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Trends and patterns of violence-related mortality in Nigeria: evidence from a 16-year analysis of secondary data

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ABSTRACT

Background Nigeria is one of the most terrorised countries due to terrorist attacks and violent clashes. There have been many fatalities resulting from this violence, which started in the late 1960s and has significantly increased recently. Violence in Nigeria has been studied, but not about Nigeria's mortality experience over time. This study described the patterns and trends of deaths related to violence in Nigeria over 16 years.

Methods Secondary data on lethal violence across Nigeria spanning from 2006 to 2021 were drawn from the Nigeria Watch database, an online database of lethal violence in Nigeria. Univariate analysis of the data was conducted to map the trends, patterns and sources of lethal violence across Nigeria.

Results Nigeria recorded no fewer than 169 033 violent deaths between 2006 and 2021, with 2014 reporting the highest number (22, 873) and Borno State being the most affected, followed by Lagos, Kaduna, Zamfara, Plateau, Delta, Benue, Rivers and Adamawa. The highest number of deaths (51, 425) was attributed to crime, followed by insurgency (50, 252) and road crashes (27, 645). Other significant causes of death were political issues (8, 324) and cattle grazing (5, 501).

Conclusion Violence-related mortality is prevalent in Nigeria and significantly contributes to adult mortality. The government must develop strategies to identify, intervene in and end high-risk conflict situations to stop the growing contribution of violence to Nigeria's mortality experience.

INTRODUCTION

Despite global commitments to reduce violence and associated deaths by 2030, the world has seen a significant increase in deadly violence. This increase may be due to factors such as violent extremism, the adaptability of criminal networks and gangs, political instability and the emergence of fragile states.^{1,2} Violence has grown to be a significant public health issue as victims, including children, women and men, may experience long-term effects like addiction, physical and mental health problems and disabilities. Violence entails the use or the threatened use of harmful force by an offender or perpetrator on a victim. Oftentimes, murder, assaults, rape, assassinations and other violent acts have violence as the aim, whereas terrorism, extortion, robbery and other crimes use violence as a means. Broadly speaking, violence can be lethal or non-lethal, with non-lethal violence resulting in non-fatal physical,

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Violence has become a major public health concern and has a lasting impact on men, women and children.

WHAT THIS STUDY ADDS

⇒ Violent crime significantly influences Nigeria's high rate of mortality. This study combines deaths from violence over several years and maps the trends and patterns of deaths from violence across various states.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ For the purpose of preventing violence-related mortality, policies and programmes must have a comprehensive understanding of lethal violence.

sexual or psychological abuse, which can contribute to morbidity over a person's life course, particularly for women and children.³ Coping skills developed in response to non-lethal violence can also lead to life-threatening conditions, including HIV/AIDS, heart disease, stroke and cancer.^{3,4}

Lethal violence, on the other hand, results in the death of oneself or others and can be classified differently, depending on the approach. Homicide, suicide, domestic violence, interpersonal violence, gang violence, mass shootings, terrorism, war and conflict are all examples of lethal violence. Homicide can be intentional or unintentional, and it involves unlawfully killing someone, usually with violence.⁴ Suicide is classified as lethal violence because it results in the intentional death of oneself. It is the fourth leading cause of death among 15–29 year-olds worldwide.⁵ Domestic violence is common in intimate relationships, including those between married, cohabiting and dating partners, as well as those between other family members.^{6,7} Although it does not always result in death, it is increasingly carrying some elements of lethality, including intimate partner homicide. Gang violence kills and is perpetrated by organised groups, usually as a result of territorial disputes, drug trafficking and retaliation, accounting for 19% of all global homicides in 2017.⁴ Terrorism aims to instil fear and exert control over people by using violence or the threat of violence, which results in fatalities and injuries.

Lethal violence is complex and results from a variety of factors such as socioeconomic contexts, norms and individual motivations, among others.



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Being young, male and from a low socioeconomic background increases one's chances of becoming a victim or perpetrator of lethal violence.⁸ In Nigeria, lethal violence results from a variety of factors, including the country's history of colonialism, poverty and inequality, political instability, ethno-religious conflicts, gang violence, domestic violence and state failure, which has resulted in several ungoverned spaces. Nigeria's history is littered with lethal violence, beginning with interethnic clashes spawned by colonialism and leading to the Nigeria-Biafra civil war (1967–1970). Specifically, ethnic, religious and politically motivated violent crises over time, as well as the terrorist insurgency since 2009, have all contributed significantly to Nigeria's lethal violence burden. Since 2006, Nigeria, for example, has recorded over 143 000 violent deaths from more than 30 000 fatal incidents.⁹ These fatalities are headlined by violent clashes over control of oil resources in Nigeria's South-South, farmer–herder conflicts in the North-Central, terror activities in the North-East, armed banditry by criminal gangs in the North-West, separatist agitations in the South-East and general criminality in the South-West. As a result, lethal violence is prevalent throughout Nigerian society, leaving a high toll of fatalities in its wake.

Adult mortality rates, especially in developing countries, are a critical public health indicator usually used to measure socioeconomic development.¹⁰ Adult mortality rates describe the probability of people aged 15 dying before their 60th birthday when the age-specific death rates apply to the years between those ages.¹¹ Although there has been a decrease in adult mortality worldwide, this reduction is more significant in developed countries compared with developing countries like Nigeria.¹² Several factors including HIV/AIDS, high blood pressure, pregnancy and childbirth complications, non-communicable diseases, poverty, terrorism and injuries contribute to high adult mortality in developing countries.^{10 13–15} Lethal violence is one of the leading causes of mortality among adult populations aged 15–44 years worldwide, accounting for an estimated 10% of all years lived with disabilities.^{8 16–18}

Nonetheless, most developing countries, including Nigeria, pay insufficient attention to violence-related mortality when compared with maternal and child mortality, which is prioritised by the global community. As a result, most mortality studies ignore lethal violence as a factor in Nigeria's mortality experience.^{9 19} There is no evidence of studies that examined violence-related fatalities in Nigeria over a multiyear period. As a result, a closer examination of lethal violence as a mortality risk factor is required for a better understanding of Nigeria's overall mortality experience over time. Consequently, we focused on the overall trends and patterns of violence-related mortality in Nigeria between 2006 and 2021 in this study. We specifically examined: the trends of deadly violence across Nigeria as a whole to demonstrate its dynamics over time, and violence-related mortalities by state to highlight the geography of violent deaths across Nigeria. We also looked at the relative number of violent deaths per 100 000 people in Nigerian states to better understand violent deaths concerning population size and violence-related fatalities by cause, with the goal of investigating the various types of violence that contribute to Nigeria's mortality rate.

