



Research Paper

## Food Safety Practices Among Food Vendors in Ikenne Local Government, Ogun State, Nigeria

CHINENYE-JULIUS, Augusta Ezinne<sup>1</sup> and ATULOMAH, Nnodimele O.<sup>1</sup>  
(Ph.D.),

Department of Public Health, School of Public and Allied Health, Babcock University, Ilisan Remo, Ogun State,  
Nigeria

Corresponding Author: CHINENYE-JULIUS, Augusta Ezinne

### ABSTRACT

#### Introduction

Food safety issues is not new to our world today and problems that arise from unsafe food consumption has been recorded around the world. The world is faced with multiple health challenges, and food safety is one of the health challenges. This study therefore assessed the food safety practices among food vendors in Ikenne Local Government, Ogun state, Nigeria.

#### Setting

Ilisan Remo, Ikenne Remo, Irolu and Iperu, in Ikenne Local Government Area of Ogun State, Nigeria.

#### Methodology

186 respondents registered under the environmental and water sanitation unit were selected for this study using total sampling method. A checklist and a semi-structured pre-tested questionnaire was used to obtain pertinent data from the respondents. The instrument was coded, and descriptive statistics was done computer using Statistical Package for Social Sciences (SPSS) version 21.

#### Result

The result of the findings showed that most of the respondents fell between the 35-44 years age range. Majority of the respondents were married and majority of the respondents are Christians. Respondent's food safety practices was measured on a 15-point rating scale, and it showed that the respondents scored a mean of  $9.96 \pm 2.57$  which translated to food safety practices prevalence of 66.4%. The proportion of the respondents with good food safety practices was 33(19.4%). One can infer that most of the respondents had relatively moderate food safety practices.

#### Conclusion

In conclusion, the practices on food safety among respondents are moderate. Therefore, food safety measures needs to be taking seriously and also amenities such as aprons should be made available at a cost the vendors can afford.

**KEYWORDS:** Food Vendors, Food Safety Practices, Ikenne LGA, Ogun State

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### I. INTRODUCTION

Food safety issues are not new to our world today and problems that arise from unsafe food consumption has been recorded around the world. The world is faced with multiple health challenges, and food safety is one of the health challenges. Food vendors may be fixed at a place either by occupying space in a store, or may be mobile in the sense that they move from place to place carrying their wares on push carts, wheel barrows or in cycle or baskets on their heads, or may sell their wares in moving trains, buses, etc. 2.5 million of the world's population consume street vended foods daily (Samapundo, Thanh, Xhaferi, and Devlieghere, 2016). Food is an important and basic necessity for human beings, its purchase, preparation, and consumption are vital for the sustenance and maintenance of life. However, diseases spread through the consumption of contaminated food are common and persistent problems that result in an appreciable morbidity rate and occasionally in death, so it is a fundamental requirement of any food process that the food produced by a food vendor to be safe for consumption. According to World Health Organization (WHO) food handling personnel

play an important role in ensuring food safety throughout the chain of food production and storage (WHO, 2017).

WHO estimates that more than 200,000 people die of food poisoning annually in Nigeria from foodborne pathogens (especially *E. coli* and *Salmonella*) (WHO, 2017). These deaths were as a result of contaminated foods through improper processing, preservation and service (WHO, 2017). Practices acknowledged as contributing to foodborne outbreaks include improper refrigeration, prolonged handling and inadequate reheating of cooked food and contamination of food by commercial or household food handlers who worked while ill or had poor personal hygiene (Daniel, 2002; Hedberg, 2006).

