

# Patterns of Unnatural Deaths during Insurgency in Maiduguri, Borno State, North-Eastern Nigeria: A Ten-Year Retrospective Review

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## ABSTRACT

**Background:** Unnatural death refers to premature death against the course of nature which results from homicides, accidents and suicides. The prevalence is rising worldwide and is considered one of the commonest causes of mortality. Among all the unnatural deaths in the western world, fire-arm death constitutes most of the cases and accounting for 4.43 deaths per 100,000 annually. In Nigeria, there is a paucity of data on unnatural deaths despite the rising incidence of deaths due to insurgency, banditry, kidnapping, political and ethnic crises, that prompted the need for this study. **Method:** The study was a hospital-based, ten-year retrospective survey. Non-probability purposive sampling method was used from three selected hospitals in Borno State. All cases of unnatural deaths from the mortuary logbooks from 2009-2018 available were recorded along with the deceased demography. The results were analyzed using Microsoft Excel, 2010 and were displayed in a frequency table, bar charts and pie chart. **Results:** There were 1,029(4.9%) cases of unnatural deaths during the study period (2009-2018). The unnatural death frequency peaked in 2014 with 260 (25%) cases. Gunshot death was the commonest and accounted for 387 (38%) cases. Road traffic accident and bomb blast were 2<sup>nd</sup> and 3<sup>rd</sup> with 291 (28%) and 196 (19%) cases respectively. Males were more affected than females by a ratio of 4:1. The age ranges were between 3 to 75 years. The commonest age group involved was 21-30 (34%) years. Most of the unnatural deaths occurred in urban [715 (69%)] than rural areas [(314 (31%))] cases respectively. **Conclusion:** The study has highlighted an increased incidence of unnatural deaths in Borno state due to insurgency with gunshot fatality being the commonest cause of death. To the best of our knowledge, this is the first report of unnatural deaths during the civil unrest in Borno state. We suggest a community-based study to effectively plan for mitigation and prevention of unnatural death in Nigeria.

**Keywords:** Unnatural, Death, Insurgency, Borno State.

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## Introduction

Unnatural death has been defined in the medical dictionary as any death caused by external causes which can be intentional or unintentional.<sup>1</sup> It refers to the category of deaths considered by a coroner or medical examiner as premature death against the

course of nature, which can be an unintentional, unexpected and unforeseen event resulting in damage, harm, or injury leading to death.<sup>2,3</sup> The unnatural death also can be suicidal, homicidal or accidental and it is one of the commonest cause of mortality in many countries.<sup>2,4</sup> The factors that lead to unnatural deaths include road traffic accidents (RTA), poisoning, fall, drowning, fires, burns, smoke, firearm discharge and death by electrocution.<sup>5</sup> Other factors include space programmed fatalities, death in sports, industrial accident deaths, collapsed building, and unsafe sleeping environment.<sup>6</sup> In Britain and the United States of America, falls from heights constitutes a major external cause of death.<sup>7</sup> Although in other reports on mortality highlights, it has been shown that firearm death constituted the most common accidental death with an estimated 1.4 million deaths between 1968 and 2011 reported in U.S.A.<sup>8,9</sup> The United States' gun-related murder rate is 25 times higher when it was compared to 22 other high-

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income nations and it constitutes 92 per cent of young people between the ages of 15 and 24 years as victims.<sup>8,9</sup> According to the Organization for Economic Co-operation and Development, data, the U.S.A is ranked 4th out of 34 developed nations having the highest incidence rate of homicides committed with a firearm.<sup>9</sup> In the West African sub-region and especially Nigeria, there are no data to depict the incidence of firearm deaths despite the rising gunshot injuries due to political, religious and ethnic crises, banditry, and recently kidnapping in the country.<sup>10</sup> The insurgency in northeastern Nigeria has resulted in the death of thousands of people and has forced millions to flee their homes and many towns and villages have been attacked and destroyed.<sup>10</sup> Provision of healthcare, education and other public services by the Nigerian government in the northeast has also been disrupted.<sup>10</sup> In 2015 the insurgency has impinged on the majority of Borno, Northern Adamawa, and Eastern Yobe states of Nigeria and according to Amnesty International more than 4,000 people died via firearm discharge in 2014 alone.<sup>10</sup>

