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# Operational Bottlenecks and Challenges of Slaughterhouse Workers in Tamale Metropolis Ghana

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## Abstract

This study focused on assessing operational bottlenecks and challenges of slaughterhouse workers in Tamale metropolis Ghana. The research aims to provide insights into the distribution and intensity of various activities near within the abattoir, this including. Access to potable water for the washing of carcasses after processing is a challenge, Difficulty with disposal of solid waste which is far away from the abattoir, Availability drainage for liquid waste management in the slaughterhouse, the slaughterhouse is not shielded sufficiently to prevent the entry of pests, and Non-availability of fumigation activities as a pest control measure as well as Non-availability of separate areas for skinning /dehairing process of the carcass. The study aims to evaluate the operational bottlenecks and challenges of slaughterhouse workers in Tamale metropolis Ghana. The research employed several spatial analysis techniques, such as density mapping, and hotspot analysis, to assess the spatial patterns and relationships between the abattoir and its surrounding areas. The spatial


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analysis identified potential issues such as the presence of critical infrastructure in close proximity to the slaughterhouse. Thus, solution to those challenges.

**Keywords:** Operational, Bottlenecks, Challenges, Slaughterhouse, Workers, Tamale, Metropolis

## INTRODUCTION

Food-borne diseases have been considered a main human health matter occurring generally in developing countries, especially in African countries, because of unsanitary treatment of food and poor hygiene practices [1]. The first international estimation of foodborne disease progressive to date shows that 2 in 20 people get ill from eating contaminated food each year, and 420,000 die from it [2].

The most substantial food exporters of the outbreaks were eggs, mixed food, fish and meat, and meat products [3]. The World Health Organization (WHO) estimated that worldwide foodborne illnesses are the reason for 600 million cases of ill health and 420,000 deaths annually, in the total of deaths, about 30% of these deaths were children less than 5 years old [4]. In growing nations, every year one-third of the total people are probably suffering from food-borne illness, and about 70% of the cases are related to the consumption of polluted food [5].

Food safety hazard analysis is used to assess the hazards to public health from food-borne risks, recognize and perform adequate hazard management measurements to decrease those hazards, and transfer with stakeholders about the hazards and measurements applied [6]. Workers in abattoirs, who are attracted to unsanitary exercise, contribute to climate zoonosis among the workers, and pollution of the meat for sale [7]. Developments and perfection in the classic tactic of meat hygiene have also been a focus of global organizations [8]. No tools in the slaughterhouses may command the production of harmful meat which can have critical health complications for consumers [9]. Quality of meat is related to stress so large animals need enough time to recover from transportation stress to improve meat quality and other practices management pre-slaughter [10]. Slaughterhouses are a main hazard for infectious diseases, with far-reaching transportation implications that demand dense public health interference [11].

Therefore, the consumption of meat and meat production in Ghana has been extensively

associated with cultural practices and religious beliefs [12]. Meat hygiene indicates a group of actions that want the application of fixed standards, icons of practice, and regulatory activities by the regulatory person to include the safety of the meat for humans to eat. Meat hygiene requirements must be met at various steps of production, operation, and transport, as well as for slaughter, meat processing tools, meat handlers, operational bottlenecks and challenges of slaughterhouse workers and the environment [13]. To provide a chance to improve meat safety performance which is important to consumers in terms of food supply [14].

In Ghana, several studies have been conducted on the meat safety knowledge, attitudes, and practices of meat handlers, but none have specifically focused on assessing the challenges of slaughterhouse workers, and practices of food handlers [5]. In any case of the transcend side of animal and zoonotic disease domination, meat safety, and public health, the slaughterhouse supplies an important source of information for livestock health. Registration of reasons for damnation in those nations with enough meat snooping is base for epidemiological disease control and welfare management [16].

In this study, we concentrated on operational bottlenecks and challenges of slaughterhouse workers of the key chain actors that provide meat to consumers, we designed a questionnaire to assess challenges of slaughterhouse workers in slaughterhouses and abattoirs because these places are highly susceptible to contaminations that can cause severe foodborne diseases [17].

This study represents the first attempt to evaluate the challenges of slaughterhouse workers and practices related to meat hygiene. The objective of this study was to assess the operational bottlenecks and challenges of slaughterhouse workers among butchers working in abattoirs in Tamale metropolis.

