

# KNOWLEDGE AND HYGIENE PRACTICE AMONG BUTCHERS WORKING IN ABATTOIR ZANGON SHANU SABONGARI LOCAL GOVERNMENT AREA, KADUNA STATE

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## ABSTRACT

*This study assesses of knowledge and hygiene practice among butchers working in abattoir Zangon Shanu Sabongari LGA Kaduna State. The descriptive research design was used for this study and the target population are butchers slaughtering regularly. Simple random sampling technique was used to select 110 respondents for the study. The instrument used for this study was questionnaire which consists of four sections that elicited the socio-demographic characteristics of the respondents, level of knowledge, level of practice on hygiene among butchers working in the abattoir and factors that influence hygiene practice. The questionnaires were pilot tested using the Cronbach alpha value for the analysis that yield a coefficient reliability score of 0.79. The data obtained from the study was clean coded and analyzed using statistical package for social sciences (SPSS) version 23, and was computed using descriptive statistical tools of frequencies and percentages. The result from this study shows that the respondents are knowledgeable about hygiene and the practice of hygiene is moderate. The study also observes that all the factors listed in this study such as regular supervision and inspection of butchers, including abattoir by appropriate management, knowledge of personal and environmental hygiene, training of butchers on proper ways of meat handling and slaughter processing. Lastly, availability of portable water supply, good toilet facilities and washing hand facilities influence hygiene*

*practice. It is therefore recommended that the government should motivates our butchers by building modern abattoir with good toilet facilities, washing hands facilities and portable water supply.*

**Keywords:** Assessment: Knowledge: Hygiene Practice: Butchers: Abattoir.

## INTRODUCTION

The practice of slaughtering livestock (whether cattle, goat or sheep) and its resultant meat supply also provides very useful by-products such as skin and leather. By 2007, the latest year for which comparable statistics is available, world meat consumption has risen from as low as 70 metric tons in 1961, to a whopping 268 metric tones' in 2007. During that period, the amount of meat consumed worldwide per each individual increases from 22 kg to a staggering 40 kg annually (The Economist, 2012). The most important issue in all meat-processing plants is maintenance of proper hygiene. A slaughter house, alternatively known as an abattoir is defined as a premise approved and registered by the controlling authority for hygienic management of meat products for human consumption (Johns, 2012). It may also be defined as any premise that is used for the slaughter of animals whose meat is intended for human consumption (Lewicki,2011).

According to Alonge (2010), an abattoir or slaughterhouse is a premise approved and registered by the controlling authority for hygienic slaughtering and inspection of animals,

processing, effective preservation and storage of meat products for human consumption. The slaughtering of animals for human consumption is important in most nations of the world and dates back to the ancient times (Bello and Oyedemi, 2011). Public slaughter houses can be traced to the Roman civilization and in France by the 15th and 16th centuries, and are among the public facilities (Desenclos, 2012). In Italy, a law from 1890 stipulates that public abattoirs should be provided in all communities comprising of more than six thousand inhabitants. Similar things are reported in Norway, Sweden, Denmark, Netherlands and Romania (Jode, 2010). The most commonly killed animals for food are cattle, sheep, pigs, goats, and fowl or poultry meat.

Undoubtedly, meat has over the years become a major component of the daily food consumed by the average individual as reflected in the increase in annual per capita meat consumption worldwide. More than any time in history, people are consuming more meat. This call for global and national effort towards ensuring that the meat processing medium is adequate to ensure that meat that leaves slaughtering houses is wholesome, uncontaminated and right for human consumption. It is absolutely critical without compromise, that the meat that leaves slaughtering houses to be consumed have the lowest possible level of micro-organisms, be it bacteria, yeast and moulds (fungi) protozoa or viruses. Adequate sanitary conditions, good maintenance culture and proper hygiene practices among butchers are the steps that can be taken to control the chances for meat contamination (Desenclos, 2012).

Abattoirs or slaughter houses exist primarily to provide the appropriate environment for slaughtering livestock and controlling waste spill. The Ghana Food and Drugs Authority (FDA) describes an abattoir as a facility/ place that is approved and registered for slaughtering and dressing of animals for human

consumption (FDA/APBD/CP-SH/2013/08). The FDA further requires any facility being used as an abattoir should have equipment for slaughtering, holding, processing, storing and distributing the carcass.