The study's emerging findings may have local and international implications by emphasising the role of lethal violence in the mortality trajectory. As a result, targeted preventive measures aimed at reducing lethal violence in Nigeria and elsewhere may emerge. Furthermore, the number of years covered in this study will provide a broader horizon for a comprehensive understanding of the nature and dynamics of violence-related deaths, as well as for programmes and policies aimed at mitigating

them. As a result, it could pave the way for an epidemiological approach to studying lethal violence in Nigeria and other countries where it is prevalent. In general, by providing data on the types of violence, their causes and victim characteristics, this study could help measure the global march towards achieving the Sustainable Development Goals (SDG) of reducing violence by 2030.

METHODS

Study area and data source

Nigeria has 36 states, 1 Federal Capital Territory (FCT) and 774 local government areas (LGAs), including six in the FCT. This study included these 36 states as well as the FCT. Nigeria Watch (NW) provided secondary data for this study. NW, which was founded in 2006, is a database and ongoing research project that monitors lethal violence, conflicts and human security, and archives fatality reports since 1 June 2006, to address the scarcity of data on victims of violence.⁹ The Institut Français de Recherche en Afrique hosts it at the University of Ibadan in Nigeria. The NW is a member of the Casualty Recorders Network, an organisation that promotes standards and international humanitarian and human rights law. The Japanese International Cooperation Agency and the Managing Conflict in Northeast Nigeria are currently funding the NW Project. The Institut de Recherche pour le Développement, Paris, and Britain's Department for International Development (DFID) (until 2017) support NW.

Validity and completeness

The NW database remains Nigeria's most comprehensive database on lethal violence and human security because it archives all sources of information as scanned PDF documents, allowing users to easily track previous records for reference. The database's statistics are reliable because it is consistent and has used the same approach since 2006. NW records lethal violence by date and location (state, LGA, town, village or 'offshore zone'). The police, the judiciary, hospitals and human rights organisations (primarily Human Rights Watch and Amnesty International) provide information to the NW database. Other sources include private security firms, companies, embassies and Nigeria's major national dailies. Although the database is far from complete, it reflects a bias in Nigeria's press, such as under-reporting, over-reporting and differences in reported figures. To address this issue, the NW team uploads as many reported figures as possible from as many sources as possible to the database, which generates an average number of deaths for each violent incident.

Variables and categories

The variables involved in this study are lethal violence and mortality. NW defines a violent event as any act that leads to a fatality in one or several contiguous LGAs and terminates when there are no deaths recorded. Included in this definition are state-sanctioned acts such as the execution of convicted criminals and fatalities resulting from operations by government security forces. Lethal violence as applied in this study is subdivided into two: intentional (homicide, cultism, etc) and unintentional (road traffic crashes, etc). Mortality as applied in this study entails the loss of life of a person irrespective of age and gender resulting from any violent act.

The causes of violent deaths vary and, in this study, include acts such as land issues (incidents related to land disputes but exclusive of fatal cattle grazing disputes), political issues (incidents

related to political events; eg, elections, or the control of political power in general), religious issues (incidents justified on religious grounds) and market issues (incidents related to economic competition and control of market areas, including bus stations but exclusive of all issues). Others are cattle grazing (incidents that oppose cattle breeders between themselves or against farmers), crime (all other fatal criminal incidents including robbery, banditry, rape, domestic violence, etc, but excluding political, religious, market, land, cattle and sorcery issues), convicts execution (death penalty executed by government officials, excluding extrajudicial killing, lynching and jungle justice), sorcery (incidents related to occult societies, human sacrifices, witchcraft) and other incidents (undefined incidents that lead to death). Also, included in the causes of violent deaths are unintentional acts such as road traffic crashes. Road traffic crashes are considered unintended violence by NW because they often involve the use of vehicles as a weapon and result in serious injuries or death. This is especially important as they are usually the result of reckless or negligent behaviours, in which a driver overspeeds, drives under the influence of drugs or alcohol and puts the life of road users at risk of serious injury or death, even when not intended.

The data set used in this study covers 36 states and the FCT from January 2006 to December 2021. The data cover fatalities resulting directly from intentional or unintentional violence such as banditry, cultism, insurgency, road crashes and cattle grazing. NW does not record suicides except for two cases: suicide attacks perpetrated by terror insurgents and the murders of security operatives running amok before killing themselves.

Data analysis

The data for this study were exported into an Excel spreadsheet and subjected to descriptive statistical analysis at the univariate level. To explore the trends of lethal violence in the country, the absolute number of deaths was calculated per year (2006–2021). Subsequently, the result was presented in a chart illustrating its dynamics over time. To explore the geographical patterns of violence-induced mortalities, the absolute number of deaths resulting from violence recorded across the 36 states and the FCT was mapped and illustrated by states. To calculate the relative number of deaths due to lethal violence, the total number of violent deaths per state was divided by the total population of

each state and multiplied by 100 000. Lethal incidents across the 36 states in Nigeria and the FCT are also recorded by adapted and updated population figures per LGA based on the 1991 and 2006 censuses and the annual growth rate as calculated per state. Such makes it easier to calculate the relative number of deaths per 100 000 inhabitants. To understand the various causes of violence-related mortalities, available data were disaggregated into cattle grazing, convicts execution, crime, land issues, market issues, natural disasters, oil distribution, oil production, other incidents, political issues, insurgency, road crashes and sorcery. This represents the total number of violent deaths by cause. For further nuanced insights into the cause of violent deaths, the three major causes of violent deaths (crime, insurgency and road crashes) were further interrogated to illustrate their patterns and dynamics. The absolute number of deaths resulting from each of the causes of violent deaths was calculated in absolute terms and presented in charts.

RESULTS

Trends of lethal violence across Nigeria

Figure 1 displays the number of fatalities resulting from violent incidents in Nigeria over time, indicating widespread lethal violence. The fatalities varied since 2006, peaking in 2014 during the height of the Boko Haram insurgency when 22 873 violent deaths were reported. In total, 169 033 people lost their lives through violence. A total of 18 788 violent deaths occurred in 2015, an election year that typically sees a lot of election-related violence. However, in 2016, the number of violent deaths significantly decreased to 11 949, and in 2017, it reached its lowest point at 10 578. Since then, there has been an upward trend in the number of fatalities up to 2021.

