

Determination of the Background Characteristics of Abattoir Butchers in Sishiagu, Tamale Metropolis- Ghana

**Solomon Ossom Asare¹, Ahmed Abdu Bulama²,
Mary Athanasius Udoh³, Issifu Tahidu⁴**

¹Assinman Nursing and Midwifery Training college, Public Health Department, Assin Foso, Ghana; ²National Space Research and Development Agency (NASRDA), Abuja, Nigeria; ³Medical Microbiology and Parasitology Department, Faculty of Basic Clinical Sciences, University of Uyo, Uyo, Akwa Ibom State, Nigeria; ⁴Public Health Department School of Hygiene, Tamale Northern Region, Ghana
asaresolomon.as@gmail.com

Article Info:

Submitted:	Revised:	Accepted:	Published:
Jan 20, 2025	Feb 6, 2025	Feb 18, 2025	Feb 23, 2025

Abstract

This study aimed to determine the background characteristics of abattoir butchers in Sishiagu, Tamale Metropolis. A total of two hundred structured questionnaires were used to collect data on participants' background characteristics of abattoir butchers, and data analysis was performed using SPSS version 21. The results showed that all butchers (95.5%) in this study were male, while 4.5% with 20.7% aged less than 20yrs 43.7% between 20yrs and 30 yrs, 25.9% 31yrs to 40yrs, 7.4% 41yrs to 50yrs and 2.2% 51yrs to 60yrs, less than half (43.7%) of the butchers were older than 29yrs. Additionally, 61.9% of butchers were married, while 36.6% were single and Divorced was 1.5%. The study found that 46% had less than 10 years of work experience, while 24% had 11 to 20 years of experience. Notably, 20.7% of butchers were uneducated, with only 0.7% with postgraduate, 5.9% holding a university degree, 26.7% with SSS/SHS and 20.7% with JHS. Furthermore, tenure of

years in the business was found to be 30.4% at the age of 1yrs to 5yrs, 35.6% at 6yrs to 10yrs and 34.1 % at 11yrs. There was a clear understanding that younger generation at the age of 20yrs to 40yrs is taking over the Abattoir Butchers. In conclusion, the study indicates that the work force in the abattoir are younger generation based on the background characteristics and as such a moderate awareness regarding meat hygiene among butchers and meat workers in Sishiagu, Tamale Metropolis should be obtainable.

Keywords: Determine Background, Characteristics, Abattoir, Butchers, Sishiagu, Tamale, Metropolis

INTRODUCTION

A slaughterhouse, which is the same as an abattoir, is a designated area animal are slaughtered to provide food. It could also be distinct as any place that is used for the slaughter of animals whose meat is meant for human consumption. Killing of animals for human ingestion is essential globally and dates back to earliest times (Bello & Oyedemi, 2009). The practice of slaughtering livestock (cattle, goat or sheep) to provide meat also offers very beneficial by-products such as skin and leather. By the year 2007, world meat consumption had risen from as low as 70 metric tonnes in 1961, to a whopping 268 metric tonnes. During that same period, the amount of meat consumed worldwide per each individual increased from 22 kg to a staggering 40 kg annually (Chepkemoi, 2015).

The growth of the slaughtering industry depends on states as results of cultural transformations, the kinds of animals killed and wealth of the nation (Long, 1990). Countries which are developed for instance the USA and the U.K, traditional slaughter amenities were very limited to town centres (Broadway & Ward, 1990). It became centralised, large-scale, and computerized in the 20th century. They are now primary meat-packing plants where animals are killed and the meat are packed for supply (Broadway, 2002; Broadway & Ward, 1990). The aim of contributing to this modification was shopping malls taking over butchers as the prime distributors and the improvement in restaurants and fast food establishments requiring huge amounts of uniform products (Broadway, 2002). Huge slaughter amenities had the required capital to respond to 2 these market demands and also augment government regulations proposed at convalescing public wellbeing both of which required advanced equipment (Broadway, 2014; Fitzgerald, 2010).