These guidelines indicate a number of issues to ensure that meat is wholesome for human consumption;

- i. Slaughtering of livestock should take place in a facility that has been duly registered by the authority/agency that is mandated to do so.
- ii. Slaughtering of livestock should be done under hygienic conditions as inspected and approved by the controlling authority.
- iii. The facility should contain all the appropriate equipment for the various stages of livestock processing.

These are the guidelines that are deemed appropriate by the regulating authority as that which will ensure that wholesome meat is produced for human consumption under acceptable hygienic conditions and practices. In developing countries, slaughter facilities vary from large industrial meat processing facilities in cities to small unregulated facilities in rural areas. This variation in the meat industry is largely due to lack of private sector investment and inadequate regulation of the trade particularly in rural areas. In addition, there is often a deficit of suitable and/or affordable equipment for the processing and transportation of meat. These factors combined with a lack of understanding of the risks of food borne disease leads to poor conditions in rural slaughter houses (Food and Agriculture Organization (FAO), 2010).

The aim of regulation of the slaughter industry is to improve hygiene and reduce the contamination of meat and spread of disease, as well as protecting workers from occupational health hazards (FAO, 2010). This study therefore assesses the knowledge and hygiene

practice among butchers working in Abattoir Zangon Shanu Sabongari Local Government Area of Kaduna State. According to Gordon-Davis (2010), one of the major risks of food contamination originates from the working practices of food handlers and disease-causing micro-organisms present in or on the food handler's body are subsequently transported from the food handler to the food during the handling process. Because meat is such highly perishable food stuff and the abattoir is such a labour-intensive working environment, the knowledge and level of training of the meat handlers regarding personal and general hygiene is of particular importance to ensure the health and safety of the consumer. Frazier and Westhoff (2009) report that humans shed about 1000–10000 viable micro-organisms per minute. They add that a relationship exists between the numbers and types of such organisms and the working environment. Forsythe (2012) mentions that an estimated one in every 50 food handlers, sheds around one billion pathogens per gram of faeces without showing any clinical manifestations of the related illness.

Subsequently, poor personal hygiene practices such as negligence to wash hands after visiting the bathroom may result in up to 10,000,000 pathogens under the fingernails of the food handler. Organisms originating from infected food handlers include *Salmonella* spp., *Shigella* spp., *Escherichia coli*, *Staphylococcus aureus*, *Bacillus cereus* and faecal streptococci (Lawrie, 2013). Because meat is such a highly perishable foodstuff and the abattoir, particularly the deboning room, is such a labour-intensive working environment, the knowledge and level of training of the food handlers regarding personal and general hygiene is of particular importance to ensure the health and safety of the consumer (Jay, 2010).

The sanitary health of butchers is the integral part of slaughtering, meat processing and meat handling but in Nigeria the sanitary health of

butchers are extremely poor, that leads to the contamination of meat which contributes to the outbreak of food borne diseases (WHO, 2013). The US Centres for Disease Control and Prevention (2012) reveals that in every year, there is outbreaks of food borne diseases resulting from foods of animal origin thereby causing approximately 76 million illness, 325,000 hospitalizations and 5000 deaths each year. Hence, it is very important to have a clear understanding of the interaction on prevailing food safety, knowledge and practices of food handlers in order to reduce food borne outbreaks.

In developing countries like Nigeria, especially in rural communities, standard and hygienic methods of handling and processing meats by butchers are given less attention, although they are part of the country's rules and regulations on animal and meat production. For instance, in most rural areas of Nigeria, perhaps owing to constraints such as inadequate education, lack of potable water, and reliable power supplies, meat processing is traditionally carried out in unhygienic conditions (Ibrahim *et al.*, 2011). The choice of the study area for this research work is also critical because meat from this slaughter house is sold in markets located all over Zaria metropolis thus motivating the researcher to carry out this study, to assess the knowledge and hygiene practice of butchers in Zango's abattoir Zaria, Sabon Gari local government of Kaduna state.

## RESEARCH QUESTIONS

1. What is the level of knowledge of hygiene among butchers working in Zangon Shanu abattoir Sabon Gari LGA Kaduna state?
2. What is the level of practice of hygiene among butchers working in Zangon Shanu abattoir Sabon Gari LGA Kaduna state?

3. What are the factors influencing hygiene practices among butchers in Zango abattoir Sabon Gari LGA Kaduna state?

## METHODOLOGY

The descriptive research design was used. This design was chosen because it considered appropriate for this study and it involves a single time examination of a cross-section of the research population and allows the researcher to look once at numerous things under investigation. The study was carried out in Zango abattoir which is located in Zaria, Sabon-gari Local Government Area, Kaduna State, Nigeria, between Longitude of 7degree 8'E and between latitude 10degree 11'N Greenwich meridian of the equator and it was established in 1978. Is major abattoir in Zaria owned by the state government, supervised by veterinary division, ministry of agriculture.

