

# Street Food Vendors in Southern Kaduna Nigeria: Focus on Hygiene and Sanitary Practices

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## **Abstract**

*Statistics have shown that more than 2.5 billion people eat vended street food worldwide daily. In Nigeria there is no policy regulating street vended food. The purpose of this study is to address the public health issues related to personal hygiene and sanitary practices such as typhoid, cholera, diarrhea, stomach pains, Lassa fever and Ebola posed by street vended food. A random sample of 200 street food vendors selling commonly consumed food were selected to represent 13% of the total street food vendors in the study area. Data collection was carried out using pre-tested structured questionnaires and observations made. The results obtained from this study indicated that street food vendors lack personal hygiene and sanitary practice. Only about 5.5% of the respondent had formal training on food preparation while 57.5% acquired the skill from their parents. The personal hygiene of the vendors revealed that 44% of the street food vendors use their bare hands while serving food. 60% chew/talk while serving food and about 82.5% business premises were in the place of preparation of vended food. More than one third of the vendors interviewed do not treat their water for drinking purpose while (46%) waste and leftover food are used as feed for domestic animal and 28.6% and 21.45% of the vendors used dust bin and bushes respectively as waste disposal site. This paper therefore recommended the monitoring of preparation and sales of street vended foods by relevant agencies to prevent infections from the vended foods. Orientation and training of food vendors on hygiene and sanitary practices is also recommended.*

Keywords: street foods, hygiene, sanitary practice

## **1.0 Introduction**

There has been a continuing growth in urbanization in developing countries of which Nigeria is one and Government faces major challenges in ensuring that urban dwellers are able to procure sufficient food. Street foods are sold almost in every country of the world. The FAO (1989) defines street foods as any ready-to-consume food that is sold in public places and more than 2.5 billion people eat street food vended worldwide daily. Tinker (1987) also defines street food as any minimally processed food sold on the street for immediate consumption. In most towns and

cities in Nigeria, selling of snacks and whole meals on the street is an important source of income, especially among the poor women. Street foods have a long tradition in most countries. The role of this sector in the urbanization process and the urban economy reflects the way of life, survival and coping strategies adopted in most African cities and urban settlement (Nurudeen *et al.*, 2013).

Rapid urbanization is breaking down traditional family ties throughout the world and the street food sector is widely understood as an inevitable phenomenon tied to urban growth. This urbanization and the associated social and structural changes have caused the demand for street food to increase. Longer traveling times between living and working places are likely to lead to further increases in demand. According to National Bureau of Statistics (2010), based on 2006 population census, Southern Kaduna has a current population of about 2,501,999 million, consisting of nine Local Government Areas, and has adequate transportation system linking major cities like Abuja, Jos, Keffi, Kaduna and several sub-urban areas in Nigeria. Street food accounts for a part of the daily diet and so contributes towards meeting nutritional requirements, although the contribution varies. Urbanization and migrations have changed the patterns of living and eating. The easy availability of foods in the streets of cities and small towns has helped workers cope with long periods of absence from home. Street foods contribute significantly to food security and nutrition and are physically and economically accessible to most people. It is an activity that provides employment to many, while providing less expensive nutrition and tasty food to millions of working women, men, and school children. Unfortunately, the emergence of informal food business can cause health problems if the food are not prepared and handled properly.

The socio-economic role of women in rural areas is that of producing and processing of food crops. While their primary goal is to meet subsistent requirements of the household, any commodity produced in surplus, may provide the women with discretionary funds or is turned over to the family. In many cases this surplus can be the primary source of household cash income (EPOC 1985).

Poverty, coupled with rapid urban growth have compelled policymakers, development practitioners and program planners to take another look at food insecurity and malnutrition which hitherto were considered as rural problems. According to Levin, (1999) lower education, skill levels and childcare responsibilities may force women into the informal sector. Women

have an important role in this sector, which draws upon their traditional skills and household duties with small-scale trading and the possibility of feeding their families at lower cost (Chakravarty, 1994). In Nigeria, these women balance their roles as income earners, homemakers and mothers. Convenience foods, snacks and meals available as street foods have increased due to the need for women to save time in food preparation. Nigerian women play a crucial role in the economy, controlling a large share of market activity and commodity trading. One of the fascinating aspects of urban social life in Nigeria is the widespread presence of street food vendors. Operating from all strategic locations at all hours of day and night, they serve customers with spicy foods, colorful beverages at reasonable and affordable prices.

