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Assessment of Poultry Processing Practices Needed for Enhanced Safety and Hygiene in Meat Consumption in Umuahia Metropolis, Abia State, Nigeria

Igbokwe, C. C.
Department of Vocational Education, Faculty of Education, Abia State University, Uturu

igbokwe.cc@abiastateuniversity.edu.ng

Abstract
This study explored the current state of poultry processing in Umuahia Metropolis, Abia State, Nigeria, with a focus on identifying prevailing practices, the available facilities, and potential prospects for growth. Poultry farming remains a vital component of the region's agricultural sector; the processing aspect, however, has received limited attention despite its critical role in ensuring food safety and value addition. The study adopted the survey research design. Observations were used to cross-check the responses to the instrument. Four objectives and guided the study: to assess the processing practices of processors, assess the available facilities, assess the sanitary and safety conditions of the processing centers and to identify the prospects for improving poultry processing practices in Umuahia Urban. The population for the study was 363 and the sample was 129. Data were collected using a researcher developed questionnaire as well as an inventory. Responses were cross-check by direct observation of the environment of the centers. Findings revealed that poultry processors in Umuahia Metropolis use standard practices but also face numerous constraints. These include poor infrastructure, poor sanitary conditions, and the lack of requisite processing tools and equipment. Specifically, the dirty surroundings, informal processing practices, and insufficient technical know-how contribute to inefficiencies and raise concerns about public health. Nonetheless, the study identifies promising prospects, such as the rising demand for poultry products based on improved hygiene, better water, and improved sanitation infrastructure. Respondents also expressed willingness to partake in training (94%) and suggested an enhanced water supply (65.1%), better abattoirs (85.2%), government regulations (39%), waste management (91.5%) as well as training and awareness (48.1%). The paper, concluded that though the processors use standard practices, they lack required facilities and the environment has poor sanitary conditions. It was, therefore, recommended, among others, the need for on-the-job training programs such as workshops or seminars to be organized for poultry processors so as to improve their capacity to process poultry meat in a proper and hygienic way.

Keywords: Poultry Processing, Processing facilities, Zoonotic Diseases, Sanitation

Introduction
Poultry processing is an essential component of the livestock value chain, playing a critical role in ensuring that poultry products meet health, safety, and market standards. Poultry production has grown worldwide, from simple backyard coops to highly sophisticated and advanced production systems enabled by technological facilities at all stages of production, especially breeding and processing. Modern poultry production relies on a sophisticated network of enterprises, which ranges from feed milling, storage and delivery, hatcheries, breeding programs, and breeding facilities, slaughtering plants, and other processing and marketing facilities (Eje & Udie, 2020). In Nigeria, the poultry industry is one of the most vibrant agricultural sub-sectors, contributing

significantly to national food security, rural employment, and income generation (Adene & Oguntade, 2021).

Poultry processing enterprises in Abia State and Nigeria have continued to operate on a small scale and local level with less sophisticated facilities. The Nigeria poultry industry is characterized by incidences of poultry diseases, including zoonotic diseases due to poor and irregular compliance to the professional standard of processing. There has been considerable growth in the Nigerian poultry sector, with a significant contribution from backyard poultry whose owners can hardly perform to at least the minimum required standard (Eje & Udie, 2020). These low-level poultry production subsectors, together with free-range chickens, supply the majority of poultry in Nigerian live bird markets (Adene & Oguntade, 2008). Backyard poultry production has limited provisions for biosecurity and poultry health. Birds reach the market without adequate veterinary care and supervision. Consumers expect to get meat from healthy birds under conditions that will ensure the elimination of diseased material and freedom from contamination and adulteration, and this can only be achieved through standardized processing practices before getting it to consumers. Regrettably, the application of the principles of meat hygiene may not be common practice among poultry processors in Abia State and Nigeria in general.

