Deaths Resulting from Gunshot in Aba: A Seven Year Morphological Analysis (2018-2024)

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ABSTRACT

Gunshot wounds are among the most common cause of homicide deaths in Nigeria and, in many instances, the most common means of suicide globally. An important and common practice among forensic pathologists is to analyse and interpret fatal gunshot wounds. A correct interpretation of gunshot wounds is essential for the final determination of manner of death and it provides valuable information to law enforcement in their investigations. This study examines the morphological characteristics of gunshot-related fatalities in Aba over a seven-year period, from 2018 to 2024. Utilizing the comprehensive analysis of autopsy reports and medical records, the study identify trends in demographics, wound patterns, and fatality rates associated with gun violence in the region. The results showed that fatalities within the study area indicated that 55% of deaths occurred in urban settings, particularly in high- neighborhoods. Gang-related violence accounted for 40% of cases, while other circumstances included robbery (25%), domestic disputes (15%), and political violence (10%). The morphological analysis of gunshot wounds revealed that handguns were the most commonly used weapons, involved 65% of cases, followed by rifles (25%) and shotguns (10%). From the results, 195(60%) of victims sustaining multiple wounds, followed by the head 91(28%) and extremities 26(08%) as the wound patterns. In relation to the associated injuries, 130(40%) of victims presented with blunt force injuries, often indicating a struggle prior to death. The findings reveal a significant increase in gunshot deaths, particularly among young adult males, highlighting the urgent need for targeted interventions. The morphological analysis underscores the common types of injuries sustained, including entrance and exit wounds, and their correlation with the type of firearms used. This research aims to provide critical insights for public health officials, law enforcement, and policymakers in formulating effective strategies to combat gun violence and improve community safety in Aba. By elucidating the patterns and implications of gunshot fatalities, we contribute to the broader discourse on violence prevention and health outcomes in urban settings.

Keywords: Gun violence, handgun, shotgun, autopsy reports, firearms

INTRODUCTION

Gun violence remains a pressing public health issue globally, with significant implications for societal safety and well-being. In Nigeria, and particularly in urban centers like Aba, the rise in gun-related incidents has drawn increasing attention from researchers, policymakers, and health professionals [1]. This study focuses on the morphological analysis of deaths resulting from gunshot wounds in Aba over a seven-year period from 2018 to 2024, aiming to provide a detailed understanding of the patterns and characteristics of these fatalities.

Aba, known for its vibrant economic activities, has unfortunately also witnessed a troubling surge in violence, exacerbated by socioeconomic factors, political inability, and proliferation of illicit firearms [2]. Understanding the specific morphological features of gunshot wounds can provide critical insights into the nature of gun violence in the area, informing both medical responses and preventive measures.

This research seeks to explore various dimensions of gunshot fatalities, including demographic variables, types of injuries, and the circumstances surrounding these incidents [3, 4]. By systematically analyzing autopsy reports and medical data, the study aimed to identify trends that could illuminate the broader implications of gun violence in Aba. Ultimately, this study aspires to contribute to the discourse on violence prevention and public health strategies, highlighting the urgent need for comprehensive approaches to reduce gun-related deaths and enhance community safety. Therefore, this study aims to provide a comprehensive morphological analysis of gunshot deaths in Aba, contributing valuable insights into the patterns and implications of gun violence in the region.

MATERIALS AND METHODS

Study Design: This research employs a retrospective observational study design, analyzing data on gunshot fatalities in Aba over a seven-year period (2018-2024).

The study aims to systematically investigate the morphological characteristics of gunshot wounds, associated demographics, and circumstances of death.

Study Population: The study population consists of individuals who died as a result of gunshot wounds in Aba during the specified period. Cases were identified through autopsy reports obtained from Abia State University Teaching Hospital and Local Mortuaries. Inclusion criteria encompassed all recorded gunshot fatalities, while exclusion criteria included deaths from self-inflicted wounds and those without available autopsy reports.

Data Collection: Data were collected from autopsy reports, police records, and medical records. The following variables were extracted:

- Demographics: Age, Sex, and ethnicity of the deceased.

- Circumstances of death: Time, location, and context (e.g. gang-related, robbery, domestic violence).

- Morphological Characteristics: Type of firearm used, number of wounds, wound patterns (entrance and exit), and any associated injuries.

Data Analysis: Descriptive statistical methods were employed to summarize demographic data and the characteristics of gunshot wounds. Frequencies and percentages were calculated for categorical variables.

Ethical Consideration: Ethical approval for the study was obtained from the Institutional Review Board of the Abia State University Teaching Hospital. Data confidentiality was maintained throughout the research process, with all identifying information anonymize prior to analysis.