Regardless of the many advantages and benefits obtained through street food vendors the evolving of unofficial, unregistered and unauthorized food businesses associated with improper preparation, storage and handling of foods cause food related health problems. Unsafe food poses global health threats, endangering everyone who consumes it. Infants, young children, pregnant women, the elderly and those with an underlying illness are particularly vulnerable and highly at risk. Food borne diseases are an important cause of morbidity and mortality worldwide with significant public health impact. It has been reported that an estimated 47.8 million, 2 million and 750,000 people become ill as a result of consumption of food containing pathogens or disease causing substances in the United States, United Kingdom and France, respectively while 5.4 million cases of food-borne illness was estimated to occur yearly in Australia, causing 18,000 hospitalizations, 120 deaths, keeping 21 million people away from work, 1.2 million people receiving medical consultations and 300,000 people receiving antibiotics prescriptions (Ifenkwe, 2012; Akintaro, 2012). This study therefore assessed the food safety practices among food vendors in Ikenne Local Government, Ogun state, using a questionnaire and a checklist that assessed both the personal and environmental hygiene.

## II. METHODOLOGY

Ikenne local government Ogun State was the study area and is located in the south-western part of the country and has about 20 local governments in which Ikenne Local Government is part of. Ikenne Local Government Area is a semi-urban settlement, comprising of 5 major towns, namely Iperu, Iiisan, Ogere, Irolu and Ikenne. The people are predominantly farmers and traders. The Local Government has 34 primary & secondary schools. There are also two tertiary institutions that are privately owned. There are also teachers, food vendors, transporters, blacksmiths, welder, vulcanizers, mechanics, health workers, tailors, barbers, etc. This study comprised of 186 food vendors using total sampling method. The participants included food vendors that are registered under the environmental and water sanitation unit Ikenne local government

### Sampling Structure

S/N	Location of Food Vendor	Number Obtained
1	Ikenne	52
2	Iperu	40
3	Iiisan	48
4	ogere	30
5	Irolu	30

The study inclusion criteria were participants who were willing to participate and those who were present at the time the data were collected. While the exclusion criteria were food vendors who do not want to participate or are absent at the time of data collection and those vendors that are not registered with the environmental sanitation and water resources unit in Ikenne LGA.

The Instrument for this study was a well-structured questionnaire which contained questions that reflected the stated objective of this study. Face and content validity was carried out by researcher's supervisor to evaluate to standardize the instrument. A reliability test was conducted which yielded a Cronbach alpha score of 0.71 which means that the instrument is valid statistically. The instrument was grouped in 2 categories which were; socio-demographic and questions on food safety practices which was measured on a 15-point rating scale. A checklist was also used to gather information on the study.

