessary knowledge and skills to enable them to handle food hygienically. We observed in our study that 23.81% of the vendors prepared food in unhygienic conditions. The study in Nairobi reported that about 85% of the vendors interviewed prepared their foods in unhygienic conditions. Many studies have reported that due to lack of proper knowledge and guidance on street food vending, vendors prepared their foods in explicitly unhygienic and unsanitary conditions. However Martins (2006) observed otherwise in his study in South Africa. The survey showed a high hygiene standard maintained by most vendors during preparation and serving of the foods. This study indicated that the health risks of consuming street foods are minimal, that street food vendors depend on vending for their livelihood and that their customers appreciate their trade. On a similar note, Von and Makhoane (2006) found that street food vendors in South Africa were capable of producing relatively safe food with low bacterial counts, although there was still a need for proper hygienic conditions and access to basic sanitary facilities. These observations are collaborated by Azanza et al (2000) in which they found in their study that among the 54 street food vendors surveyed in the Philippines, knowledge on food safety concepts was established particularly on topics that dealt with health and personal hygiene and food contamination. Despite these observations in developing countries like South Africa and Philippines, street food still remains sources of health problems. Majority of the vending sites were wooden in 28.57% and canopy in 28.57% which were poorly constructed. Meuide et al (2005) confirm in their study that these sites do not give proper protection of street foods from dust and smoke from vehicles. Dust they affirm carries many microbes that may be pathogenic if left to settle on prepared foods. Food safety also largely depends on personal hygiene. Personal hygiene is important because according to Marriot 1985, human beings are the largest contamination sources of food. Handling with bare hands may result in cross contamination, hence introduction of microbes on safe food. We found in

our study that 42.86% did not use aprons, 47.62% handled food with bare hands, and 52.38% wore no hair covering while 61.90% handled money while serving food. 19.05% wore jewelry while serving food and 28.57% blew air into polythene bag before use. This is in contrast with findings by Muinde et al in Niarobi where they found that 81.3% of the vendors did not use aprons, 60% handled food with their bare hands and 65% had their hair not covered. All their vendors handled money while serving food and only 10% of them wore jewelry. 9.52% of our vendors stored food for serving openly in the stalls while 23.81% stored them in the wheelbarrows. 42.86% had leftover for serving the next day and only 33% of vendors have refrigerators for storage when there is electric power. We observed in our study that 47.62% washed their utensils with dirty water which is recycled and used severally in 28.57% of vendors despite the fact that only 9.52% of them complained of water shortages. Some of them threw the waste water carelessly about around the stalls. It is obvious that a lot of health education in necessary among these street vendors to avoid food related infections, contaminations and hazards. In 38.10% the environment was dirty even when two thirds (66.67%) of the vendors had garbage receptacles. The problem was mainly how they disposed of the garbage which is poorly done and litter the environment most of the time.

CONCLUSION

Health hazards from street food vending may be minimized by avoiding poor handling and awareness of need for personal hygiene and care in preparation, storage and dispensing of street foods. It has become necessary that systems should be put in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food. Basic training in food hygiene is recommended to ensure that food vendors follow the required rules for proper hygiene and sanitation Training on hygiene and sanitation; provision of continuous food safety education; the establishment of code of practice for the street food industry; and provision of basic water and waste management utilities are recommended to diminish the gap between knowledge and practices of safe street food vending.

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