Trending lethal violence across Nigeria by states

Figure 2 shows the spatial patterns of violent deaths in Nigeria by state. The majority of violent deaths occurred in the north of the country, particularly in Borno State, which had the highest number of violence-related deaths (41 692). Lagos (11 410), Kaduna (8534), Zamfara (6843), Plateau (6470), Delta (6425), Benue (6370), Rivers (5907) and Adamawa (5117) States also had high numbers of violent deaths. However, Ekiti, Jigawa and Kebbi recorded the lowest number of violence-related deaths.

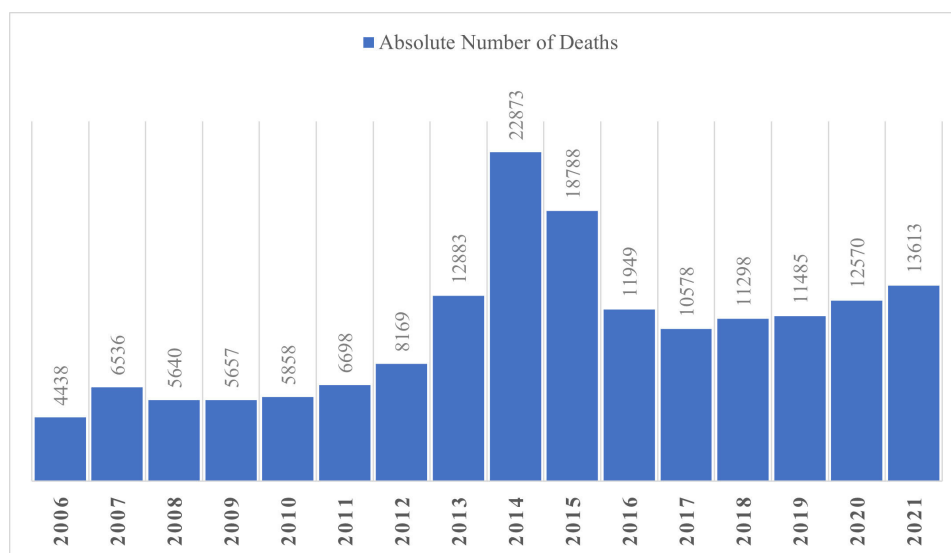


Figure 1 Yearly trend of fatalities resulting from violence in Nigeria (January 2006 to December 2021).

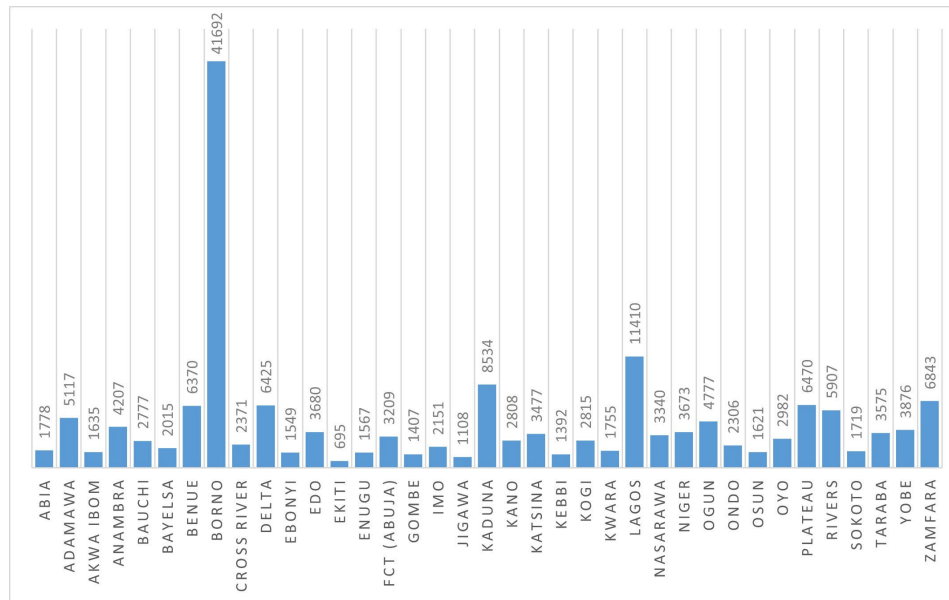


Figure 2 Trend of lethal violence across Nigeria by states. FCT, Federal Capital Territory.

The relative number of deaths (per 100 000 populations) by state in Nigeria

Figure 3 shows the relative number of deaths per 100 000 populations, which was calculated by dividing the number of violent deaths by the population of a state and multiplied by 100 000. Borno has the highest relative number of violent deaths per 100 000 populations at 743.5, followed by Plateau (168.3), Zamfara (147.2), Nasarawa (140.1), FCT (131.7), Yobe (125.8) and Adamawa (125.3). Lagos and Ogun States in the South-West have 103.4 and 97.4 relative numbers of violent deaths per 100 000 populations, respectively. Delta and Bayelsa States in the South-South have 124.8 and 100.3 relative numbers of violent deaths per 100 000 populations, respectively. Anambra and Ebonyi States in the South-East have the highest relative number of violent deaths per 100 000 populations at 83.5 and 54.9, respectively. Jigawa, Ekiti, Kano, Akwa Ibom, Kebbi and Sokoto are the least dangerous states in Nigeria to live in when

their relative number of violent deaths is compared with their populations.

Total violent deaths by causes

Figure 4 illustrates the total number of violent deaths resulting from different categories of causes. Nigeria is faced with different forms of lethal violence. Their causes range from cattle grazing, terrorist insurgency, land and communal conflict, natural disaster, oil production and distribution, market issues and road crashes. Crime caused the highest number of mortalities in Nigeria between 2006 and 2021, causing about 51 425 deaths resulting from 19 043 criminal acts, followed by terrorist insurgency (50 252) from 2288 terrorist acts, and road traffic crashes (27 645) resulting from 6354 road crash incidents. The least number of deaths occurred from convicts execution (19), market issues (563) and sorcery (1738).