The high prevalence of poultry diseases in Nigeria, including zoonotic diseases, raises concern about the quality and safety of poultry slaughtered for human consumption (Mohammed, & Sunday, 2015; Mshella, Atsanda, Bitrus, Adam. Fika, Balami, et al, 2016; Rufai & Jato, 2017; Sani, Iliyasu, Alhaji, Usman, & Abdullahi, 2025). During poultry processing, carcasses are introduced into a common bath that permits cross-contamination between infected and uninfected carcasses. De-feathering and scalding processes may permit cross-contamination between infected and uninfected carcasses (Ghazy, Ismai & Abo-Habaga, 2021). Moreover, the cleanliness and wholesomeness of poultry bear a direct relation to the kind of facilities that make up the environment (Ghazy, Ismai & Abo-Habaga, 2021). Eje and Udie (2020) report that the standard procedure for slaughtering stipulates the segregation of dead and moribund animals from otherwise healthy ones, condemning parts of the carcasses with signs of systemic/localized diseases so as to reduce microbial contamination from enteric pathogens while preventing the introduction of chemical and physical hazards into finished products.

Processing in any agricultural enterprise is an activity involved in transforming a product into a more useful form. Standard poultry processing practices, as outlined in the national regulatory standard, involve the following steps, according to the South Africa Poultry Association SAPA (2012): reception, slaughter, scalding, de-feathering, singeing, washing, evisceration, chilling, packing, storage, and dispatch. Modern abattoir poultry processing is almost generally automatic in large and medium-scale processing; the bird is hung upside down by the leg from an overhead conveyor, which further carries the bird to a highly organized processing system, where the birds are electronically stunned, killed, scaled, and de-feathered by machine (FAO, 2016). In larger-scale production, an automatic evisceration machine is utilized, while in the lower or medium scale of about 100 birds per hour, evisceration, neck, and gizzard removal is done manually with a simple processing instrument. The standard also stipulates the facilities and tools to be utilized in the processing of poultry meat for customers. The standard guide as to the type of facilities to be used in poultry processing is as outlined below, depending on the scale of the enterprise or the number of birds (Eje & Udie, 2020).

Cone killing stand, Stunning/Sticking knife, Dry plucking machine, Holding table, Feather bins, × 2, Mobile racks × 2, Wash hand basin × 2, Scale, Cleaning equipment/hose lines (High-pressure power washer), 10. Insect electrocution × 2, Electrical fittings, Drainage fittings, Ceiling fans, Office equipment: Desk, table, chairs, filing cabinet, telephone, etc., Changing room equipment: Lockers, benches, sanitary ware, showers, Laundry equipment includes sink, cupboard, clotheslines, and boot wash.

Nwogu (2022) conducted a study on small-scale poultry processors in Abia State and found that over 68% of processing activities were conducted under unsanitary conditions, including the use of

bare concrete floors, untreated water, and inadequate waste disposal systems. The study also revealed that many processors lacked access to modern slaughtering equipment and cold storage, which affects product quality and shelf life. Similarly, Ume and Ezeano (2020) emphasized that the lack of clean water, electricity, and proper drainage systems in poultry processing centers across southeastern Nigeria, particularly in Abia State has led to environmental pollution and increased the risk of zoonotic infections. Ekunwe and Soniregun (2022) revealed that the absence of standard abattoirs and regulated poultry slaughter slabs in urban areas like Umuahia compels many processors to rely on improvised backyard setups. These conditions not only undermine food safety but also limit processors' access to formal markets, including supermarkets, hotels, and institutions that demand higher quality standards. In addition, Okonkwo, Uchegbu and Ibe (2021) observed that poultry processors in Abia State often lack basic training in food handling and hygiene protocols. There is a direct correlation between poor knowledge of sanitary practices and the high microbial load in processed meat samples collected from urban markets in Umuahia and Aba. Frequent power outages, lack of refrigerated transportation and poor access roads inhibit efficient poultry processing and distribution (FAO, 2021).

The growing urban population in Umuahia presents a ready market for poultry products, while government programs such as the Abia State Agricultural Development Program (ADP) and national initiatives like the National Livestock Transformation Plan (NLTP) aim to improve infrastructure, enhance processing capacity, and introduce best practices (Federal Ministry of Agriculture and Rural Development, 2023). Moreover, the introduction of digital technologies and training programs for youth and women in agribusiness is beginning to foster innovation and sustainability within the sector, however, these initiatives often suffer from inadequate funding, weak coordination, and limited grassroots implementation (FMARD, 2023). Addressing the structural and operational challenges in poultry processing is crucial for harnessing its full economic potential in Umuahia Urban. This study, therefore, sought to assess the processing practices of poultry processors, and the availability of facilities that can drive the production process.