In Nigeria, the pattern and regional distribution of unnatural deaths in all the geopolitical zones were not determined despite the civil unrest in the country. Similarly, documentation of the various causes of unnatural deaths along with the victim's demography if known can assist in crafting and planning mitigation measures. The paucity of information regarding unnatural deaths in north-eastern Nigeria during the insurgency period prompted the need for this study.

## Methodology

### Sampling Techniques

The study was a hospital-based retrospective survey. Non-probability purposive sampling method was used in the three selected hospitals, i.e. University of Maiduguri Teaching Hospital (UMTH), Umaru Shehu Ultramodern Hospital Maiduguri (UMSUHM) and State Specialist Hospital Maiduguri (SSHM).

All cases from January 2009 to December 2018 were identified and retrieved from mortuary logbooks and death registers' medical record. The demographic data including age, sex, location and cause of the unnatural death were recorded, the addresses of the victims were used to further categorizes the unnatural deaths into urban for those victims that died within local governments'

headquarters and rural for those victims brought to the hospitals from villages of Borno state. The results were entered into a computer programme and then analyzed.

### Sample Size

Non-probability purposive sampling method was used.<sup>11</sup> All cases of unnatural death from UMTH, SSHM, and USUMH from 2009 – 2018 archived records were included in the study.

### Limitations of the Study

The study is limited to the three selected hospitals in Maiduguri:

University of Maiduguri Teaching Hospital (UMTH)

State Specialist Hospital Maiduguri (SSHM)

Umaru Shehu Ultra-Modern Hospital (USUMH)

Only cases that were registered in the mortuary log-book or the mortality register from the three selected hospitals were included.

Autopsy was not done in all the unnatural death cases and also disaster victim identification in cases of explosion and bomb blast was not done.

### Sample Analysis

The information obtained from the mortuary log book and medical records' registers were entered into a computer programme. The data were then analysed using Microsoft Excel 2010.

The results obtained were displayed in table, bar chart and pie chart. The study was approved by institutional ethical committees of UMTH, USUMH and SSH.

### Results

There were a total of 20,966 cases of death during the study period, 2009-2018, (11,134 from UMTH, 6,384 from USUMH and 3,450 from SSH) out of which 1,029 (4.9%) cases were unnatural death; figure 1 shows the frequency of the unnatural deaths per year from 2009 to 2018. The year 2014 has the highest frequency that accounted for 260 (25%) cases. This was closely followed by 2013 with 169 (16.4%) cases. The least frequency of unnatural death was seen in 2011 with 13 (1.3%) cases recorded.

Figure 2 shows the gender distribution of unnatural deaths from the three selected hospitals in Borno state. There were 802 (78%) males and 227 (22%) females.

Table 1 shows the distribution of the various causes of unnatural deaths during the insurgency period in Borno state. Gunshot injury ranked first with 387 (38%) cases followed by RTA with 291 (28%) cases.



Bomb blast ranked third with 196 (19%) cases. Unnatural deaths from poisoning and burns accounted for 57 (5.5%) and 43 (4.1%) cases respectively. Other causes include industrial injury, animal attack, aspiration of foreign body, drowning and electric injury. There are 715 (69%) and 314 (31%) cases of unnatural death in the urban rural areas respectively.

