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Food Safety Practices and Quality Control in Departmental Stores in Awka Urban

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Abstract

The study examined food safety practice and quality control of departmental stores in Awka urban. The population of the study comprised one hundred and fifty (150) workers in the departmental stores (farmer's market unit) in Awka urban. Questionnaire was used for data collection. Data was analysed using percentage and mean. The major findings show that the workers are aware of food safety practices that should be observed in a departmental store (farmers market) as the preserve their perishable foods in cold rooms, chillers and refrigerators. They wash their hands after touching foods and using the toilets. They observed some personal hygiene like the using of apron, hair cover or caps and hand gloves. Their major challenge is the issues of poor power supply and water

Background of Study

Food-borne diseases are a major public health concern worldwide. World Health Organisation defines food-borne disease (FBD) as disease of infectious toxic nature caused by the consumption of food or water (Kadanya, Smith & Thapaliya, 2014). Annually, an estimation of 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths are caused by food-borne diseases in the United States (Seallen, Hoexstra & Angulo, 2011). Among these cases, 31 known pathogens cause 9.4 million illnesses,

56,000 hospitalization and 1300 deaths Pathogens that were implicated in most FBD were norovirus (5.5 million, 58%), nontyphoidal salmonella spp. (1.0 million, 51%), chostroelium perfringens (1.0 million, 10%, and campylobacter spp (0.8 million, 9%) (seallen et al, 2011). In developing country like Nigeria a large amount of ready-to-eat food is sold on the stores due to its convenience rather than its safety, quality and hygiene aspects. The World Health Organization in 2006 identified several factors associated with food diseases such as poor food safety knowledge, poor personal hygiene, cross-contamination as well as temperature abuse during storage and preparation of food by food handlers (Osaili,Abu jamous,Obeidat,Bawadi,Tayyem&Subih 2013). Food safety is a scientific discipline describing handling, preparation and storage of food in ways that prevent food borne illness. Thus includes routines that should be followed to avoid potential health hazard (Malik, 2012). Food safety is the utilization of various resources and strategies to ensure that all types of food are properly stored, prepared and preserved, so as to ensure safety for human consumption. Food can be a good medium for the growth of organisms that transmit disease from person to person as well as serve as a growth medium for bacteria that can cause food poisoning. In developed countries there are intricate standards for food preparation, where as in lesser developed countries the main issue is simply the availability of adequate safe water than food. In theory, food poisoning is 100% preventable (Wisgreek, 2013).

According to Becker (2009), the world food market has suffered from severe food causes. Consumers are now more concerned about food safety and quality control in food supply chain, desiring more transparency in production and distribution channel. There is an increasing consumers concern for food safety and quality control and at the same time, there has been a significant market increment in different foods products including organic foods. The goal of food consumption is not only body nourishment but to promote good health through lifetime. If the food available is not safe or its consumption does not enhance health, it does not contribute to food security. In this context Ogundugbe (2011) concludes that by saying that food safety does not jeopardize food security rather both act together to enhance human health. Food quality and safety are the totality of characteristics of the food products that bear on their ability to satisfy all legal, customer and consumer requirements. It is noteworthy that food safety is not synonymous with food quality, although there might be an overlap. Food quality can be defined as a total of traits and criteria which characterize food as regards its nutritional value, sensory value, convenience as well as safety for consumer's health.

According to FAO (2010), the fields of food safety and quality are complicated and multidimensional. The food safety and quality have economic, social cultural, environmental and political consequences and they are related not only to the first step of agricultural production but also to production site, animal health, storage conditions, marketing, hygienic conditions and regulations, consumers' awareness, food habits and new technologies such as genetically modified products.

In Nigeria food safety is recognized as an important factor in promoting high level of health for all. This made the government of Nigeria to lunch its national policy of hygiene and safety in 2000, as an integral part of the Nigerian National Health Policy. The overall goal of this policy is the attainment of high level of food hygiene and safety practices which will promote health, control food borne diseases, minimize and eliminate the risk of disease related to poor hygiene. Implementation of the policy is aimed at addressing the unsatisfactory level of food hygiene and safety practices which to a large extent is responsible for the prevalence of food borne diseases in Nigeria. The knowledge of food handlers about the food borne infections and their safety practices is an important issue in the outbreak of food borne infection (Fowora, 2012). It has been revealed that in Nigeria 27,7% of food handlers do not wash their hands before preparing food and 28.1% use only water to wash their hands after using the toilet it was also revealed that 90% of food handler have had typhoid fever out of which only 15.6% know how it can be contacted furthermore, large quantity of food produced and

distributed gets to the consumers in an unwholesome condition due to poor handling methods, inefficient processing equipments and storage practices (Oladoyinso, Akinbuk and Awosika, 2015).