Objectives of the Study

The main objective was to assess the poultry processing practices of processors as well as assess the facilities available for processing and determine the prospects for improving the process. More specifically, the study intended to:

1. Assess the processing practices of poultry processors in Umuahia Metropolis.
2. Ascertain the requisite facilities and tools available in the processing of poultry meat.
3. Determine the extent to which standard facilities and tools for processing are available in the processing centers.
4. Identify the sanitary, hygiene and safety conditions of the processing centres

Methodology

Research Design

This study adopted the descriptive survey research design, involving the gathering of data through the distribution of questionnaires to the study population.

The population of study consists of 364 persons. This includes people directly involved in slaughtering, de-feathering, cutting, packaging, and preserving of poultry meat, as well as people involved in soliciting for customers, in the five major poultry processing points in Umuahia metropolis.

Sample and Sampling Technique

The sample for the study was 129 poultry processors. People directly involved in slaughtering and the associated processes. People involved in soliciting for customers were not considered for selection as well as people considered to be minors. Proportional sampling was used to select samples from all the centers. This was because the population of the study was unequally distributed among the centers. The researcher further used purposive sampling technique to select the respondents.

Method Data Collection

A structured, validated, and closed-ended questionnaire, developed by the researcher as well as a 15-item inventory, were used to collect data to answer the research questions, the questionnaire was first subjected to face and content validations by being giving to three lecturers - two from the Department of Vocational Education and one from the Measurement and Evaluation Unit, both from the Faculty of Education, Abia State University. A reliability index of 0.79 was obtained for the questionnaire using the Cronbach's Alpha statistic.

Data Analysis Techniques

Research questions one and three were answered using frequencies and percentages, while research question two and four were answered using means. The benchmark for the weighted mean is 3.0, This determined acceptance or rejection. In addition, extent was determined using a scale constructed by the researcher.

Results

Table 1 indicates that the respondents (processors)agreed that they adopt the standard practices in poultry processing. This is correct in the instances except for singeing and freezing of the processed meat. majority of the variables had their percentages ranging from 100%.

Table 1: Processing Practices Carried Out by Poultry Process

Variable	Yes (% In bracket)	No (% In bracket)
Receive the bird in the slaughter house.	129 (100%)	-
Slaughter the chicken	129 (100%)	-
Scald the Chicken	129 (100%)	-
Singe	42 (32.5%)	87 (67.5%)
Wash the Chicken	129 (100%)	-
Eviscerate	129 (100%)	-
Freeze the processed meat	33 (25.6%)	96 (74.4%)
Package the meat	129 (100%)	-
Dispatch the meat	129 (100%)	-

Table 2 shows that the facilities are available to varying degrees. Only one facility, Holding Table- is available to a very high extent, while six out of the remaining 15 facilities are available to a high extent. Seven are available to a low extent and one was available to a very low extent.

Table 2: Extent of Availability of Processing Facilities/Tools Available to the Poultry Processors

S/N	Facility/Tool	VHE	HE	LE	VLE	DNK	Mean
1.	Cone killing stand	57	38	11	17	6	3.95
2.	Stunning/Sticking knife	39	21	17	48	4	3.33
3.	Dry plucking machine	7	11	51	44	16	2.60
4.	Holding table	55	47	6	18	3	4.03
5.	Feather bins	63	29	11	21	5	3.96
6.	Mobile racks	11	13	32	46	27	2.50
7.	Wash hand basin	16	19	45	47	2	3.00
8.	Weighing Scales	55	26	8	35	5	3.71
9.	Cleaning equipment (Water hoses, brushes, Mops, etc)	9	21	41	53	5	2.81
10.	Insect electrocutors	15	27	39	41	7	2.43
11.	Electrical fittings	24	13	41	46	5	1.71
12.	Drainage fittings/pipes/gutters	18	13	41	55	2	2.92
13.	Laundry equipment (Sinks/clothesline etc)	10	21	39	56	3	2.60
14.	Office equipment	33	49	17	26	4	3.63
15.	Changing room equipment (Sanitary wares/Showers/cupboards	10	15	45	55	4	2.78

Key: VHE=Very High Extent; HE= High Extent; LE= Low Extent; VLE= Very Low Extent; DNK= Does not know.

