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Incidence of Food Poisoning in Okene Local Government Kogi State. Nigeria.

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ABSTRACT

Food poisoning has been a growing concern in Nigeria today. The activities of some people and food processing industries contribute to the transmission of food poisoning and intoxication. There is lack of proper monitoring and supervision by food safety officers and the enforcement of food hygiene regulations. Descriptive cross-sectional study was designed to investigate the general awareness, attitude and practice of proper food hygiene among the adult between the ages of 18-38 residents in Okene about food poisoning. Multistage random and cluster sampling techniques were employed to select 460 respondents who were interviewed using a structured questionnaire. The level of awareness on food poisoning was found to be high (89.13%), but there are still reasonable numbers of respondent with poor knowledge concerning the causes of food poisoning. Food poisoning experience was very low (21.90%). Main sources of information concerning food poisoning were family members (80.48%) and radio stations 97.56%). Level of formal education had significant influence on the awareness of the respondents towards food poisoning (p=0.027). Despite the high level of awareness of food poisoning knowledge concerning the cause was perceived to be low. The practice of food hygiene was high despite the low knowledge on the actual causes of food poisoning. The attitudes of people towards food poisoning were positive and the people were willing to know about food poisoning and how to prevent it. Health education, general awareness campaigns and sensitization were recommended to improve the level of knowledge and further strengthen the awareness level among the respondents.

KEYWORDS: Food poisoning, food hygiene, Intoxication and Health education.

1.0 Introduction

Food is a substance consisting of essential nutrients such as carbohydrates, protein, lipid, minerals, vitamins, and condiment to sustain growth, repair, and vital processes and to furnish energy to live (Newell, *et al*., 2010). Some researchers defined food as a substance that is intended to be, or reasonably expected to be processed, partially processed, or unprocessed for consumption by humans. Major foods or foodstuffs are obtained through agriculture where only 4% of 250,000 -300,000 are considered edible plant species and only 150 -200 are used by human for cultivation (FAO, 1990) to intake, while

milk, egg, meat, and fish are obtained from animals. Some cultures consume blood in the form of blood sausage or stews as jugged hare (Davidson, 2014). Usually fruits are eaten raw whereas most of the vegetables and animal foods and foodstuffs are prepared through cooking which involves washing, cutting, trimming, and adding other foods or ingredients to make the foods tasty. Some foods are also manufactured as packaged foods such as prepared meat, fried fish, fruits pickling and juices, beverages, chocolate products, potato chips, etc. which involve salting curing, curdling, drying, pickling, fermenting, and smoking to prepare these foods which are available in many restaurants and food shops, and usually consumed in most of the cultures.

Food borne diseases can be defined as the illness due to the ingestion of spoiled or poisonous food, contaminated by microorganisms or toxicants, which may occur at any stage during processing from production to consumption. Contamination may also occur in the environment like using chemical or polluted water and soil for cultivation or from air. Clinical symptoms represent a wide spectrum of illness, from acute to long-term sickness, which include gastrointestinal infections, immunological or neurological disorders, multi-organ failure, and even cancer.

The preponderance of food borne illness is usually caused by harmful bacteria, virus, parasite or chemicals (CDC, 2010). Based on the causes it can be classified into two categories which are food borne infections and food borne intoxications (Jurtshuk, 1996). Illness resulting from contaminated foods by pathogenic microbes can be referred to as food borne infections while intoxication can be stated as the diseases caused by ingesting food containing toxins produced by microorganisms or bio-toxicants or by poisonous substances that were added as additives intentionally or unintentionally to the foods that have short incubation period (Ucar *et al*., 2016)

Okene is a town in the Nigerian state of Kogi. The town is based in a Local Government Area of the same name Okene town, Kogi State north-central Nigeria. It lies at intersection of roads from Lokoja, Kabba, Ikare, Ajaokuta, and Auchi. Originally founded on a hill near the present site, it now lies in the valley of the Ubo River, which is a minor tributary of the Niger River. The town is a major trade centre for yams, cassava (manioc), corn (maize), sorghum, beans, peanuts (groundnuts), palm oil and kernels, and cotton grown in the surrounding area by the Ebira people. Cotton waving is a traditional craft, and Okene women are known for their weaving of imported silk.

