



## ASSESSMENT OF FOOD HANDLERS' KNOWLEDGE AND HYGIENE PRACTICES AT SOME SELECTED TERTIARY INSTITUTIONS IN KANO STATE, NIGERIA

\*Garba, Y. I and Mustapha Mohammed Yahaya

Department of Environmental Management, Bayero University, Kano, Nigeria

\*Corresponding authors' email: [yigarba.em@buk.edu.ng](mailto:yigarba.em@buk.edu.ng) Phone: +2348020913518

### ABSTRACT

Anybody concerned about eating healthy food and staying alive should pay close attention to food hygiene because food-borne illnesses can occasionally be very serious. This study evaluated food handlers' knowledge and awareness of food hygiene as well as their practice of it. It was conducted among food handlers at a few chosen tertiary institutions in Kano State, Nigeria. A descriptive study with a cross-sectional design was conducted among 79 food handlers who fulfilled the inclusion criteria. With the assistance of research assistants, data were gathered using structured questionnaires, and the Statistical Package for Social Sciences (SPSS) was used for analysis. According to the results of this study, food hygiene practices are fair when it comes to major water sources, changing of water used for washing utensils and disposal of wastes. The food handlers were good at hand washing. The handlers exhibited a fair level of knowledge and awareness regarding food hygiene. There was a fair level of knowledge on food hygiene and practices among the food handlers. However, there is a need for improvements on education and training of the food handlers. Additionally, regular assessment of compliance with food hygiene practices by environmental health inspectors.

**Keywords:** Food hygiene, Environmental conditions, Restaurants, Food handlers

### INTRODUCTION

Proper environmental conditions and personal hygiene habits of food handlers provide hygienic food to consumers. However, poor environmental conditions and poor hygiene practices during food processing can cause food-borne illnesses (Faremi *et al.*, 2018). The application of food hygiene standards is a global concern among scientists with a wider scope. The term describes the preservation and preparation of foods to ensure the food is safe for human consumption (Malcolm and Bronwyn, 2005). Food vendors are mostly found in the streets, organizations, educational institutions and portable stalls. Every day, food enterprises in both developing and developed countries offer millions of consumers a wide range of reasonably priced and easily accessible food (Mensah *et al.*, 2002; Muinde and Kuria, 2005).

In most developing nations, the food sector attracts people with low skills, training, and educational qualifications who could otherwise not get formal sector employment (Manko, 2018; Rakha *et al.*, 2022). These characterise the street food business as a sector that requires low financial status, a low level of education, and ease of entry. The World Health Organization (WHO, 1996) stated that this industry provides low-cost capital investment options for developing business skills and prospects for self-employment.

The operation of fast-food joints and restaurants has increased in Nigerian tertiary institutions due to increase in student population. Nonetheless, food safety is a serious concern with

street foods, as these foods are most of the time cooked and sold under unsanitary conditions, with limited access to safe water, sanitary services, waste disposal facilities, and handlers' poor personal hygiene (Rheinländer *et al.*, 2008; Haftamu *et al.*, 2024). The objective of this research was to evaluate food handlers' knowledge and practices about food safety and cleanliness in a few selected tertiary institutions in Kano State, Nigeria.

### MATERIALS AND METHODS

#### Study Area

The study was conducted in Kano city, the administrative capital of Kano State. It is situated in north-western Nigeria and is the second largest and most populated state in Nigeria, with 15.1 million people based on 2016 National Bureau of Statistics estimate. Kano city is situated between longitudes 8°23'20"E and 8°46'40"E and latitudes 11°05'20"N and 12°06'40"N (Figure 1). It is roughly 25 km from east to west and 21 km from north to south, covering an area of roughly 683 km<sup>2</sup>. It is the most significant commercial town in the Sudan savannah region and the biggest urban center in Hausa territory. With a population estimated to reach above 4 million in 2022 (Garba *et al.*, 2022) from 2.8 million in 2006 (Mohammed *et al.*, 2016), Kano metropolis is the second main industrial and commercial center in Nigeria after Lagos. Additionally, it's an educational nerve center comprised of many tertiary institutions.