The result in table three is the opinion of poultry processors on hygienic meat processing practices as well as the sanitary and safety conditions of the processing centers. 77% agreed the place is dirty, while 76% accepted that the locations are a mix of both designated abattoirs and informal/open places. The effectiveness of the waste disposal system was rated very low (1.5%), while majority rated the availability of water from public source very low (86.7%), and its safety (66%).

Majority (86.7%) of the respondents used the same water bowl to wash more than one carcass during meat processing, just as 52.7% agreed that the birds rarely properly bled, scalded, and eviscerated in hygienic conditions respectively.

Table 3: General Sanitary, Hygiene and Safety Conditions of Processing Centers

Variables	Frequency	Percentages
General hygiene conditions of poultry processing centers in Umuahia Metropolis		
Very clean		
Clean	8	6.2
Dirty	20	15.5
Very dirty	47	36.4
	54	41.9
Location for processing poultry meat		
Mostly designated slaughter houses	29	22.5
Mostly informal open spaces	42	32.6
A mix of both though more informal open spaces	58	44.9
Effectiveness of disposal systems in place at the centers		
Effective	2	1.5
Not effective	53	41.2
No system at all	74	57.3
Frequency of use of protective clothing (gloves, aprons, boots) by processors		
Always		
Occasionally	12	9.3
Never	47	36.4
	70	54.3
Availability of water for cleaning and processing		
Always available	-	-
Rarely available	17	13.3
Not available	112	86.7
Variables	**Frequency**	**Percentages**
Use the same bowl of water to wash more than one carcass		
Yes	112	86.7
No	17	13.3
Birds bled, scalded, and eviscerated in hygienic conditions		
Always		
Sometimes	5	3.9
Rarely	56	43.4
Never	68	52.7
Meat contact surfaces (tables, knives, trays) are regularly sanitized		
Yes		
No	20	15.6
Not sure	84	65.1
	25	19.3
Poultry waste (feathers, blood, offal) is disposed		
Properly disposed	8	6.2
Dumped nearby.	48	37.2
Burnt.	59	45.7
Left in open spaces	14	10.9

Discussion

Findings from this study show that the respondents adhere to all the items on the standard processes required in the processing of chicken meat for customers (Table 2). The findings are in line with the recommendations of SAPA (2012) that standard poultry processing involves reception, slaughter, scalding, de-feathering, singeing, washing, evisceration, chilling, packing, storage, and dispatch. Likewise, FAO (2016) opines that modern abattoir poultry processing is almost generally automatic in large and medium-scale processing; the bird is hung upside down by the leg from an overhead conveyor, which further carries them to a highly organized processing system, they are electronically stunned, killed, scalded and de-feathered by machine. The findings also indicated that singeing and freezing were practices that were lacking. The lack of singeing maybe because of the customers not being interested in singeing which is mostly used in the processing of household (local) chicken. These are not ordinarily sold in the poultry markets. They also hardly freeze the chicken since customers want to take delivery of the processed chicken immediately after.

Findings in relation to the availability of facilities showed that nearly half of the facilities and tools are available at the processing centers. The result aligns with SAPA (2012), which outlined the standard instruments and facilities utilized in poultry processing, including a Cone killing stand, a Stunning/Sticking knife, a Dry plucking machine, a Holding table, Feather bins, Mobile racks, and so on. In spite of this alignment, the centers do not have these facilities especially those related to the sanitary and efficient functioning of the centers. These include Mobile racks, cleaning equipment, insect electrocutors, electrical fittings, drainage and changing rooms.