## RESULTS

**Table 1:** Variable Definition in The Study

| | | |
|---|---|---|
| Access to potable water for the washing of carcasses after processing is a challenge | Respondent's reported opinion on the challenge of access to potable water for the washing of carcasses after processing (Yes, No) | Categorical |
| Maintaining the slaughterhouse environment clean and hygienic regularly is a challenge | Respondent's view on maintaining the abattoir environment clean and hygienic regularly as a challenge (Yes, No) | Categorical |
| Difficulty with disposal of solid far away from the abattoir | Respondent's view on difficulty with disposal of solid far away from the abattoir as a challenge | Categorical |
| Non-availability drains for liquid waste management in the slaughterhouse | Respondent's view non-availability drains for liquid waste management in the slaughterhouse as a challenge (Yes, No) | Categorical |
| The slaughterhouse is not shielded sufficiently to prevent the entry of pests | Respondent's view on the slaughterhouse is not shielded sufficiently to prevent the entry of pests is a challenge (Yes, No) | Categorical |
| Non-availability of fumigation activities as a pest control measure | Respondents reported view on non-availability of fumigation activities as a pest control measure is a challenge at the abattoir (Yes, No) | Categorical |
| Non-availability of hot water for cleaning and sterilization purposes | Respondents reported view on non-availability of hot water for cleaning and sterilization purposes at the abattoir is a challenge (Yes, No) | Categorical |
| Non-availability of waste bins for solid waste collection | Respondents reported view on non-availability of waste bins for solid waste collection at the abattoir is a challenge (Yes, No) | Categorical |
| Non-availability of elevators or lifters for raising carcasses off the floor | Respondents reported view on non-availability of elevators or lifters for raising carcasses off the floor at the abattoir is a challenge (Yes, No) | Categorical |
| Non-availability of separate areas for skinning /dehairing process of the carcass | Respondent's reported view on non-availability of separate areas for skinning /dehairing process of the carcass at the abattoir is a challenge (Yes, No). | Categorical |

**Table 2:** Operational Bottlenecks/Challenges of Slaughterhouse Workers

| | Operational challenge | Number | **Percent (%)** |
|---|---|---|---|
| Access to Potable Water for The Washing of Carcasses After Processing Is A Challenge | | | |
| | No | 22 | 17.1 |
| | Yes | 107 | 82.9 |
| Maintaining the Slaughterhouse Environment Hygienic Regularly Is A Challenge | | | |
| | No | 48 | 37.5 |
| | Yes | 80 | 62.5 |
| Difficulty with disposal of solid abattoir far away From the Slaughter house | | | |
| | No | 32 | 18.1 |
| | Yes | 104 | 81.9 |
| Availability Drains for Liquid Waste Management In The Slaughterhouse | | | |
| | No | 10 | 8.0 |
| | Yes | 115 | 92.0 |
| The Slaughterhouse Is Not Shielded Sufficiently to Prevent the Entry Of Pests | | | |
| | No | 20 | 15.7 |
| | Yes | 107 | 84.3 |
| Non-Availability of Fumigation Activities as A Pest Control Measure | | | |
| | No | 27 | 21.8 |
| | Yes | 97 | 78.2 |
| Non-Availability of Hot Water Form Cleaning and Sterilization Purposes | | | |
| | No | 63 | 49.6 |
| | Yes | 64 | 50.4 |
| Non-Availability of Waste Bins for Solid Waste Collection | | | |
| | No | 49 | 39.5 |
| | Yes | 75 | 60.5 |
| Non-Availability of Elevators or Lifters for Raising Carcasses Off the Floor | | | |
| | No | 17 | 13.5 |
| | Yes | 109 | 86.5 |
| Non-Availability of Separate Areas for Skinning /Dehairing Process of The Carcass | | | |
| | No | 63 | 49.6 |
| | Yes | 64 | 50.4 |

## DISCUSSION

The operational challenges of slaughterhouse men manning abattoirs are crucial for the safety of the meat being processed or public safety as well as the safety of the workers themselves. The study found that waste (both liquid and solid) management, access to water for washing of carcasses and seasonality of market in terms of operations were largely acknowledged as key operational challenges by most of the butchers. This finding is not fully in agreement with another finding from a study by Legese et al., (2008), where the main problems of butchers working in abattoirs, were rather poor market infrastructures like road, and seasonality in production. However, the findings of Adeyemo, (2002) and Lawan et al., (2013) favourably support the finding of this study as they also found that in most slaughterhouses in Nigerian, the slaughtering and processing facilities such as good sewage or waste disposal systems, adequate clean water supplies and refrigeration that aid the work of butchers were not also available.

