

## Knowledge of Hygiene Among Abattoir Management Workers in Delta Central Senatorial District, Nigeria

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### **Abstract**

*This study focused on knowledge of hygiene among abattoir management workers in Delta Central Senatorial District, Nigeria. The population for this study comprised of all slaughterhouse workers in Delta Central Senatorial District. Descriptive cross-sectional survey design was adopted for the study. The sample size was seven hundred and sixty respondents. Data was collected using a self-structured questionnaire with a reliability coefficient of 0.76 and was analyzed using descriptive statistics such as frequencies, percentages, mean, standard deviation while ANOVA and logistic regression test was used for testing the hypotheses at 0.05 level of significance. The finding of the study revealed that majority of the 629(83.1%) had good knowledge of abattoir management while less than one quarter 128(16.9%) had poor knowledge. The tested hypotheses revealed there were significant relationship between training and knowledge of abattoir management ( $p<0.05$ ), years of work experience and knowledge of abattoir management ( $p<0.05$ ), age and knowledge of abattoir management ( $p<0.05$ ) among slaughterhouse workers. It was concluded that abattoir workers needs intervention strategies to sustain the level of knowledge of good abattoir management. It recommended amongst others that training should be given to abattoir workers by the Government, management and relevant stakeholders in areas of management and control measures to minimize risks improve adherence to occupational safety.*

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**Keywords:** Abattoir, Delta Central, Hygiene, Knowledge, Workers

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## INTRODUCTION

Food borne diseases have contributed to over millions of death in the world, much of which occur in developing nations including Nigeria. This could occur due to the poor state of abattoir and meat processing managements and inspection in recent times. Microbial infection emanated from food borne disease are common in developing countries particularly in Nigeria because of the prevailing poor food handling and sanitation practices in the abattoir by slaughterhouse workers. Studies of Haileselassie et al (2013) asserted that poor sanitary practices, inadequate food safety laws, weak regulatory system, lack of financial resources and lack of adequate knowledge among abattoir workers create the chance of food borne disease prevalent. The implementation of abattoir management services would be successful only if the handlers and abattoir staff have a good knowledge of good production practices. Hence, food institutions were more concerned with the prevention and transmission of human diseases through contaminated food and food products and with the improvement of hygienic production, processing and distribution.

Abattoir is a place where creatures are executed to give nourishment as a meat. Abattoir management exists principally to give the fitting condition to butchering domesticated animals and controlling waste spill. Studies of Adonu et al. (2017) revealed that requisite abattoir management programme is essential for proper operation, safe meat production which includes good manufacture practices and standard operating procedure. This is necessary to reduce the aftermath of poor handling and implementation of hygiene practices by abattoir staff. The abattoir management services include proper waste disposal, safety practices, among others. Ekpo (2019) stipulated that abattoir is a facility that generates solid, liquid and gaseous wastes that are deleterious to human health. It is essential to note the level of knowledge, attitude and safety practices towards abattoir management services.

Therefore, knowledge is the understanding of people towards a particular thing. Most abattoir workers lack basic knowledge of management service in the establishment which predisposed to poor hygiene practices. Haileselassie et al. (2013) reported a poor knowledge of safety practice among abattoir staff and only few of them had knowledge of related disease. Many factors including poor hygiene, sanitation and improper operation in the abattoir establishment have been lingering over the recent times. The incidence and prevalence of food borne disease were very high among consumers of meat and slaughterhouse workers leading to increase in mortality rate in the developing nations, Nigeria inclusive. In spite of the institution of safety materials and laws, slaughterhouse workers working at abattoirs have constitute or serve as vehicle for meat contamination and reservoir of food borne microorganisms. This study therefore was designed to comparatively assess the knowledge, attitude and practice of hygiene among abattoir management workers in Delta Central Senatorial Districts.

### Aim

The aim of this study was to determine the knowledge of hygiene among abattoir management workers in Delta Central Senatorial District, Nigeria.

## **METHODOLOGY**

### **Area of the study**

The area of this study was Delta Central Senatorial District, Delta State

### **Research design**

This study adopted a descriptive, cross sectional survey design.

### **Population of the Study**

The population of this study comprised of all slaughterhouse workers in eight Local Government Areas in Delta Central Senatorial District, Nigeria.

### **Sample and Sampling Techniques**

#### **Sample size Determination**

The sample size of this study was 760. This was determined using Confidence Level Approach for a finite population

$$n = z \sqrt{\frac{P \times q}{e^2}}$$

#### **Sampling Techniques**

Multi stage sampling procedure was adopted for the study to select the participants which were done in three stages.