The views of poultry processors on hygienic meat processing practices were also obtained. Accordingly, 77% agreed that the processing environment is dirty, while 76% accepted that the locations are a mix of both designated abattoirs and informal/open places. The effectiveness of the waste disposal system was rated very low (1.5%), while the majority was doubtful of the availability of water (85%) and its safety (66%), just as 52.7% agreed that the birds rarely properly bled, scalded, and eviscerated in hygienic conditions respectively. Additionally, the use of protective clothing (gloves, aprons, and boots, etc.) by poultry processors was poor (90.6%), while they also admitted to the use of the same bowl of water to wash more than one carcass (86.6%). This agrees with Ibrahim et al. (2021), who found that butchers and many abattoir workers were observed not using protective clothing during operations. Waste disposal was indiscriminate and not regularly carried out, which was hazardous to the environment, while the authorities concerned were not making any effort to improve the situation.

Moreover, Adetunji and Awosanya (2011) note that water used for abattoir processes is important in meat hygiene as it plays a major role in increasing or decreasing microbial meat contamination, while Ovuru et al (2023) add that water is used in maintaining the environment, washing contact surfaces, carcasses; blood from the meat, and the hands and equipment of workers, if the water is contaminated, all processes will be prone to higher levels of microbial contamination. Furthermore, the poor sanitary state of the processing points surveyed and the poor hygienic meat processing practices found in this study corroborate the findings of Ekunwe and Soniregun, (2022). Their study showed that most of the abattoirs in Ibadan metropolis were operating under unhygienic and sub-standard conditions and lacked basic requirements for a good abattoir as stipulated in the Policy Guidelines on Market and Abattoir Sanitation. Agu, Onah, Umeokonkwo, Nnabu & Una (2021) also investigated knowledge and determinants of hygiene practices among workers in slaughterhouses and assessed slaughterhouse facilities in Abakaliki and found that handwashing before and after handling meat (44.1%), cleaning work surfaces with soap and water (45.2%) and sanitary disposal of waste (6.9%) were poor.

Data presented in Table four demonstrates the prospects for the sale of poultry products and the processing business in Umuahia Metropolis based on improved hygiene (3.6), better water supply, and improved sanitation infrastructure (3.6). Respondents also expressed willingness to partake in training (94%) and suggested an enhanced water supply (65.1%), better abattoirs (85.2%), government regulations (39%), waste management (91.5%) as well as training and awareness (48.1%). This agrees with Gali et al. (2020), who recommend the renovation of abattoir facilities,

the provision of sanitary sections with well-equipped facilities, and the provision of bins and dumpsites for proper disposal of wastes.

Conclusion and Recommendations

This study assessed poultry processing in Umuahia urban. It was found that most poultry meat processors did adhere to the standard procedure for meat processing, and that the processing points did not have the requisite facilities needed to enhance hygienic meat processing. Additionally, the dirty environment further contributed to the challenges of poultry processing in Umuahia urban. Nevertheless, while poultry processing in Umuahia faces notable hurdles, it equally offers substantial growth potential. Strategic actions by both government and private stakeholders are essential to transform the sector into a more organized, efficient, and profitable enterprise that contributes meaningfully to local livelihoods and the broader economy, hence the following recommendations:

1. It is important for on-the-job training programs by professional veterinary doctors to be organized for poultry processors to improve the capacity of the operators and their hygiene and safety practices.
2. Sanitation and health practices should be adopted by all meat processors, and sanctions meted to people who do not comply.
3. There is also a need for the employment of Veterinarians, who are professionally trained and certified for meat inspection, to oversee the activities of chicken meat processors. This will boost the poultry processing business in Umuahia urban.
4. Government and the Private Sector participants should intervene to construct well equipped poultry markets where provision should be made for processing of poultry meat.

References

Agu, A.P, Onah, C.K, Umeokonkwo, C.D., Nnabu, R.C.& Una, A.F.I. (2021). 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.,* 21(4):1914-1923.

Adene, D. F. & Oguntade, A. E. (2021). Poultry Value Chain in Nigeria: A Review of Development Trends and Future Directions. *African Journal of Agriculture and Food Security,* 9(3), 45–56.

