

Safety and Hygiene Practices of Abattoir Workers in Enugu State, Nigeria

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Abstract

The paper examined the safety and hygiene practices of abattoir workers in Enugu State, Nigeria. Three specific objectives and three hypotheses guided the study. Survey research design was adopted. Population for the study was 67 abattoir workers (butchers) in the area of study. The questionnaire was used for data collection. Mean and standard deviation were used for data analysis. The study determined personal hygiene practices necessary for abattoir workers; their waste management practices; and their level of adherence to meat safety and hygiene guidelines. Results showed that abattoirs lack the basic facilities and manpower including butchers and inspectors. It was recommended that government should employ health professionals (inspectors) to educate abattoir workers on important meat safety and hygiene practices for reduction of food borne diseases and increase in consumption of healthier meat in Enugu State, Nigeria.

Keywords: Abattoir, Hygiene, Safety, Practices, Waste, Meat

Introduction

The nutritional requirement of humans include some amount of protein daily. This daily protein requirement is majorly sourced from animals (animal protein). Meat is a nutritious, protein-rich food which is highly perishable and has a short shelf-life unless well handled (preserved). It is the first-choice source of animal protein for many people all over the world including in Nigeria. This consumption of meat is

continuously increasing worldwide (Allan and Zarek, 2012). Meat is an important source of essential nutrients such as iron, zinc, B vitamins and fats apart from protein.

However, because of its nutritional content and moist nature meat is a favorable substrate for the development of proteolytic microorganisms that is microorganisms that hydrolyses the protein into peptides and amino acids. Such microorganisms

can be bacteria, virus and fungi. They grow faster in high nutrient-dense substances especially those ones with high protein content; this predisposes meat to contamination leading to prevalence of food borne diseases. In this regards appropriate safety and hygiene measures need to be taken during meat handling and processing by abattoir workers to avoid contamination which would cause ill-health to consumers due to microbial infections(Mummed & Webb, 2015).The safety guidelines/measures such as the animal health, transportations safety, handling hygiene, killing, processing safety provisions and distribution.

In addition meat safety can be described as the handling, preparation and storage of meat in the way that prevents food borne diseases and maintain the wholesomeness of the meat (Bredbenner and Gaile, 2014).For the wholesomeness of the meat to be maintained the above guideline/measures have to be followed. Following the meat safety guidelines in conjunction with food agencies can help to prevent food borne diseases. These safety guidelines should be maintained through the meat value chain from farm to consumption table. The most important of these safety practices is their hygienic procedure.

However, meat hygiene is conditions and measures necessary to

ensure the safety of meat from production to consumption. These are condition and practices that promotes and preserve good health. It is an important consideration in places where food is prepared more especially meat. This is because meat can be contaminated at any point during transportation, slaughtering, processing and distribution. There are five key principles of meat hygiene according to World Health Organisation(WHO), (2015), one is prevention of cross contamination, separating hides from carcasses, provision of safe and clean water for washing up, channeling the liquid waste through a good drainage system (septic tank), wearing of protective clothing and boots, examination of animal before and after killing, examination of abattoir workers. In ensuring that these provisions are adhered to, Supervision of the workers is vital for reduction contamination and prevention of food borne illnesses. according to (Mustafa, Salman, and Iman, 2016) this is because inadequate and poor food safety laws, weak regulatory systems, lack of education and awareness, lack of finance and fund to equip abattoir or slaughterhouse has resulted to food borne illnesses in most of the developing country especially in Enugu State, Nigeria.