1.1 Food Borne Diseases

Food borne diseases as defined by the World Health Organization as any disease of an infections or toxic nature caused by or thought to be caused by the consumption of food or water

(Donald, 1993 and Duffy *et al*., 2006). Contamination may also occur from the environment like using chemicals or polluted water and soil for cultivation or from air (Hossain *et al.*, 2008). Clinical symptoms represent t a wide spectrum of illness, from acute to long-term sickness, which include gastrointestinal infections, immunological or neurological disorders, multi-organ *failure, and even cancer (*Hossain *et al.*, 2008).

1.2 Types of Food Borne Diseases

The preponderance of food borne illness is usually caused by harmful bacteria, virus, or parasite including chemicals (CDC, 2010). Based on the causes it can be classifieds into two categories:

1. Food borne infections
2. Food intoxications

Food borne diseases can be defined as the illness due to the ingestion of spoiled or poisonous food, contaminated by microorganisms or toxicants, which may occur at any stage during food processing from production to consumption (Altekruse *et al*., 2000). The annual incidence of food poisoning outbreak continues to present a great challenge to environmental health management and a threat to the health of people globally (Todd *et al*., 2007). There is low level of awareness concerning food poisoning or the potential dangers that lurk side by side with some food nutrients.

A major barrier to food safety in Nigeria is lack of proper waste disposal and toilet facilities for the customers. Most of the eating stalls in Nigerian cities are marked by unsanitary conditions, like poor drainage systems, overcrowding and poor waste disposal which leads to poor hygiene (personal and environmental) (Rheinlander *et al*., 2015). Of a great concern also are the food ingredients and the sources of the foods. Raw materials and ingredients are usually purchased from the open markets, where the items are displayed openly on tables, ground during rain or shine, in muddy places and around filthy gutters. Buyers are mostly in the habit of touching the food stuffs with unwashed fingers either to feel the texture or to ascertain the fineness of the powder in case of grounded stuff. Flies are most often found around the meat and fish areas perching all over the items with absolutely no source of protection. These also present high potential risk for food contamination (Ehiri *et al*., 2001).

2.0 Methodology

This study examined the general public awareness of food poisoning and food intoxication in Nigeria, a case study of Okene local government area of Kogi state. The study was conducted in Okene metropolis which is situated in the middle belt zone of Nigeria. Okene is located on a rugged and undulating topography due to the presence of hills. It has a population of about 320,260 (NIPOST 2009) inhabitant s delineated into 11 wards with at least 3 communities in each of the wards. The procedure used for the study is discussed under the following headings: population of the study, Research design, Sample size and sample techniques, Source of Data Collection, Procedure for data collection and Method of Data Analysis

2.1 Population of the Study

Research populations are referred to as a well-defined collection of individuals who have similar characteristic; all individuals within a certain population usually have a common binding characteristic. Popoola, (2011) defines study population as the totality of the individuals under the universe of study. The population of study is Okene local government area of Kogi State and the target populations of the study are adults within age of 18-38years who have role to play in food handling.

2.2 Research Design

The study employed the use of multi-stage sampling method. Firstly, random sampling method was used to select 6 wards from the 11 wards. Secondly, random sampling method was used to select 12 communities out of 26 communities in the 6 selected wards. Each community was then regarded as a cluster. Using the grid method, the maps of the clusters were divided into four equal parts and the central point located, using this, the centre of the cluster was then identified for each cluster. Spinning a bottle at the centre of each cluster, the house whose front door is closest to the direction to the tip of where the bottle pointed was selected as the index household for the interview. The next household subsequent households were then selected based on the household whose front

door was closest to the previous one sampled based on the household whose front door was closest to the previous one sampled until the desired sample size was attained (Rebecca *et al*., 2007). In all four hundred sixty (460) resident of the study area between the ages of 18-38 and above who are believed to have roles to play in food handling, were interviewed during the study. Data was collected using a structured pre-tested questionnaire designed for the study. Generally, the study makes use of two sources of data. The Primary source of data from self-designed questionnaire and the secondary data from published books and reviewed journals including electronic works.