These challenges contribute partly and greatly to the poor state of meat handling hygiene and sanitation practices during meat processing which can lead to the outbreak of foodborne diseases (Bryan, 1988; Shapiro et al., 1999) and the spread of zoonotic diseases in human populations (Vaidya et al., 2004). Authorities particularly the Tamale Metropolitan Assembly should work to ensure adequate supply of clean water and waste management of equipment and systems at the various abattoirs within the metropolis.

The study also examined the challenges the slaughterhouse workers go through in their daily operations at the abattoirs and found that 107 (82.9%) of them expressed concerns regarding access to water for washing carcasses during the carcasses dressing process of meat handling.

More than half, 80 (62.5%) of the abattoir butchers also mentioned that they are often confronted with the challenge of maintaining the abattoir environment clean and hygienic regularly. The findings also revealed that a considerable number (104) proportionally representing 81.9 % of the butchers asserted that the difficulties in disposing solid waste far away from the abattoir. Meanwhile, 115 (92.0%) of the respondents said there were enough available drains to dispose of liquid waste generated in the slaughterhouses. Further, 107 (84.3%) the respondents also stated that the slaughterhouses were prone pets' attacks since abattoir facilities were not pets prove or shielded from pet's invasion. More than three-

quarters (78.2%) of the butchers stated that there no any form of fumigation activities to keep away pests and insects from their working facility.

Half (50.4%) of the study participants said there was no hot water available for cleaning and sterilization of their equipment during whenever they were at work at the slaughterhouse. A good number (75) of the respondents, resenting 60.5% of them mentioned that waste bins were available at the abattoir for waste collection. More so, about 86.5% of the butchers interviewed said there were no elevators or lifters for raising carcasses off the floor of the abattoir. When it came to the availability of separate places for slaughtering and skinning/dehairing, almost half (49.6) said they were constraint with the availability of such workspace.

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## CONCLUSION

Butchers level of Operational Bottlenecks/Challenges of Slaughterhouse Workers was very enormous regarding the hygienic meat production, personal hygiene and the diseases associated with meat because of lack of access to potable water for the washing of carcasses after processing, Maintaining the slaughterhouse environment hygienic regularly, disposal of solid abattoir as well as Non-availability of separate areas for skinning /dehairing process of the carcass. From this study it clearly describes the low perception levels of the butchers, their poor awareness and challenges in producing hygienic meat. The present study concluded that improving the knowledge and solving the bottlenecks of the butchers through various channels like government intervention, advertisements, seminars, presentations by some veterinary and medical health professionals, measures from

government public health department can provide a pavement for the production of clean meat and in protecting the health of consumers.

**Conflict of Interest**

There is no conflict of interest among all the contributors of this manuscript.

## REFERENCES

[1] Kehinde, G., A. Adejimi, and A.-H. Abiola, Assessment of knowledge, attitude, and practice of meat hygiene among meat handlers in Lagos State, Nigeria. The Nigerian Journal of General Practice, 2020. 18: p. 27.

[2] Bahir, M. A., et al., Knowledge, Attitude, and Practices (KAP) Regarding Meat Safety and Sanitation among Carcass Handlers Operating and Assessment of Bacteriological Quality of Meat Contact Surfaces at the Marrakech Slaughterhouse, Morocco. International Journal of Food Science, 2022. 2022: p. 4881494.

[3] Jianu, C. and I. Goleţ, Knowledge of food safety and hygiene and personal hygiene practices among meat handlers operating in western Romania. Food Control, 2014. 42: p. 214-219.

[4] Asabe, C., et al., Knowledge and Practices of Meat Hygiene among Meat Handlers and Microbial Profile of Meat in the Jos Abattoir, Plateau State. Journal of Epidemiological Society of Nigeria, 2020. 3: p. 9-21.

