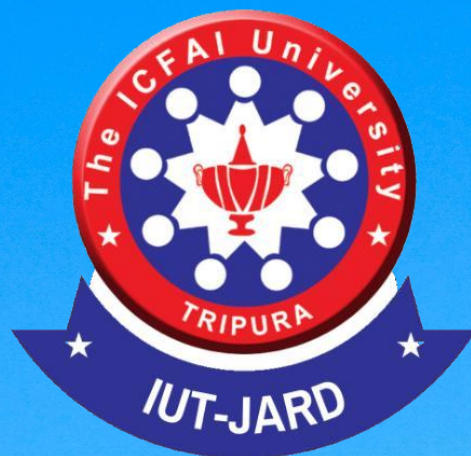


IUT Journal of Advanced Research and Development

Volume 9, No. 1 (April 2023 - September 2023)



ISSN: 2455-7846

Published by
ICFAI University, Tripura

Kamalghat, Mohanpur, Agartala - 799210, Tripura (W)

Ph: 0381-2865752/62

Toll Free No. 18003453673

Website: www.iutripura.edu.in



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ASSESSMENT OF FOOD HYGIENE PRACTICE AMONG FOOD VENDORS IN AHMADU BELLO UNIVERSITY CAMPUSES ZARIA

AJAYI Ayodotun Edward
Department of Human Kinetics and
Health Education
Ahmadu Bello University, Zaria,
Nigeria
edwardajayi@gmail.com
+2348039218026

CHIROMA Laminu
Department of Public Health,
Lead City University, Ibadan,
Nigeria
chioromalaminu22@gmail.com
+2348061345266

FaderoOluwakemi Florence
Department of Public Health
Ahmadu Bello University, Zaria,
Nigeria
Florencefadero@gmail.com

Abstract

This study assessed the food hygiene practice among food vendors in Ahmadu Bello University Campuses in Zaria, Nigeria. The result was motivated as a result of unsatisfactory nature of food hygiene practice on the campuses and the role it plays in the etiology of food and water borne diseases prevalence in ABU Zaria. Descriptive survey method was employed to the food handlers in Ahmadu Bello University Campuses Zaria. In the study data was obtained through the use of questionnaire distributed to a total of 105 food vendors on the campuses using simple random sampling while 105 were completely filled and returned by the respondent. The study revealed that the respondent who have no formal education (4%) and are mostly female (60%) with the span of age between 26-35 years (45.3%). Hygiene practice regarding cooking and serving of meal were unhygienic as respondents wash their hand when dirty (10.7%) and washed used plate only when customers finish eating (93.3%) also some of them use pot with cover to preserve and store food instead of refrigerators. The source of water is mostly from the borehole since is the available mean in Ahmadu Bello University, Zaria. As regard personal and environmental hygiene majority are engage in poor hygiene practice, dust bin is empty daily. More doors and windows have no net that will prevent insect from entering the dining hall to contaminate the food. Appropriate recommendations are finally offered in the area of health education by the university health care service to educate food vendors on how to improve hygiene practice and guidelines on rules and regulation covering licensing and inspection procedure on food preparation and handling in all campuses of Ahmadu Bello University, Zaria.

Keywords: Hygiene, food, environment, health

1. Introduction

According to Griffith, (2002), Food is essential to provide energy and to supply materials from which all synthesis chemical and bodily structure. Also energy is required even at rest, when no voluntary physical activities are being undertaken. It is necessary for cellular activities for the functioning of the organ of the body and for growth and maintenance of tissue in has resulted in a proliferation of food vendors and hawkers to urban area have led to the need to feed the large number of working people away from their place of residence. In many countries street vendors prepare the first meal of the day for the law income workers, in Thailand, for the law income workers in Thailand for example 20% of household eat most or all of their meal outside or bring the cooked home. The Food and Agriculture organization of the United Nation (FAO) estimate that up to 30% of house hold food expenditure, were devoted to prepare food purchased outside the house hold (Simon 2004). Through there is an old adage “Prevention is better than cure” “there seem to be strong imbalance in the medicine of modern society. We have plenty of new technique for performing intricate operation but few for teaching people on how to keep out of harm away. We all know that disease cost the country many millions of pounds a year in drugs and medical

care of pound a year in drug and medical care in lost. Productivity and sickness benefits and a large proportion of bill are caused by infections disease.