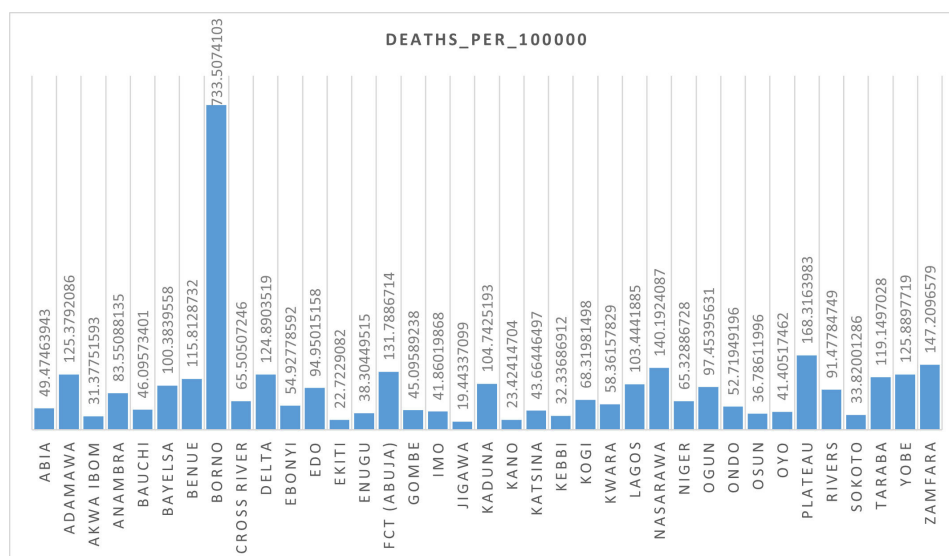


Figure 3 Relative number of deaths (per 100 000 populations) by states. FCT, Federal Capital Territory.

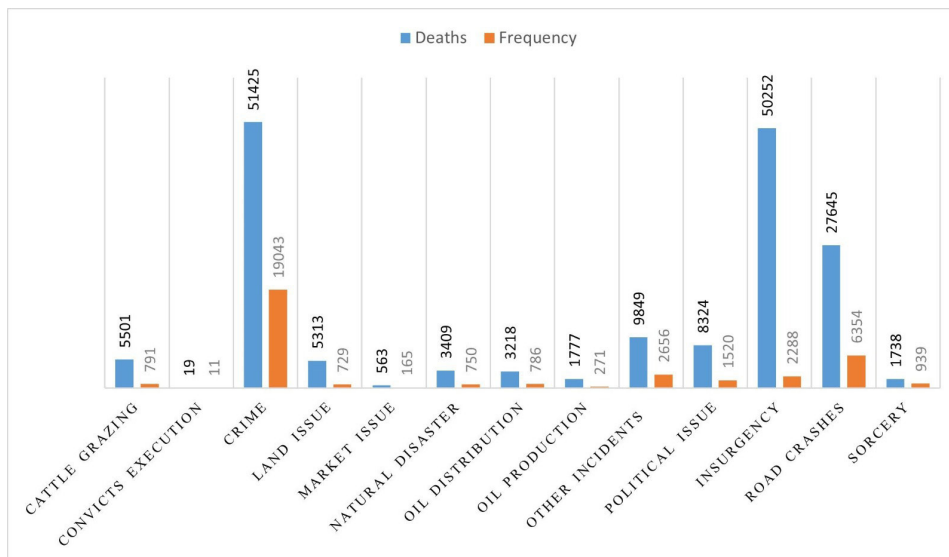


Figure 4 Distribution of fatalities by causes (2006–2021).

Disaggregating crime-related mortality by causes

Rural banditry

Rural banditry was particularly confined to the seven North-West states. Therefore, data on banditry-induced fatalities were not available for the entire 36 states and the FCT. Figure 5 illustrates that between 2006 and 2021, a total of 17 646 fatalities were recorded in the seven North-West states, with 12 354 deaths resulting from rural banditry. Zamfara State (5247) recorded the highest number of fatalities, followed by Kaduna (4046) and Katsina (1861). Jigawa, Kano and Kebbi States had the lowest number of banditry-related fatalities. Although Zamfara, Katsina and Sokoto States granted amnesty to bandits to stop the attacks, these interventions were unsuccessful, and communities still suffered from frequent attacks.

Cultism

Cultism is a significant cause of violence in Nigeria, with 5822 lives lost across 31 states and the FCT reported cult-related deaths between 2006 and 2021. In essence, fatalities resulting

from cult violence are more dominant among southern states than among their northern counterparts. As shown in figure 6, the southern states of Rivers (1426), Lagos (870), Edo (613), Delta (498) and Nasarawa (331)—a northern state—recorded the highest number of deaths related to cultism, while Adamawa (3), Kebbi (1), Borno (1), Sokoto (1) and Katsina (2) recorded the lowest.

Insurgency and government counteroperations in Nigeria

Boko Haram, the Islamic State West Africa Province (ISWAP) and Ansaru attacks, as well as counteroperations by government security forces, claimed about 50 252 lives across 19 states in Nigeria and the FCT. As shown in figure 7, the North-Eastern states of Borno, Adamawa and Yobe remain the stronghold of insurgency which has claimed the lives of civilians, security operatives, volunteers, humanitarian workers and terrorists. Borno State (40 485) had the most insurgency-related fatalities, followed by Adamawa (3277), Yobe (2900), Plateau (905), Kano (762), Bauchi (484) and Kaduna (446). Other states like Gombe,

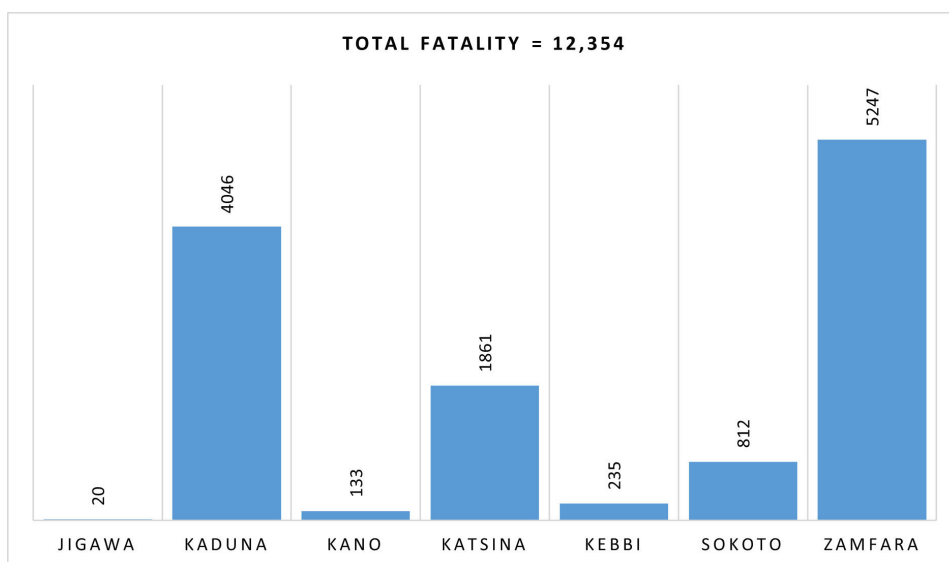


Figure 5 Distribution of fatalities from banditry by states in the North-West (2006–2021).