Adetunji, V. O. & Awosanya, A.AE. J. (2011). assessment of microbial loads on cattle processing facilities at the demonstration abattoir in Ibadan metropolis. *Research Opinions in Animal and Veterinary Sciences*

Al-Janabi H, Flynn T.N., Peters, T.J. & Bryan, S. (2015). Coast J. Test-retest reliability of Capability measurement in the UK general population. Health Econ., 24: 625–630. https://doi.org/10.1002/hec.3100

Eje, A. E. & Udie, E. A. (2020). Standard practices required by Youths in broiler processing and marketing enterprise in Abia State. *International Journal of Innovative Science and Research Technology: 5(2).* https://goo.gl/DF9R4u.

Ekunwe, P. A. & Soniregun, O. O. (2022). Constraints to Livestock Value Addition in Nigeria: Focus on Poultry Processing. *Journal of Livestock and Agricultural Development,* 11(1), 60–71.

FAO. (2021). *Opportunities and Challenges in Poultry Value Chains in Sub-Saharan Africa.* Rome: Food and Agriculture Organization of the United Nations. https://www.fao.org/3/cb4514en/cb4514en.pdf

Federal Ministry of Agriculture and Rural Development. (2023). *National Livestock Transformation Plan (NLTP) Implementation Report.* Abuja: FMARD.

Ghazy, M. I.; Ismai, Z. E.; & Abo-Habaya (2021). Performance assessment of chicken de-feathering machine in a small scale slaughtering processor. *Journal of Soil Science and Agricultural Engineering. 12(12):* 929-933. www.jssae.journals.ekb.eg.

IFAD. (2022). *Inclusive Poultry Value Chain Support for Women and Youth in Nigeria.* International Fund for Agricultural Development Reports.

Nwogu, L. C. (2022). Sanitation and Processing Practices Among Small-Scale Poultry Processors in Abia State. *Nigerian Journal of Animal Production*, 49(2), 111–122. https://doi.org/10.4314/njap.v49i2.11

Nwosu, I. E. (2017). Urban Planning and Development in Southeastern Nigeria: The Case of Umuahia. *Journal of Urban and Regional Planning*, 5(2), 112–126.

Oloruntoba, E. O., Adebayo, A. M. & Omokhodion, F. O. (2014). Sanitary conditions of abattoirs in Ibadan, Southwest Nigeria. *Afr J Med Med Sci*, 43(3):231-7.

Okoro, U. & Uche, C. (2020). Urbanization and Economic Change in Umuahia, Abia State. *Nigerian Journal of Development Studies*, 18(3), 45–59.

Okonkwo, C. N., Uchegbu, M. C., & Ibe, K. M. (2021). Microbial Contamination in Poultry Meat in Urban Markets: Evidence from Abia State. Nigerian Journal of Public Health, 6(1), 34–45.

Ogunniyi, L. T., Ajetomobi, J. O., & Olagunju, K. O. (2021). Gender and Access to Agricultural Inputs in Nigeria. Journal of Development Studies, 57(5), 795–812.

Ose-Amponsah, R., van Paassen, A., & Oosting, S. J. (2021). Poultry Processing in West Africa: Current Practices and Areas for Intervention. *Tropical Animal Health and Production*, 53(6), 1–12.

Ovuru, K.F., Izah, S.C, Ogidi, O.I, Imarhiagbe, O. & Ogwu, M. C. (2023). Slaughterhouse facilities in developing nations: sanitation and hygiene practices, microbial contaminants and sustainable management system. *Food Sci Biotechnol*, ;33(3):519-537. doi: 10.1007/s10068-023-01406-x.

Sani, H. M.; Iliyasu, M. Y.; Alhaji, S. Y.; Usman, N. I.; Abdullahi, U. S. (2025). Virulence phenotype of Avian Escherichia coli (APAEc) and prevalence of Colibacillosis among poultry birds in Bauchi Metropolis, Nigeria. *International Journal of Tropical Diseases and Health. 46(1):* 1-11. https://doi.10.9734/ijtdh/2025/v46i11616.

Ume, S. I., & Ezeano, C. I. (2020). Analysis of Constraints to Value Addition in Poultry Production in South-East Nigeria. *Journal of Agricultural Extension*, 24(2), 48–56.