



THE EFFECTS OF ABATTOIR MANAGEMENT ON CONSUMER HEALTH IN OKENE LOCAL GOVERNMENT AREA OF KOGI STATE

Ohiare Aliu Ademoh

Department of Biology, Federal College of Education Okene, Kogi State, Nigeria.

Email: adoiza4u@gmail.com/08033307002

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ABSTRACT: *Abattoir management in Nigeria has been of great concern. Almost every day in all urban and rural markets in our country, animals are slaughtered while the meats are sold to the public for consumption. The public health has become prone to a lot of sickness and illnesses that need an urgent overhaul of the abattoir in Okene Local Government Area of Kogi State. The issue of environmental pollution is perceived not simply as a narrow ecological problem of how to ensure a symbolic and cognitive interference between man and the environment. The activities of the abattoir are meant to regain the suitable and edible portion of slaughtered animals for human consumption. In the process, important quantities of waste materials are brought into existence. Health implications of improper waste disposed are enormous and cannot be ignored. Wastes that are not properly disposed can cause waste pollution, which may breed diseases like cholera, typhoid, among others, which point to the fact that a proper understanding of the disposal and management of waste becomes imperative for the study. A good number of researchers point out that slaughter house activities are responsible for the pollution of surface and underground water. In addition to the quality of air which directly or indirectly affect the health of residents living within the vicinity of abattoir. Inadequate discharge of blood and animal feces into streams caused a huge reduction in Biological Oxygen Demand (BOD), in water as well as nutrients over enrichment of the receiving system caused an increased rate of toxic accumulation. The reliability of BAT was determined using Kuder-Richardson 21. By administering the instrument to 30 abattoirs in two different zones in Okene Local Government Area of Kogi state, mean and standard deviation were used to answer the research questions while analysis of Chi-Square was employed to test the hypothesis at 0.05 level of significance. There should be cordial relationships between policy makers and the abattoirs for provision of essential resources for testing the healthy nature of slaughtered animals like laboratory, slaughtered slabs, and method of butchering, tender for selling meat, among others .*

KEYWORDS: Abattoir, Blood, Butchering, Pollution, Management, Health.



INTRODUCTION

Abattoir is a place where animals are killed and butchered for food. Longman English Dictionary (2008) defines abattoir as any premises used or in connection with the slaughter of animals whose meat is intended for human consumption and includes a slaughter house but does not include a place situated for farm animals. The killing of animals for community consumption is inevitable in most nations of the world and dates back to antiquity. Public abattoir had been traced to Roman civilization and in France by 15th and 16th centuries respectively; public slaughter houses were among the public facilities. Robert (2005) reported that in the United Kingdom, abattoir is a slaughterhouse that performs a role in purchasing cattle and sheep from farms, and transforming them into carcass meat. He revealed that in 2001, there were about 360 licensed red meat abattoirs in the United Kingdom compared with almost 900 in 1990. In Nigeria, nearly every town and neighborhood is provided with slaughterhouses or slaughter slabs.

Edward (2009) published on slaughterer facilities for tropical conditions and observed that abattoirs may be situated in urban rural and nominated industrial sites and that each has advantages and disadvantages. The advantages of rural sites, according to him, outweighed those of the other sites and recommended that abattoir should be built on gentle sloping land from other buildings, residential areas and factories. He further suggested that the site of abattoir should be chosen well away from town boundaries including projected town boundaries. Abattoir management provides a service in slaughtering of animals.

Edwards (2009) reported that the slaughtering of animals in abattoirs of developing countries was carried out in unsuitable buildings by untainted slaughter men and butchers that were unaware of suitable and sanitary principles. Wastes generated by abattoir are potential environmental quality problems. Robert (2000) submitted that the disposal of waste products is a problem that has always dominated that sector and an average of 45% of each live beef animal, 53% of each sheep, and 34% of each pigs consist of non-meat substances. The characteristics of slaughterhouse waste and influence vary from day to day depending on the number, type of stock being processed and the method (Toye, 2005). Waste generated by abattoirs includes solid wastes, made-up of paunch, content, bones, horns and fecal components, slurry suspended solids, fat, blood and soluble materials (Sangodoyin, 2002). Raymond (2007) submitted that the problem may be more dependent upon the abattoir activities or operation, the number of cattle or amount of waste involved.