The procedures in slaughtering are vastly labor-intensive which comprises personnel handling carcasses at diverse phases. Proper hygiene practices during slaughtering such as washing of hands with soap, the use of disposable towels, personal protective clothing, and hand gloves when not in place have to be introduced during processing to trim down chances of microbiological spot of the carcasses (Wambui, Karuri&Lamuka, 2017). Foodborne illnesses occur generally in underdeveloped countries as a product of improper hygiene and safety practices, poor food hygiene laws, inadequate dogmatic mechanisms, lack of capitals to procure safer equipment and insufficient education of meat handlers (Abdullahi, Hassan, &Kadarman, 2016). Majority of foodborne illnesses occurred from animal as food (Abdullahi et al., 2016).

According to Gashe, (2022), improper food handling and improper personal hygiene of slaughterhouse workers contribute to almost 97% of foodborne-illness outbreaks amongst patrons and has led to endanger peoples life in some cases. Contamination of meat throughout processing includes the equipment, water, contact surfaces and personnel (Govender et al., 2013; Nyamakwere et al., 2016).

The Ghana Food and Drugs Authority (FDA) require any facility being used as an abattoir to acquire tools for slaughtering, holding, processing, preserving and distribution of carcass. These guidelines indicate several concerns to guarantee that meat is wholesome for human consumption; slaughtering of livestock should take place in a facility that has been duly registered by the Authority that is mandated to do so. The aim of this study is to determine the background characteristics of abattoir butchers in in tamale metropolis.

METHODS

The Geography of The Study Area

The Tamale Metropolitan Assembly is one of the 18 districts in the Northern Region. The Metropolis can be found in the central part of the Northern Region and is bordered by Sagnarigu to the North, Mion District Assembly to the East, Tolon to the West, Central Gonja to the South West and East Gonja to the South.

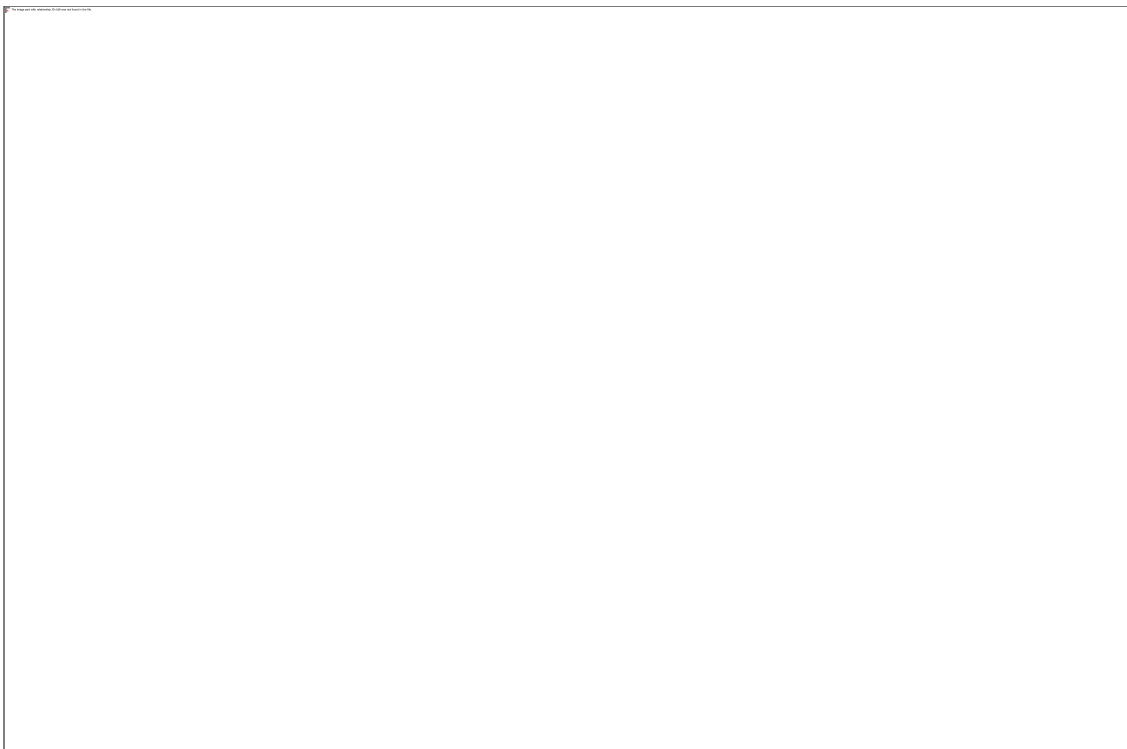


Figure 1: Map of Tamale Metro with Slaughterhouses locations

Research Design

The study design adopted for this study is a descriptive cross-sectional using mix method (qualitative and quantitative). This method was adopted considering the nature of the research topic and the time at the disposal of the researcher.

