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Research Paper

Sanitary compliance of public eating houses in Ibadan North Local Government Area of Oyo State, Nigeria.

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ABSTRACT
Background and Objective *The rate at which peoples eat outside home in Nigeria has contributed to increasing number of food establishments where prepared food is sold and consumed. Poor sanitary and hygienic conditions in such establishments exposed consumers to food-borne diseases. Although, numerous food establishments exist in Ibadan, an appraisal of their sanitary status has not yet been well documented. This study assessed the sanitary status of food establishments and the determinants of their patronage in selected communities in Ibadan North Local Government Area (LGA), Oyo State, Nigeria.*
Materials and Methods: *The study design was cross-sectional. A four-stage random sampling technique was used to select 49 out of 98 food establishments in the LGA. Data were collected using key informant interviews and checklist among the food vendors. A semi-structured questionnaire was used to obtain data from 150 consumers selected by systematic random sampling technique. Thematic approach was used for analyzing the qualitative data. Descriptive statistics was carried out on the quantitative data and presented as frequencies and percentages.*
Results: *Findings revealed from the research work showed that majority (93.33%) of the respondents have knowledge of food borne diseases. Most (89.33%) of the respondents have concerns about poor hygiene in eating places. 91.33% of the respondents perceived poor quality of services provided by food handlers. Most (86.67%) of the respondents know that actions of public food handlers such as spitting, sneezing, pricking nose, coughing could contaminate food. All of the respondents have concerns that water facility used in the public eating place has something to do with food borne diseases. Thus, There is a relationship between poor sanitation facilities and environmental conditions and food borne disease in public eating places.*
Conclusion: *Good sanitation facilities and environmental condition in public eating place is very crucial in eradicating food borne diseases. Therefore, Ibadan North Local Government of Oyo State and association of food handlers in Oyo State must ensure good sanitation facilities and environmental conditions in public eating places.*
Keywords: *Sanitary compliance, public eating houses, Ibadan North Local Government of Oyo State, Nigeria*

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I. INTRODUCTION

In many developing countries including Nigeria public eating vendors have formed an integral part of the food supply chain, particularly following the advent of urbanization[1] The public eating establishment has contributed immensely to human and economic development as studies conducted in some of the African countries like Nigeria, Morocco, and Kenya have shown that major public eating vendors usually earn above the countries' minimum wage [2, 3]. However, It was revealed that street-vended food presents major public health challenges because most vendors cook with very basic cooking facilities and are habitually situated next to open gutters[4]. Street food vending is mostly of an informal nature and is often not regulated by any relevant authority[5]. It remains alarming that over 200,000 Nigerians die from food poisoning every year as large quantity of food produced and distributed in the country get to the consumers in unpleasant conditions ensuing from poor handling, inadequate storage practices, inefficient processing, high ambient tropical temperature and humidity conditions that

promotes rapid bacterial decomposition, fungal contamination, and insect infestation[6]. Consequently, nagging public health challenge was attributed to the lack of proper monitoring, supervision and enforcement of food hygiene regulations by food safety officers and these are likely not to execute food safety procedures during the handling and preparation of food and this could lead to the contamination of food[7].

This study therefore aims to assess the level of sanitary compliance of public esting house to food safety regulations. The Food Safety Regulations used for this study were adapted from the 2013 Oyo State of Nigeria Gazette, containing the State's regulations/guidelines for food handlers.

As in other developing countries, the public eating establishment in Nigeria is confronted with challenges. There is inadequate supervision and proper monitoring by food safety officers and the enforcement of food hygiene regulation is weak[7]. The consumption of foods in public eating houses among young, black African males was found to be very common, due to its convenience, availability and affordability. Even though it has been found that consumers lack confidence in the safety of these foods, their preference for these foods is often not hampered[8].