In Nigeria, Sudhar (2008) reported that a cow brought for slaughtering produces 328.4kg of waste in the form of dung, bone, hood and horn. Raymond (2007), however, reported that waste can affect water, land or air qualities of proper practices of management are not followed. Animal wastes can be valuable for fertilization of crops but can cause water quality impairment. It also contains organic solids, traces of heavy metals, salt, bacteria, viruses, other microorganisms and sediments. The waste from animals can also be washed into streams. If not protected, it endangers aquatic life. Raymond (2007) also reported that improper animal waste disposal can lead to animal diseases being transmitted to humans through contact with animal feces. Cooper et al. (1979) reported that abattoir effluent reaching streams contributed significant levels of nitrogen, phosphorus and Biochemical Oxygen Demand (BOD) and other nutrients resulting in stream pollution. George (2007) attributed excessive nitrogen problems in New Zealand groundwater to concentrate on livestock and manure usage. Sangodoyin (2002) also reported that the ground water quality in the vicinity of the abattoir were adversely affected



by abattoir effluents as well as water quality of the receiving stream that was located away from the abattoir.

The health of the city is linked to the health of the dwellers. The health of the dwellers is affected by the environment. In every neighborhood, there is a considerable range of biological and chemical pollutants that cause or contribute to disease. Some may pose health risks for specific particular groups while others for the entire neighborhood. Encarta (2005) notes that these diseases can spread from the abattoir to the neighborhood via vectors or animals. However, the growing population with increase in demand for meat has resulted in increased abattoir related pollution and has attracted intervention in many developed countries. There is a high level of awareness on pollution from animal waste (including abattoir) whether in the farm or in the city; and over the years, several measures have been put in place to protect the public health and the environment (Merington, 2004).

Carolyn (2005) reported that pathogen from cattle waste could be transmitted to humans via water based recreations. The meat processing areas sometimes result in being polluted. Well in the vicinity of abattoir which serves as sources of water to the abattoir users was traced by Sangodoyin (2002), to be polluted by effluent from the abattoir and constitute health risk for the butchers and users of wells. Noise pollution was reported by Oyedemi (2004) to be associated with abattoir and location. Windwolf (2002) opined that the decrease in health and quality of life of residents around intensive swine operation and medical experts were reported to have been associated with some diseases with abattoir activities which includes pneumonia, diarrhea, fever, asthma, typhoid and wool sorter diseases; chest diseases and respiratory diseases. According to Robert (2005), in 2002, the European commission introduced a pan-European fresh-meat directive designed to standardize structural and hygiene regulations for abattoir in the countries.

The requirement was said to have a profound impact on slaughter industries structures in the United State of America with the introduction of abattoir. Act (2008) opines that on the contrary, little intervention or response had been made in the developing nations. The term public abattoir, according to Ilaeme (2000), applies to the premises where the government or another public authority provides facilities for butchers and their employees to slaughter livestock and to dress the carcass meat of all. The conventional arrangement has been for each town or city to have its own public abattoir where the community's daily meat supplies can be prepared under suitable and strict sanitary conditions. The production, distribution and marketing of good quality raw and processed meat, and meat products are the major preoccupation of the meat industries. This involves not only catcalling meat from the called animals but also the handling, storing, preserving, processing, distribution and marketing of meat in wholesome condition. The extraction of meat from the culled animals is achieved in the abattoir, slaughter, slabs houses and other killing grounds.

Obanu (2000) notes further that abattoir, slaughterhouses, slabs are the key-points where the operators could have control over the conversion of animal to meat so to ensure hygiene and quality standard of abattoirs. That should have qualified personnel, state of the art equipment paragon, adequate and potable water supply, good drainage and efficient sanitation system. According to UNEP (2000), the environmental effect of abattoir comes through abattoir operation and waste disposal. The processes of the operation include bleeding, dressing, hide removal, evisceration or removal of internal organs, carcasses, cutting and banning. All these operations have great potential to generate large quantities of solid wastes and waste water with



a Biochemical Oxygen Demands (BOD) and in many cases; offensive odor occurs (Word Bank, 1998). Also, blood, manure, hair, fat, bones and undigested stomach content are among the effluents that are common and peculiar to abattoirs (WRRC, 2004); they have potential to carry diseases, a statement made by UNEP (2000) regarded them as industrial wastes. Pollution arises from activities of meat production as a result of failure in adhering to Good Manufacturing Practices (GMP and Good Hygiene Practices (GHP) (Akinro et al., 2009). Consideration is hardly given to safety practices curing animal transport to the abattoir during slaughter and during dressing (Aniebo et al., 2009; Sing & Neelam, 2011). The poor condition of the abattoir emanates from water generated from slaughtering and dressing grounds.