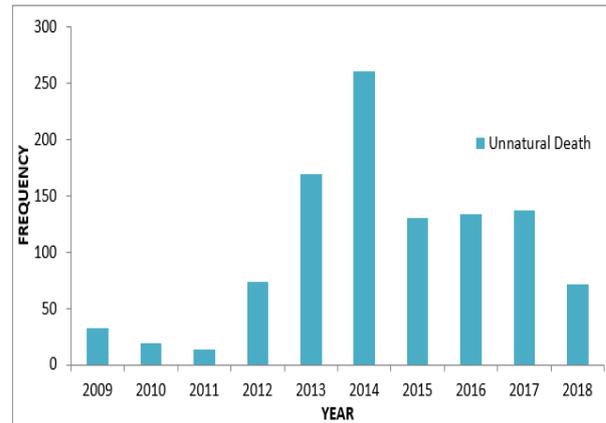


Figure 1: The frequency of unnatural deaths during insurgency in Borno State (2009-2018)

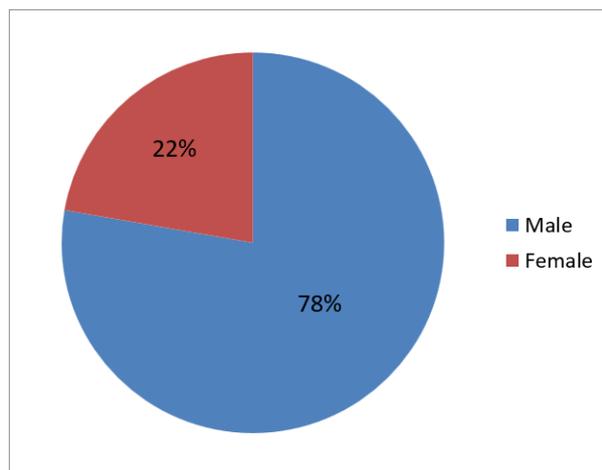
Source: UMTM, USUMH, SSHM, 2019

Table 1: Unnatural cause of deaths by gender and regional distribution from three selected hospitals in Borno state

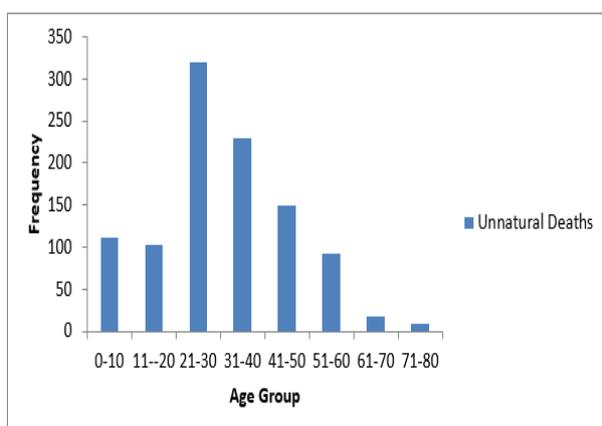
Unnatural Cause of Death	Gender		Location		Total
	Male	Female	Urban	Rural	
Gunshot	352	35	275	112	387(38%)
Road traffic accident	214	80	205	89	294(28.2%)
Bomb blast	136	60	128	68	196(19%)
Poisoning	34	23	40	17	57(5.5%)
Burns	24	19	31	12	43(4.1%)
Industrial injury	14	3	12	5	17(1.6%)
Fall from height	10	2	8	4	12(1.2%)
Slay	5	4	8	1	9(0.9%)
Animal Attack	7	0	5	2	7(0.7%)
Battery	3	0	1	2	3(0.2%)
Aspiration of Foreign Body	0	2	2	0	2(0.1%)
Drowning	0	1	0	1	1(0.1%)
Electric injury	1	0	0	1	1(0.1%)
	<b>800(78%)</b>	<b>229(22%)</b>	<b>715(69%)</b>	<b>314(31%)</b>	<b>1,029(100%)</b>

Source: UMTM, USUMH, SSHM, 2019





**Figure 2:** Distribution of unnatural deaths in males and females during the insurgency in Borno State. Source: UMTH, USUMH, SSHM, 2019



**Figure 3:** Age group distribution of unnatural death during the insurgency in Borno State (2009-2018). Source: UMTH, USUMH, SSHM, 2019.