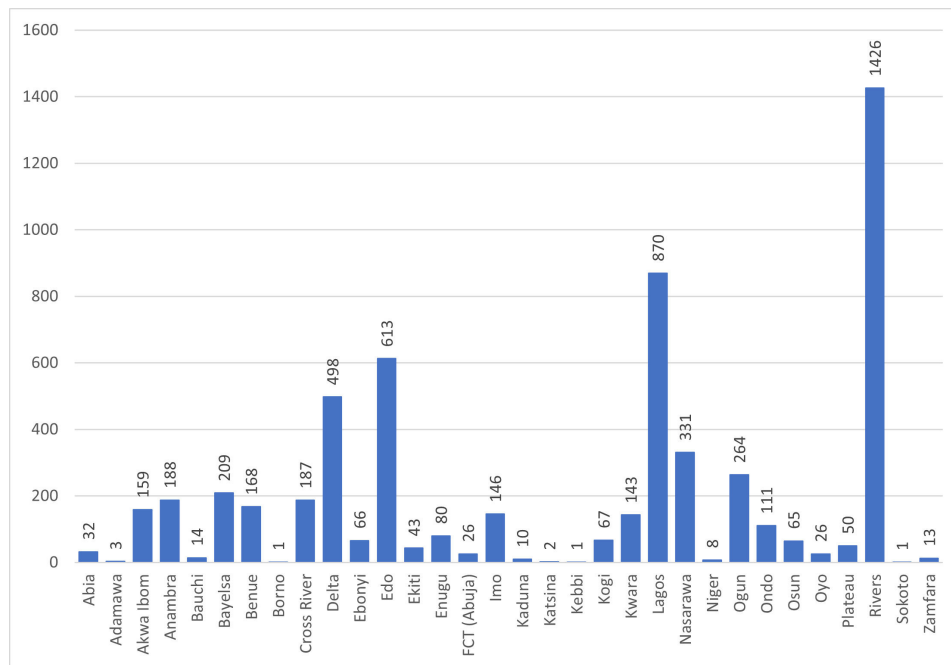


Figure 6 Distribution of fatalities from cultism by states (2006–2021). FCT, Federal Capital Territory.

Jigawa, the FCT and Nasarawa also had significant fatalities from the Boko Haram insurgency.

Road crash fatalities by years

Road crashes are a significant cause of violent deaths in Nigeria. [Figure 8](#) shows the number of deaths from road crashes by year, which fluctuated but never dropped below a thousand deaths. The highest numbers of deaths occurred in 2013 and 2010, with over 2000 deaths each, while 2006 had the lowest number of deaths at 1611. Though the number of road crash-related fatalities declined between 2015 and 2018 after peaking in 2013, it increased in 2019. In total, from 2006 to 2021, there were 27 645 fatalities from road crashes, revealing that Nigerian roads are hazardous and notorious for avoidable deaths.

Road crash deaths by states

We analysed traffic incidents by state to track the trend of fatalities from road crashes. According to [figure 9](#), 10 states, seven of them from southern Nigeria, reported more than a thousand road crash-related fatalities each. Lagos and Ogun are the only two states with over 2000 cases of road crash-related deaths. The other states with a significant number of fatalities from road crashes are Edo (1593), FCT (1503), Delta (1376), Oyo (1333), Kogi (1317), Bauchi (1140), Ondo (1133) and Anambra (1071). In contrast, the states with the lowest road crash-related fatalities were Taraba (131), Akwa Ibom (170), Bayelsa (184), Ekiti (215), Plateau (254), Borno (263) and Ebonyi (268).

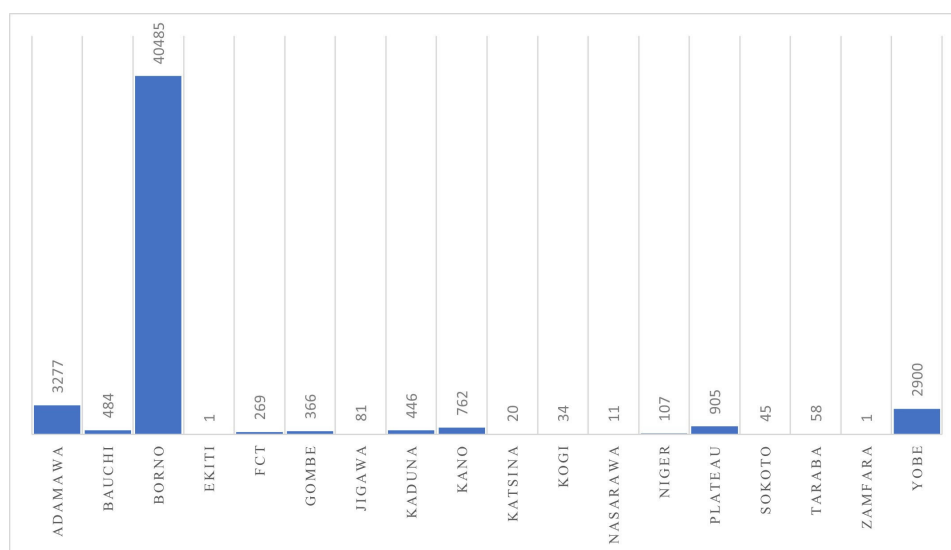


Figure 7 Distribution of deaths from Boko Haram-Islamic State West Africa Province (ISWAP) insurgency by states (2006–2021). FCT, Federal Capital Territory.