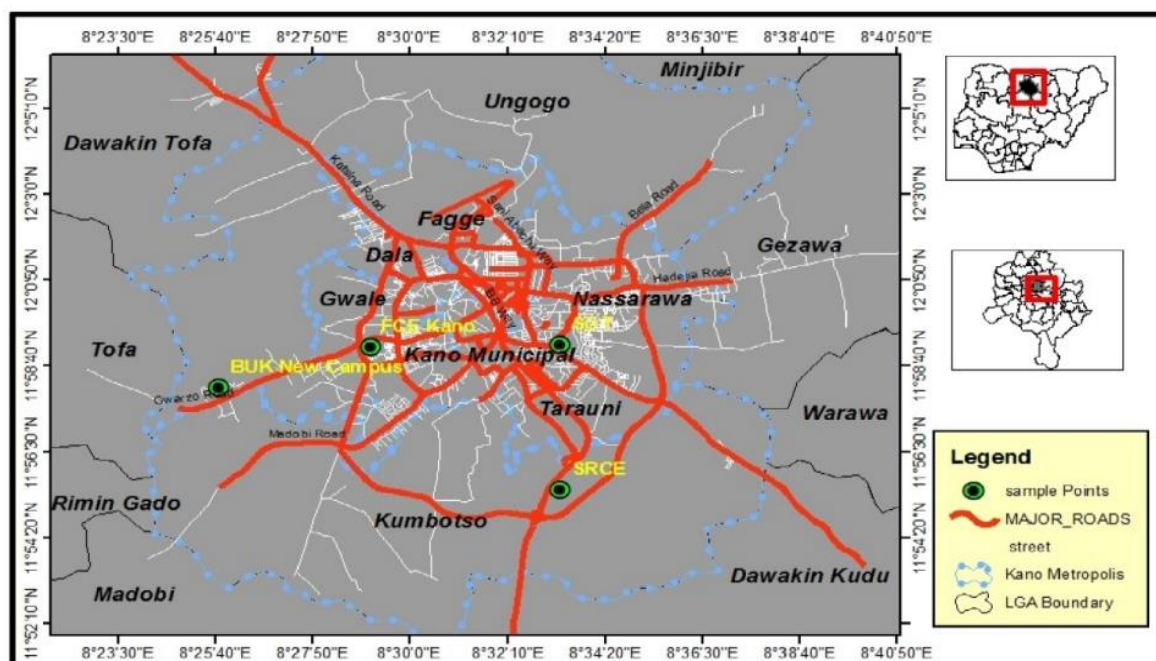


Figure 1: Kano Metropolis Showing the Study Locations

Source: Department of Geography, Bayero University Kano, (2023)

### Sample Population and Sample Size

Food handlers from the following institutions were included in the study: Bayero University, Kano (BUK), Federal Collage of Education, Kano (FCE), Sa'adatu Rimi College of Education, Kumbotso and Kano State Polytechnic. Only the registered food handlers in the selected institutions that have food stalls were considered. A total of 79 food handlers from the four selected institution were included in this study.

### Data Collection and Research Instruments

The study used mainly primary data collection methods to collect the data. Primary data sources consisted of structured questionnaires in which the questions were provided in a Likert scale format on a questionnaire to ascertain the extent of food hygiene practices and food hygiene awareness and knowledge. Questionnaire: A total of 79 questionnaires were used, and they consisted of structured close-ended questions with a few open-ended questions. The questionnaire employed to gather data from food handlers on knowledge, attitude, and food hygiene practice. The socio-demographics were covered in the first section of the questionnaire, and the knowledge, attitude, and food handlers' hygiene habits were covered in the second.

### Data Analysis

The Statistical Package for Social Sciences (SPSS) version 20.0 was employed in the data analysis, and the results were presented using appropriate tables. The knowledge, Attitudes, and Practice of food hygiene were graded and scored as good (3.0 and above), fair (1.0- 2.99), and poor (0.0-0.99).