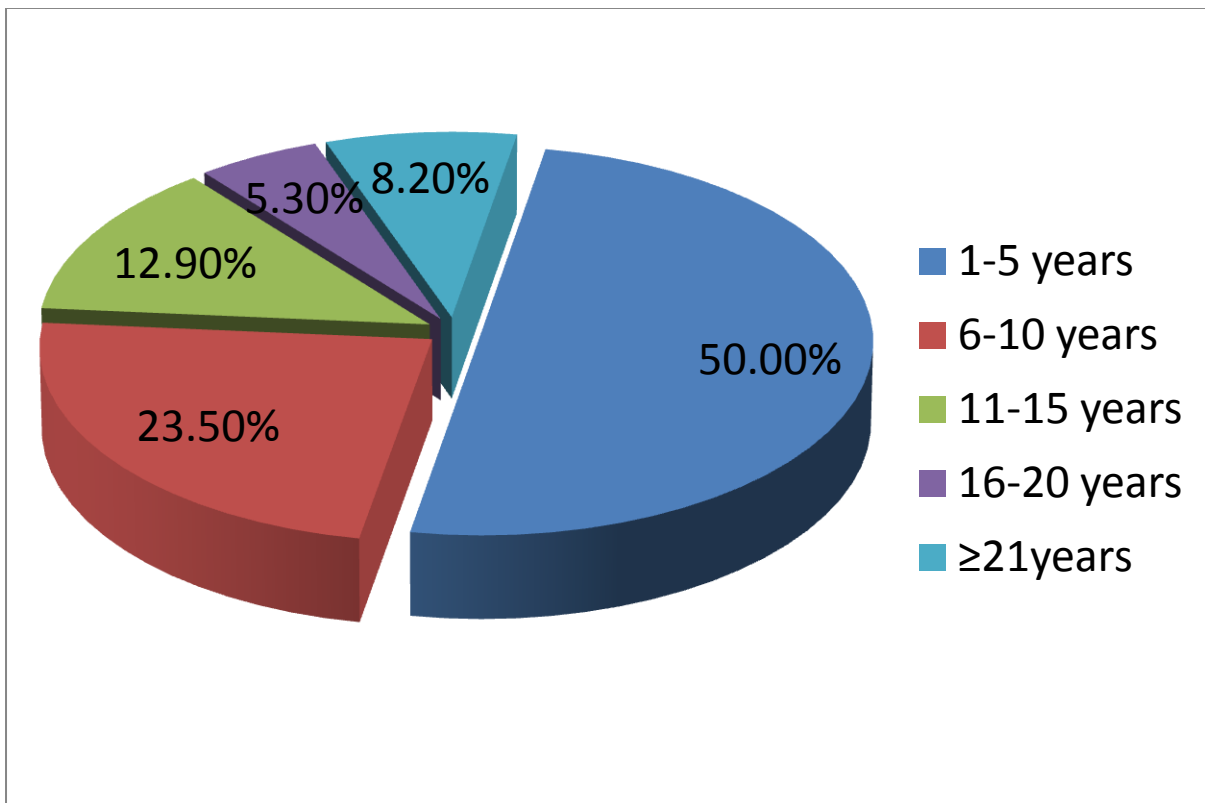
## III. RESULT

### 1. Socio-demographic Characteristics of Respondents (n=186)

As shown in table 1, less than half 55(32.4%) of the respondents were of the ages 25 to 34 years. Most 109(64.1%) of the respondents were married. Majority 120(70.6%) of the respondents were Christians. Majority 152(89.4%) of the respondents were females. More than half 97(57.1%) of the respondents had secondary education. Most 116(68.2%) of the respondent were Yoruba's. half 85(50%) of the respondents had been a food vendor between 1-5years. Majority 128(75.7%) of the food vendor reported to had been trained (See, Figure 4.1). Of those who received training less than half 69 (40.6%) received their training in the restaurants as an apprentice (See, Figure 1).

**Table 1 Socio-demographic Characteristics of the Respondents**

Socio-demographic variables for consideration	Respondents in this study; N=170	
	Frequency(n)	Percentage (%)
Age (in years)		
15-24	33	19.4
25-34	55	32.4
35-44	45	36.5
≥45	37	21.8
Marital Status		
Single	44	25.9
Married	109	64.1
Divorced	11	6.5
Widowed	6	3.5
Religion		
Christianity	120	70.6
Islam	46	27.1
Traditional	3	1.8
Others	1	0.6
Gender		
Male	18	10.6
Female	152	89.4
Level of Education		
Primary	25	14.7
Secondary	97	57.1
Tertiary	48	28.2
Ethnicity		
Igbo	39	22.9
Yoruba	116	68.2
Hausa	10	5.9
Others	5	2.9
Did you acquire any training on food handling		
Yes	128	75.3
No	42	24.7



**Figure 1: Respondents Years of Food Vending**

**2. Respondents Food Safety Practices**

Majority 162(95.2%) of the respondents reported that they wore apron while preparing and serving food. Most 162(95.3%) of the respondents reported that they rinsed their plates often. Majority 158(92.9%) of the respondents reported that they had undergone medical exam before starting food vending. Also 158(92.9%) of the respondents reported that they had undergone periodic medical examination. Most 158(92.9%) of the respondents reported that they attended training program on food hygiene. Majority 159(93.5%) of the respondents reported that environmental health worker inspect their premises Few 34(20.0%) of the respondents reported to use arm jewellerys whenever they are cooking. Only, 31(18.3%) of the respondents' reported to cover their hair whenever they were cooking and serving food. Few 32 (18.8%) of the respondents reported that they do not handle money while serving and preparing food meaning that majority handled money while cooking and serving food (81.2%). Only 26(15.3%) of the respondents reported that they keep long fingernails. Majority 142(83.5%) of the respondents reported that they don't come to work whenever they are sick. Few 34 (20.0%) of the respondents reported that the do refrigerate their left over foods. Majority 140(82.4%) of the respondents reported that they cleaned their environment to prevents contamination of food. Majority 128(75.3%) of the respondents reported that they usually cleaned the tables and chairs after use by a customer. Only 30(17.6%) of the respondents' reported not to sweep their store daily (See Table, 2.0).