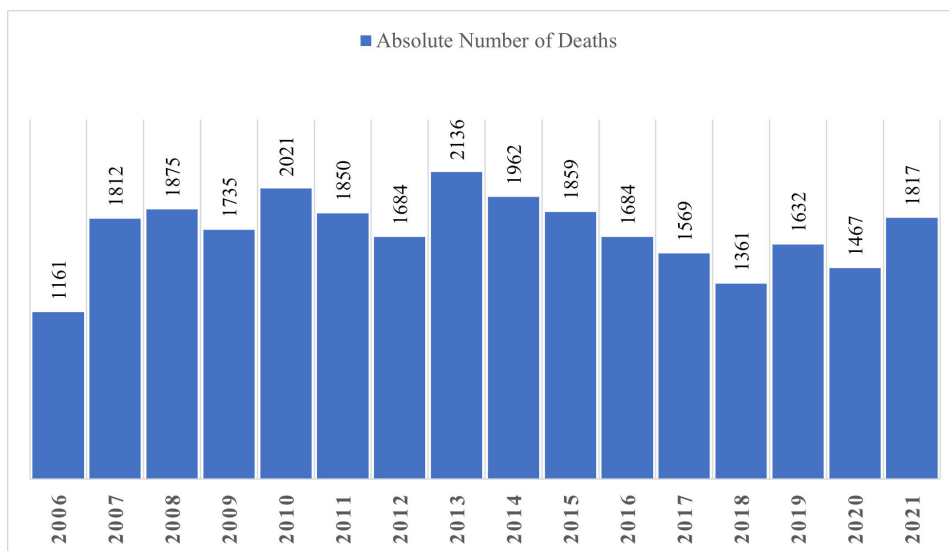


Figure 8 Distribution of road crash fatalities by years (2006–2021).

Cattle grazing

Violent deaths resulting from land conflicts, particularly those involving cattle grazing, are a significant issue in the North-Central parts of Nigeria. Both farmers and Fulani communities are affected, with open grazing killings and deadly attacks on farming communities being the main protagonists. **Figure 10** shows that approximately 5501 deaths have resulted from these conflicts. Although fatalities from herdsmen-farmer clashes have historically occurred, they peaked from 2011 to 2013 before declining between 2014 and 2015. In 2016, it became endemic with a consistent spike in the number of deaths attributed to cattle grazing, reaching an all-time high in 2018 before significantly reducing by 2019. The deadliest year was 2018, with nearly 2000 casualties, followed by 2021 (714), while 2006 (22), 2008 (36) and 2010 (39) had the lowest number of violent deaths attributed to land conflicts involving cattle grazing.

DISCUSSION

This study is one of the few studies to chart a trend analysis of violent deaths across Nigeria from 2006 to 2021 in light of Nigeria’s mortality experience. We used secondary data from the NW database. Following the analysis of the data, trends and patterns in violent deaths, the geography of deadly violence, the relative number of violent deaths per 100 000 populations and the cause of violent deaths emerged, revealing the prevalence of deadly violence throughout the country over time. Hence, it indicates that deadly violence remains a significant contributor to Nigeria’s mortality trajectory, even though this is often not at the front burner in mortality studies in Nigeria.

The study revealed widespread deadly violence across the 16 years we investigated. The years 2013–2015 were particularly brutal, with violent deaths rising from 2013 to a peak in 2014, a pre-election year, with a lot of violence either before or

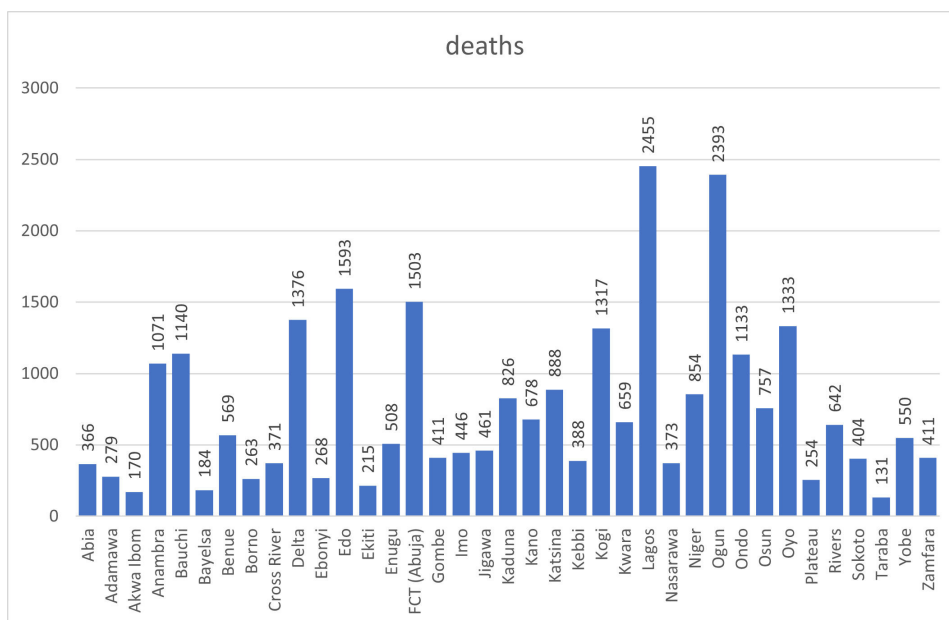


Figure 9 Distribution of road crash deaths according to states (2006–2021). FCT, Federal Capital Territory.

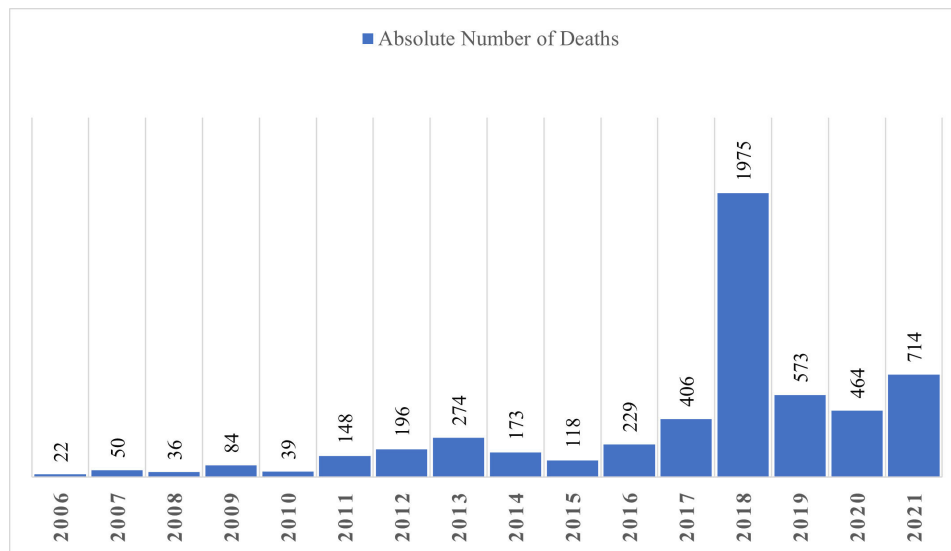


Figure 10 Absolute number of deaths caused by grazing by years (2006–2021).