## RESULTS AND DISCUSSION

### Knowledge and Awareness of Food Hygiene Practice Among FoodHandlers

The study indicated that Most of the handlers had fair knowledge of food hygiene as indicated by the mean values in (Table 1) the knowledge about washing hands, when need be, knowledge about washing before and after food preparation, knowledge about vegetables and fruits washing before consumption, and issues of foodborne disease where all fair as far as the study is concern. While only knowledge about Food should always be covered and protected is good base on the mean value (3.81) Table 1. This point out that most of the food handles have knowledge and awareness regarding food hygiene, because of the fact that hand washing is a simple, convenient, and cost-effective means to limit the transmission of communicable diseases. The finding of this study corresponding with the finds of (Marutha and Chelule, 2020) and Freeman *et al.* (2014), on hygiene and health systematic review on hand washing practices. Which indicate that proper hand washing reduces diarrhea occurrences by approximately 30%–40%. Also, the study indicates how the food handlers wash their hands, when need be (1.77), which indicates that majority of the food handlers have reasonable knowledge on food hygiene and practices.

This finding is also in line with a study carried out by Osagbemi *et al.* (2010) about knowledge, attitude and practice concerning food poisoning in Okene metropolis of Kogi State where they discovered that the knowledge of food poisoning amongst indigenes was good due to high level of knowledge on food hygiene.

**Table 1: Summary Statistics on Knowledge and Awareness of Food Hygiene**

Knowledge About food Hygiene	N	Mean	Std. Deviation
How do you wash your hands when need be	79	1.7722	0.79983
Knowledge about washing before and after food preparation	79	1.2532	0.65256
Your knowledge about vegetables and fruits washing before consumption	79	1.7595	0.58211
Have you ever heard of food borne disease	79	1.0633	0.24504
Food should always be covered and protected	79	3.8101	0.42595

### Food Hygiene Practices among Food Handlers

The study indicated that the mean average for the practice of food hygiene was good in term of Conditions of washing hands (3.0), while the practice of food hygiene in terms of Major sources of water (1.78), changing of water used in washing utensils (2.76), Measures to prevent pests (1.23) and the method of disposing waste are fair base on the mean value in (Table 2). The table also indicated that none of the food handlers have poor practice of food hygiene. This indicated that most of the food handlers in the study area promote good

hygiene practices as they frequently change the water used for washing utensils.

The findings of the study further revealed that repeatedly using the same water for washing cooking utensils promotes unhygienic practice. This correlates well with research findings on street food vending and hygiene practices and implications for consumers by Kok and Balkaran (2014), where they noted that cooking equipment was washed in containers and big pots that were later used for cooking food, as well as water used for washing dishes in the containers that were used repeatedly to promote unhygienic practice.

**Table 2: Summary Statistics on Food Hygiene Practice**

Practice of Food Hygiene	N	Mean	Std. Deviation
Major source of water	79	1.7848	.69191
How often do you change water you are using to wash yourutensils	79	2.7595	1.21122
Measures to prevents pests	79	1.3165	.46806
Conditions of washing hands	79	3.0000	1.56893
Method of disposing wastes	79	1.5823	1.11640

The findings of this study also revealed that handwashing practice was generally good in all the restaurants, as the food handlers mostly engaged in hand cleaning after utilizing toilets and before they started cooking. This conflicting with the results of Lauren *et al.* (2008), who investigated food safety at fast food establishments in some American cities and found that staff members' neglect to wash their hands was a frequent infraction of the food safety regulation. They added that even though all fast-food establishments have signs up instructing staff to wash their hands both before and after using toilets or restrooms, this rule was never followed. Other times, they merely wipe their hands on their apron or other apparel.

### CONCLUSION

In conclusion, the results of this investigation indicate fair perceptions, knowledge, and practices of hygiene among food handlers. The study indicated that food hygiene practices was good in terms of conditions of washing hands, while the practice of food hygiene in terms of major sources of water, changing of water used in washing utensils, and the method of disposing waste were fair. Furthermore, the study shows that most of the handlers had fair knowledge of food hygiene in terms of knowledge about washing hands, when need be, knowledge about washing before and after food preparation, knowledge about vegetables and fruits washing before consumption, and issues of foodborne disease, all of which are fair as far as the study is concerned. While only knowledge about food should always be covered and protected is good based on the study.

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