Lack of training in food safety and good hygiene practices is also rife among food handlers. Hence public eating houses are at risk of contamination, often at all stages of handling. Public eating foods are sometimes stored at improper temperatures and sold from vending sites which include kiosks, make-shift accommodation, and push carts as well as other temporary structures[8]. Ibadan is undergoing rapid urbanisation and food disease propagation due to enteric virus and bacteria and there was little researched information regarding public eating houses' food safety knowledge and the sanitary conditions of their eating house sites. The aim of this study is to evaluate the sanitary compliance of public eating houses in Ibadan North Local Government Area of Oyo State, Nigeria.

Public eating house is a place where foods are sold and eat at a later time without further processing or preparation. Apart from serving as an essential supplier of cheap, ready-to-eat food for the community, workers and travelers, it also serves as a source of employment and income for some women[9]. In some countries such as Bangladesh, the majority of street food vendors are men, while women - primarily the vendors‟ wives and female children - are involved in food preparation [10, 11].

The possession of adequate food safety knowledge and skills, adequate infrastructure and equipment is essential to effectively implement food safety measures at street food vending sites[12, 13].The environment in which public eating foods are prepared and sold are critical to the health and nutrition of the consumers, as well as to the growth of street food vending as an important economic activity.

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II. MATERIALS AND METHODS

2.1 STUDY AREA

The study utilized a descriptive cross-sectional design involving the use of questionnaires to obtain information on the sanitary compliance of public eating houses in Ibadan North Local Government Area of Oyo State, Nigeria.

2.2 DESCRIPTION OF SAMPLING LOCATIONS

Ibadan is the capital city of Oyo State, Nigeria. It was founded in the early 19th century by fleeing refugees from the old Oyo Empire, following Fulani invasion of Yoruba lan1[1]. Ibadan is designated as largest city in the West Africa and the most populous in Black Africa. It is mainly inhabited by the *Oyo* –a *Yoruba* sub-group with an estimated population of 1,829,187, the study area, is one of the five (5) that were carved out of the former Ibadan Municipal Government (IMG) in 1991 by the then Federal Military Government. Its headquarters stood at Agodi in Ibadan. The postal code of the area is 200 and has an area of 27 km² and a population of 856,988 according to the Oyo State Government in 2017. It also has bustling academic and economy activities with the presence of the First Premier University in Nigeria, the University of Ibadan, founded in 1948, and The Polytechnic, Ibadan in 1970 creates an aura of lively place to live in.

The independent variables included characteristics of food establishments such as type of structure; location and type of food service provided; and socio-demographic characteristics of the respondents such as their age, sex, marital status, family living status, highest educational back ground, religion, ethnic back ground, distance of place of work and house from facility and estimated monthly income.

The dependent variables of interest in this study were grouped under food establishments (the environmental sanitation of the premises, available sanitary facilities and the food handlers hygiene practices including personal hygiene practices and consumers (knowledge of food borne diseases, their concerns about food hygiene in eating places, experiences relating to food/water-borne diseases, consumers perception of quality of services provided at food establishments).

Table 3.1: Breakdown of Local Restaurants in Four Wards in Ibadan North LGA

Types of Facility	**Wards**					
	N1	N3	N5	N7	Total	%
Wooden	12	6	8	14	40	40.8
Shed	6	8	6	4	24	24.5
B;ock	4	4	8	2	18	18.4
Stall	6	4	2	4	16	16.3
Total	28	22	24	24	**98**	100
%	28.6	22.4	24.5	24.5		

The instruments for this study were developed using information available from extensive review of literature and instruments used in previous studies on street foods. The initial proposal for this dissertation along with the instruments was subjected to a series of review by lecturers and students of the Department of Environmental Health Science. The instruments include the following.

1. **Observation Guide:** An observation checklist (appendix II) was developed to assess the sanitary provisions and hygiene-related practices of food establishments and handlers respectively. Areas assessed were location, type of structure, environmental sanitation behaviours, available storage facilities, sanitary facilities/conditions and employees‟ hygiene practices.