Furthermore, respondents' food safety practices measured on a 15-point rating scale showed that the respondents scored a mean of  $9.96 \pm 2.57$  translated to food safety practices prevalence of 66.4%. The proportion of the respondents with good food safety practices was 33(19.4%). One can infer that most of the respondents had relatively moderate food safety practices (See Table 2.1).

**Table 2.0 Respondents Food Safety Practices**

Items	Yes (%) (n=170)	NO (%)
I wear apron while preparing and serving food	*162(95.3)	8(4.7)
I rinsed the plates before serving food to ensuring food safety	*162(95.3)	8(4.7)
I took medical exam before starting food vending	*159(93.5)	11(6.5)
I do periodic medical examination	*158(92.9)	12(7.1)
I attend training on food hygiene practice on food safety	*158(92.9)	12(7.1)
Environmental Health worker inspect my premise	*159(93.5)	11(6.5)
I use arm jewellerys when cooking	34(20.0)	*136(80.0)
I don't cover my hair when cooking and serving food	31(18.3)	*139(81.7)
I handle money during serving and preparation of food.	*138(81.2)	32(18.8)
I keep long fingernails during food preparation and serving	26(15.3)	*144(84.7)
I come to work whenever I am sick	28(16.5)	*142(83.5)
I don't refrigerate my food to prevent contamination of food	*136(80.0)	34(20.0)
I Clean my environment to prevents contamination of food	*140(82.4)	30(17.6)
I cleaned the tables and chairs after use by a customer.	*128(75.3)	42(24.7)
I don't sweep the floor of my shop daily.	30(17.6)	*140(82.4)

**\*Expected Responses**

**Table 2.1: Proportion of Respondent's Food Safety Practices**

Items	Measured on a 15-Point rating scale			
	Frequency(n=170)	Percentage (%)	$\bar{x}$ (SE)	Prevalence
<b>Poor</b>	1	0.6	9.96(0.19) $\pm$ 2.57	66.4%
<b>Moderate</b>	136	80.0		
<b>Good</b>	33	19.4		

