



Assessment of Knowledge of Hygiene Among Meat Handlers in Katsina State

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ABSTRACT

Meat, Water and other Food-borne disease outbreaks remain a major global health challenge and cross-contamination from raw meat due to poor processing is a major health concern in Nigeria and other developing countries. Adequate knowledge of hygiene among meat handlers is important in limiting these outbreaks. Meat processing and sanitation practices can have resultant effects on the quality of meat sold to the public. Thi study aims to determine the knowledge of hygienic handling of meat amongst meat handlers in Katsina State Abattoirs. The research employed ex-post factor design involving multi-stage sampling technique such as stratified sampling, simple random sampling, proportionate sampling and systematic sampling for the study. The instrument for data collection was a closed ended questionnaire with modified four point Likert format scale containing section A for demographic information and section B for statements on knowledge of hygiene in meat handling. Two hundred and fifty (250) respondents were used as sample size for the research. The data collected was analyzed where means and standard deviation were used to answer the research question while inferential statistics of one sample t-test was used to test the stated hypothesis. Mean score of 2.5 and above was used as the decision mean, hence response was considered positive if it is 2.5 and above while those responses having mean scores less than 2.5 were considered negative scores. The findings of the study were indicated that the knowledge of hygiene among meat handlers in Katsina is significant ($t = 49.591$; $P = 0.000$). based on the finding of the study it was concluded that meat handlers in Katsina state is have knowledge of hygienic handling of meat. Equally, it is recommended for improving and sustaining this positive knowledge of hygienic handling of meat, sensitization program can be organized by public health departments of the local government authorities.

Keywords: Hygiene, Knowledge, Meat Handlers,

INTRODUCTION

One important aspect of human nutrition is meat handling processes. This aspect requires high level of hygiene of equipment, facilities and humans that come in contact with the meat in the chain of meat handling processes. Ascertaining the health status of the animal is also important because end users of the meat can get their health compromised through consumption of meat from diseased animal. Sanitation of facilities and equipment is an excellent way of preventing contamination of meat. World Health Organization (WHO) reports that global mortality caused by diarrhea which may be due to food contamination among children under the age of five years in developing countries such as Nigeria is 18% (Bryce, Boschi-Pint and Shibuya 2005). Meanwhile, food contamination through raw meat is a unique means of food-borne disease outbreaks or food poisoning (Podpekan, Pengon & Vadnjaj, 2007) due to improper food handling. This type of contaminations mostly arise when food that does not need heating such as vegetable salad is prepared using the same equipment that has been used to prepare raw meat

without good cleaning. Inadequacies in the present method of meat handling have raised serious concerns among observers in the field of health education and other stakeholders in the public health leading to public confusion and doubt of the meat processing chains. Food-borne diseases have caused a devastating consequences and mortality around the world (Abdul-Mutalib, Abdul-Rashid & Mustafa, 2012).

There are numerous means through which contamination can also happen such as when raw meat is kept above ready-to-eat meals. Separating raw and cooked food and using safe raw materials are some of the major ways to safer food as developed by the World Health Organization (WHO, 2007). The human contact in meat handling is another important factor. This implies that personal hygiene of meat handlers is crucial and a deciding factor in determining meat safety. It is therefore worth noting that meat handlers have the potential of reducing to minimum level if not outright prevention of meat contamination (Campos & Ditto 2009). In the United States of America for example, food-borne disease outbreaks documented were as a result of unsafe handling having 79% from commercial or institutional establishments and 20% domestic (Haapala & Probart, 2004). Another study showed that presence of *Escherichia coli* and *Staphylococcus aureus* on the hands of food handlers has been isolated from meat (Waters & Ditto 2011).

Although there are standard guidelines from local regulatory agencies such as National Agency for Food and Drugs Administration and Control (NAFDAC) as well as International Food Management Agencies to member countries about safe handling procedures such as Hazard Analysis Critical Control Point (HACCP) and Good Manufacturing Practices which stipulate that abattoirs, also known as slaughterhouses (approved facilities where livestock are killed before human consumption) should be subjected to supervision to ensure that the meat produced is safe to eat. This includes assessment and inspection of live animals. Before slaughter, the animals should be observed to check for any ailment in their physical appearance that could signifies sickness. After slaughter, animal body should be inspected by a qualified meat inspector who knows the signs of specific types of disease and which organs they may be found. Every precaution should be taken to avoid contamination of the meat during transportation. Butcher's shops serve as the point between the inspected and approved safe meat and the consumer. Therefore the hygienic practices used for handling meat in these shops determine the health of the consumer. Therefore meat vendors also need monitoring and supervision to confirm that they meet all the meat handling requirements. Presently in the study area of this research, no such monitoring and supervision of meat vendors to confirm the safety of meat are observed by this researchers. A meta-analysis of food-borne pathogens in selected African countries including Nigeria showed varying prevalence of bacterial contamination on raw meat. (Paudyal & Ditto, 2017)

In Katsina state, the researchers observed with keen interest the absence of proper slaughtering facilities and the inadequate meat inspection in most abattoirs especially in local government areas where weekly markets are the major sources of meats. This means contaminated meat can be sold, and people eat the infected meat. The knowledge of meat handlers on hygienic meat handling in many developing countries particularly Nigeria remains mostly uncertain. It is therefore alarming because cases of food poisoning due to contaminated meat have been on the rise in recent years.