Study Population

The study population comprised of only slaughterhouse workers in the selected slaughterhouses, namely Sishiagu, in Tamale Metropolis aged 18 to 65 years of who handle meat.

Sample Size Determination

The sample size was calculated with the assumption that the population proportion of Knowledge, Attitudes and Practices was 50%, a 10% margin of error at 95% confidence level. The sample size was estimated using the following formula;

Using the formula Cochran's formula for sample size determination: $= \frac{t^2}{2!} +$

$$\dots (1 + x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \dots$$

Where m = margin of error (10%)

P = Population proportion

T = Z-value for 95% confidence level (1.96)

$$\text{Therefore } n = \frac{(1.96)^2 \times 0.5(1-0.5)}{(1.96)^2} = 96.04 \text{ } 96.$$

However, a 20% contingency of 19 was added to give a minimum sample size of, $n=115$.

Sample Selection

A cluster sampling design was used for the study where slaughter men were selected from the three selected abattoirs (Sishiagu,) in the Tamale Metropolis. The minimum sample size (n) for the study population was divided by the number of clusters (slaughterhouses) in the Metropolis, ($n/$ (Number of clusters) = $115/3$). A minimum of 39 slaughterhouse workers was selected in each cluster (slaughterhouse) across the board. Then at each abattoir, a list of slaughterhouse men was generated on the field and the 39 workers were further randomly sampled out of the field generated list using a simple lottery method.

Dependent Variables

The main dependent variables in the study were the meat handling knowledge, attitude and practices of the slaughterhouse men.

Explanatory Variables

The explanatory variables were age, marital status, parity, educational level, occupation, and religion.

Variable Definition in The Study

Age	Self-reported age of respondent at last birthday (<20yrs, 20-30yrs, 31-40yrs, 41-50yrs, 51-60yrs)	Categorical
Sex	Identified sex of respondent at the time of interview (male or female)	Categorical
Marital status	Self-reported marital status of the respondent at the time of interview (single, married, divorced)	Categorical
Educational level	The self-reported highest educational level attained (No education; Primary; Middle/Junior High School; Secondary;	Categorical
Tenure of years in business	Self-reported number of the respondent in the butchery business (1-5yrs, 6-10yrs, 11+yrs)	Categorical

Source of Data

Both primary and secondary data were used in this study. Primary data was used to obtain information about the study from the respondents through questionnaires. The sources of secondary data were acquired from the Annual Reports. Background information of the study area was extracted from these secondary sources.

Data Collection Procedures

Questionnaire administration through one-on-one interviews, focus group discussions and observations were the three main methods used to gather information for analysis in the study. The one-on-one interview was used to gather information on both quantitative and qualitative data while the focus group discussion and observation were used to gather information on qualitative data which provided deeper insight on the quantitative data.

Data Collection Tools

A structured questionnaire, key informant interview guide, focus group discussion guide and an observation check list were the main tools used to gather data in the study

Structured Questionnaire

Given the nature of the topic, a structured questionnaire was the main and the most appropriate instrument used for data collection. This was used to gather information mainly on quantitative data. The questions were open-ended and closed formats. In closed format, the researcher allowed the respondents to choose from several options. The open-ended type also offered the respondents the opportunity to be expansive in expressing their opinions on the question(s) asked.

Closed-ended questions are easy to code, record, and analyses (Leung, 2001). The ordering of the questions was also given serious consideration. The questionnaire comprised of the following sections; section A which captured the demographic information of the slaughterhouse workers.

Section B also captured the various meats handling knowledge of the butchers, section C was used to gather information on the attitude and practice of respondents and then section D captured data on operational challenges experienced by the respondents. A total of 130 butchers with at least 39 from each of the three abattoirs responded to the structured questionnaire. The 39 respondents from each abattoir were randomly selected to avoid selection bias.