2. **Questionnaire:** A semi-structured questionnaire (Appendix I) was designed to obtain information on consumers‟ knowledge and experience of food-borne diseases as well as their perceptions of hygiene-related behaviour of food handlers and sanitary conditions of food establishments. The questionnaire was divided into 5 sections. Section A which aimed at obtaining information on socio-demographic characteristics of clients contained nineteen questions. Section B consisted of ten questions which measured consumers‟ knowledge of food-borne diseases. Information on experiences relating to food- and water-borne diseases was documented with the aid five questions in section C. Sections D and E described the consumers‟ concerns about food hygiene in eating places and their perception of quality of services provided. They were consisted three and five

questions respectively. The last part which is section F focused on factors influencing consumers‟ choice of restaurants.

3. **Key Informant Interview (KII) Guide:** Two types of Key Informant Interview (III) guide were developed to obtain information on guidelines for the establishment of food premises, their enforcement and factors influencing compliance from the view of decision-makers in the LGA and the executive operators of food establishments in the selected wards. Key informants were purposively selected based on their position and experience in operation of public food establishments in the LGA.

2.3 DATA COLLECTION

Qualitative Data Collection Procedure: Before the conduct of the FGDs, visits were made to the executives of the state Association of Food Handlers to explain the purpose of the qualitative phase of the study and modalities for carrying out the FGDs. It was through these visits that it was suggested to carry out the discussions during zonal association meetings that took place once in a month in each of the four wards for cooperation and active participation of food operators in the study area. Four FGDs were conducted, one in each of the four wards that constituted the study area. The discussions were held during the zonal meetings. The researcher and her team got to the venues of the meetings (which usually held at the shop of the president of the zonal association) early. The first ten members were selected for the discussions which were conducted simultaneously as the association meeting proceeded. This approach was used due to the difficult nature of assembling food operators together at any other time.

Quantitative Data Collection Procedure: During this period, each of the selected food establishments was visited daily by two research assistants. Research assistants set out early in the morning and approached the owners/operators of the outlets to explain purpose and seek consent for the study. In situations where neither was around, repeat visits were made as no other employee was ready to give permission due to their perception that research assistants were from the health authority. During data collection, research assistants sat down in the eating area and sought consumers‟ permission to be interviewed after their meals. The first six consumers who gave their consents were interviewed in each outlet. During the period of waiting, research assistants surveyed establishments to observe activities on-going within and outside, the sanitary facilities available and hygiene behaviour of food handlers and; jointly filled the observation checklist for each facility.

2.4 DATA MANAGEMENT AND STATISTICAL ANALYSIS

A coding guide was developed to facilitate coding and data entry into the computer. The investigator checked all the administered questionnaire copies one by one and edited them when necessary. Each questionnaire copy was coded and entered into the computer using SPSS software version 15. The data entered into the computer were subjected to descriptive (i.e mean, median and mode) and inferential (i.e Chi-square) statistical treatment. Finally, information obtained were summarized and presented in tables and charts.

Qualitative information items from III interviews with policy makers and programme managers at the state and LGA levels and those from FGDs with operators of food establishments were transcribed verbatim, translated into English and manually analyzed using the thematic-content analysis approach that involved grouping together similar themes in each transcript and identifying emerging trends and differences found across the transcripts. Qualitative data were presented alongside quantitative interpretations using descriptive and, where possible, verbatim quotes and case illustrations.

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III. RESULTS

Data collected on the sanitary compliance of public eating houses in Ibadan North Local Government Area of Oyo State, Nigeria**.** The target population comprised operators, handlers and consumers of food establishments in selected communities in Ibadan North LGA.