MATERIALS AND METHODS

The study used Ex-post factor research design to conduct the study in state owned abattoirs located in the thirty four local government areas of the state. The study population included adult meat handlers whose population is estimated to be two thousand across the state local government headquarters. A meat handler is any individual that engages in receiving and/or storing, transporting and selling of meat. It also includes people who may slaughter animals, dress the flesh, sell the meat or any combination of the three tasks. Data was collected using an interviewer administered questionnaire on major market days where animals are slaughtered and meat further distributed down to various wards for end users. The questionnaire contains sections on demographic information and knowledge of meat hygiene. Areas of knowledge of hygiene assessed included hand washing, use of personal protective equipment, cleaning of the work environment, personal cleanliness, storage methods and meat wrapping materials among others.

Modified 4-point Likert format rating Scale was used as follows: SA - Strongly agree = 4 points, A – Agree = 3 points, D – Disagree = 2 points and SD – Strongly disagree = 1 point. Hence, mean score of any response considered positive, if it is 2.5 and above and mean score of any response less than 2.5 was regarded as negative response. The researcher-structured questionnaire was submitted to four (4) professional experts in the field of Health Education to ascertain its appropriateness, relevance and clarity. A sample of two hundred and fifty, (250) meat handlers were selected randomly by the researchers on arrival at weekly market slaughters. This was done after a formal introduction to familiarize with the participants.

The data generated was analyzed using Statistical Package for Social Science (SPSS) where Mean and standard deviations (SD) were used to answer the stated research question while inferential statistics one sample t-test was used to test the stated hypothesis.

RESULTS

Research Question: *What is the knowledge of hygiene among meat handlers in Katsina State abattoirs?*

Table 1: Mean scores of responses on the knowledge of hygiene among meat handlers in Katsina state abattoirs

S/N	Statement	Mean	Std. Dev.
1	There is need for NAFDAC guidelines to be adhered by meat handlers	2.02	.894
2	Meat can be contaminated by wrapping it with old newspapers	1.86	.889
3	Meat can be contaminated by chemicals from cement bags use to wrap the meat	2.01	.878
4	Meat can be contaminated by currency notes if meat handler touches both simultaneously	2.02	.896
5	Meat can be contaminated by meat handlers if no proper sanitation after using the toilets	3.03	.952
6	Meat can be contaminated by unclean surfaces where meat is placed	3.06	.976
7	Meat can be contaminated by equipment used in processing it	3.25	1.007
8	Meat can be stored by storage facilities and roadside drying of meat (Kilishi)	3.34	.982
9	Meat can be contaminated by nearby refuse dump site	2.79	1.066
10	Meat can cause serious health challenge if not properly processed before consumption	2.82	1.065
		2.62	.967

(Decision mean =2.50)

Table 1 above shows the mean scores of responses on knowledge of hygiene among meat handlers in Katsina state. Mean score of 2.50 is the decision benchmark for presence or absence of this variable (knowledge). The over-all mean score from the table revealed that the research respondents have significant knowledge of hygiene (2.62 > 2.50).

Table 2: One sample t-test analysis on knowledge of hygiene among meat handlers in Katsina state abattoirs

	Mean	Std. Deviation	t-value	Df	P-value
Aggregate mean	2.62	0.967	49.591	249	0.000
Constant mean	2.50				

t (249) = 1.972, P < 0.05

Table 2 above shows that the knowledge of hygiene among meat handlers in Katsina State is significant because the calculated one sample t-test value of 49.591 is greater than the t-critical value of 1.972 at 249 degree of freedom with probability value of 0.000 less which is less than 0.05 level of significance. Therefore, the null hypothesis which said the knowledge of hygiene among meat handlers in Katsina state is not significant is rejected as it was found to be false since meat handlers indicated significant level of knowledge of hygiene in meat handling.

DISCUSSION

The knowledge of hygiene among waste meat handlers was found to be significant. This is so because in this research, six areas of assessment of knowledge of hygiene in meat handling have mean scores that are above the benchmark decision mean score of 2.50. The analyzed data revealed that the calculated one sample t-test value of 49.591 is greater than the t-critical value of 1.972 at 249 degree of freedom with probability value of 0.000 less which is less than 0.05 level of significance, these revelations connote that meat handlers in Katsina state know that meat can be contaminated and cause serious health challenges through unhygienic handling such as improper processing, (\bar{x} 3.25; SD 1.007), unclean surfaces, (\bar{x} 3.06; SD .976) roadside drying of kilishi, (\bar{x} 3.34; SD .982) (Kilishi is a locally dried form of meat mostly spread under the sun to dry before roasting), improper sanitation after toilet use (\bar{x} 3.03; SD .952) and by nearby dustbin, (\bar{x} 2.79; SD 1.066). However, this research has clearly shown that the attitude of using old newspaper to wrap meat is still being practiced and the meat handlers do not think it is unhealthy because a mean score of 1.86 which is below the decision mean of 2.50. Equally the meat handlers do not believe that currency notes can be another means of contaminating meat if meat handler collects money from customers while serving meat at “Suya” joint with bare hands.

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