Key Informant Interview Guide

The key informant interview guide was used to mainly collect qualitative data which gave more insight on the findings from the quantitative data. In all, five (5) key informant interviews were conducted with the three (3) slaughterhouse heads of the three abattoirs involved in the study and two (2) animal health (veterinary) officers involved in the inspection and supervision of the meat processed at the abattoirs to ensure compliance with hygiene and safety standards. The key informants were purposively sampled based on their experience and the key roles they play in the operations of the three selected slaughterhouses in the study.

The key informant interview guide was largely made of open-ended questions to allow for more elaborate responses from the key informants. The key informant interview guide was divided into four main sections, A to D. Section A focused on the demographic characteristics of the respondents, section B sort the views of the respondents on the personal hygiene knowledge of butchers operating at the abattoirs. Section C also focused on the attitude and practices of the butchers while Section D sort the views of the respondents on the challenges of both operators at the slaughterhouse and the inspectors which affect hygiene standards at the abattoirs. Each key informant interview session was recorded and later transcribed into word document which was used for analysis in Nvivo10.1.

Focus Group Discussion Guide (FGDs)

The focus group discussion guide was also used to collect mainly qualitative data which gave further insight on the findings from the quantitative data. A total of three (3) focus group discussions were conducted, one at each abattoir with eight (8) selected butchers per focus group discussion session as participants. Participants for the focus group discussion were also purposively sampled based on their experience and the key roles they play in the operations of the three selected slaughterhouses in the study.

The focus group discussion guide was made of open-ended questions which also allowed for more elaborate responses from the participants that explained some of the findings from the quantitative data. The guide was also in four sections, A to D. Section A focused on the demographic characteristics of the participants while section B sort to gather information on the personal hygiene knowledge of butchers operating at the abattoir.

Section C also focused on the attitude and practices of the butchers while Section D sort the views of the respondents on the hygiene challenges at the slaughterhouses.

Notes and recordings captured during the FGDs which were later transcribed and analyzed using Nvivo 10.1.

Pre-Testing of Data Collection Tools

The quantitative questionnaire was pretested on a purposively selected slaughterhouse at Sishiagu, on the 12 butchers (approximately 10% of the total sample) while the key informant interview guide was pre-tested on five (5) purposively sampled butchers from the same previously sampled 12 butchers.

Validity and Reliability

The validity of the structured questionnaire were ensured by checking whether the content domains of each point on the scale was relevant to the purpose of measuring the meat handling knowledge, attitudes and practices of the study population. The pre-test data was used to run a reliability test for the item questionnaire and found the scale was reliable at a Cronbach's Alpha level of 0.723.

Convenient locations such as offices were chosen for the face-to-face interviews with the respondent to reduce distraction during the interviews. In the case of the FGDs, a comfortable and conducive venue for the discussion convenient for participants to be free from interruptions was agreed upon by participants and the researcher. The Sitting arrangement was circular to enable participants to see and hear one another and maintain eye contact. Each discussion lasted an average of 53 minutes and before a discussion started, the moderator and note-taker introduced themselves and allowed participants the opportunity to do the same.

All the discussions were tape-recorded to ensure that the views of participants have been fully captured. In addition to the audio recordings, detailed field notes were taken during every discussion which helped to capture responses and non-verbal actions during the discussion processes. Threats to validity were addressed by the researcher through the collection of quality data in the research process; all audio recordings were transcribed verbatim by two independent people with similar experience and compared for consistency. No significant differences were found. Also, the researcher solicited feedback from participants by sharing the detailed notes recorded with them after each discussion to

ensure that participants agreed with the notes like a true interpretation of their opinions. To minimize interviewer biases, the researcher ensured that not only one, but two facilitators moderated the discussions.

Quantitative Data Analysis

This section deals with the methods used to examine the data. The main tools employed to analyse the data was the Statistical Package for Social Sciences (SPSS version 23). Using the SPSS, a template was created for the questionnaire capturing all the variables. The variables were coded and each respondent question entered into the SPSS template. The results for the level of meat handling Knowledge, Attitude and Practices of the slaughterhouse workers were

computed as indices using principal component analysis and then categorized based on 50th quartile score as low and high for knowledge, low desirable and high desirable for attitude and then high recommended and low recommended for practices. These were further summarized into percentages and subsequently presented as figures. The operational challenges of the butchers were also computed and presented as frequencies and proportions in tables.