In Nigeria the ability of street foods to satisfy unique taste and convenience requirements as well as meet the socio-economic needs of majority of urban dwellers has led to the rapid growth of the sector, and the gaining recognition from the governing authorities **FAO and Control/Inspection Institute of Food Safety, (1993)** comments that the regulatory authorities fail to carry out their roles effectively mainly because of poor institutional capacity, lack of coordination, shortage of personnel and funds. Safety practice and hygiene is often a great concern such as the presence of heavy metals, chemical residues, pesticide residues and the presence of mycotoxins are of paramount importance to the public health of the people, which are closely related to street food **(Abdussalam and Kaferstein, 1993 and Arambulo, et al., 1994).**

Some earlier studies on street food vending in Africa have taken place but unfortunately, very few studies have been done in Nigeria. Also this study will contribute to strategies for improving food security of poor households through increased availability, improved quality of horticultural foods, socio-economic importance, safety and quality constraints of street-vended foods and to make recommendation on quality and safety risks associated with street-vended foods and identify areas where new knowledge is required.

## **2.0 Methodology**

The data used for this research work was purely obtained from pre-tested structured questionnaires and observational check list was the major research instruments used for the study. The pre-tested structured questionnaire contained questions that elicited information about the socio-demographic characteristic of vendors, Food Vending and Skill Acquisition, food handling, Hygiene and Sanitary Practice and so on while the observational checklist was

designed to seek information about the vendors' personal hygiene and general processing practice of vend food. Four Local Governments: Kaura, Jama'a, Jaba and Zangon Kataf in Southern Kaduna were randomly selected from a total of nine Local Governments Areas that makeup the Southern Kaduna senatorial district. Fifty (50) questionnaires were administered in each of the four selected L.G.As to 50 randomly selected street food vendors, making a total of 200 samples of food vendors that formed the study population. The questionnaires were administered by a combination of ND I and II Students of Federal School of Statistics, Manchok. Verbal responses were obtained from all respondents while also observing the personal hygiene and sanitary practices of the vendors and the observational checklists were completed on each vendor accordingly. All completed questionnaires and observational checklist were collected, collated and batched for data analysis. Statistical package for social science (SPSS) program version v20.0 was used. Descriptive and inferential statistics were applied to present the findings and to explain the relationship between gender of vendors, level of education and some aspect of personal hygiene and sanitary practice.

### **3.0 Result**

Hygiene practice of vendors during handling, cooking and serving food were observed. It was found that 46.80% of vendors rarely wash their hands properly before and after serving food while only 11.76% always wash their hands. About 80.50% of the vendors do wash plate before and after serving food to customers and 29.50% use tray to convey food from one place to another while only 8% pick up food and put it back into the plate when food accidentally falls on the ground. Similarly, some fruits vendors did not wash their fruits properly before selling and it was found that 82.50% food vendors prepare their food in the business premise while only 17.6% prepare their vended food at their residential homes.

Vendors who sold fried yam, akara, fried egg, indomie, and cosai (doya/rogo) prepared their foods at the same place where they sale them. 83.53% of the respondents embarked on oil reuse practice for frying. This practice is capable of reducing the nutritional value of the oil and also makes the oil dark in color because of the carbon deposit in the cause of frying food stuff which may change the taste and odor of the food. Slightly above half (56.1%) of the respondent served food with fork/spoon, 44.0% served their food with bare hands. 39.6% of the vendors were observed chewing/talking while cooking or serving food.

From street food vendor surveyed, 75.4% revealed that they usually have leftover. Of this 51.35% of them said the leftover food are consumed by family members, 39% re-warm leftover food for use, the next day while 9.75% use refrigerator to preserve the left over. 46.80% of the respondents dispose of waste and leftovers as feed to domestic animals. The supply of water in southern Kaduna is slightly regular for business (85.50%) but the availability of the water within food vending site is poor.

57.5% of the respondents acquired Knowledge of food preparation for vending from their parents and 12.5% got the skill by observation from others, 24.5% of the respondents acquired their skills by self initiative. Only 5.50% of the vendors surveyed had formal training on food preparation. About 34.0% of the respondents were observed handling money while serving food and majority 62.0% of the respondent keep food warm and only 38% do not keep vended food warm. The result also showed that there is no correlation that is significant between educational status and the place of preparation of vended food of the respondent (-563) at 0.05 level of significance.