**Stage one:** simple random sampling techniques were adopted to select all the Local Government Area in Delta central senatorial district without any form of replacement.

**Stage two:** cluster sampling techniques was employed to select five abattoir houses in a group from each Local Government Area for the study to form a cluster.

**Stage three:** this final stage involved the use of disproportionate stratified sampling techniques to select slaughterhouse workers for the study because of the characteristics of interest they possessed.

#### **Instrument for Data Collection**

The instrument used to elicit data for this study was a self-structured questionnaire. The title of the questionnaire was “Knowledge of hygiene towards Abattoir Management service and Questionnaire which had five sections; A, B, C, D and E.

#### **Validity of the Instrument**

The instruments were validated by three experts who included the supervisor and two lecturers from the department of Human Kinetics, Health and Safety Studies.

### Reliability of Instrument

A test-retest of the instrument was carried out among 40 abattoir slaughters in Port Harcourt metropolis of Rivers State using Pearson Product Moment Correlation Coefficient (r) with a value of 0.74.

### Method of Data Collection

Data was collected through the use of instrument. The researcher with three assistants administered the instrument to the respondents.

### Method of Data Analysis

Data collected were analyzed using Statistical Products for Service Solution (SPSS) version 23.0. Descriptive statistical tools were used to answer questions and demographic information, while regression models were used to determine the relationship between variables.

## RESULTS

**Research question 1:** What is the knowledge of hygiene among abattoir management among slaughterhouse workers in Delta Central Senatorial District?

**Table 4.1: Knowledge of hygiene among abattoir management workers in Delta Central Senatorial District**

SN	Items	Responses		Decision
		Correct F(%)	Incorrec t F(%)	
1	Using protective clothing or devices on a daily basis can prevent occupational hazards	747(98.7)	10(1.3)	Good
2	One of the important results of compliance with abattoir laws is that it helps in minimizing the spread of diseases	653(86.3)	104(13.7)	Good
3	Non-compliance does not result in transmission of disease from animal to human beings	592(78.2)	165(21.8)	Good
4	Antemortem inspection should be done before the animal is slaughtered	595(78.6)	162(21.4)	Good
5	Postmortem inspection can be done by any person working at the abattoir	562(74.3)	194(25.7)	Good
6	If meat processing is done in good hygienic condition, it can lead to spread of pathogens to the general public	494(65.6)	259(34.4)	Good
7	Good personal hygiene by abattoir workers can result in contamination of the processed carcass	509(67.8)	242(32.2)	Good
8	All equipment used during meat processing should be properly washed and sterilized after each usage	607(80.2)	149(19.7)	Good
9	Disposal of solid waste, blood and effluents into the nearby river does not cause water pollution	615(81.2)	142(18.8)	Good

10	Provision of good sanitation to the abattoir environment will help reduce the spread of disease to the neighboring community	696(91.9)	61(8.1)	Good
11	Adequate water supply is needed in all slaughter house before operation	721(95.2)	35(4.6)	Good
12	Disinfection of slaughterhouse before operation is important in slaughter houses	677(89.4)	75(9.9)	Good
13	Proper disposal of solid wastes, blood and effluent into nearby river may not cause water pollution	434(57.3)	323(42.7)	Good
14	Clearing of drainage in the abattoir facility may help for easy flow of water	689(91.3)	65(8.7)	Good
15	Sanitation in the abattoir facility may help for easy flow of water	708(93.5)	48(6.3)	Good
16	Sanitation in the abattoir environment may control the spread of infections	736(97.4)	20(2.6)	Good
17	Training on safety and hygiene will enhance quality of service among workers	721(95.2)	35(4.6)	Good
	<b>Overall</b>	<b>629(83.1)</b>	<b>128(16.9)</b>	<b>Good</b>

Table 4.1 showed the knowledge of abattoir management among slaughterhouse workers in Delta Central Senatorial District. The result showed that, majority of the respondents 629(83.1%) had good knowledge of abattoir management while less than one quarter 128(16.9%) had poor knowledge. Majority 747(98.7%) knew that using protective clothing or devices on a daily basis can prevent occupational hazards, 736(97.4) knew that sanitation in the abattoir environment may control the spread of infections, and 721(95.2%) knew that adequate water supply is needed in all slaughter house before operation. Thus, the knowledge of abattoir management among slaughterhouse workers in Delta Central Senatorial District was good.