In Anambra State, there is a growing trend in shopping at farmer's market. Farmer's market is a market where fresh foods such as fresh fruits, vegetables, meats, eggs, milk freshly processed fruit juices and babacus prepared and served and other farm produce are sold at a reasonable price. Most of the food items sold at the farmers' market are perishable foods and needs a high level of hygiene and food safety practices to avoid food-borne illness. Perishable foods are those foods that are shot lined or foods that do not keep long. According to World Health Organization there are some key principles that should be applied in food hygiene and safety. This includes:

1. Preventing contamination of food with pathogens spreading from people, pets and pests.
2. Separate raw and cooked foods to prevent contamination of cooked foods.
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens.
4. Store food at the proper temperature.
5. Do use safe water and safe raw materials (WHO, 2010).

Anambra state is one of the states in Nigeria were some these agencies and government organizations such as Ministry of Health, National Agency for Food and Drug Administration and Control (NAFDAC), Standard Organization of Nigeria (SON) National Codex Committee and Federal Ministry of Agriculture are responsible for regulating and monitoring food safety standards and practices (Okojie & Ighoroge, 2005). Awka is the capital of Anambra State located at South-east Nigeria, like any other growing city in Nigeria, in the last few years shopping in farmers' market has earned a significant place. However, no awareness programs on food safety and quality control practices are being initiated that could combat epidemics of food-borne diseases – as food safety is a principal consideration in administering the food chain and an essential aspect in protecting the peoples, health rather some of this perishable food are stored in an unwholesome condition, especially in freezers, that are not functioning well. Equally, issues of epileptic power supply are not helping matter. There are many cases of outbreak of food-borne disease such as rota virus which remains a common seen among children in hospitals in Awka immediately after the untied and there is no proper documentation of these cases. However, the study aimed at examining the food safety and quality control practices in departmental stores in Awka urban which in most cases remains a major supplier of perishable foods to the populaces.

Purpose of the Study

The main purpose of the study was to examine food safety and quality control practices in departmental stores in Awka urban. Specifically, the study:

1. identified the food safety practices and quality control standards in departmental stores in Awka urban.
2. to identify quality control problems encountered by the departmental stores.
3. to discover the strategies needed to improve standards and enhance safety practices in departmental stores.

Methodology

Area and Design of the Study

This study was carried out in Awka urban which is the capital of Anambra State. Awka urban is a city located about 400 miles east of Lagos in the centre of the densely populated Igbo heartland in

south-eastern Nigeria made up of both civil servants and traders. This study was carried out in departmental stores that sales farm produce. The study was a survey.

Population of the Study

The population of the study comprised of one hundred and fifty (150) workers in three departmental stores (farmers market unit) in Awka urban. The age bracket of the respondent ranged from 17-35years. Majority (57.14%) falling between the ages of 17-25years, while 26.52 percent between 26-30years, while 16.34 percent were between 31-35years. Majority 73.48 were females while 32.88 percent were males. Similarly, 58.36 percent had tertiary education while 27.68 percent had secondary education and 13.96 percent had primary education.

Sample and Sample Techniques

All the one hundred and fifty (150) workers in the departmental stores were used. This is because the population is of a manageable size.

Instrument for Data Collection

The instrument for data collection in the study was the questionnaire. The questionnaire was in two sections and was developed based on the specific purposes of the study and literature review. It was validated by two experts in Home Economics Department and one official of the Ministry of Health. The scoring of the items was based on a 4-point scale as follows: Strongly agreed (AS), Agreed (A), Disagreed (D), Strongly Disagreed (SD) with the value of 4, 3, 2, and 1 respectively.

Method of Data Collection and Analysis

Copies of the instrument were administered on the respondents by hand. The researcher with the assistance of three research assistants was there to explain the items in the questionnaire as requested by the respondent. The one hundred and fifty (150) questionnaire administered were filled and used for the research. Data were analyzed using percentage and mean which was done using SPSS version 20.0. Any item with mean value of 2.50 and above is accepted while any item with mean value less than 2.50 will be rejected.

Results

The following findings were made:

Demographic characteristics of respondents: The age bracket of the respondent ranged from 17-35years. Majority (57.14%) falling between the ages of 17-25years, while 26.52 percent between 26-30years, while 16.34 percent were between 31-35years. Majority 73.48 were females while 32.88 percent were males. Similarly, 58.36 percent had tertiary education while 27.68 percent had secondary education and 13.96 percent had primary education.