3.1 PRESENTATION

Table 3.1 Socioeconomic profile of the food handlers in Ibadan North Local Government, Oyo State, Nigeria

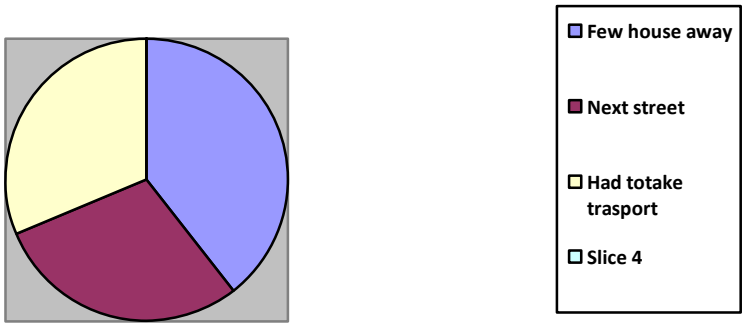
Demographic characteristics	Frequency	Percentage (%)
Gender		
Male	34	22.67
Female	116	77.33
Total	150	100
Age (Years)		
≤20	23	15.33

21-30	56	37.33
31-40	22	14.67
>40	49	32.67
Total	150	100
Marital Status		
Single	34	26.67
Married	89	59.33
Divorced	27	18
Total	150	100
Occupation		
Student	12	8
Civil servant	6	4
Artisan / Apprentice	50	33.33
Trading	76	50.67
Unemployed	4	2.67
Others	2	1.33
Total	150	100
Educational attainment		
Never being to school	78	52
Primary	45	30
Secondary (incomplete)	11	7.33
Secondary (completed)	3	2
Tertiary	12	8
Others	1	0.67
Total	150	100
Religion		
Christianity	56	37.33
Islam	76	50.67
Traditional religion	10	6.67
Others	8	5.33
Total	150	100
Ethnic Background		
Yoruba	123	82
Ibo	12	8
Hausa	10	6.67
Others	5	3.33
Total	150	100

The highest respondents goes to the female (77.33%) while the remaining goes the male (22.677%). 21-30 category of age had the highest percentage (37.33%), followed by >40 category of age (32.67%), followed by ≤20 category of age (15.33%) and the remaining goes to the 31-40 category of age that had the highest percentage (14.67%), The highest respondents goes to the married category (59.33%) while the remaining goes the male (22.677%), followed by single category (26.67%) and the remaining goes to the divorced category of age that had (18%). The highest respondents goes to the trading category (50.67%), followed by Artisan / Apprentice category (33.33%), followed by unemployment category (2.67%) and the remaining goes to the other category (1.33%), The highest respondents goes to the never being to school category (52%), followed by primary school leaving category (30%), followed by tertiary certificates category (8%), followed by secondary (incomplete) category (7.33%), followed by secondary (complete category (2%) and the remaining goes to the other category (0.67%), The highest respondents goes to the islam category (50.67%), followed by christianity category (37..33%), followed by traditional category (6.67%) and the remaining goes to the other category (5.33%),. The highest respondents goes to the yoruba category (82%), followed by Ibo category (8%), followed by Hausa category (6.67%) and the remaining goes to the other category (3.33%),

Table 3.1.1 How far is your house from the food establishment

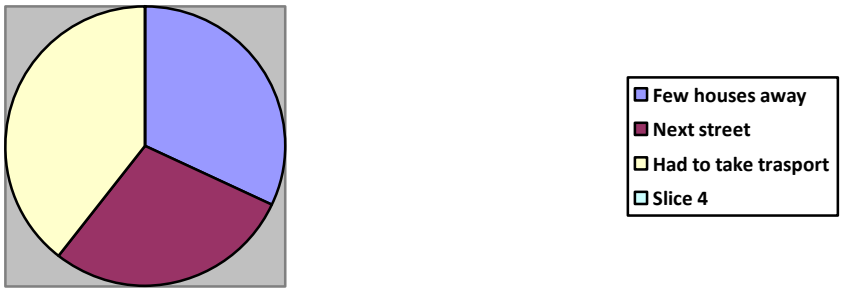
How far is your house from the food establishment	**Frequency**	**Percentage (%)**
Few houses away	59	39.33
Next Street	44	29.34
Had to take transports	47	31.33
Total	150	100



Respondents that lives few houses to the food establishment areas have the higherst percentage (39.33%), followed by those that had to take transport to the food establishemnt area of 31.34%.. The least among the respondents lives in the next street to the food establishemnt areas (29.33%).