**Hypothesis 1:** There is no significant relationship between training and knowledge among abattoir management workers in Delta Central Senatorial District

**Table 4.13: Logistic regression showing relationship between training and knowledge among abattoir management workers in Delta Central Senatorial District**

Training	Practice		Df	$\chi^2$	p-value	Odds Ratio (OR)	95%CI	
	High F(%)	Low F(%)					Lower	Upper
Monthly	45(70.3)	19(29.7)	2	7.72	0.01*	Ref		

Quarterly	170(82.5)	36(17.5)	1	0.03*	1.50	1.26	1.95
Yearly	414(85.0)	73(15.0)	1	0.00*	1.42	1.23	1.75

**\*Significant. p<0.05**

Table 4.13 showed the binary logistic regression of relationship between training and knowledge of abattoir management. On bivariate analysis, the findings of the study showed a significant relationship between training and knowledge of abattoir management (p<0.05). The result showed that those who had yearly training were about 1 time more likely to be knowledgeable about abattoir management (OR = 1.42, 95%CI: 1.23 – 1.75) compared to those who had monthly training. Thus, the null hypothesis which stated that there is no significant relationship between training and knowledge of hygiene among abattoir management workers in Delta Central Senatorial District was rejected.

**Hypothesis 2:** There is no significant relationship between years of work experience and knowledge hygiene among abattoir management workers in Delta Central Senatorial District

**Table 4.14: Logistic regression showing relationship between years of work experience and knowledge hygiene among abattoir management workers in Delta Central Senatorial District**

Years of work experience	Practice		Df	$\chi^2$	p-value	Odds Ratio (OR)	95%CI	
	High F(%)	Low F(%)					Lower	Upper
1-3 years	9(75.0)	3(25.0)	3	11.96	0.01*	Ref		
4-6 years	81(72.3)	31(27.7)	1		0.84	1.14	1.29	4.52
7-9 years	268(83.5)	53(16.5)	1		0.44	1.59	1.15	2.26
≥ 10 years	271(86.9)	41(13.1)	1		0.25	1.45	1.12	1.74

**\*Significant. p<0.05**

Table 4.14 showed the binary logistic regression of relationship between years of work experience and knowledge of abattoir management. On bivariate analysis, the findings of the study showed a significant relationship between years of work experience and knowledge of abattoir management (p<0.05). The result showed that those who had 4-6 years of work experience were about one time more likely to have good knowledge of abattoir management (OR = 1.14, 95%CI: 1.29 – 4.52) compared to those who had 1-3 years of experience. Thus, the null hypothesis which stated that there is no significant relationship between years of work experience and knowledge of hygiene among abattoir management workers in Delta Central Senatorial District was rejected.

**Hypothesis 3:** There is no significant relationship between age and knowledge of hygiene among abattoir management workers in Delta Central Senatorial District

**Table 4.15: Logistic regression showing relationship between age and knowledge of hygiene among abattoir management workers in Delta Central Senatorial District**

Age	Practice		df	$\chi^2$	p-value	Odds Ratio (OR)	95%CI	
	High	Low					Lower	Upper
	F(%)	F(%)						
20-29 years	16(55.2)	13(44.8)	3	389.23	0.01*	Ref		
30-39 years	159(75.7)	51(24.3)	1		0.00*	1.32	1.23	1.44
40-49 years	142(86.6)	22(13.4)	1		0.00*	1.15	1.09	2.24
≥ 50 years	312(88.1)	42(11.9)	1		0.00*	1.13	1.09	1.18

**\*Significant.  $p < 0.05$**

Table 4.15 showed the binary logistic regression of relationship between age and knowledge of abattoir management. On bivariate analysis, the findings of the study showed a significant relationship between age and knowledge of abattoir management ( $p < 0.05$ ). The result showed that those who were aged 30-39 years were 1.32 times more likely to have good knowledge of abattoir management (OR = 1.32, 95%CI: 1.23 – 1.44) compared to those who were aged 20-29 years. Thus, the null hypothesis which stated that there is no significant relationship between age and knowledge of hygiene among abattoir management workers in Delta Central Senatorial District was rejected.

## DISCUSSION

The finding of the study showed that majority of the respondents had good knowledge of abattoir management. Majority knew that using protective clothing or devices on a daily basis can prevent occupational hazards; majority knew that sanitation in the abattoir environment may control the spread of infections, and majority knew that adequate water supply is needed in all slaughter houses before operation. This shows that respondents possessed good knowledge of abattoir management. The finding of this study corroborates with the studies of Yenealem et al (2020), Abdulluhi et al (2016) and Tegegne & Phy (2017). Their studies reported that there was good knowledge of abattoir management among abattoir workers. The finding of the study is also in keeping with that of Asmani et al (2018) and Adisa & Omitogu (2019) whose studies revealed there was good knowledge of abattoir management among abattoir workers. By implication, this shows that there will be good safety practice among abattoir workers since they had good level of knowledge of abattoir management