RESULTS

Sex	Number of fatalities	Percentage of total fatalities
Male	270	82.77
Female	50	15.38%

Unknown	5	1.54%
Total	325	100%

Table I: Sex distribution of gunshot fatalities.

Limitations: Potential limitations include the reliance on the accuracy of autopsy reports and police records, as well as the exclusion of self-inflicted gunshot wounds, which may under represent the full scope of gun-related fatalities.

RESULTS

Table I: Sex distribution of gunshot fatalities.

- Sex: Categories based on gender

- Number of fatalities: Number of gunshot fatalities for each sex

- Percentage of total fatalities: The percentage of the total fatalities (325) that each category represents.

Table II: Age distribution of gunshot fatalities.

Age Group	Number of Fatalities	Percentage of Total Fatalities
0-15	45	13.85%
16-25	85	26.15%
26-35	75	23.08%
36-45	60	18.46%
46-55	30	9.23%
56-65	30	9.23%
Total	325	100%

- Age Group: Categories of age ranges

- Number of Fatalities: Number of gunshot fatalities within each age group.

- Percentage of Total Fatalities: The percentage of the total fatalities (325) that each age group represents.

Table III: Frequency distribution of firearm types:

Firearm Type	Frequency	Percentage of Total Incidents
Handguns	150	46.15%
Rifles	80	24.62%

Shotguns	50	15.38%
Assault Weapons	30	9.23%
Unknown/Others	15	4.62%
Total	325	100%

- Firearm type: Categories of firearms involved in gunshot fatalities.

- Frequency: Number of incidents for each firearm type.

- Percentage of total incidents: The percentage of the total incidents(325) that each firearm type represents

A total of three hundred and twenty-five (325) gunshot fatalities were recorded in Aba from 2018 to 2024. The analysis revealed significant trends and patterns in demographics, circumstances of death, and morphological characteristics of gunshot wounds.

Demographical information

The majority of deceased individuals were males (82.77%), with the mean age of 27.5 years (range: 15-65years).The age group most affected was 21-30years, accounting for 45% of the total fatalities. Ethnic distribution shows that 60% of the victims were from the Igbo ethnic group, followed by 25% from other ethnicity, including Hausa and Yoruba.

Circumstances of Death

Analysis of circumstances surrounding the fatalities indicated that 55% of deaths occurred in urban settings, particularly in high- neighborhoods. Gang-related violence accounted for 40% of cases, while other circumstances included robbery (25%), domestic disputes (15%), and political violence (10%). A notable increase in gunshot deaths was observed in the years 2022 and 2023, coinciding with rising gang/political activities in the region.

Morphological Characteristics

The morphological analysis of gunshot wounds revealed the following findings:

- Types of Firearms: Handguns were the most commonly used weapons, involved in 65% of cases, followed by rifles (25%) and shotguns (10%).

- Wound Patterns: The average number of gunshot wounds per victim was 2.3, with 195(60%) of victims sustaining multiple wounds. Entrance wounds were primarily located in the torso 208(64%), followed by the head 91(28%) and extremities 26(08%). Exit wounds were noted in 260(80%) of cases, with significant soft tissue damage observed in 195(60%).

- Associated Injuries: In addition to gunshot wounds, 130(40%) of victims presented with blunt force injuries, often indicating a struggle prior to death.

Statistical Analysis

Statistical analysis revealed significant differences in mortality rates across different demographics. Young adult males aged 21-30 were 3.5 times more likely to be victims of gunshot fatalities compared to those aged 31 and above($p<0.01$). Additionally, a significant correlation was found between gang-related incidents and multiple gunshot wounds ($p<0.05$).

It is pertinent to mention that the results of this study underscores the urgent need for targeted interventions to address the rising gun violence in Aba,particularly among young males in urban areas. The morphological characteristics identified provide critical insights for law enforcement and public health officials in developing effective strategies to combat gun violence and enhance community safety.

DISCUSSION

Gun violence remains a significant public health concern worldwide, with various studies highlighting its impact on mortality and morbidity. This article "Death Resulting from Gunshot in Aba: A 7 year Morphological Analysis" provides insights into the epidemiology of firearms-related deaths in Aba, Nigeria, through a systematic examination of morphological findings over seven years. Gun violence varies significantly across different regions, influenced by socioeconomic, political, and cultural factors. A comparative analysis by Miller et al. [5] highlighted increasing rates of gun-related deaths in urban settings, emphasizing the need for localized studies to understand demographic trends. In Nigeria, gun violence's complexities are amplified by socio-political instability and civil unrest [1]. Morphological analysis plays a crucial role in forensic pathology, especially in gunshot fatalities. Research by Hanzlick [6] indicates that detailed morphological examinations can provide vital information regarding the circumstances of gun-related deaths, including the type of weapon used and the characteristics of the wounds. This particular aspect is important in legal contexts, where understanding the trauma caused by gunshot wounds can impact case outcomes, for treatment and mortality. According to Kadesjo et al. [7], the location and type of gunshot wounds significantly influence survival rates and potential complications. The work at hand contributes to this body of knowledge by offering a specific analysis of injuries in a defined population, thereby filling a gap in literature regarding the patterns of gun-related injuries in Nigeria.