They are washed into drainages or nearby streams untreated and the leach away from the series of decomposition processes of these wastes can introduce enteric pathogens, excess nutrients into surface water and also percolate into the underlying aquifers to contaminate hand-dug-wells (Abiola, 1995; Gauri, 2006; Chukwu, 2008), especially due to the recalcitrant nature of some contaminants; constituting environmental hazards (Bello & Oyedemi, 2009; Adeyemo et al., 2009). Therefore, their environmental effects should be studied in relation to their proximity to other residential areas. Hence, this study aims at determining the environmental effects of Abattoir in Okene Local Government Area of Kogi State with consideration to its proximity to the surrounding areas in the study area.

Statement of the Problem

According to Robertson (2007), environmental problems are a huge threat to man's physical surroundings, his health and those of other living species. If therefore attracting scholarly attention on this pollution problem is an exceedingly difficult one because it damages the environment either intentionally or unintentionally by accident whatever the sources of damages, it bears the primary consequences which are evident in the daily damages and deterioration of the environment and overall threat to his general well-being. Schaeter and Lamm (2001) recalled the impossibility of examining all environmental problems in details, but summarized them into three crucial types which are air pollution, water pollution and contamination of land. The general problem of abattoir waste generated from markets has caused a lot of health hazards to the societies; chief among these hazards is air pollution. The constant dumping of abattoir waste without adequate treatment in our markets has led to the outbreak of disease in the society.

Ethically, the beauty of any society or environment lies in its good sanitary conditions. This is also because when an environment involves the dumping of waste (solids, liquids or gaseous) from our home, industries and public outfits for example hostels, hospitals and schools at a specific place. Government should provide containers to control and remove refuse from places where they can cause hazards to a place where they are less hazardous to public health.

Significance of the Study

The data analyzed above were meant for the meat processors been responded to by the people working in Okene Local Government Area abattoir industries and the data was been analyzed base on those respondent, the responses gotten through the administered questionnaire from the respondent was been accepted or rejected base on chi-square calculated results that says; the null hypothesis should be accepted when the calculated value is smaller than the table value. The null hypothesis should be rejected when the cal. value is higher than the value.



PRESENTATION OF RESULTS

The findings were presented in order of the research question and hypothesis as shown in Tables 1-2

Table 1: The effects of abattoir waste on the awareness about the health implication of indiscriminate waste disposal in Okene Local Government techniques and methods.

Items	Sa	A	D	Sd	Total	Df	Z ¹ cal val	Z ² cal val	Remark
Local government gives financial assistance to abattoir industry	6	4	17	3	30	3		16.66	Rejected
Okene Local Government used to donate waste disposal facilities to the abattoir industries.	5	6	9	10	30	3	7.82	17.26	Rejected
Seminars on latest issues in abattoir management are organized frequently	5	2	11	12	30	3	16.69	7.82	Rejected
The Federal Government required standards for abattoir management are being followed in Okene LGA of Kogi State Nigeria	4	16	10	0	30	3	17.32	7.82	Rejected
Local Government health facilitators supervise the abattoir industries in the area on weekly basis	5	4	13	8	30	3	17.32	7.82	Rejected
Animals meant for sale are taken to market by tricycles	19	5	6	0	30	3	26.26	7.82	Rejected
Animals meant for sale are hawked in an open tray without being covered	9	8	13	0	30	3	7.66	7.82	Rejected
Nets are used to cover meat for selling in some area	4	15	4	4	30	3	14.08	7.82	Rejected
Abattoir wastes are disposed outside the cities in the area	6	17	5	2	30	3	24.69	7.89	Rejected

Table 1 shows a calculated value of data analysis of the items as it has been responded to by the participants. The item that says Local Government gives financial assistance to abattoir industries in Okene Local Government Area was rejected by the respondent because the calculated value is higher than the table value for the items that says Local Government uses to donate wastes disposal facilities to the abattoir industries was also rejected because the calculated value is higher than the table value. For the item that says seminars about latest issues in abattoir are organized twice in a year was rejected because the calculated value is higher than the table value. The statement that says the Federal Government required standards



for management are being followed in the Okene Local Government area was also rejected because the calculated value is higher than the table value.

The item that says Local Government health facilitators supervise the abattoir industries in the area on a weekly and monthly basis was also rejected because the calculated value is higher than the table value. The item that says animals killed for sale are taken to the market in tricycle was rejected because the calculated value is higher than the table value. The item that says animals killed for sales are hawked in open trays without being covered was accepted because the calculated value is smaller than the table value.