Table 1: Mean ratings of respondents on food safety and hygiene practices of workers in departmental stores in Awka urban

S/No	Food Safety Practices	Mean ($\bar{x}$)	Decision
1.	Foods are stored in cold room, chillers and refrigerators	3.00	Accepted
2.	Polythene bags (food wrapper) and food storage containers are ensured they are free from chemicals	2.53	Accepted
3.	Clean water is used for running activities in the store.	3.12	Accepted

4.	Organically grown meat are sold in the stores	2.10	Rejected
5.	Genetically modified products are sold	1.86	Rejected
6.	Counter tops are washed with hot soapy water after or before placing food items.	3.16	Accepted
7.	There is product inspection to prevent cross contamination during storage.	1.86	Rejected
8.	Expired products are disposed immediately.	2.34	Accepted
9.	Refuse are disposed daily.	3.07	Accepted
10.	Products that have stayed long on the counter are sold through auction.	2.75	Accepted
11.	Proper procedures are followed in storing and throwing food items.	1.97	Rejected
12.	Items are properly bottled or wrapped to ensure safety.	1.99	Rejected
13.	Expired dates are not altered.	1.72	Rejected
14.	There is constant power supply to maintain freshness of food items	2.13	Rejected
15.	Generators are always on running to maintain freshness of food items.	2.85	Accepted
16.	Rodent and insects are under control	2.97	Accepted
	Personal Hygiene Practices		
17	I wash my hands with warm water and soap at least for 20 second before and after handling food item.	2.81	Accepted
18.	I wash my hand after using the toilet	2.81	Accepted
19	I wash my hand after eating and smoking	2.68	Accepted
20.	I wash my hand after cleaning the counter tops	3.10	Accepted
21.	I clean my hand with disposable napkin or cloth napkin from hot cycle of a sterilizing kit	2.88	Accepted
22.	I use gloves, aprons and caps during food handling	2.73	Accepted
23	I change my gloves after some time when handling food.	3.12	Accepted
24.	Any worker with flu like diarrhea. Vomiting, cough, or open wound or cut does not work until he or she recovers.	2.96	Accepted

From Table 1, the findings revealed that nine items (9) out of the sixteen (16) items suggested as the food safety practices of departmental stores in Awka urban met the cutoff point of 2.50 and above while seven (7) items did not met the cut-off point of 2.50. The table further revealed that item number six (6) had the highest mean value of 3.16 while item number thirteen (13) had the lowest mean value of 1.72. on food safety practices. The table also revealed that all the eight (8) items suggested as personal hygiene practices of worker in departmental store in Awka urban met the cutoff

point of 2.50 and above with item number twenty-three (23) having the highest mean value of 3.12 while item number nineteen having the lowest mean value acceptance of 2.68.

Table 2: Mean rating of respondents on quality control measures adopted by departmental stores in Awka urban

S/No	Quality Control Measures	Mean ($\bar{x}$)	Decision
25.	Best in class equipments was installed for proper storage, preparation and processing of food.	3.20	Accepted
26.	Workers were trained and retrained on new skills and information on food safety and nutrition education	3.37	Accepted
27.	Regular cleaning and sanitizing of the environment was done	2.51	Accepted
28.	Constant clearing of refuse was done.	3.20	Accepted
29.	Immediate disposal of contaminated goods was done	3.21	Accepted
30.	Expired products were removed immediately	3.04	Accepted
31.	Shelf life of products was determined.	3.07	Accepted
32.	Propare labelling of product with date of production and expiration time were done.	3.10	Accepted
33.	Supply of substandard and unregistered products was avoided.	2.72	Accepted
34.	Constant power and water supply were available in the stores	3.27	Accepted
35.	Supervision and monitoring of store by relevant government agencies was done e.g. standard organization of Nigeria (SON) and state ministry of health (SMOH)	3.28	Accepted
36.	Evaluation exercise was done to maintain quality and standard	3.25	Accepted
37.	Medical examination conducted before been employed to work in the departmental stores.	2.65	Accepted

From Table 2, the findings revealed that all the thirteen (13) items suggested as quality control measures adopted by departmental stores in Awka urban meet the cut off point of 2.50 and above, item 26 which is training and re-training of worker had the highest mean value of 3.39 while item 27 which is regular cleaning and sanitizing of environment had the lowest mean acceptance of 2.51.

Discussion of Findings

Table1 shows that nine items out of sixteen items suggested as the food safety practices of departmental store in Awka urban met the cutoff point of 2.50 and above. The study revealed that perishable foods should be stored in cold room, chillers and refrigerators which met the cut off point of 3.00 acceptance. This indicates that the workers are aware that proper preservation and storage are important to avoid contamination of food. This finding is not in line with the study in Rawalpindi where half of the food handlers 47.7% do not have access to refrigeration facilities. Equally a similar

situation was reported in a study in Bamgladesh and Indonesia and developing countries like Pakistan where vendors have no refrigerating facilities due to lack of resources (Ahmed at al 2017).