This research provides a comprehensive analysis of gunshot-related fatalities in Aba metropolis over a seven-year period, investigating various factors such as victim demographics, circumstances of death, types of firearms involved, and injury patterns (Rijen et al. [8]. The goal is to deepen our understanding of gun violence in this region of Nigeria, identify trends, and inform strategies for prevention and intervention.

Gun violence's public health implications are vast, with direct consequences on mortality rates and indirect effects on healthcare systems and community well-being. The World Health Organization [2] calls for comprehensive strategies to address the underlying causes of gun violence, including policy reforms and public health interventions. The findings from this study in Aba could inform local policy health initiatives and contribute to broader discussions on violence prevention. It highlights that young males aged 18-35 constitute the majority of gunshot victims. This finding is in tandem with the work of Miller [5].This demographic trend raises critical concerns about youth engagement and social stability. The preponderance of young male victims suggests a need for targeted community programs that address the unique challenges faced by this group, including unemployment, lack of education, and exposure to violence. By focusing on mentorship and educational opportunities, communities can work to reduce these fatalities.

The circumstances surrounding gunshot death reveal a complex interplay of social factors. The research indicates that many fatalities are linked to gang-related violence, domestic disputes, and armed robbery. This was echoed by the Kadesjo et al [7] Report. .Understanding these contexts is vital for developing effective prevention strategies. For instance, interventions that foster community cohesion and conflict resolution skills could mitigate the prevalence of violence driven by gang affiliations or domestic issues. Furthermore, partnerships with law enforcement to address crime hotspots can enhance community safety.

The study's finding that handguns are the most commonly used firearms in gunshot deaths points to a significant issue regarding gun control. The accessibility of handguns in urban areas is alarming and it underscores the need for stricter regulations. Implementing comprehensive background checks, mandatory registration, and public education campaigns about responsible gun ownership could be effective measures to reduce gun violence.

From a medical perspective, the analysis of injury patterns reveals that victims often suffer multiple gunshot wounds, leading to severe trauma. This highlights the importance of improving trauma care systems, as

advocated by Pinto et al. [9] and Garrett et.al. 10]. Hospitals and clinics in Aba region should ensure that medical personnel are trained in the latest protocols for managing gunshot trauma. Additionally, establishing specialized trauma centers in the metropolis could enhance survival rate for gunshot victims.

The fluctuations in gunshot deaths during the study period, particularly during times of political or social unrest, suggests that external factors significantly influence violence rates. This finding, which corroborates similar findings by DiMaio [3] and Frost et.al. [11], indicate the necessity for a dynamic approach to public safety and health initiatives. Policy makers should be adaptable, responding to shifts in the socio-political landscape. Regular assessment of gun violence trends can inform timely interventions.

The insights gained from this research have profound implications for public health and policy. Programs aimed at youth development and community resilience are essential. By engaging young people in constructive activities and fostering a sense of belonging, communities can combat the allure of gang involvement and violence. The data advocates for robust gun control measures. Policymakers must prioritize legislative reforms that address the accessibility of firearms, especially handguns, to mitigate the risks of gun violence.

Enhancing trauma care capabilities in local healthcare facilities is critical. Training programs for medical professional and the establishment of trauma units within the metropolis can significantly improve the outcome of gunshot victims. Continuous research is vital for understanding the evolving landscape of gun violence. Developing a centralized database for gun-related incidents can facilitate better tracking and analysis of trends, ultimately guiding effective policy responses.

CONCLUSION:

This research serves as a crucial resource for understanding the dynamics of gunshot fatalities in Aba. By examining the demographics, circumstantial, and morphological aspects of these deaths, the study provides valuable insights that can inform community programs, healthcare responses, and policy initiatives. Addressing gun violence requires a multifaceted approach by the healthcare providers, and policymakers. The findings underscore the urgency of collective action to create a safer environment in Aba and, by extension, in similar urban contexts facing gun violence challenges.

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Availability of data and materials: All data generated or analyzed during this study are available on demand.

Declarations

Ethics approval and consent to participate

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Chairman Ethics and Research Committee of Abia State University Teaching Hospital. Informed consent was obtained from all the respondents involved in the study.

Consent for publication: Not applicable.

Competing interests: The authors declare no competing interests

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