Arnold (2001) noted that it has now become part of the modern way of life to eat in restaurants, canteens, and hotels. So that one infected person employed in the preparation of food can pass his or her infection on the large number of others, such infection can be prevented from spreading. First by adequate reporting, second by temporary excluding the infected person from handling food. It is therefore necessary to ensure that all food handlers are not only fit for employment in food industry, but that they are free from intermitted infectious and contagious disease. As nothing is more dangerous to people than other people, we all harbor germs in our nose and throat, in our bowel and in our hands. Such germs may be spread from one person to another through air, via common object or by direct touch, since most infectious agent originate in people those engage in handling food, must be trained and encourage to maintain the hygiene possible standard of hygiene. Equally the environment must be kept spotlessly clean at all times World Health Organization (WHO, 2020).

Food hygiene deals with the prevention of contamination of food stuffs at all stages of production, collection, transportation, storage, preparation, sale and consumption. Food borne illness is defined as a disease, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. This process of kitchen safety includes proper storage of food items prior to use, maintaining a clean environment when preparing the food, and making sure that all serving dishes are clean and free of bacteria that could lead to some type of contamination. The food storage aspect of food hygiene is focused on maintaining the quality of the food, so that it will be fresh when used in different recipes. Food safety according to World Health Organization, (WHO, 2019) is a scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illnesses. This includes the number of routines that should be followed to avoid potentially severe health hazards. Food can transmit diseases from one person to the other as well as serve as a growth medium for bacteria that can cause food poisoning. Debates on genetic food safety include such issues as impact of genetically modified food on health of further generations and genetic pollution of environment, which can destroy natural biological diversity.

Keeping a sanitary workplace will also cut down on the chances of some type of foodborne illnesses from developing when people consume a prepared food. Food contamination occurs most commonly from excreta on people's fingers, flies etc. (i.e. faeco-oral transmission). Food contamination may also occur by skin infection especially the hands of food-handlers (staphylococcal food poisoning), consumption of diseased animals (tape worm, brucellosis etc) or chemicals used as pesticides on crops. Every person is at risk of foodborne illness.

It is a widespread and growing public health problem both in developed and developing countries; the effect being more devastating in developing countries. Consumers have a reasonable expectation that the foods they purchase have been produced and processed under hygienic condition and that the food has not been adulterated by addition of any biological, chemical, or physical hazard. These expectations are regularly enforced by regulations that govern production, processing, distribution and retailing of foods and drugs in any country.

2. Statement of the Problem

According to National Agency for Food Drug Administration and Control (NAFDAC 2021) Food poisoning does not necessarily happen by accident. It is usually cause by the failure of food handlers and vendors to observe standard hygiene practice in the handling of foods. Consequently, people are increasingly being affected by food borne disease such as diarrhea, botulism, typhoid fever, dysentery etc. it causes considerable morbidity with serious tragic consequences. Food poisoning has resulted in illness and loss of considerable working day with resultant socio-economic consequences. Valuable time, man power and health care resources which could be used on more deserving causes are lost in treating food poisoning which could have been prevented. It is commonly assumed that food hygiene coasts a fortune whereas the reverse is the case.

Despite the effort of food regulatory agencies in monitoring and controlling the activities of food vendors, the incidences of food borne diseases continue to be the increase with attendance negative consequences. The researcher observed food handlers in Ahmadu Bello University campuses, Lack food safety, consequently when preparing the food, they don't take care of their personal-hygiene such as covering hair during cooking and cleaning table after serving regularly. They don't care about the temperature of boiling the ingredient in the food therefore in Ahmadu Bello University Campuses lack that knowledge of boiling ingredient because in the process of boiling they boil all the calories in the ingredient/nutritional values which result to **some** effect or diseases in the customers.