The most frequently involved foods in diseases outbreaks are of animal

origin particularly beef, chicken, pork, veal and lamb (Fearon, Mensah and Boateny, 2014). It means that there is relationship between meat consumption and food-borne disease outbreaks but this does not necessarily mean that meats come naturally with diseases. Although, meat was traditionally considered responsible for a significant number of food-borne diseases occurring in human but it has been amply demonstrated in recent years by monitoring studies that human beings, more especially the abattoir workers, acts as transmitters of pathogens to meats such as Escherichia Coli, Salmonella species, Campylobacter species and Yersinia (Food and Agriculture Organisation and World Health Organisation, 2016) Therefore, the manner of handling of meat by abattoir workers should be a thing of concern and subject of thorough monitoring and maintenance through a strict guideline. In the same way Barro, et al., (2011), holds that meat may be contaminated by dirty hands of abattoir workers, soil, polluted water, and unhealthy environment harbouring flies and other insects. The meats consumed by the public are generally processed in the abattoirs and as such the activities therein should be monitored. Abattoir or slaughter houses should be equipped to enable the abattoir workers carry out their

duties successfully without damage to consumer's health.

Abattoir is a special facility designed and licensed for receiving, holding, slaughtering and inspecting meat of animals and meat products before release for public consumption (Ogbonna and Idorah, 2014). Livestock which are to be consumed by people are to be processed and prepared in a dedicated facility which is equipped with the required materials that are necessary for the process. Proper slaughter house operations involve examination of live animals before slaughtering (ante-mortem inspection) evisceration, carcass's inspection (post-mortem inspection) and waste disposal, because of these vital functions, abattoirs should be provided with the important equipment that are required. All these are crucial for the delivery of wholesome meat and surveillance of animal diseases, especially those of public health importance (Nwanta, Onunkwu, Ezenduka, Phil-Eze, & Egeje, 2015). As it is a common knowledge in Nigeria especially Enugu state abattoirs, unfortunately does not have half of these facilities and this has led to continuous failure to adhere to good hygienic practices which has resulted to meat contamination and poor waste disposal with consequent effects on the environments and human

health in developing country, (Akinro, Ologunagba, and Olotu, 2009).

Finally, lack of hygiene by abattoir workers in Enugu State has continued to pose challenges to consumers. Although, consumers observe how abattoir workers mishandle the meat from the first stage of processing to the last stage which include handling and loading of the animals in the farms, transporting animals to slaughter houses, off-loading of the animals and slaughtering which contributes a great deal in contamination of the meat, but they cannot avoid buying and using them. Hence, the need for this study which try to identify the safety and hygiene practices of abattoir workers in Enugu state, Nigeria.

Purpose of the Study

The purpose of the study was to investigate the safety and hygiene practices of abattoir workers in Enugu State, Nigeria. Specifically, the study determined;

1. Hygiene practices necessary for processing healthy meat among abattoirs workers.
2. Waste management practices of abattoir workers.
3. Level of adherence to meat safety and hygiene guidelines among abattoir workers

Research Questions

The following research questions are posed to guide this study.

1. what are the hygiene practices needed for production of health meat?
2. what are the waste management practices of abattoir workers?
3. what are the level of adherence to meat safety and hygiene guidelines among abattoir workers?

Methodology

Design of the Study: The study adopted a descriptive survey research design. Descriptive survey design helps to study people's attitudes, activities, opinions, motivation and other characteristics. It is therefore suitable for this study which focused on safety and hygiene practices of abattoir workers.

Area of the Study: This study was carried out in Enugu State, Nigeria. Enugu State is located in the South Eastern part of Nigeria with three senatorial zones namely, Enugu East, Enugu West and Enugu north, with their major abattoirs and many other minor registered abattoirs. The numbers of people that are consuming meat are growing geometrically in Enugu State without enough abattoirs. The abattoirs are few and without equipment for carrying out this work efficiently.

Population of the Study: The population for the study consisted of 541 registered abattoir workers in Enugu state, Nigeria (sources; Ministry of Agriculture and Human Resource, Veterinary services, Enugu State, Nigeria).

Sampling for the study: The sample size for this study was 67 abattoir workers from 3 major abattoirs in Enugu senatorial zones. The abattoirs studied were selected through purposive sampling techniques as only major and registered abattoirs are to be studied. All the workers in the three major abattoirs were studied as they can be a good representation of the group.