Qualitative Data Analysis

The key informant interviews and the FGDs were analyzed with the aid of Nvivo version 10.1, where themes were formulated from the various responses and coded as nodes in Nvivo and reported as the summary of findings.

The qualitative data on the meat handling practices of the slaughterhouse workers were transcribed in full text, word-for-word and analyzed using a five-steps thematic analysis approach adopted from Braun & Clarke (2006). This analytic technique was considered reliable and appropriate by the researcher for this study because of the flexibility it offers and provides a rich analysis of the data generated. The thematic analysis process followed was with the aid of Nvivo 10.1.

Research Assistants

The researcher was assisted by three (3) research assistants for the data collection. The research assistants were trained for a day to help them understand the data collection tool. They were only used in the quantitative data collection which involved the administration of the structured questionnaire.

RESULTS

Table 1: Background Characteristics of Abattoir Butchers

Abattoir Butchers		
Background Characteristic Percent (%)	Number	
Sex of Respondents		
Male	129	95.5
Female	6	4.5
Age of respondents		
Less 20yrs	28	20.7
20yrs-30yrs	59	43.7
31yrs-40yrs	35	25.9
41yrs-50yrs	10	7.4
51yrs-60yrs	3	2.2
Marital Status		
Single	49	36.6
Married	83	61.9
Divorced	2	1.5
Level of education		
Degree holder	8	5.9
Postgraduate	1	0.7
SSS/SHS	36	26.7
JHS	62	45.9
No formal education	28	20.7
Tenure of years in business		
1yr-5yrs	41	30.4
6yrs-10yrs	48	35.6
11yrs +	46	34.1

Source: Field survey, 2019

A total of one hundred and thirty-five slaughterhouse butchers were recruited for this study at the time this research was conducted (Table 4.1). Out of 135 interviewed slaughterhouse workers, 129 (95.5%) of slaughterhouse butchers were males and 6 (4.5%) of them were females. Majority of the butchers at the slaughterhouses 59 (43.7%) were aged between 20-30 years of age and only a few 3 (2.2%) of them were within the age bracket of 51-60 years

of age. Also, more than half (61.9%) of the slaughterhouse workers were married, over a quarter (36.6%) of them were single and only 3, representing (2.2%) were divorced.

Further, 62 (45.9%) of 135 of the butchers at the slaughterhouses had attained up to Junior High School education, 26.7 % said they had Senior High School education and 28 (20.7%) of them were unlettered or had no formal education. The study took into consideration the number years of working experience of the slaughterhouse butchers and found that 41 (30.4%) of the butchers had 1-5 year of tenure in the business, 48 (35.6%) had between 6-10 years of work in the business and another 46 (34.1%) had 11 years and above worth of experience in butchery business.

DISCUSSION

This study Determine the Background Characteristics of Abattoir Butchers in Sishiagu, Tamale Metropolis. The demographic characteristics of the respondents show that majority of the respondents are within the ages of 20 -45years and majority are married. The result further shows that majority of respondents have formal education.

This study reveals that the respondents Background Characteristics of Abattoir Butchers. This study is in line with Hilda. (2011) to take a survey of 200 butchers. This study did not support. Bas et al. (2012) whose result show that their respondents lacks formal education and knowledge in environmental sanitation.

We observe that the respondents' Background Characteristic is moderate with male (95.5%) and female 4.55. The study supports a study conducted in Ghana regarding knowledge and practice of Butchers by Joy (2012) and findings reveal that 52% of the respondents are within the youth age with the age bracket of 20 yrs to 40yrs i.e. 69% starting work, and 80% with formal education. Thus, majority of the butchers are well experienced within the age of 6yrs-10yrs.