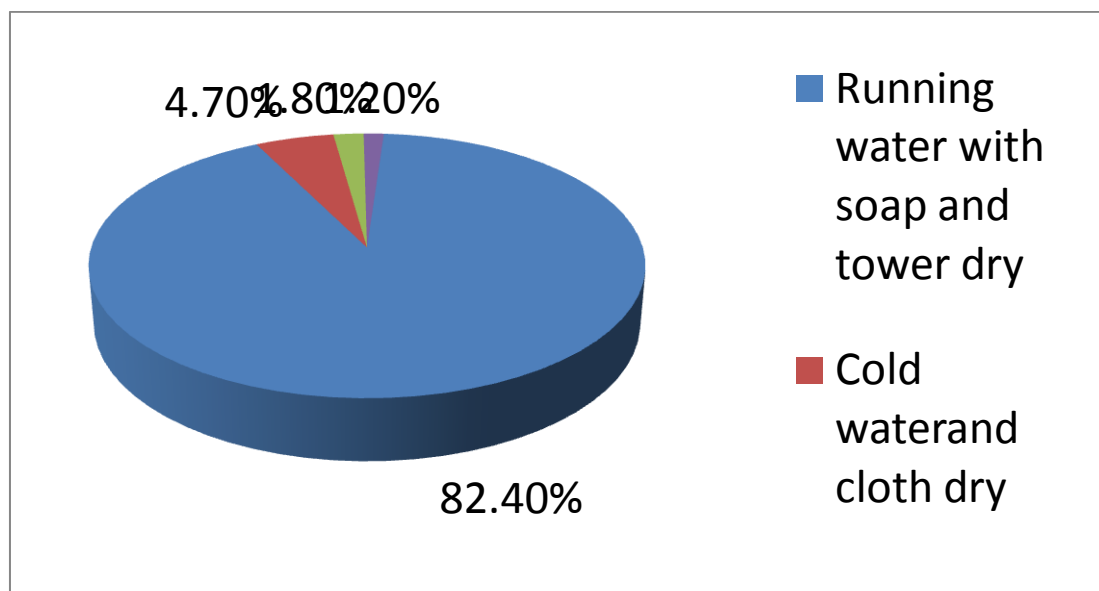


Figure 2: Respondents Reported Methods of Hand Washing

### 3. Reports of Observational Checklist

On the respondent's personal hygiene practices majority 163(95.9%) of the respondents observed were neatly dressed. Most 159(93.5%) of the respondents observed had a well-kept finger nails. Majority 129(75.9%) of the respondents observed covered their hair. More than half 92(54.1%) of the respondents observed did not use their apron while few 60 (35.3%) of the respondents observed used nose mask. More than half 100(58.8%) of the respondents' observed used clean apron. Majority 158(92.9%) of the respondents had a neat body outlook. Most 134 (78.8%) of the respondents' observed used clean napkin. Furthermore, respondents' personal hygiene measured on an 8-point rating scale showed that the respondents scored a mean of  $4.85 \pm 1.99$  translated to personal hygiene prevalence of 60.0%. The proportion of the respondents with poor personal hygiene was higher than those with good hygiene (See Table 3.1).

The respondent's environmental hygiene showed that majority 161(94.7%) of the prepared foods are protected from flies and rodents. Most 151(88.8%) of the respondents had waste disposal bin/basket. Majority 124(72.9%) did not have a hand washing sink. Less than half 65(38.2%) had toilet. Most 135 (79.4%) had a clean wash hand basin/soap/towel. More than half 105(61.8%) had evidence of disease vectors in premises. More than half 105(61.8%) had uncooked food items placed on bare floor. More than half 91(53.5%) had clean service table and surrounding. Majority 146(85.9) had Stored food protected from flies and rodents. More than half 109(64.1%) did not have adequate supply of water. Most 114(67.1%) had adequate sanitary conditions (See, Table 3.0). Furthermore, respondents' environmental hygiene checklist measured on an 11-point rating scale showed that the respondents scored a mean of  $6.87 \pm 2.52$  translated to a score of 62.5% when compared with the maximum point on scale of measure. The proportion of the respondents with poor environmental hygiene was higher than those with good hygiene (See Table 3.2)

Table 3.0: Report of Observational Check List

Observation (N=170)	YES (%)	NO (%)
<b>Personal Hygiene</b>		
Neatly dressed	163(95.9)	7(4.1)
Well-kept finger nails	159(93.5)	11(6.5)
Use of hair covering	129(75.9)	41(24.1)
Use of apron	78(45.9)	92(54.1)
Use of nose mask	60(35.3)	110(64.7)
Clean apron	100(58.8)	70(41.2)
Neat body outlook	158(92.9)	12(7.1)
Use of clean napkin	134(78.8)	36(21.2)
<b>Environmental Hygiene</b>		
Prepared foods are protected from flies and rodents	161(94.7)	9(5.3)
Presence of a disposal bin/basket	151(88.8)	9(11.2)
Presence of a hand washing sink	46(27.1)	46(72.9)
Presence of a toilet	65(38.2)	105(61.8)
Presence of clean wash hand basin/soap/towel	135(79.4)	35(20.6)
Evidence of disease vectors in premises	105(61.8)	65(38.2)
Uncooked food items placed on bare floor	91(53.5)	79(46.5)