Perishable foods should be stored in refrigerators with the recommended low temperatures, as poor storage may be a potent environment for the growth of toxin-producing bacteria which are associated with inadequate storage or refrigeration facilities beyond the safe period of time (Ahmed et al., 2017). The study also revealed that, there is no constant power supply in order to maintain freshness of food items. Those generators were always running in order to maintain freshness of food items with a cut off point of 2.13 and 2.85 respectively.

The issue of using generator to preserve food items may be expensive and will lead to compromise in food safety standard. They also accepted that tap water is used for running activities in the store with a cut off point 3.12 and that the water for running activities are treated did not met the a cutoff point of 2.10. This shows that selection of water depends on readily available source and not on the quality of water. Pathogens can be transferred from contaminated water to utensils and cause cross-contamination (Desousa, 2008).

The result also revealed that counter tops are washed with hot soapy water after and before placing the next item. Expired products are disposed immediately and refuse disposed daily with a cutoff point of 3.16, 2.74 and 3.07 acceptance respectively. Improper washing of utensils stands among the biggest issues. Washing utensils in cold water in a bucket and the use of that water to wash other equipments and utensils is not a safety standard. Water used for washing a particular item should not be reused for multiple times for such practice provides an excellent environment for cross-contamination (Asogwa, Okechukwu, Esther, Chinedu and Nzubechukwu 2015). The result revealed that expired products are disposed immediately but surprisingly it was observed that food in storage had no labels indicating the date of preparation and the expiration dates.

On personal hygiene practices of workers in the departmental stores in Awka revealed that that hand washing with warm water and soap for at least 20 seconds before and after handling food items and the use of aprons, hair caps or covers and the use of gloves were among the personal hygiene practices of the worker. Hand washing are considered as crucial vectors in cross contamination of food. Food handler requires good washing food, in particular before handling food, after touching any other contaminated material, eating, using the toilet and touching the raw food material. This is in consonant with the report of Ahmed et al (2017) which reported that not less than half of food handlers in their study area washed their hands before food preparation and after using the toilet. Concerning the wearing of protective clothing, it is not in line with the report of Ahmed (2017) as the respondents in their study area 98.2% do not wear gloves, similar to Ahmeds report is the study in Uganda were majority of the respondents did not wear gloves and 79.6% did not cover their head and 76.89% did not wear any apron. Protective clothing primarily protects food products from contamination and at the same time protect the workers against direct transmition of zoonoses including leptospirosis and brucellosis especially when handling raw foods like meat (Brown, Mckenzile, Pinnods & Megrowder 2011). The study also revealed that workers with flu like diarrhea, vomiting and cough even open wounds or cut during work does not work until the worker recovers.

The study also revealed source of the quality control measures adopted by the departmental stores in Awka to includes: installation of best in class equipment for proper storages preparation and processing of food, ensure food safety throughout shelf live, supply for proper hygiene, training and re-training of workers, constant clearing of refuse, inspections and monitoring by relevant government agencies, and medical examination of worker prior to employment. This is not in line with the study of Ahmed et al (2013) who reported that none of respondents in their study area had any sort of medical examination prior to coming into the business. The absence of proper food safety training and

lazy implementation existing protocols are the main cause for shortcoming in food safety and quality control measures. A study conducted in Srilanka agreed that food business operators are obliged to ensure food safety throughout the self-life, under reasonably foreseeable conditions of distribution, storage and use, inspections, audits and monitoring of food safety plans by competent authorities as part of self-checking systems of companies (Uythendalde, Boeck & Jucxens 2016). This is important since it cannot be claimed that lack of implementation of one or the other food safety practices is responsible for food contamination. There should be mutual concern by everybody involved to make sure that proper food safety practices and quality control measure are adopted in departmental stores in Awka urban.

Conclusion

The following conclusion was drawn based on the finding: That even through the worker are aware of the need for proper food safety and hygiene in the departmental stores in Awka urban, more awareness needs to be created and encourage workers to keep neat always, dispose waste as soon as possible and make sure they are medically fit and always. Rodents and insects should be kept in proper to avoid contamination of raw materials. Continuous on the job training of food safety, personal hygiene and quality control measures should be recommended by the management of these departmental stores in Awka urban to prevent outbreak and spread of food-borne diseases to customers.

Recommendations

1. Adequate government policies and legislation should be provided by the government.
2. Training and re-training should be given to worker in the departmental stores on food safety and hygiene practices.
3. Standard equipments should be provided for food storage, preparation and processing.

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