Instrument for Data Collection: The instrument for data collection was 27 itemed questionnaires. It was made up three sections based on specific purposes. On each of the items, the respondents were requested to indicate their opinion on a four-point scale of Strongly Agree (4 point), Agree (3 point), Disagreed (2 point), and Strongly Disagreed (1 point). The questionnaire was administered personally by the researcher on the spot, the instrument recorded 100% return rate. The instrument was face

validated by three experts in the Home Economics and Agricultural Education all from University of Nigeria, Nsukka. Their corrections, critics, suggestions and advices formed the bases for the modification of the questionnaire items.

The internal consistency of the instrument was established by using Cronbach alpha method. The instrument was administered to 20 abattoir workers outside Enugu state. These workers are not part of the actual population. Their responses were analyzed and overall coefficient of 0.85 was obtained which represent the coefficient of the instrument.

Data collection techniques: Sixty seven (67) copies of the questionnaire for the study were administered by hand to the respondents at various location of abattoir with help of two research assistants (RAs). These RAs were trained on how to collect the data. All the copies of the questionnaire were retrieved as it was collected on the spot.

Data Analysis techniques: The data collected by the respondents were analyzed using mean and standard deviation to answer the three research questions.

Results

Table 1: Hygiene Practices necessary for processing healthy meat among Abattoir workers (n=)

S/No	Hygiene necessary for processing of healthy meat	Mean	SD	Decision
1.	Washing of hands before and after handling of carcasses	3.87	0.34	Agreed
2.	Use of protective clothing such as overall, apron, hair nets, hardhats and gumboot.	3.83	0.38	Agreed
3.	Use of harmful chemicals in cleaning the floor	1.65	1.65	Disagreed
4.	Disinfecting of slaughter surfaces	2.43	1.35	Agreed
5.	Removing of jewelry, including rings, watches, pins	2.58	1.35	Agreed
6.	Medical examination of the worker	2.87	1.23	Agreed
7.	Washing of the slaughtered carcasses properly	2.75	1.27	Agreed
8.	Wear nose mask while working.	2.68	1.29	Agreed
9.	Stop workers with flu from working in abattoirs.	2.78	1.35	Agreed
10.	Ban unauthorized persons from entering the abattoir	2.27	1.36	Disagreed

Table 1 reveals that each of the items 1, 2, 4, 5,6,7,8 and 9 has mean of 2.50 and above. This shows that the abattoir workers know about the correct hygiene to practices but they do not carry them out. The workers know the right hygiene to adopt but inadequate facilities and nonchalant approach

towards the practices have caused a lot of problems in abattoirs. Item 3 and 10 were disagreed to showing that harmful chemical cannot be used for cleaning in abattoir and that they do not know the danger of allowing strangers entering the abattoir.

Table 2: Level of adherence to meat safety and hygiene guidelines among abattoir workers (n=)

S/No	Level of adherence to meat safety and hygiene guideline	Mean	SA	Decision
1.	Abattoirs have separate areas for live animals (lairage) and other operations.	2.60	1.22	Agreed
2.	Among abattoirs, dirty and clean zones should be separated.	2.93	1.17	Agreed
3.	Abattoirs have provision for good water supply.	3.95	0.20	Agreed
4.	Abattoirs have facilities for controlling temperature in their operation room	2.60	1.29	Agreed
5.	Abattoir equipment is always disinfected.	2.62	1.28	Agreed
6.	Officials are assigned to examine the animals before and after slaughter	3.97	0.18	Agreed
7.	All animal slaughtered has slaughter pass certificate	2.72	1.27	Agreed
8.	All waste management regulations are adhered to in the abattoir	3.53	0.75	Agreed
9.	There is strict monitoring of who enters the abattoir floor	2.63	1.31	Agreed
10.	Proper waste management system is in place.	2.50	1.36	Disagreed

Table 2 reveals that each of the items from 1 to 9 has mean of 2.50 and above. This shows that the abattoir workers know about the standard hygiene rules and regulation guiding each abattoir in Nigeria but they do not really obey them. Item 10 was disagreed to

showing that waste management system is not in place in most abattoirs. This calls the attention of the government authority to equip the abattoir with good drainage system in order to reduce hazard.