Clean service table and surrounding	146(85.9)	24(14.1)
Stored food protected from flies and rodents	137(80.6)	33(19.4)
Adequate supply of water	61(35.9)	109(64.1)
Adequate sanitary conditions	114(67.1)	56(32.9)

**Table 3.1: Proportion of Respondent’s Personal Hygiene**

Items	Measured on a 8-Point rating scale			
	Frequency(n=170)	Percentage (%)	$\bar{x}$ (SE)	Prevalence
Poor	125	73.5	4.85(0.15) ±1.99	60.6%
Good	45	26.5		

**Table 3.2: Proportion of Respondent’s Environmental Hygiene**

Items	Measured on a 11-Point rating scale			
	Frequency(n=170)	Percentage (%)	$\bar{x}$ (SE)	Prevalence
Poor	148	87.1	6.87(0.19) ±2.52	62.5%
Good	22	12.9		

#### IV. DISCUSSION

##### 1. Respondents Food Safety Practices

The result of the research showed that majority of respondent’s food safety practice overall was not so good. This finding corroborates the work of Lema, et al., (2020) who reported poor practice among food vendors in the university of Ethopia and Funmilola, Mathew and Greg (2019) who also reported poor practice in a tertiary institution in South Western Nigeria this shows that poor attitude must have influenced poor practice and also the tradition of this is how we do it as against this is the bench mark or food safety standard that should be adhered to. And also literacy their level affect practice because this food vendor are well informed but have not come to terms because they do not agree with the information which is an important factor that affects practice. Practices such as not wearing of Apron all the time, not having access to adequate water, not using their nose mask among others practices were reported to be high in the practice observed by the respondents. These practices were not in agreement with Aiken, Clarke, Cheung, Sloane, and Silber (2003) who stated that practices refer to the ways in which people demonstrate their knowledge and attitude through their actions. Also, using of jewelleries, not covering of hair when cooking and serving food, handling of money during serving and preparation of food, keeping long nails, working while sick was reported low amongst the respondents, amongst. These poor practices impart negatively on food safety and could result to food borne diseases. This corroborates Mulugeta & Bayeh, (2012) reports that food handlers may enable pathogenic bacteria to come into contact with food when food is mishandled and when there is disregard of hygienic measures thereby causing various illnesses to the consumers.

##### 2. Checklist for Personal and Environmental Hygiene

In the present study, the level of personal and environmental hygiene appears to be below adequate. This finding is similar to the result of Odipe et al., (2019) who reported good personal hygiene practices among study population. Also similar with some other studies Martins (2006) who reported that due to the food vendor’s necessity to depend on the customer’s repeat patronage in order to maintain and sustain their livelihood, the vendors are more likely inclined to produce relatively safe food by maintaining the minimum required level of hygiene standards; even though a serious gap still exists for the improvement of proper hygienic conditions and access to basic sanitary facilities for the food vendors.

#### V. CONCLUSION

The present study showed that the respondents cut across all the socio-demographic, characteristics, including age, marital status, gender, and ethnicity. Respondents’ food safety practices were moderate. The observational checklist showed that the proportion of respondents with poor personal and environmental hygiene was higher than those with good personal and environmental hygiene. Hence, safety measures where the respondents were deficient needs to be taking seriously. A neat and clean environment free of refuse, good personal hygiene practices, stagnant water, and adequate source of water will prevent disease infestation.

#### VI. RECOMMENDATION

1. Immense health education should be embarked on for both the public and food handlers to enable people take appropriate steps to prevent food borne diseases.

2. Regular and Informative Food vendors' training programme should be adopted by the necessary health authority and food handlers must make effort for self-learning and update. Also implement innovative public food safety education programmes.
3. The local, state and national regulatory bodies should keep encouraging and enforcing strict monitoring, surveillance on environmental hygiene and food safety practices among food vendor workers and food handlers.

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