after. This finding is consistent with previous findings.²⁰ During this period, terror groups, Boko Haram and ISWAP were quite active, causing havoc in the North-East and in the North-West and North-Central states. However, the absolute number of violent deaths declined sharply in 2016 and 2017, only to rise again steadily from 2018 to 2021, mainly due to bandit activities in the North-West and North-Central regions. The pervasive violence across Nigeria can be attributed to the presence of ungoverned spaces, allowing violent and criminal elements to operate freely. The findings are consistent with previous studies and reports.^{19 21–26}

Furthermore, every state had a fair share of violent deaths throughout Nigeria, with only Ekiti State recording less than a thousand violent deaths. Regardless of the variations of deadly violence across the country, it was more prevalent and intense in northern Nigeria than in the southern region. Our findings suggest regional variations and are consistent with other studies elsewhere.^{27–31} For instance, of the nine states with the highest record of deadly violence, six are in northern Nigeria, with Borno having the highest number of violent deaths and Jigawa the lowest. Fatalities in Borno State were attributed to Boko Haram and ISWAP insurgent activities and military interventions since 2009. In Lagos State, cult groups were the main cause of deadly violence. In Kaduna and Zamfara States, bandits were responsible for the majority of fatalities. Plateau, Benue and Delta States also had high numbers of violent deaths, mainly due to land issues involving Fulani herders and indigenous farmers and sectarian violence between indigenous Christians and Muslim settlers. Ekiti, Ebonyi and Enugu recorded the lowest number of deaths from deadly violence in the southern region. The disparity in the number of violent deaths among states within the same zone highlights the complexity of lethal violence. Other organisations that track violent conflicts and fatalities^{32–34} also reported findings that were consistent with these findings, naming Zamfara, Kaduna, Borno, Benue and Niger as the most violent states in 2021.

Further findings revealed the Nigerian states with the highest relative number of violent deaths per 100 000 populations. Findings identified Borno, Plateau, Zamfara, Nasarawa, FCT, Yobe and Adamawa as states with the highest relative number of violent deaths per 100 000 populations, and by extension the most dangerous states in Nigeria within the years under review.

These states have a history of sectarian crises, and frequent clashes between ethnic nationalities, and some are the epicentres of the Boko Haram/ISWAP insurgency. For instance, Borno State had the highest relative number of deaths per 100 000 populations. Previous studies have reported a similar number of violent deaths from terror activities in northern Nigeria.^{4 35} Sheats *et al* reported that suicide accounted for 16.8 while homicide accounted for 5.7 violent deaths per 100 000 populations in 39 states and the District of Columbia in the US states.³¹

Lagos and Ogun States recorded the highest relative number of deaths per 100 000 populations and consequently the most dangerous states in the South-West. Both states continuously record numerous lethal road crashes, especially along the Lagos-Ibadan, Lagos-Abeokuta and Lagos-Badagry highways. Petrol tanker crashes are common along major transport corridors. In the South-South, Delta and Bayelsa States were the most dangerous with relative deaths per 100 000 people. Road traffic crashes, communal clashes, militancy and pipeline vandalism headline fatalities in both states. Anambra and Ebonyi States in the South-East had the highest relative number of deaths per 100 000 populations. Intercommunity clashes and general criminality are common in both states, as are pro-Biafra separatist agitations. On the other hand, Jigawa, Ekiti, Kano, Akwa Ibom, Kebbi and Sokoto recorded the lowest relative number of deaths per 100 000 populations across the country and by extension the least dangerous states to live in. However, these findings contrast with a report³⁶ which identified Bauchi, Nasarawa, Adamawa and Yobe as the safest states in the first quarter of 2022. The contrast in findings may be due to the period under review, with the study covering 16 years and the Cable report only covering the first quarter of 2022 and not controlling for population strength.

Causes of lethal violence in Nigeria varied by contexts ranging from crime, natural disaster, oil distribution, other incidences (all causes that were not predefined causes of lethal violence), political issues, road crashes, cattle grazing, convicts execution, market issues, land conflicts, insurgency and sorcery. While crime affected all 36 states and the FCT, the same could not be said about cattle grazing. For instance, cattle grazing was reported across 35 states and the FCT except Lagos State. It was not that there were no conflicts between herders and farmers but such incidents did not culminate in deaths. Only five states, Edo,

Enugu, Rivers, Lagos and Plateau, recorded cases of convicts execution while land conflict resulted in deaths in 34 states and the FCT except Sokoto and Yobe States. There were no deaths from market issues in Bauchi, Borno, Jigawa, Kebbi, Niger, Osun, Sokoto, Taraba, Yobe and Zamfara States while Kebbi State failed to record a fatality from oil distribution. Oil production led to fatalities in 10 states: Abia, Akwa Ibom, Anambra, Bayelsa, Cross River, Delta, Edo, Imo, Kogi and Rivers, while insurgency was reported in 18 states across Nigeria.