It is privately managed by Shehulle group of company. Most animas are brought from within and outside Zaria for slaughter, so as to serve the Zaria populace. The daily slaughtered animal at the abattoir include cattle, goats and sheep (Shiaka et al, 2015) in study conducted on bacteriological screening of environmental sources of contamination in Zango's abattoir, Zaria, Kaduna state. The target population are butchers working in Zango's abattoir Zaria, Sabon-Gari local government of Kaduna state and those who use the abattoir regularly for slaughtering. According to abattoir's revenue registered, a total number of 151 as average daily butchers come to the abattoir for slaughtering, which will be used for this study (Abubakar, 2017). The sample size was calculated by applying Yamane (1967) formula because it is the most ideal method to use when you know the population size. Sample size determination in relation to the population under study is to generalize inferences and conclusions to the entire population after the

survey. Using Yamane formula 110 respondents were sampled. Only butchers who uses Zango's abattoir for slaughtering, butchers willing to participate in the study. Simple random sampling technique was used to select 110 respondents used for the study.

Questionnaire was used to collect the data. It consists of four sections that elicited the socio-demographic characteristics of the respondents, and level of knowledge on hygiene among butchers working in the abattoir, level of practice on hygiene among butchers working in the abattoir, and factors that influence hygiene practice among butchers in Zango abattoir. Any item with a frequency rating from 50 and above is considered as agreed while any item with less than 50 is regarded as disagreed. The questionnaire was submitted to two other experts in the field for content construct and face validity. The items were scrutinized and modifications were made where possible. All the inputs were used to effect corrections in the final copy of the questionnaire which was presented to respondents. Reliability of the instrument is ensured by a pilot study conducted among (10% of sample size) using split-half method. The questionnaires were analyzed using the Cronbach alpha value that yielded a coefficient reliability score of 0.79.

Questionnaires were administered to the participant by the researcher together with research assistant to those who met the inclusion criteria, it was also administered to non-literate butchers in a face -to-face interviews using interview administered questionnaire after explanation and interpretation to assess the knowledge and hygiene practice of butchers working in Zango abattoir. Written administrative permission was obtained from the management of the abattoir after explaining the purpose of the study to them and summary of the research proposal was submitted to the ethical committee of the abattoir, and approval was given for the data collection. Respondents'

verbal consent was also obtained and the need for the study explained to them to gain their co-operation, confidentiality and anonymity of information was maintained.

**RESULTS**

Table 1 shows the demographic characteristics of the respondents. Out of the 99 respondents that returned their questionnaires, 15 (15.2%) of them are 15-19years, 35(35.4%) are 20 -29years, 27(27.3%) are 30-39years, 15 (15.2%) of them are 40-49years while the remaining 7(7.1%) are 50years and above. Their marital status shows

that 39 (39.4%) of the respondents are single, 48 (48.5%) married, 8 (8.1%) and are divorced, while the remaining 4 (4.0%) are widowers. The respondents' level of education shows that 23(23.2%) have no formal education, 42 (42.4%) have primary education, 29 (29.3%) have secondary education, while the remaining 5 (5.1%) have tertiary education. The respondent's tribes show that 76 (76.0%) are Hausas, 20 (20.2%) Fulanis, while the remaining 3 (3.0%) are Yorubas. In summary, the socio-demographic characteristics of the Respondents showed that majority of the respondents are within 20-29years, married with primary school education and are Hausa by tribe.

**TABLE 1**  
**Socio-Demographic Characteristics of Respondents**

Variable	Category	Frequency	Percentage
Age group (Year)	15-19	15	15.2
	20-29	35	35.4
	30-39	27	27.3
	40- 49	15	15.2
	50 and above	7	7.1
	Total	99	100
Marital status	Single	39	39.4
	Married	48	48.5
	Divorced	8	8.1
	Widower	4	4.0
	Total	99	100
Level of education	Non formal	23	23.2
	Primary	42	42.4
	Secondary	29	29.3
	Tertiary	5	5.1
	Total	99	100
Ethnicity	Hausa	76	76.0%
	Fulani	20	20.2%
	Yoruba	3	3.0%
	Igbo	0	0.0%
	Specify	0	0.0%
	Total	99	100%

**Research question one**

What is the level of knowledge of hygiene among butchers working in Zangon Shanu abattoir Sabon Gari LGA Kaduna state?