### Discussion

Unnatural death is a major social and medical problem throughout the world with gunshot wounds constituting the major form of unnatural death.<sup>9,12</sup> In this study three selected hospital data were analysed. There were a total of 20,966 cases of death during the study period, 2009-2018, (11,134 from UMTH, 6,384 from USUMH and 3,450 from SSH) out of which 1,029 (4.9%) cases were deaths from unnatural causes and death from gunshot ranked the highest having 387 (38%) cases (Tables 1). These findings were in agreement with a study that shows the USA has recorded 1.4 million deaths via gunshot injuries from 1968 to 2011<sup>13</sup>. Similarly, in 2016 the deaths attributed to gunshots were 251,000 globally and of these deaths, 64% were homicides, 27% were suicides and 9% are accidental deaths. Five countries (Brazil, USA, Mexico, Colombia, Venezuela and Guatemala) accounted for

50.5% of these deaths.<sup>9,14</sup> In 2019, the USA was listed as the 28<sup>th</sup> country with the highest rate of death from gun violence in the world with an incidence of 4.4 deaths per 100,000 populations.<sup>9</sup> Civil unrest usually accompanies accidental, homicidal and occasionally suicidal deaths,<sup>10,15,16</sup> similar to findings in this study (table 1). In 2014, according to Amnesty International, there was an estimated 4000 deaths due to firearm discharge during the insurgency period in North-eastern, Nigeria.<sup>10</sup> It has also been reported that gun violence is mostly common among poor urban dwellers that are frequently associated with gang violence often involving young adult males in the western countries as further buttressed in this study, where there were more deaths from the urban than rural areas,<sup>9</sup>(Table 1). The age groups most affected were 21 to 30 years (figure 3). These findings probably agree with reports given by WHO and Amnesty International,<sup>10</sup> Although in this study only three selected hospital mortuary and medical records register were reported, there may be more cases that have not been documented among the rural dwellers. Similarly, this study has shown that there are more male victims of unnatural deaths than the females, (figure 2). These findings are in agreement with reported cases in most literature.<sup>17,18</sup> The adult male was reported as a strong risk factor for dying from unnatural deaths globally, compared to deaths of females, children and the elderly,<sup>10,17,18</sup> Gunshots are also incited by various other factors ranging from a religious crisis, gang violence, armed robbery, and political motivation, all involving males rather than females.<sup>9</sup> The crime rate in a community, especially developing countries is directly linked to the poverty and illiteracy rate.<sup>1</sup> A large number of unnatural deaths may be due to the failure of human, safety, legal factors and mechanical devices.<sup>2</sup> Recently in Borno state, there is a changing trend of the patients presenting to emergency units of all hospitals from RTA to cases of battery, bomb blasts and gunshot injury leading to deaths since the beginning of the insurgency in 2009 to date,<sup>10,19</sup> In the North-eastern region of Nigeria, 'Boko Haram' civil unrest was responsible for most cases of unnatural deaths, even though, cases of deaths from collateral damage cannot be ruled-out.<sup>10</sup> In the USA 4% of gunshot deaths was reported to be from cross-fire and according to the Organization for Economic Co-operation and Development (OECD) data the USA is ranked 4<sup>th</sup> out of 34 developed nations for the highest incidence rate

of homicides committed with a firearm, with only Mexico, Turkey and Estonia ahead of USA.<sup>20</sup> The victims of gunshots usually die on the spot, however, few victims die on their way to the hospital or in hospital.<sup>9,21</sup> The gunshot deaths in Borno State are mostly due to attack by 'Boko Haram' insurgents which directly results in death; few cases of the deaths were due to cross-fire by the security agencies while defending the innocent citizens.<sup>10</sup>