Table 3.1.2 How far is your place of work from the food establishment area

E	Frequency	Percentage (%)
Few houses away	48	32
Next Street	43	28.66
Had to take transports	59	39.34
Total	300	100



Respondents that had to take transport from works place to the food establishment areas have the higherst percentage (39.34%), followed by those that their place of work to the food estblishment area are few houses away of 32%.. The least among the respondents lives in the next street to the food establishment areas (28.66%).

Table 3.1.3 Estimate total income per month

Estimate total income per month	Frequency	Percentage (%)
< 100,000	64	42.67
Between 200,000 to 400,000	58	38.66
Above 400,000	28	18.67
Total	150	100

Food handlers that have total income for a month that earned less than 100,000 have the higherst percentage (42.67%), followed by drivers that have total income for a month that earned between 200,000 to 400,000 have 38.66%.. The least among the drivers that have total income for a month that earned above 400,000 are 18.67%.

Table 3.2: KNOWLEDGE OF FOOD BORNE DISEASES

S/N	Questions	YES	NO	Total
1	Do you believe that people can contract diseases from food	13 (86.67%)	2 (13.33%)	15
2	Everybody that used eat outside is susceptible to food borne diseases?	14 (93.33%)	1 (6.67%)	15
3	Food borne diseases can be contacted in public eatery	12 (80%)	3 (20%)	15
4	Do you know any way(s) by which infections can be contracted through food?	13 (86.67%)	2 (13.33%)	15
5	Sitting on infected water closet can cause toilet diseases	14 (93.33%)	1 (6.67%)	15
6	Do you know any ways(s) by which infections can be contracted through poor food eating?	14 (93.33%)	1 (6.67%)	15
7	Food borne diseases are very common in public eatery	15 (100%)	0 (0%)	15
8	Do you think infections from food and poor eatery conditions are preventable?	15 (100%)	0 (0%)	15
9	Infections can be contacted through poor eatery condition only	15 (100%)	0 (0%)	15
10	Infectious diseases can be contacted from both food and poor eatery sanitation conditions	15 (100%)	0 (0%)	15
	Total	140 (93.33%)	10 (6.67%)	150

Table 3.3: EXPERIENCES RELATING TO FOOD AND POOR EATERY CONDITIONS DISEASES

S/N	Questions	YES	NO	Total
1	Have you ever had any food borne diseases	13 (86.67%)	2 (13.33%)	15
2	It take one to two years before food borne disease manifested in the body after contacted	13 (86.67%)	2 (13.33%)	15
3	Food borne diseases affects only the food handlers not the eaters	12 (80%)	3 (6.67%)	15
4	Do you think food borne diseases are caused from the eating in public eatery	14 (93.33%)	1 (6.67%)	15
5	Do you think food borne diseases are caused from the eating in public eatery	14 (93.33%)	1 (6.67%)	15
6	Food borne diseases affects only the handlers not the eaters	14 (93.33%)	1 (6.67%)	15
7	Food borne diseases affects only the both handlers not the eaters only	15	0	15
8	Food borne diseases affects everybody that eat in public eatery	15 (100%)	0 (0%)	15
9	Food borne diseases affect only the food sellers	15 (100%)	0 (0%)	15
10	Government bad behavior towards provision of good canteen in public areas cause food borne disease	15 (100%)	0 (0%)	15
	Total	140 (93.33%)	10 (6.67%)	150