[5] Tegegne, H. A. and H. W. W. Phyo, Food safety knowledge, attitude and practices of meat handler in abattoir and retail meat shops of Jigjiga Town, Ethiopia. J Prev Med Hyg, 2017. 58(4): p. E320-E327.

[6] Blagojevic, B. and D. Antic, Assessment of the potential contribution of official meat inspection and abattoir process hygiene to biological safety assurance of final beef and pork carcasses. Food Control, 2014. 36(1): p. 174-182.

[7] Agu, A. P., et al., Hygiene practices in abattoir and slaughter slab, determinants and assessment of abattoir and slaughter slab facilities in Abakaliki, Ebonyi State South-East Nigeria. Afr Health Sci, 2021. 21(4): p. 1914-1923.

[8] Salines, M., et al., Risk categorisation of abattoirs in Europe: Current state of play. Food Control, 2023. 152: p. 109863.

[9] Fuseinir, O., F. Adzitey, and E. Sallah, An Assessment of Abattoirs, Slaughterhouses Ani) Slaughter Practices in The Three Northern Regions of Ghana. Tropical Veterinarian, 2019. 37: p. 53-64.

[10] Gadisa, B., Y. Yesihak, and K. Y, Evaluation of physical Facilities, Operation and Management Practice in Selective Public Abattoirs in Eastern Oromia, Ethiopia. International Journal of Agricultural Science and Food Technology, 2019: p. 043-049.

[11] Alhaji, N., et al., Assessment of Abattoir Workers' Knowledge, Perceptions and Preventive Preparedness during COVID-19 Pandemic in North-central Nigeria: The Health Belief Model. Sahel Journal of Veterinary Sciences, 2023. 20: p. 13-21.

[12] Kebede, M. T. and A. A. Getu, Assessment of bacteriological quality and safety of raw meat at a slaughterhouse and butchers' shop (retail outlets) in Assosa Town, Beneshangul Gumuz Regional State, Western Ethiopia. BMC Microbiology, 2023. 23(1): p. 403.

[13] Ashuro, Z., N. Zeysse, and M. Ayalew, Meat hygiene knowledge, handling practices and associated factors among meat handlers in Gedeo zone, Ethiopia. Sci Rep, 2023. 13(1): p. 15149.

[14] Wambui, J., et al., Good hygiene practices among meat handlers in small and medium enterprise slaughterhouses in Kenya. Food Control, 2017. 81: p. 34-39.

[15] UNICEF, Central Darfur, 2022. https://www.unicef.org/sudan/media/8621/file/State%20profil e-%20Central%20Darfur.pdf

[16] García-Díez, J., et al., The Importance of the Slaughterhouse in Surveilling Animal and Public Health: A Systematic Review. Vet Sci, 2023. 10(2).

[17] Jeffer, S. B., et al., Analysis of Food Safety Management Systems in the Beef Meat Processing and Distribution Chain in Uganda. Foods, 2021. 10(10).

[18] Legese G., Teklewold, H., Alemu, D., &Negassa A., (2008). Live animal and meat export value chains for selected areas in Ethiopia: Constraints and opportunities for enhancing meat exports

[19] Adeyemo, O. K., (2002). Unhygienic Operation of a City Abattoir in South-Western Nigeria: Environmental Implication. African Journal of Environmental Assessment and Management. 4(1): 23-28.

[20] Lawan, M. K., Bello, M., Kwaga, J. K. P., &Raji, M. A., (2013). Evaluation of physical facilities and processing operations of major abattoirs in North-western states of Nigeria. Sokoto Journal of Veterinary Sciences, 11(1): 56-61.

[21] Bryan, F. L., (1988). Risks of practices, procedures and processes that lead to outbreaks of foodborne diseases. J. Food Prot, 51:663-673.

[22] Shapiro, R., Ackers, M., Lance, S., Rabbani, M., Schaefer, L., Daugherty, J., Thelen, C., &Swerdlow, D. (1999). Salmonella Thompson associated with improper handling of roast beef at a restaurant in Sioux Falls, South Dakota. Journal of Food Protection, 62: 118-122.

[23] Vaidya, V. M., Paturkar, A. M., Waskar, V. S., Zende, R. J., &Rawoo, D. B., (2004). Detection of Indicator Organisms on Poultry Carcass Sites in an Organized Slaughterhouse. Journal of Muscle Foods 16:289–297.