2.3 Sample Size and Sampling Technique

Simple random sampling technique was adopted for this study, which is a procedure of giving every subject in a population equal chance of appearing in the selection. The total number of returned questioned was taking to the sample size of the study.

2.4 Data Analysis

The collected data was entered on excel, coded, cleaned and analyzed. Descriptive statistics was used to summarize and organize the data. Frequency counts and percentages were used to analyze the data collected. The results were presented in tables indicating the frequency of the respondent s and the percentages.

3.0 Results and Discussion

3.1 Sample Size

The survey involved total numbers of 460 adults between the ages of 18-38 years' resident of the study area. 360 of the sample size are female while 100 are male. Five hundred (500) of the instrument of data collection (questionnaire) was shared for the whole study population but 40 people later decline their interest by not returning their copy of the questionnaire.

Table 1: Questionnaire Distributed and Collected

S/No	Questionnaire	Respondent	Percentage
1	Returned	460	92.00%
2	Not returned	40	8.00%
3	Total	500	100.00%

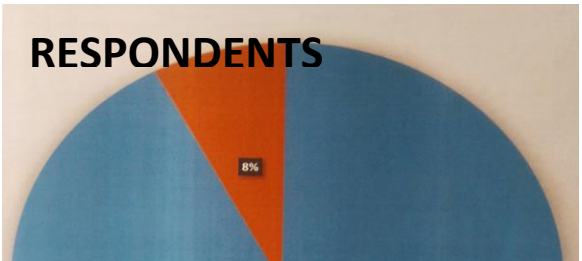

Figure 1: Chart showing the percentage of returned and not returned Questionnaires

Table 2: Demographic Characteristics of the Respondents

S/No	Variable	Frequency	Percentage	Cumulative
1	**Gender**			
	Male	100	21.73%	21.73
	Female	360	78.26%	99.99
	Total	460		
2	**Academic Qualification**			
	Non	60	13.04%	13.04
	Primary	90	19.56%	32.60
	Secondary	110	23.91%	56.41
	Tertiary	200	43.47%	99.98
	Total	460	99.98%	
3	**Age Range**			
	18-22YRS	240	52.17%	52.17
	23-27YRS	100	21.73%	73.90
	28-32YRS	60	13.04%	86.94
	33-37YRS	40	8.69%	95.63
	38-Above	20	4.34%	99.97
	Total	460	99.97%	
	Marital Status			
4	Single	150	32.60%	32.60
	Married	310	67.39%	99.99
	Total	460	99.99%	

Table 3: Respondent Awareness of Food Poisoning

Question: Have you heard of food poisoning before

Parameters	Response	Percentage	Cumulative
Yes	410	89.13%	89.13
No	50	10.86%	99,99

No multiple Responses

Table 4: Respondent's Source of Awareness about Food Poisoning

Parameters	Response	Percentage
Family Member	330	80.48%
TV program	150	36.58%
Radio Station	400	97.56%
Print	70	17.07%
School	50	12.19%
Health Workers	18	4.30%

There are multiple responses

Table 5: Food Poisoning Experience Before

Parameters	Response	Percentage
Yes	90	21.90%
No	320	78.04%

Table 6: Respondent's Perceived Causes of Food Poisoning

Parameters	Response	Percentage
Germs	300	73.17%
Chemicals	400	97.56%
Germ/Chemicals	350	85.36%
Plant materials	40	9.75%
Spiritual Problem	80	19.51%
Germs/Chemicals/ Plant/ Spiritual	340	82.92%
Plant/ Material / Spiritual	20	4.87%
Germs/ Spiritual	320	78.04%

There are multiple responses

Table 7: Perceived Prevention of Food Poisoning

Parameters	Response	Percentage
Cooking hygiene	390	95.12%
Personal hygiene	390	95.12%
Avoid Enemies	410	100%
By praying	280	68.29%

Table 8: Respondent's Method of Preserving Food

Parameters	Response	Percentage
Drying	390	95.12%
Frying	410	100%
Salting	410	100%
Freezing	410	100%

Table 9: Do You Eat Outside your Home?