Studies from the Niger Delta area of Nigeria have shown gunshot mortality accounting for 61.8% of cases.<sup>4,21,22</sup> This was also in conformity with reported cases from the USA among black teenage males and significant deaths among the paediatric population.<sup>17,20</sup> A similar study from the USA in 2010, shows that the rate of suicides and accidental deaths are higher among the white population than black (14.1 deaths per 100,000 and 42.8 deaths per 100,000 respectively); conversely, blacks had a much higher death rate due to homicides than whites (18.6 deaths per 100,000 and 3.2 deaths per 100,000 respectively).<sup>17</sup> In this study, road traffic accident (RTA) ranked second most common causes of unnatural death with 291(28%) cases (Table 1); that conforms with the report by Mohafroz *et al.*, who reported that RTA was the 9<sup>th</sup> leading cause of deaths in developing countries accounting for 84% of cases and if the trend continues, it has been projected to be the 3<sup>rd</sup> most common cause of death by 2020 in developing countries.<sup>8,23</sup> Road traffic accident accounted for 88.4% of all accidental deaths in Nigeria and this has been reported to be due to poor road network, dreadful vehicles, and driving under influence of alcohol.<sup>2</sup> In another study in Nigeria, RTA accounted for 18.6% of deaths annually and Nigeria was ranked 191 out of 192 countries in the world with unsafe roads, with 162 deaths per 100,000 population,<sup>23,24,25</sup> In the USA accidental death, including RTA was ranked 3<sup>rd</sup> commonest cause of death just after cardiovascular diseases and cancer in 2016.<sup>8</sup> According to the WHO global reports on RTA, 85% of deaths and nearly 90% of the disabilities are caused by RTA globally,<sup>26, 27</sup> with India ranking first (130,000 deaths annually), while China closely follows (98,738 deaths).<sup>26</sup> Bomb blast, poisoning, and burns were the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> external cause of death in this study (Tables 1).

This is in agreement with a report given by Amnesty International; where 'Boko Haram' fighters' use bombs and also set fire on civilian houses leading to

unnatural deaths.<sup>10</sup> Burns was reported to be a common cause of unnatural deaths in one series from Asia.<sup>2</sup> Poisoning on the other hand accounted for 11% of all accidental deaths in the United Kingdom.<sup>28</sup> Although the cause of poisoning were said to be decreasing, however, the common substances used leading to death includes drug overdose, gas from over-heated rooms, pesticides and paints.<sup>28</sup> Deaths from poisoning mostly affect children between the age of 1 to 2 years in the UK, however, in this study most of the unnatural deaths from poisoning are due to ingestion of traditional medication mostly found among adults (Table1, figure 3).<sup>28</sup> Other causes of unnatural death from this study included industrial injury, fall from height, slay and animal attack, while the less common were aspiration of foreign body, drowning and electric injury [Table 1].

The study also shows the frequency of unnatural deaths peaked in 2014 (figure 1), while the lowest frequency was seen from 2009 to 2012, the likely reason for the low frequency was that most of the corpses from all the hospitals during that period were not recorded. That also explains why only 1,029 cases of unnatural deaths were retrieved from the three selected hospitals. Similarly, there was reduction in number of unnatural deaths from 2015-2018 (figure 1), probably due to the relative peace experienced during that period in the urban areas. However, the death rate was higher in the rural areas, even though most of the cases were not documented.<sup>10</sup>

### Conclusion

There has been an increase in the incidence of unnatural deaths in Northeastern Nigeria, especially in Borno state since the beginning of 'Boko Haram' insurgency in 2009 to date. Gunshot fatalities ranked the most common cause of unnatural death. To curtail insurgency in Nigeria, there is a need to embark on interventions that will lead to marked reduction in poverty and illiteracy levels in the society. The borders with neighboring countries and inter-states should be controlled to checkmate illegal importation of arms and illicit drugs. There should also be effective legislation aimed at restricting gun ownership and licensing. Road Traffic Accidents can be prevented by the reconstruction of the road network and taking measures that promote safe driving and ensure effective legislation and enforcement of traffic order. This study is limited to data from three selected hospitals from Borno state; we suggest a community-based study be conducted



in order to effectively plan for mitigation and prevention of unnatural deaths in Nigeria.

**Conflict of interest** - None

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