The result on Table 2 shows the responses of respondents on knowledge of hygiene. This study observes that 73% of the respondents know that washing and disinfection of working surfaces and tools are important for safety of meat, while 34.3% know that using gloves while handling meat reduces the risk of meat

contamination and 61.6% know that regular washing of hands before and during meat processing reduce the risk of meat contamination. Further findings show that 46.5% of respondents know that eating and drinking in the work place increase the risk of meat contamination and 78.8% of respondents know that improper handling of meat could pose health hazards consumers. This study observes that the respondents are knowledgeable about hygiene (59%)

**TABLE 2**  
**Respondents' knowledge of hygiene**

S/N	Items	Response	N	Percentage (%)
1	Do you think washing and disinfection of working surfaces and tool are important for safety of meat	Yes	73	73.7
		no	26	26.3
		total	99	100
2	Do you think using gloves while handling meat reduces the risk of meat contamination	Yes	34	34.3
		no	65	65.7
		total	99	100
3	Do you think regular washing of hands before and during meat processing reduce the risk of meat contamination	Yes	61	61.6
		no	38	38.4
		total	99	100
4	Do you think eating and drinking in the work place increase the risk of meat contamination	yes	46	46.5
		no	53	53.5
		total	99	100
5	Do you think improper handling of meat could pose health hazards consumers	yes	78	78.8
		no	21	21.2
		total	99	100

**Research question two**

What is the level of practice of hygiene among butchers working in Zangon Shanu abattoir Sabon Gari LGA Kaduna state?

Table 3 is a presentation of the responses of respondents on practice of hygiene. This study shows that 39.4% of the respondents' practice washing their hands with soap and water after making use of the toilet before continuing with their slaughter activities, while 70.7% practice washing of hands before and after slaughtering

activities and 65.7% always dispose waste such as faeces, horns and scraps tissue after their work. This study also observes that 57.6% of the respondents do not cover their hair during slaughtering processing, while 37.4% of respondents usually remove their rings before working in the abattoir and 73.7% of respondents occasionally cut their nails before working in the abattoir. The result of this study reveals that the respondents' practice of hygiene is moderate (57.41%)

**TABLE 3**  
**Respondents' Practice of Hygiene (N=99)**

S/NO	ITEMS	Response	N	%
1	Butchers normally wash their hands with soap and water after toilet before continue with their slaughter activities	Yes	39	39.4
		No	60	60.6
		Total	99	100
2	Butchers usually wash their hands before and after slaughtering activities	Yes	70	70.7
		No	29	29.3
		Total	99	100
3	Butchers always disposed waste such as faeces, horns and scraps tissue after their work	Yes	65	65.7
		No	34	34.3
		Total	99	100
4	Most butchers don't use to cover their hair during slaughtering processing	Yes	57	57.6
		No	42	42.4
		Total	99	100
5	Butchers usually remove their rings before working in the abattoir	Yes	37	37.4
		No	62	62.6
		Total	99	100
6	Butchers occasionally cut their nails before working in the abattoir	Yes	73	73.7
		No	26	26.3
		Total	99	100

**Research question three**

What are the factors influencing hygiene practices among butchers in Zango abattoir Sabon Gari LGA Kaduna state?

The result on Table 4 shows the responses of respondents on factors that influence hygiene practice. The result shows that all factors listed in this study influence hygiene practice. This includes regular supervision of butchers and

regular inspection of butchers by appropriate management or health personnel. Others are knowledge on importance of personal and environmental hygiene, training of butchers on proper ways of meat handling and slaughter processing including Availability of portable water supply, good toilet facilities and washing hand facilities in the abattoir.

**TABLE 4**  
**Factors that Influence Hygiene Practice**

S/N	ITEMS	Response	N	%
1	Regular supervision of butchers by appropriate management or health personnel make them to practice hygiene	True	68	68.7
		False	31	31.3
		Total	99	100
2	Regular inspection of butchers and abattoir by appropriate management or health personnel make butchers to practice hygiene	True	80	80.8
		False	19	19.2
		Total	99	100
3	Knowledge on importance of personal and environmental hygiene make butchers to practice hygiene	True	57	57.6
		False	42	42.4
		Total	99	100
4	Training of butchers on proper ways of meat handling and slaughter processing aid butchers to practice hygiene	True	69	69.7
		False	30	30.3
		Total	99	100
5	Availability of portable water supply, good toilet facilities and washing hand facilities in the abattoir make butchers to practice hygiene	True	78	78.8
		False	21	21.2
		Total	99	100

## DISCUSSION

This study determines knowledge and hygiene practice among butchers working in Abattoir Zangon Shanu Sabongari LGA Kaduna State. The demographic characteristics of the respondents show that majority of the respondents are within the ages of 20 -29years and majority are married. The result further shows that majority of respondents have no formal education and majority are Hausas.