Additionally, the studies of Adesokan et al (2018) and Chukwuma et al (2020) correspond with the findings of the present study. The similarities as reported between these studies might be attributed to the fact that workers must have experienced activities that improved

their knowledge. However, the study of Adebukola et al (2015) is not in keeping with the finding of the present study. Their study reported there was poor good knowledge of abattoir management among abattoir workers. This might be so because; workers may not have gotten any experience and information to improve their knowledge. However, sanitary inspection of abattoir by relevant health agencies might also contribute to good knowledge of abattoir management among abattoir workers. Also, covid-19 pandemic protocol must have contributed to the knowledge of abattoir management. However, educational level and management strategies for regular training can play important roles in the knowledge of abattoir management.

The finding of the study revealed a significant relationship between training and knowledge of abattoir management. This result showed that those who had yearly training were about 1 time more likely to be knowledgeable about abattoir management indicating that training is related to knowledge of abattoir management. The finding of this study is consistent with study Fariba et al (2018) who discovered that training is related to knowledge of abattoir management. The finding of this study also agrees with that of Adesokan et al (2018) and Asmani et al (2018). They revealed that training increases the knowledge of abattoir management among workers. This might be so because training which is the action of teaching a person a particular skill or types of behavior towards helps in making an individual know more. However, no previous study deviates from the finding of the present study. This indicates that training should be a prerequisite in job placement around the world.

The finding of the study revealed a significant relationship between years of work experience and knowledge of abattoir management. The result also showed that those who had 4-6 years of work experience were about one time more likely to have good knowledge of abattoir management indicating that work experience is related to knowledge of abattoir management. The finding of the study is in keeping with that of Jenpanich (2015), Marin et al (2017), Asmawi et al (2018), Khanal & Poudel (2017). These studies reported that years of work experience is a major factor in the knowledge of abattoir management among workers. The finding of this study is also related to that of Tegegne and Phyto (2017), Yakubu et al (2016) and Abdillahi et al (2016) whose studies reported that work experience contributes to occupational hazard and knowledge of abattoir management among abattoir workers. This is so because years of working experience improves knowledge of workers. The finding of the study is also related to the studies of Jenpanich (2015), Baloch et al (2020) and Kyayesimirs et al (2019). Their studies revealed that years of working experience is associated with occupational hazard and knowledge of abattoir management among abattoir workers. This is so because years of working experience exposes workers to safety skills and help workers with appropriate wealth of knowledge. Other factors that may play important roles include level of education and willingness of individual in acquiring knowledge and putting that knowledge into action or practice.

The finding of the study revealed was significant relationship between age and knowledge of abattoir management. The result also showed that those who were aged 30-39 years were 1.32 times more likely to have good knowledge of abattoir management indicating that age is related to knowledge of abattoir management. The finding of this study corresponds with the studies Haileselassie et al (2013), Abdul-Rahaman et al (2020), and



Gadisa et al (2019). Their studies revealed that age is significantly associated with knowledge of abattoir management among abattoir workers. The finding of the study is also in line with that of Marin et al (2017) whose studies outlined that age is related to the knowledge of abattoir management among workers. The similarities reported might be attributed to the fact that age across the globe contributes to the improvement of knowledge which may transcend in reality. Hence, there is the tendency that age of workers influences their knowledge. However, years of working experience and education may play important roles.

### **Conclusion**

Based on the findings of the study, it was concluded that abattoir workers needs intervention strategies to sustain the level of knowledge of good abattoir management. Socio-demographic characteristics such as age, training, and years of work experience influences knowledge of hygiene among abattoir management workers in Delta Central Senatorial District.

### **Recommendations**

In view of the findings of this study, the following recommendations were made:

1. Training and education remain the best methods for managing the adverse health effects that are common among abattoir workers. Training should be given to abattoir workers by the Government, management and relevant stakeholders in areas of management and control measures to minimize risks, improve adherence to occupational safety.
2. Ministries in charge of labour and productivity from time to time should go for inspection of abattoirs to ascertain the condition of abattoirs, occupational hazards prevalent and the method of coping strategies adopted
3. The government, ministries of health/environment and other relevant agencies should embark on health education and awareness campaign on occupational hazards among abattoir workers to enhance good knowledge and better safety precautions workers.
4. Through the mass media, the Government and stake holders should organise a fresher training for abattoir workers to update their knowledge especially those with informal education and those with first school leaving certificate (FLSC)
5. Abattoir workers should be encouraged to attend seminars and workshops on how to manage and use their equipment in order to prevent accident and injury.

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