Table 3: Waste management practices of abattoir workers (n=)

S/No	Waste management practices of abattoir workers.	Mean	SD	Decision
1.	Disposing of bone properly to avoid infestation.	3.23	1.15	Agreed
2.	There is proper drainage system to drain out blood from the slaughter houses.	2.83	1.29	Agreed
3.	Faeces disposed properly	3.10	1.17	Agreed
4.	There is proper drainage system to drain waste water.	2.77	1.37	Agreed
5.	Waste guts and gall materials are disposed properly.	4.00	0.00	Agreed
6.	Horns are used correctly	2.82	1.20	Agreed
7.	Hair and feathers are properly disposed	3.10	0.99	Agreed

Table 3 reveals that each of the items from 1 to 7 has mean of 2.50 and above. This shows that the abattoir workers in Enugu State know the ways waste can be disposed in right way but they do not obey it rather they dump waste all around the premises causing harm to the human life and environment. Health professionals and enforcement agencies have to be present in abattoir to help the workers do what they are supposed to do.

Discussion of Findings

The findings of the study in table 1 revealed that cluster A, was generally agreed with this indicates that abattoir workers are aware of hygiene practices necessary for processing of a healthy meat but inadequate facilities and lack of inspectors and supervisors has resulted to the so many diseases in abattoir. According to Ayehu,

Kassahun, and Daniel, (2013) inadequate facilities in abattoirs for good hygiene have lead to many food borne diseases in developing countries. Thompson, Melinda, and Vaughan, (2013) supported this by their studies which stated that inadequate facilities is a treat factor in healthy consumption of food and this has caused a lot of health risk in life of the consumers especially the meat consumers. This call for the attention of government authority that is responsible for building and maintenance of abattoir to carry out their functions to ensure healthy meat and environment.

The findings of the studies further revealed in Table 2 that the abattoir workers know about the standard rules for meat safety and hygiene guidelines but do not obey them. The abattoir worker lack supervisors to monitor

what is happening in abattoirs. Table 3 revealed that all the items in their clusters were generally agreed to meaning that the abattoir workers know the proper way of disposing wastes but waste management system is not in place in abattoirs. Barro, et al., (2011) pointed out that several studies have shown that precautions for handling meats are known but not practiced. These have caused a lot of food borne disease outbreaks, Cross-contamination, infections and food poisoning. No wonder Danikuu, Azikala, and Baguo, (2015) found out in their studies that lack of appropriate supervision in abattoirs causes disasters. In the same way Whitney and Rolfes (2014) stated that food borne diseases are reduced through proper prevention rules and proper waste management.

The implication of the finding is that abattoirs should be equipped with adequate facilities to enable abattoir workers to carry out their functions effectively. This is because the abattoir workers know the rules and are willing to keep the rules if well supervised and monitored. The workers should be made to understand the importance of the proper waste disposal as a means of processing healthy and wholesome meat.

Conclusion

The following conclusions were drawn based on the findings of the study; the hygiene practices necessary for processing healthy meat in Enugu State include: good hand washing practices, wearing of protective clothing, periodical examination of abattoir workers. Proper waste management, provision for good water supply, Health professional's ante-mortem and post-mortem examination of the animals is very vital.

Recommendations

1. Adequate government policies and guidelines for abattoir should be implemented and monitored to ensure that abattoir operations conform to safe set rules in ensuring safe and healthy meat production.
2. Government should employ health professionals and their monitoring team to educate abattoir workers on the importance of good hygienic practices for safer and healthier meat processing.
3. Consumers should encourage good hygiene by buying meat only from abattoir workers that adhere to the meat contamination prevention rules and proper waste management practices.

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