Table 3.4: CONCERNS ABOUT POOR HYGIENE IN EATING PLACES

S/N	Questions	YES	NO	Total
1	Do you have concerns about poor hygiene in eating places	14 (93.33%)	1 (6.67%)	15
2	Appearance of the food establishment in the public place is very bad	13 (86.67%)	2 (13.33%)	15
3	Public food handlers wear uniform, apron, cap or head ties	14 (93.33%)	1 (6.67%)	15
4	Neatness of public food handlers has something to do with food borne diseases	13 (86.67%)	2 (13.33%)	15
5	Actions of public food handlers such as spitting, sneezing, pricking nose, coughing can cause food borne diseases	13 (86.67%)	2 (13.33%)	15
6	Make ups on public food handlers such as long finger nails, paint lips/nails can cause food borne disease	14 (93.33%)	1 (6.67%)	15
7	Location of public eating facilities from different houses has something to do with food borne diseases	13 (86.67%)	2 (13.33%)	15
8	Location of water facility from the public eating place has something to do with food borne diseases	15 (100%)	0 (0%)	15
9	Bad usage of public eating facilities can cause food borne diseases	13 (86.67%)	2 (13.33%)	15
10	Poor management of the public eating facilities by the association of food handlers can cause food borne diseases	13 (86.67%)	2 (13.33%)	15
	Total	134 (89.33%)	16 (10.67%)	150

Table 3.5: PERCEPTION OF QUALITY OF SERVICES PROVIDED

S/N	Questions	YES	NO	Total
1	Are there certain qualities expected of services provided in this public eatery	14 (93.33%)	1 (6.67%)	15
2	Access water is very important in maintain public food facilities	14 (93.33%)	1 (6.67%)	15
3	Environmental sanitation around the public food facilities and handlers are very essential	13 (86.67%)	2 (13.33%)	15
4	Nature and experience of the service provider is very crucial in handling food selling	14 (93.33%)	1 (6.67%)	15
5	Sanitary facilities and condition of the service provider environment is importance in food handling management	14 (93.33%)	1 (6.67%)	15
6	Personnel hygiene practices of the service provider environment is importance in food handling management	14 (93.33%)	1 (6.67%)	15
7	Food handling quality in the public place is also importance in handling food facilities	13 (86.67%)	2 (13.33%)	15
8	Quality of services rendered (Personnel attitude) by service provider environment is importance in food handling management	15 (100%)	0 (0%)	15
9	Food handling quality in the public place is the responsibility of the government	13 (86.67%)	2 (13.33%)	15
10	Cleaning of the public eatery place after usage is every users responsibilities	13 (86.67%)	2 (13.33%)	15
	Total	137 (91.33%)	13 (8.67%)	150

Table 3.6: FACTORS INFLUENCING USER'S CHOICE OF PUBLIC EATERY

S/N	Questions	YES	NO	Total
1	Are you aware that most of the public places has eatery	14 (93.33%)	1 (6.67%)	15
2	Location is one of the factors influence your choice of using the public eatery	14 (93.33%)	1 (6.67%)	15
3	Environmental sanitation (premises, drainage, waste disposal, etc).is one of the factors influence your choice of using the public eatery	14 (93.33%)	1 (6.67%)	15
4	Food hygiene practices).is one of the factors influence your choice of using the public eating place	14 (93.33%)	1 (6.67%)	15
5	Personnel hygiene (including dressing, health status, etc) is one of the factors influence your choice of using the public eating place	14 (93.33%)	1 (6.67%)	15
6	Food handling quality is one of the factors influence your choice of using the public eating place	14 (93.33%)	1 (6.67%)	15
7	Cost of public eating place usage is one of the factors influence your choice of using the public eatery	13 (86.67%)	2 (13.33%)	15
8	Do you use other eatery apart from public eatery place	15 (100%)	0 (0%)	15
9	Is it possible for the government to improve the present hygiene and serving practices of this public eating place	15 (100%)	0 (0%)	15
10	Is it possible for the association of food handlers to improve the present hygiene and serving practices of this public eating place	15 (100%)	0 (0%)	15
	Total	142 (94.67%)	8 (5.33%	150

Table 3.7: Observation checklist for inspection of motor park toilet facilities

Questions	Yes	No	Total	If Yes is more than No, Give Reason or stages
Is motor public eating place approved (with Government)	40	9	49	Mandatory
Is the motor public eating place registered with Oyo State Association of Food Handlers	45	4	49	Non mandatory
Is the human feaces visible within the public eating place	1	48	49	Good
Description of public eating place (Structure) is satisfactory	32	17	49	Good
Sanitary facilities and condition of public eating place (Structure) is satisfactory	39	10	49	