Parameters	Response	Percentage
Yes	380	54.97%
No	270	45.65%

Table 10: How do you Maintain Leftover Food Before Eating it

Parameters	Response	Percentage
Reheat	380	92.68%
Dispose	270	65.85%
Eat like that	140	43.14%

Table 11: Respondent's Contact with Food Poison Cases

Parameters	Response	Percentage
Yes	160	39.02%
No	250	60.97%

Table 12: Respondent's Willingness to Know More About Food Poisoning

Parameters	Response	Percentage
Yes	430	93.47%
No	25	5.43%
Indifferent	5	1.08%

Table 13: Influence of Level of Education on Level of Awareness of Food Poisoning

	Awareness of food poisoning		
Education Status	**Yes (percentage)**	**No (percentage**	**Total (percentage)**
Non (n=60)	20%	75.00%	100%
Primary (n=90)	61%	38.88%	100%
Secondary (n=110)	63.63%	36.36%	100%
Tertiary (n=200)	92.50%	7.50%	100%

3.2 Discussion

More than half (78.26%) of the respondents were females while 21.73% were males.

Majority of the respondents had tertiary education 43.47%, 23.91% had secondary education while 19.56% had primary education and 13.04% had no formal education. Half (52.17) of the respondent are between the ages of 18-22years, 21.73% are between the ages of 23-27years while 13.04% of the respondent are between the ages of 28.32years and 8.69% and 4.34% are between the ages of 33-37years and 38years of the respondents are single. Majority of the respondents (89.13%) were aware of food poisoning while few 10.86% have not heard about food poisoning before. Most of the respondents 97.56% obtained information on food poisoning from radio stations, 80.48% from family member, 36.58% from TV programs, 17.07% from print and 12.19% from school while the least was 4.60% from health-workers.

About a quarter (21.90%) had experienced food poisoning in the past while 78.04% had not.

Majority of the respondent (97.56%, 73.17% and 85.36%) correctly identified chemicals, germs and germs/ chemical respectively as possible causes of food poisoning while the rest attributed food poisoning to enemies or spiritual forces. All the respondents (100%) believed that prayer can prevent food poisoning and 95.12% believe that proper cooking and good personal hygiene can prevent one from experiencing food poisoning. Freezing, salting and frying are the Most frequently used method of preservation (100%) followed by drying (95.12%). Most of the respondents (92.68%) reheat their leftover foods, 65.85 % usually dispose it while 34.14% normally eat leftover foods as it is. Majority of the respondents (93.4%) were willing to know more on food poisoning while 5.43% were not willing or interested and 1.08% is indifferent about their willingness. About (54.97%) of the respondents agreed that they eat outside their homes while 45.65% did not. There is a significant influence of level of education on general awareness of food poisoning with p value equal to 0.027($p<0.05$).

4.0 Conclusion

From the study, it is discovered that reasonable numbers of respondents were aware of food poisoning and their major source of information was through radio stations and family members. This is perhaps because it is commonly talked about in many of the radio stations in the area and among the family members. Television, school, print

media, were good source of information while the lowest source of information was the health workers. This low level of awareness of the correct causes of food poisoning may be attributed to their socio-cultural common belief in attributing most afflictions to bad or evil spirits. Majority of the adults' residents in Okene metropolis had heard of food poisoning. The level of awareness of food poisoning is high but the corresponding level of knowledge concerning the causes is poor.

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