3. Research Question

The basic questions to be addressed are:

1. What are the methods used by Ahmadu Bello University Zaria Food vendors to preserve food?
2. What are the methods used by food vendors in Ahmadu Bello University Zaria to store food?
3. What are the sources of water mostly used by the food vendors cooking in the campuses of Ahmadu Bello University, Zaria?
4. What are the methods used by Ahmadu Bello University Zaria to take care of Environmental hygiene?

4. Objective of the Study

The major Objective of this study is to assess food hygiene and practice among food vendors in Ahmadu Bello University Zaria Campuses. Specific Objectives are:

1. To examine the method of preservation of food among food vendors in Ahmadu Bello University-Zaria.
2. To evaluate the common method of storing food among the food vendors in Ahmadu Bello University-Zaria
3. To determine the sources of water supply mostly used by food vendors in cooking food in Ahmadu Bello University-Zaria.
4. To determine food preservation techniques used among the food vendors In Ahmadu Bello University Zaria.

5. Hypothesis

There is no significant relationship between food hygiene and practice among the food vendors in Ahmadu Bello University, Zaria Campuses.

6. Methodology

The population comprises of food vendors in all cafeterias at Samaru, Kongo and Shika Campuses of Ahmadu Bello University Zaria, Kaduna State. A total number of 84 registered food vendors in all campuses of Ahmadu Bello University, Zaria was obtained from the Association of cafeteria in Campuses via the students' Representative council (SRC). The distribution is as follow; Samaru campus has a total 42 food vendors, 34 in Kongo and 8 in Shika respectively.

7. Data Presentation and Analysis

The data collected were presented as shown in the tables below, these include: socio-demographic characteristics, food and water hygiene, prevention, preparation, and storage of food as well as cooking and serving of food.

Table 1. Did you receive any training on Preparation of food?

Response	Frequency	Percentage (%)
Yes	72	68.6
No	33	31.4
Total	105	100

This revealed that most of the food vendors received training on preparation of food with a highest frequency of 72 (68.6%) of the total survey and 33 (31.4%) are not trained.

Table 2: Distribution of category of services rendered by respondent

Response	Frequency	Percentage %
Full service restaurant	55	52.3
Cafeteria	30	28.6
Local bukateria	20	19.0
Total	105	100

The table above shows that 55 respondents are into the full service restaurant representing 46.7% and 34.3% operate cafeteria, while 19% representing a frequency of 20 respondents operate as local bukateria.

Table 3: indication of the sources of water supply for cooking

Response	Frequency	Percentage %
Pipe borne water	47	44.8
Stream	10	9.5
Borehole water	34	32.4
Water tank	14	13.3
Total	105	100

This showed that 44.8% of respondents use pipe borne water for cooking, while 32.4% of those interviewed use borehole water. However, 13.3% of the food vendors use water tank and only 9.5% representing a frequency of 10 respondents use water tank respectively.

Table 4: Indication of the types of water served customer to drink

Response	Frequency	Percentage%
Sachet water	85	81.0
Boiled water	-	-
Tap water	14	13.3
Well water	6	5.7
Total	105	100

This showed that majority of customer served are given sachet water to drink, with a frequency of 85 (81.0%) of total food vendors, 14% served customers tap water to drink, while 5.7% served customers with well water to drink and none of the respondent served boiled water as drink water.

Table 5: Indication of where respondents store water for use

Response	Frequency	Percentage%
Metal container	46	43.8
Plastic container with cover	36	34.3
Other container with cover	23	22.0
Total	105	100

This showed how food vendors stored their water for cooking with respondent storing water in plastic container with cover as the highest with a percentage of 34.3% of total food vendors survey while 43.8% of respondent store their water in metal container with cover and 22.0% respondents store theirs in other container with cover.