**TABLE 1: Age, Educational Status, Marital Status and Position in Family of street food vendors in Southern Kaduna Nigeria.**

S/n	Questions	Response	freq	%
1	AGE	11-20	19	9.5
		21-30	76	38
		31-40	47	23.5
		41 and above	58	29
		<b>Total</b>	<b>200</b>	<b>100</b>
2	SEX	Male	70	35
		Female	130	65
		<b>Total</b>	<b>200</b>	<b>100</b>
3	EDUCATIONAL STATUS	Non formal	45	22.5
		Primary	51	25.5
		Secondary	88	44
		Tertiary	16	8
		<b>Total</b>	<b>200</b>	<b>100</b>
4	MARITAL STATUS	Single	50	25
		Married	131	65.5
		Divorced	6	3
		Separated	5	2.5
		Widowed	8	4
		<b>Total</b>	<b>200</b>	<b>100</b>
5.	POSITION IN FAMILY	Father	51	25.5
		Mother	92	46
		Son	19	9.5
		Daughter	27	13.5
		Dependence	11	5.5
		<b>Total</b>	<b>200</b>	<b>100</b>

**TABLE 2: Food Vending and Skill Acquisition of street food vendors in Southern Kaduna, Nigeria.**

S/N	Questions	Response	Frequency	%
1	STREET FOOD COMMONLY SOLD BY VENDORS	Akara (Beans cake)	43	21.29
		Waina (maize/rice cake)	13	6.71
		Alele (Moi moi)	21	10.47
		Fried yam	42	20.86
		Cosai Doya/rogo	25	12.48
		Grilled fish	9	4.40
		Jellof rice	25	12.25
		Roasted Chicken	27	13.39
		Roasted meat (suya)	42	20.86
		Fruit	20	9.83
		Awara	12	5.78
		Eba/Amala	35	17.50
		Beverages	53	26.31
		Fried egg	24	12.23
		Apkwu	11	5.66
		Pounded yam	12	6.18
		Rice/beans	35	17.27
		Semovita	21	10.70
		Bread	18	8.99
		Tuwo	13	6.39
Akamu	3	1.58		
Indomie	21	10.68		
2.	How did you acquire the knowledge of food vending	Learned from parent	115	57.50
		Formal training	11	5.50
		Self initiative	49	24.50
		Observed others	25	12.50
		<b>Total</b>	<b>200</b>	<b>100</b>
3.	Length of experience in business of food vending	Less than one year	63	31.50
		Between 1 – 2 years	21	10.50
		Between 3 – 4 years	14	7.00
		> 5 years	102	51.00
4.	What is your Source of capital to take off	Credit/assistance from relations	116	58.00
		Bank loan	2	1.10
		Co-operative society	7	3.50
		Sales of Farm product	23	11.50
		Wages from Unskilled job	52	26.00
5.	What is your daily profit after sales	Less than N1000	87	43.50
		Between N1000 – N2000	52	26.00
		Between N2000 – N3000	23	11.50
		Between N3000 – N4000	14	7.00
		Between N4000 – N5000	7	3.50
		> N5000	17	8.50
		<b>Total</b>	<b>200</b>	<b>100</b>