Table 3.8: Key informants guide

Questions	Yes	No	Total	If Yes is more than No, Give Reason or stages
Is your public eating place registered / licensed with government	42	7	49	Mandatory
Do you public eating place belong to any Association Food Handlers	39	10	49	Non mandatory
Are you aware of Government Bye Law on public eating place regulation	44	5	49	Very poor
Do the LGA environmental health officers come to your public eating place for regular inspections	32	17	49	Good

Do you have knowledge of food borne diseases	39	10	49	Good
What are the major challenges facing your work as operator of public eating facilities or toilet handler				Lack of water Poor usage of the public eating place by the users Government unchallant attitude towards the provision of public eating place in public areas
Suggestions for improving public eating premise and facilities				Provision of water by the government and union (OYSAFH)) Building of more public eating place to all in all public places in Ibadan North Local Government

IV. CONCLUSION AND RECOMMENDATIONS

From the research work, the socioeconomic profile of the food handlers in Ibadan North Local Government, Oyo State, Nigeria indicates that the highest respondents goes to the female (77.33%), category of age had the highest percentage (37.33%), The highest respondents goes to the married category (59.33%), the highest respondents goes to the trading category (50.67%), the highest respondents goes to the never being to school category (52%) and the highest respondents goes to the islam category (50.67%), the highest respondents goes to the yoruba category (82%),

Also, it was revealed show how far is your house to the public eating place and this indicate that the respondents that lives few houses to the food establishment areas have the higherst percentage (39.33%), how far is your place of work to the public eating place and this indicate that the respondents that had to take transport from works place to the food establishment areas have the higherst percentage (39.34%) and the total income of the food handlers per month and this shows that the food handlers that have total income for a month that earned less than 100,000 have the higherst percentage (42.67%).

Moreover, the research work also shows that 93.33% of the respondents have knowledge of food borne diseases.and experiences relating to public eating and poor environmental sanitary conditions diseases poor faciloities and equipments. 89.33% of the respondents aware about the concerns about poor environmental sanitation in food hygiene. 91.33% of the respondents discussed about the perception of quality of services provided and 94.67% of the respondents discussed about the factors influencing user's choice of public eatery.

Thus, There is relationship between poor sanitation facilities and environmental conditions and food borne disease in public eating places

Thderefore, there is relationship between poor sanitation facilities and environmental conditions and food borne disease in public eating places

This study revealed deficiencies in the sanitary provisions in food establishments but a fair hygiene-related practices of food handlers and a high knowledge about food and water-related diseases among food consumers interviewed. Results of the study highlight several factors influencing availability of sanitary facilities in the food establishments surveyed including lack of resources, profit making motives and poor access to facilities for waste removal. Similarly, the presence of children and the practice of rearing domestic animals around food establishments have implications in comprising the wholesomeness and safety food meant for sales. Regulatory agencies need to enforce elementary but basic rules regarding the establishment of public eating places and their working conditions through continued training of food operators and handlers and continued sanitary inspections in order to safeguard the safety of food products and health of the public at large.

5.4 Recommendations

The recommendations made based on the findings of this study are as follows:

1. Government should make the provision of adequate drainage system and waste disposal facilities in disadvantaged areas of Ibadan North Local Government and the entire Oyo State a priority. This approach will increase the access of food establishments in these areas to these facilities with the potential of reducing the risk of contaminating food or the potable water supply.
2. Food handlers should be encouraged to provide nettings on windows and doors to prevent the entries of flies/insects into food eating areas.
3. There should be well organized and regular training programmes for all food handlers including the old and new members. The training programmes should focus on personal hygiene and environmental sanitation practices indentified in the study which have potential for causing food- and water-borne diseases. Periodic assessments of the effectiveness of training and instruction programmes should be made, as well as routine supervision and checks to ensure that procedures are being carried out effectively.
4. There should be regular inspection and supervision of the activities of food handlers by environmental health authorities to ensure compliance with laid down standards guiding establishments of public eating places.

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