Table 6: Indication of where respondent keep raw food items

Response	Frequency	Percentage %
On the floor	26	24.8
Put on shelf	60	57.1
On carpet	12	11.4
Left outside	7	6.7
Total	105	100

This showed that 57.1% of food vendors representing the highest number of respondents with a frequency of 60 keep their food on shelf followed distantly by those that kept on the floor at 24.8%.

Table 7: Indication of where respondent store cooked food.

Respondent	Frequency	Percentage%
In pot with cover	4	3.8
In refrigerator	24	22.9
In food warmer	73	69.5
In other container	4	3.8
Total	105	100

This showed that majority of respondents stored their cooked food in food warmer with a frequency of 73 food vendors representing 69.5% of the total analyzed, 22.9% store their food in refrigerator, while the remaining 3.8% uses with cover to store their cooked food and 3.8% store theirs in container.

Table 8: Type of water used to wash utensils for cooking

Response	Frequency	Percentage%
Soap water	46	43.8
Used/dirty water	-	-
Clean water	31	29.5
Soapy and clean water	28	26.7
Total	105	100

This revealed that 43.8% of food vendors utilized soap and clean water to wash their utensils, while 29.5% used cleaned water, 26.7% utilized soap and clean and none of the respondent use dirty water.

Table 9: Practice of food hygiene by hand washing before handling food

Response	Frequency	Percentage%
Very often	40	38.1
Often	45	42.9
When dirty	12	11.4
When convenient	8	07.6
Total	105	100

This indicated that most of the food vendors often wash their hands before handling food with frequency of 40 representing 38.1% of total respondents.

Table 10: Clothes worn by respondent during cooking and serving of food.

Response	Frequency	Percentage%
Attractive clothes	29	27.6
Apron	40	38.1
House clothes	11	10.5
Apron and cap	25	23.8
Total	105	100

This showed that predominance of food vendors used apron during cooking with the highest frequency of 40 and a percentage of 38.0%. 23.8% and 10.5% of respondent use house and attractive clothes during cooking.

Table 11: Indication of available of toilet near canteen.

Response	Frequency	Percentage%
Yes	34	32.4
No	71	67.6
Total	105	100

This showed that 32.4% of respondent have toilet close to their canteens, while 67.6% of them do not have within their canteen.

Table 12: Practice of food hygiene by plate washing.

When are plate washed	Frequency	Percentage%
When much are enough to wash	20	19.0
As soon as customers finish eating	85	81.0
When it's convenient	-	-
Total	105	100

This showed that the highest percentage, 81.0% of food vendors wash their plates as soon as customer finish eating, while a frequency of 20 representing 19.0% only wash their plate when they are much and enough to wash and none of them wash it is convenient.

Table 13: Practice of hygiene when any respondent is having cough or catarrh.

Response	Frequency	Percentage%
Use of toilet tissue to clean	31	29.5
Used of handkerchief to clean	40	38.1
Stop coming to shop to let go	18	17.1
Go somewhere to do	16	15.2
Total	105	100

This showed that most of the respondent uses handkerchief to prevent catarrh and cough when handling food with a frequency of 40 representing 38.1% of food vendors while 29.5% uses toilet tissue to clean and 17.1% of them stop coming to shop until they are well. However, 15.2% of respondents go somewhere to blow their cough or catarrh.

Table 14: Practice of hygiene by preventing flies from perching on food.

Manner of prevention	Frequency	Percentage%
Use of insecticides	57	54.3
Drive them with broom	-	-
Use of door and window net	48	45.7
Total	105	100

This showed that majority of respondent preventing flies from perching on foods by using insecticides to kill flies, representing 54.3% of the respondent analyzed, while 45.7% uses door and window net to prevent flies.

Table 15: Distribution of respondent on what to do with leftover foods.