The item that says nets are used to cover the meats in the area was rejected because the calculated value is higher than table value. The item that says abattoir wastes are disposed outside the cities area was also rejected since the calculated value is higher than the table value.

The data analyzed above meant for the meat processors have been responded to by the workers in abattoir industries at the Okene LGA, and the data were analyzed based on the administered questionnaire from the respondent.

Table 2: The effects of abattoir waste on the health and socio-economic development of the citizen and the awareness about the health implication of indiscriminate waste disposal in Okene Local Government Area preferred by the government techniques and method.

Items	SA	A	D	SD	Total	Df	Z ¹ cal. Val.	Z ² cal. Val.	Remark
Well water located near the abattoir industries are not pure for drinking and cooking	10	30	10	0	50	3	25.5	7.85	Rejected
Animal sold or consumption are been contaminated by flies bacteria and virus	10	26	14	0	50	3	15.26	7.82	Rejected
Improper management of meat sold have been reputed to cause cholera	13	12	14	1	50	3	21.2	7.82	Rejected
Meat sold for consumption are been discovered to be leftover meat	22	20	5	3	50	3	23.44	7.82	Rejected
Slaughtered animals are not been kept in the refrigerator for other days	33	15	0	2	50	3	4.94	7.82	Rejected
Materials and equipment used for meat processing are not adequately sanitized	5	32	8	5	50	3	41.04	7.72	Rejected
Negligence on the part of the government worsen abattoir waste management	13	23	12	2	50	3	17.68	7.82	Rejected
Consumers behaviors towards the meat handling meat	9	28	10	2	50	3.	29.2	7.82	Rejected



Death care have sometimes been reported due to the poor ways of processing meat meant for consumption	0	3	22	25	50	3	26.94	7.82	Rejected
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Table 2 above represents the data analyzed from the information contained in question B, distributed at Okene Local Government Area of Kogi State, Nigeria. In the analysis, the statement that says well water located near to the abattoir industries in Okene Area are not pure for drinking and cooking was rejected because the calculated value is higher than the value. And the items that animals sold for consumption have been contaminated by flies and other microorganisms like bacteria, virus was rejected because the calculated value is higher than the table value. The item that says meats sold for consumption have been discovered at times to be spoiled or a leftover meat was rejected because the calculated value is higher than table value.

The statement that says remains of the meat are not kept in the refrigerator before being sold the following day for human consumption was rejected because the calculated value is higher than the table value. The item that says materials and equipment used for meat processing are not adequately sanitized was rejected because the calculated value is higher than the table value. The item that says the littering of abattoir waste in an area prevents people from developing the environment such as houses and shops in the area was rejected because the calculated value is higher than the table value. The item that says negligence on the part of the government has worsened the situation of abattoir waste products in the area was rejected because the calculated value is higher than the table value.

The item that says consumers' behavior towards the meat method of handling encourages the poor ways of processing meat meant for consumption was rejected because the calculated value is higher than the table value. And the item that says death cases have sometimes been reported due to the poor ways of processing meat meant for consumption in Okene Local Government Area of Kogi State was rejected because the calculated value is higher than the table value.

In section A and B of the questionnaire, there were ten each items to be responded to by participants about Nigerian abattoir managements on consumers' health in Okene Local Government Area. All this analysis was done based on the chi-square calculations rules that says the null hypothesis should be rejected when the calculation value is higher than table value.

The degree of freedom ins $5-1=4$

The confident level (alpha) is $=0.05$

The chi-square's table value is -7.82

The chi-square formula is

Sum (observed frequency-expected frequency)²

Expected frequency

$=E(O.F-E-F)^2$

EF



The rules of chi-square include the following: when the hypothesis is to be rejected and the both calculated value in the table value is smaller than the value, the null hypothesis is to be accepted.

SUMMARY, CONCLUSION AND RECOMMENDATION

The study aimed at evaluating the Nigerian abattoir management on consumer's health in Okene Local Government Area of Kogi State, Nigeria. The study is necessary because the Nigerian abattoir industries are to be vividly handled due to the mass number of people eating from the processed abattoir meats on a daily basis in the country. Since the improper abattoir waste disposal deteriorates the environment, it also has serious effects on the health and environment of the people which is the fundamental processor for a sound and productive citizenry. In view of the above, the study was designed to assess the roles played by the government towards adequate abattoir waste management in Okene Local Government Area of Kogi State, and to also assess the effect of abattoir waste on the health and socio-economic development of the citizens in Okene area with the awareness about the health implication of indiscriminate waste disposal in Okene preferred by the government techniques and method of processing health abattoir recommended in Okene Local Government Area of Kogi State, Nigeria.