This study reveals that the respondents are knowledgeable about hygiene. This study is in line with Ansari-Lariet *al.* (2010) take a survey of 97 butchers in four meat plants in Iran and found that their levels of knowledge and attitudes towards food hygiene matters are acceptable. This study did not support. Bas *et al.* (2012) whose result show that their respondents lacks knowledge in environmental sanitation, personal hygiene and cross-contamination in Turkey and likewise the study of Jevsnicket *al.* (2014) who found a lack of knowledge of meat handling and microbiological hazard in Slovenia. This study is consistent with the study of Gnomes-Neveset *al.* (2013) who conducts a survey on the knowledge of hygienic health among 159 butchers in slaughterhouses in Portugal and findings reveal that that the butchers are knowledgeable.

We observe that the respondents' practice of hygiene is moderate (57.41%). The study supports a study conducted in Ghana regarding knowledge and practice of hygiene by Joy (2012) and findings reveal that 52% of the respondents wash their hands before starting work, and 47% wash their hand sometime before work. 96% of them wash their hands all the time after work and 84% of the respondents wash their hands using water and detergent. This study is in contrast with Junaidu (2013) who conducts a study in Kano regarding hygienic health practices and report that 33.3% of them did not use protective clothes and 50.7% did not cover their hair. 47.9% of the

butchers handled money during slaughtering activities and 78.9% of them had worn jewellery materials. This study is not consistent with Ansari-Lariet *al.'s* (2010) survey of 97 butchers in four meat plants in Iran and found that their practices are poor.

This result shows that all factors listed in this study influence hygiene practice which includes regular supervision of butchers and regular inspection of butchers by appropriate management or health personnel. Others are knowledgeable on the importance of personal and environmental hygiene, training of butchers on proper ways of meat handling and slaughter processing including availability of portable water supply, good toilet facilities and washing hand facilities in the abattoir. This result agree with the study conducted by Sund and Chimango (2016), whose study show that the factors influencing hygiene practice by respondents in the Magochi area of Malawi are development of policy guideline and effective monitoring and supervision of workers and regular inspection of abattoirs by appropriate management or health personnel, availability of some facilities and equipment in the abattoir such as portable water supply, good toilet facilities, changing room, washing hand facilities, electricity and personal protective equipment like; apron, boot and mask. This study does not support Selejeskog, (2011) who reports that factors make butchers to practice hygiene in some parts of Cameron includes: training of workers on personal hygiene, environmental hygiene and proper ways of meat handling and slaughter processing.

### Nursing implication

The findings of this study will help nurses and other healthcare providers to know the level of knowledge of butchers on hygiene, their hygienic practice, and factors that influence them to practice proper hygiene in the abattoir. This will help nurses to plan to render their

services in such a way that will enhance educating and training other butchers in various ways of providing good hygienic practice in their abattoirs. Nurses in the communities should intensify their campaign on need for butchers to go formal training on how to practice proper hygiene in the abattoirs and during their slaughtering activities.

### CONCLUSION AND RECOMMENDATIONS

A good knowledge and hygiene practice of butchers reduce the rate of meat borne diseases in Nigeria. Thus, the study has identified the level of knowledge of butchers on hygiene, the level of hygiene practice among butchers, and the factors that make them to be hygienic. Among the factors that make them to practice hygiene include: regular supervision of butchers by appropriate management, training of butchers on proper way of meat handling, availability of protective clothes and development of abattoir's policy guideline.

It is recommended that; government should develop an abattoir's policy guideline to ensure close to perfect hygiene. They should also organize a free formal training of butchers on hygiene and motivate butchers to practice hygiene by providing them with protective clothes such as mask, boot and apron. Government should build for our butchers a modern abattoir with good toilet, washing hand facilities, and provide portable water supply. Programs on health education and improvement of community awareness about the importance hygiene among butchers should be planned and implemented.

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