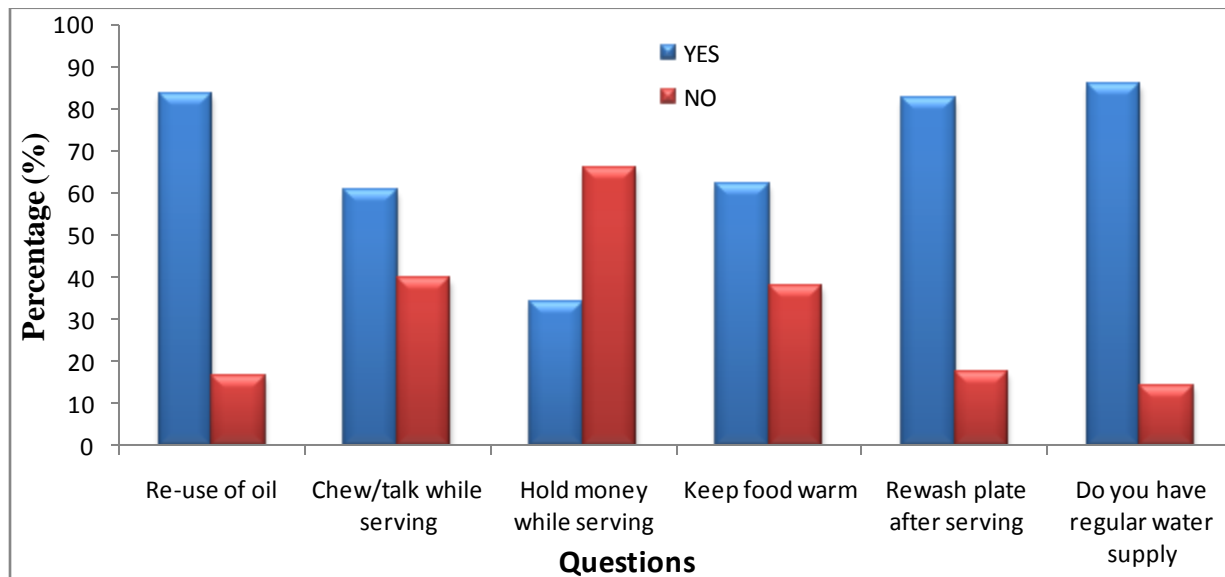
**TABLE 3a: Hygiene and Sanitary Practices of street food vendors in Southern Kaduna Nigeria.**

S/n	Questions	Response	Frequency	%
1	Place of preparation of vended foods	Residential house	35.20	17.60
		Business premises	165.00	82.50
		Specified area for vend food	0.00	0.00
		<b>Total</b>	<b>200</b>	<b>100</b>
2	Do you have regular water supply for your business	Yes	171.60	85.80
		No	28.60	14.30
3	What is the Source of water supply	Water tanker	2.00	1.00
		Stream	5.00	2.50
		Rain water	2.00	1.00
		Tap water	121.00	60.50
		Well/bore hole	70.00	35.00
4	What method do you use to treat water	Filtering	4.00	2.00
		Boiling	12.56	6.28
		use of chemical	1.00	0.50
		not at all	166.48	83.24
		<b>Total</b>	<b>200</b>	<b>100</b>
5	How do you preserve your water	Overhead tank	3.00	1.50
		Drums	19.00	9.50
		Jeri cans	120.75	60.38
		Clay pot (randa)	57.00	28.50
		<b>Total</b>	<b>200</b>	<b>100</b>
6	what type of water do you serve your customers	Sachet water	77.85	38.93
		Bottle water	9.39	4.70
		Fetch with cup	111.00	55.50
		use any available container	2.00	1.00
		<b>Total</b>	<b>200</b>	<b>100</b>
7	How do you dispose the empty container	Throw into gutter	90.00	45.00
		Pack them in a waste bin	57.00	28.50
		Throw anywhere around	24.00	12.00
		pick up by other people	19.00	9.50
		<b>Total</b>	<b>200</b>	<b>100</b>
8	do you finish your sales daily	Yes	117.00	58.50
		No	83.34	41.67
9	How do you Preserve your left over foods	Re-warm	78.00	39.00
		Refrigerate	19.50	9.75
		Use chemical additive	0.00	0.00
		Use by the family	102.70	51.35
		<b>Total</b>	<b>200</b>	<b>100</b>
10	How do you dispose waste and left over food	In dust bin	57.20	28.60
		In bush	42.90	21.45
		In pit	6.50	3.25
		Feed for domestic animals	93.60	46.80
		<b>Total</b>	<b>200</b>	<b>100</b>