Survey method of research was adopted. A total number of questionnaires were developed called (Questionnaire of Abattoir Workers in Okene Local Government Area of Kogi State, Nigeria) which consist of a total number of 25 items each were administered and all the eighty were collected and found usable for the study. Frequencies, percentage and chi-square were the statistical tools used for the analysis of data. These tools provided the bases for the decisions to reject or accept the items that answer the research questions.

CONCLUSION

It is glaring that people are not ignorant to the improper ways of handling meat processed at the abattoir industries in Okene Local Government Area. But since there are no other abattoir industries that properly handle processed meat in the region, people are forced to manage the available meats for consumption which sometimes can be so dangerous for people's health. Government on its own has not been living up to its responsibility in the area of waste management incentives such as waste disposal facilities. Financial assistance should be given to the abattoir industries regularly for them to be encouraged for getting more facilities as it will help in promoting hygiene, meat processing and management. The public and the abattoir workers are to be invited to seminars about meat processing methods for discussion about the latest issue in the department of health and meat processing.



RECOMMENDATIONS

The following recommendations were made from the researcher finding below are the profound recommendations gotten by the research.

1. The local governments should regularly support the abattoir industries with waste disposal facilities.
2. The local governments should appoint some healthy facilities to supervise and implement a proper way of processing meat.
3. The local governments should institute monthly awards for the neatest abattoir industries in the area.
4. The local governments should make an effort to recycle the hides and skin or bones obtained from the abattoir industries.
5. Flies should be avoided by using nets to cover the area where the animals killed are ready for sale.
6. The butchers should be educated through the media to make sure their environment is safe for meat processing and packaging.
7. The local governments should as a matter of urgency investigate a standard equipment and requirement for establishing abattoir industries.

Suggestions for Further Research

Based on the results of the statistical analysis, the following are some of the findings of this study:

- i. Local Governments do not give financial assistance to abattoir industries in Okene Local Government Area regularly.
- ii. Local government doesn't use to donate waste disposal facilities to these abattoir industries in the area.
- iii. The Federal Government required standard of abattoir are been followed in Okene Local Government Area.
- iv. Animals killed for sales are been hawked in an open tray without been covered.
- v. Well-water located near to the abattoir industries is not pure for drinking and cooking.
- vi. Improper management of meat sold for consumption has been reported sometimes to have cause infection like cholera diarrhea etc.



REFERENCES

- Adebayo, W.O. (2005). "Environmental consequence of waste disposal techniques Environment issues, 1: 1-4 focus on energy consumption. Ibadan STAN.
- Aluko O. (2001). Environment pollution and waste management (ed.) Ola Aluko in introductory course in environmental science Pg 43 -59, Ibadan Odun print,
- Baerone, C. R. (2000). "Strategies for improving municipal solid waste management; lesson from a decade of world bank landing."
- Fisher A .A & Forfeit, J .R (2002). Designing HIV/NAS intervention studies: An operation Research Handbook. New York: population: population council.
- Isaac, S. & Michael, B .W (2008). Handbook in Research and evaluation and Clifornia: Journal of Environmental Education 21 (3): 8-12
- Longman English Dictionary (2008). Defines abattoir as any premises used or in connection with the slaughter of animals whose meat is intended for human consumption
- Nosike, A. N & Opara, J. A (2003). Environmental health in the Niger Delta: perspectives on human Ecology and sustainable development, port-Harcourt
- Edward, (2009). Observed that abattoir may be situated in urban rural and nominated industrial site and that each has advantages and disadvantages
- Nwankwu, O . C (2009). Environment pollution and waste management (ed.) Ola Aluko in introductory course in Environmental science. Pg. 43-59 Ibadan Odun Prints.
- Nzeneri, I.S (2002) . Handbook on adult education: principles and practices. Onitsha. C. brothers.
- Obanu, N. (2000). Abattoir, slaughter house, slabs are the key-points where the operators could have control over the conversion of animal to meat so to ensure hygiene and quality standard of abattoirs
- Opera, J.A (2003). Fertilizer usage and its effects on environmental Health issues and challenges. Journal of Environmental management interdisciplinary perspective's grenada, afroeuro center for development studies.
- UNAP (2001). Guidelines and standards for Environmental pollution control in Nigeria, Abuja urban environmental management education Journal of Environmental Education. 21(3):8-12.