Response	Frequency	Percentage%
Throw it away	48	45.7
Store in refrigerator and reheat	23	21.9
Give it out	24	22.9
Store in pot and reheat	10	09.5
Total	105	100

The above table indicated that 45.7% of respondents representing a frequency of 48 food vendors throw away their leftover foods, followed by 22.9% give it out and 21.9% store their leftover in refrigerator and reheat, while 9.5% of them store it in the pot and reheat.

8. Discussion of Findings

In the analysis of data on assessment of food hygiene and practice among the food vendors in Ahmadu Bello University Campuses, a lot of unhygienic practices were discovered. The finding of this work showed that majority of respondent (4%) had no formal education, due to lack of knowledge and ignorance about food hygiene. They are likely to have been practicing unhygienic procedures as they can only practice what they know. The research also showed that a number of those interviewed (10.7%) washed their hands only when dirty and also a number of (2.7%) washed hand when it is convenient to do so. This is contrary to the rules of hygiene where by washing of hand should be done at interval and not when the hands are assumed dirty. This has proved that food handlers are the major sources that aid to contaminate and transfer infection to customer, as a result of poor food handling such infection include cholera, diarrhea, typhoid fever, etc. Similarly, good number of food vendors washed the dirty dishes only when it is convenient as shown in table 17, this could be due to lack of assistance in washing while serving meals to customers, this is not ideal, according to Okolie (2003), such dirty utensils can attract flies to perch on them. For flies are important vectors in carrying microorganisms, if such are use later it could spread food born disease to people. While most of the respondent use door and window net to prevent flies (37.3%), some (62.7%) use insecticides on exposed food can cause a very fatal food poisoning that may lead to death. Arnold, (2001) stated that chemical treatment of food either in its raw or uncooked stated can lead to food contamination and poisoning. It was experienced in the year 2013, when ‘killer beans’ was sold in the market. Killer beans were named thus, because beans in its, raw stated were chemically treated leading to poisoning of the customer from the various food vendors.

The finding also showed that some of the respondent stored their cooked foods in pots with covers, however, if the pot is not properly covered it will constitute a major sources of danger, rodents and pest

may gain entry into such containers and contaminate the food (Onwuna, 2013) also when such food is kept for long time toxic chemical from containers may reach food in quantities beyond permissible units, which can cause damage to body cells and can lead to the body cells becoming cancerous. About 21.3% of respondent stored their uncooked food on the floor inside the restaurants. Storing of food in such place may lead to persistent odour inside the restaurant, which will invariably attract rodents and pest which according to Brush (2009), may be carriers of a number of diseases that may be transferred to food through their urine. Faeces or saliva as they grow on these stored foods. This may lead to further food contamination.

9. Conclusion

In conclusion this study has demonstrated that the practice of food hygiene among food vendors as assessed in Ahmadu Bello University Campuses was poor, in adequate and unsatisfactory which implies the food vendors are predisposed to transmission of food born disease which pose a great challenge to health care providers of the university and to Nation at large.

10. Recommendation

Base on the finding of the study, the following recommendation are made:

1. There should be development of health education program by school health care provider to educate food handlers on how to improve food hygiene practice and to device other feasible and culture approach measurers to promote food hygiene.
2. Guidelines on rules and regulations covering licensing and inspection procedures on food vending should be developed by school authorities in conjunction with food vendors.
3. There should be motivation of vendors through given of award to improve their operation, regular inspection by student' representative council (SRC) who are required by given technical advice and strategy foe hygiene practice.
4. Encourage a strong relationship among the school authorities, the food vendors' student' representative which would lead to operation of policy guidelines for their regulation of food hygiene among food vendors on the campuses.
5. Periodic medical examinations should be conducted among food vendors by the university health services unit to assess the healthy status of food vendors in ABU Zaria so as limit disease transmission from food vendors to students.
6. Punishment of food vendors who are found guilty of not adhering to the regulation of food hygiene practice as recommended by the University

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ICFAI University, Tripura

Kamalghat, Mohanpur, Agartala - 799210, Tripura (W) Ph: 0381-
2865752/62

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