**TABLE 3b: Hygiene and Sanitary Practice of street food vendors in Southern Kaduna, Nigeria.**

S/n	Questions	Response	Frequency	%
11	Do you wash plate before and after serving food to customers	Yes	161.00	80.50
		No	39.00	19.50
		<b>Total</b>	<b>200</b>	<b>100</b>
12	What do you use in cleaning your plate after serving	Use fresh water	45.50	22.75
		Use foam rag	65.00	32.50
		Use already used water	89.70	44.85
		<b>Total</b>	<b>200</b>	<b>100</b>
13	What vessel do you use in conveying food	Warmer	51.00	25.50
		Pot	36.00	18.00
		Basin	23.00	11.50
		Tray	59.00	29.50
		Basket	31.00	15.50
		<b>Total</b>	<b>200</b>	<b>100</b>
14	Do you wash your hand before and after serving?	Never wash hand	11.70	5.85
		Rarely wash hand	93.60	46.80
		Usually wash hand	71.50	35.75
		Always wash hand	23.40	11.70
15	what happen when food accidentally falls on the ground	Pick up and put in plate	16.00	8.00
		Separate from others	56.00	28.00
		Throw it away completely	93.00	46.50
		Leave it on the ground	35.00	17.50
16	What do you use when serving food	Fork	39	19.25
		Spoon	74	36.85
		Bare hands	88	44.00
		<b>Total</b>	<b>200</b>	<b>100</b>



**Figure 1: Observational Check List of street food vendors in Southern Kaduna Nigeria**

**Table 4.0: Correlation between Educational Status and Place of Preparation of Vended Food among food vendors in Southern Kaduna, Nigeria.**

		<b>Educational status</b>	<b>Place of preparation</b>
Educational status	Pearson correlation	1	-.563
	Sig. (1-tailed)		.310
	N	4	3
Place of preparation of vended food	Pearson correlation	.563	1
	Sig. (1-tailed)	.310	
	N	3	3

#### **4.0 Discussion**

According to Janie and Marie (2010) the customers ranging from upper class businessmen to homeless beggars patronize street foods. The incident is high among workers because some have longer distance to their place of work and others have no time to cook at home coupled with the affordable price of street food.

All through the period of this study, some vendors were observed serving food with their bare hands which could enhance contamination and increases the risk of variety of bacterial enter-pathogenic contamination including salmonella Typhi, cholera, enteropathogens can survive on the hand for hours and contacting diseases like diarrhea, dysentery, food poisoning Lassa fever and Ebola. The use of fork or spoon to serve food reduces the level of the contaminations (Mensah, 2002). Some of the vendors were chewing/talking while cooking and serving food; this may as well be a source of contamination and on the other hand majority of the vendors were observed handling money while serving food which may introduce some infections through hands contact with the food (WHO, 1984). Food stored in container/cupboard not in refrigerator for use the next day affect quality of appearance, texture, color, crispness and nutritional value of the food and it will promote contamination by pathogenic microorganisms (Bryan, *et al* 1992a).

The culture of cleaning of used containers among the respondents was not good enough. Some of the water that were used several times or stained with oil was used again to wash their cooking utensils and this could be as a result of water scarcity. A large number of vendors depended on water stored in plastic containers which are usually purchased from

water vendors who were not mindful of the source and did not observe routine cleaning/washing of these plastic containers they used for vending water.

Majority of the vendors were observed preparing their food in business premises with the presence of flies all over the place and some of the stands were seen to be about 10 meters away from away from refuse dumps, this may promote epidemiological outbreak of diseases such as cholera or diarrhea. Also, it was found that personal hygiene practices had no relationship with gender of the respondents which is in agreement with Bryan's work of (1992).

All the fruit vendors displayed their fruit on open trays in an open place and sold them. According to WHO (1996) eating fruit that are not properly washed and not kept in refrigerator often result to food poisoning because fruits stored at ambient temperature favors the growth of microbes and quickly proliferate to disease producing level.

Resting on knowledge acquisition of food vending it was found that almost all the street food vendors lacked formal training on food preparation skill.

The method of waste disposal used by the food vendors was very poor; this however calls for training on sanitary practices. In this study it was observed that food vendors are only concerned with profit making at the expense of maintaining standard food handling, personal hygiene and sanitary practices.

The outcome of this work showed no correlation significant at 0.05 level between educational status and place of preparation of vended (Table 4.0), there was significant correlation observed between the frequency of educational status and place of preparation of vended food.

## **Conclusions**

The safety of street food has become one of the major concerns of public health and a focus for government and scientist to raise awareness. One of the best ways in handling safety of street vended food is through sensitization of the general public at the markets, motor parks, religious gathering, schools, etc for both vendors and consumers on the other hand, health promotions can be organized by NGOs and government agencies, governing regulations can be placed on street food vending and membership management programs.

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