CONCLUSION

A good knowledge of Background Characteristics of Abattoir Butchers is to give knowledge of how Abattoir Butchers which will reduce the rate of meat borne diseases as regards the awareness of the background characteristics of Abattoir Butchers in Nigeria. Thus, the study has identified the level of knowledge of butchers back grown which gives

an edge toward hygiene level of practice among butchers. This qualify and give a standing factor that make them to be hygienic.

Thus, Government should consider the background of characteristics of Abattoir and Butchers facilities, and provide programs on health education and improvement of community awareness about the importance hygiene among butchers.

REFERENCES

- Bello, Y. O., & Oyedemi, D. T. A., (2009). The Impact of Abattoir activities and Management in Residential Neighborhoods: A Case study of Ogbomoso, Nigeria. *J Soc Sci.*, 19(2):121–127.
- Chepkemoi, M., Macharia, J. W., Sila, D., Oyier, P., Malaki, P., Ndiema, E., ... & Ommeh, S. C. (2017). Physical characteristics and nutritional composition of meat and eggs of five poultry species in Kenya. *Livestock Research for Rural Development*, 29(8), 1-11.
- Long, V. P., & Tarrant, P. V. (1990). The effect of pre-slaughter showering and post-slaughter rapid chilling on meat quality in intact pork sides. *Meat Science*, 27(3), 181-195.
- Broadway, M. J. (1995). 18 | MICHAEL J. BROADWAY. *Any Way You Cut it: Meat Processing and Small-town America*, 17.
- Broadway, M. J. (1995). 18 | MICHAEL J. BROADWAY. *Any Way You Cut it: Meat Processing and Small-town America*, 17.
- Broadway, P. R. (2014). Determining the prevalence and antimicrobial susceptibility of salmonella serovars isolated from US retail ground pork. Fitzgerald, 2010
- Fitzgerald, A. J., & Taylor, N. (2014). The cultural hegemony of meat and the animal industrial complex. In *The rise of critical animal studies* (pp. 165-182). Routledge.
- Wambui, J., Karuri, E., Lamuka, P., & Matofari, J. (2017). Good hygiene practices among meat handlers in small and medium enterprise slaughterhouses in Kenya. *Food Control*, 81, 34-39.
- Abdullahi, A., Hassan, A., Kadarman, N., Junaidu, Y. M., Adeyemo, O. K., & Lua, P. L. (2016). Occupational hazards among the abattoir workers associated with noncompliance to the meat processing and waste disposal laws in Malaysia. *Risk management and healthcare policy*, 157-163.
- Abdullahi, A., Hassan, A., Kadarman, N., Saleh, A., Barayab, Y. S. A., & Pei Lua, L., (2016). Food safety knowledge, attitude, and practice toward compliance with abattoir laws among the abattoir workers in Malaysia. *International Journal of General Medicine* 2016:9 79– 87.
- Gashe, M. (2022). *Assessment of Abattoir Facilities, Slaughtering Practices and Evaluation of Bacterial Load on Carcass and In-Contacts In Abattoirs of North West Amhara, Ethiopia* (Doctoral dissertation).
- Nel, S., Lues, J. F. R., Buys, E. M., & Venter, P. (2004). The personal and general hygiene practices in the deboning room of a high throughput red meat abattoir. *Food control*, 15(7), 571-578.
- Govender, V., Madoroba, E., Magwedere, K., Fosgate, G., & Kuonza, L. (2019). Prevalence and risk factors contributing to antibiotic-resistant *Staphylococcus aureus*

- isolates from poultry meat products in South Africa, 2015-2016. *Journal of the South African Veterinary Association*, 90(1), 1-8.
- Nyamakwere, F., Muchenje, V., Mushonga, B., Kandiwa, E., Makepe, M., & Mutero, G. (2017). Evaluation of meat safety knowledge, attitudes and practices among slaughter house workers of Amathole District in eastern Cape Province, South Africa.
- Hilda, I. (2011). A Survey of Abattoirs and Meat Handling Practices with Especially Reference to Meat Hygiene. Undergraduate thesis. College of Veterinary Medicine, University of the Philippines Los Baños, Laguna
- Joy, O. (2012). Impact of Effluent from Bodija Abattoir on the Physico-chemical Parameters of Oshunkaye Stream in Accra City, Ghana. *Afr. J. Biotechnol.* 6:1806-1811.