Between 2006 and 2021, many communities across the 36 states and the FCT were faced with different forms of violent crimes. General criminal activities mostly caused violent deaths across Nigeria. Rural banditry and cultism were the major cause of crime-related mortalities. In the North-West region alone, banditry was responsible for a significant number of violent deaths between 2006 and 2021. Rural banditry and counteroperations by government forces claimed about 17 646 lives. Armed bandits continue to cause unrest across different states in Nigeria, especially in the North-West where raids on rural communities, kidnapping for money and rustling cattle have become prevalent with loss of life in its wake. Victims of bandit attacks cut across civilians, government forces and bandits themselves, many of whom were killed by government troops on special counteroperations. For instance, Operation Forest Sanity, Operation Thunder Strike, Operation Whirl Punch and Operation Hadarin Daji were all special counteroperations to dislodge the bandits. This finding is consistent with previous findings about the prevalence of armed banditry in Nigeria.³⁷⁻³⁸ Reports have also linked dispersed Boko Haram and ISWAP fighters to the increasing banditry and violent deaths in northern Nigeria.³⁹⁻⁴⁰

Cult-gang violence is also a significant source of violent deaths across the country and elsewhere.²⁸ Cult violence is most prevalent in southern Nigeria, with Rivers, Lagos, Edo, Delta and Nasarawa being the states with the highest number of cult-related deaths. The high crime rate and the metropolitan nature, which made Rivers and Lagos States centres for socioeconomic and political activities, contributed to the high number of cult-related fatalities in both states. The quest for territorial control mostly characterises cult clashes in the most affected states.²⁷⁻⁴¹ Clashes regularly involve rival cult groups. For instance, in Lagos State, the Aiye and Eiye confraternities have been the dominant groups and have, over the years, clashed over supremacy. Unlike in Nigeria's south, cultism is not prevalent in the north. The five states with the least number of cult-related deaths are from the region. One previous study recorded similar findings on the prevalence of cult-gang activities in southern Nigeria.⁴² For instance, more than 100 cult groups in Rivers State alone are causing incalculable human and economic losses. According to a 2020 report by SB Morgan on violence in Rivers State, more than 100 cult groups are fuelling violence in Rivers State and have caused incalculable human and economic loss.⁴³ In Lagos State, cultism has infiltrated traders and road transport unions, with factional clashes common among the two dominant cult groups, Aiye and Eiye.⁴⁴

Insurgency represented another major source of deadly violence in Nigeria. Although military establishments and civilians were the main targets of insurgent attacks, intergroup supremacy clashes between Boko Haram and ISWAP, the search for new territories and the competition for resources contributed to the escalation of violence and the increase in casualties.⁴⁵ The group rivalry worsened following Abubakar Shekau's death, the leader of the Boko Haram terror group, in May 2021, and the attempts by ISWAP to absorb his Boko Haram commanders and foot soldiers. The incessant intergroup clashes, coupled with

intensified raids on Boko Haram/ISWAP enclaves in the Sambisa Forest and the constant surrender of its fighters to government troops, forced many insurgents to seek new territories in the North-West and North-Central, particularly Niger and Kaduna States, leaving a high toll in loss of life in their trail.⁴⁶⁻⁴⁷

Despite the Nigerian Federal Road Safety Corps' best attempts to reduce road traffic crashes, the alarming number of fatalities from road traffic crashes in this study is concerning. It confirms that road traffic crashes are a major public health issue in the country, resulting in a large number of deaths, disabilities and injuries.⁴⁸⁻⁴⁹ This finding is consistent with the worldwide recognition that road traffic crashes are a global epidemic and the leading cause of injury-related deaths.⁵⁰ The fact that road traffic crashes are Nigeria's third leading cause of overall deaths, the leading cause of trauma-related deaths and the most common cause of disability emphasises the problem.⁵⁰ The high death toll resulting from road crashes is not only due to bad roads. They are also the result of negligent and careless behaviours on the part of drivers and a combination of other factors, leading to preventable loss of life.⁵¹⁻⁵² WHO reported a significant increase in road traffic injuries and deaths since 2000, with about a 50% increase in healthy life years lost.⁸ Previous studies in Nigeria have documented high mortality from road traffic injuries. A study found mortality from road traffic injuries to be 1.6 per 1000 people.⁵³ Another study reported that an overall 8516 deaths resulted from road crashes across Nigeria between 2006 and 2015.¹⁹

Furthermore, a high proportion of violent deaths resulted from deadly violence especially in the North-Central due to farmers and herders' conflict. The discovery of cattle grazing as a cause of deadly violence in Nigeria reveals serious issues concerning land conflicts and their impact on both farmers and Fulani communities in Nigeria's North-Central region. The conflicts are primarily focused on open-grazing massacres and lethal attacks on farming communities. The data in figure 10 depict the changing trends in fatalities over time. The discovery implies that the conflicts are not cyclical and can occur at any time of year, confirming the notion that they have no seasonal pattern.⁵⁴ Factors such as climate change, drought, urbanisation and the resulting scarcity of land for farming and grazing all contribute to the escalation of violence.⁵⁵⁻⁵⁸ Climate change has reduced available land for farming and grazing, increasing competition between farmers and herders.⁵⁸

Potential limitations of the study

At this point, there is a need to note that there are potential limitations to the NW database. Therefore, caution should be observed while generalising the findings in this paper. The database is far from exhaustive as some incidents could be unreported while others are sometimes under-reported or over-reported by some news media. Therefore, fatality figures for the same incident could differ from one news media to another due to dysfunctions in journalistic practices. However, to fix such a challenge, the NW Project team uploads as many figures as reported and allows the database to generate an average number of deaths for such violent incidents. Regardless of these potential limitations, the database aids chart a trend in lethal violence and better understanding its contributions to Nigeria's mortality experience.

CONCLUSIONS

This study has demonstrated that lethal violence is pervasive across Nigeria and remains an obstacle to achieving the SDG

target of eliminating all forms of violence and their associated deaths in Nigeria. It has highlighted deadly violence as a significant factor in Nigeria's mortality experience. We used secondary data to chart a trend of lethal violence over 16 years across the country. Nigeria's low life expectancy implies that Nigerians are dying too many, too soon, with deadly violence as one of the main reasons. We found that lethal violence shows no sign of waning in Nigeria, especially given the impotence of various government policies in addressing them, as evidenced in this study. Young adults, the most productive and dynamic group of Nigerians, are frequently the targets of violent crimes. It has several public health implications for Nigeria and its overall well-being. One of the implications is that living in Nigeria has become very precarious and with challenging outcomes for citizens. Lethal violence needs to receive the crucial attention it requires, even as Nigeria struggles with other biomedical causes of adult mortality, such as maternal mortality, HIV/AIDS, high blood pressure, alcohol, cardiovascular illnesses, diabetes, etc. To avoid future senseless violent deaths, policies and strategies that target the suppression of violence even before they happen and the interruption of budding conflict situations are required as a matter of urgency to forestall its escalation. Additionally, all available resources are needed to prevent high-risk individuals and merchants of violence from perpetrating their criminal acts.

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REFERENCES

- United Nations. The 2030 agenda for sustainable development. New York United Nations; Available: <https://sdgs.un.org/2030agenda>
- Organisation for Economic Cooperation and Development. States of fragility: understanding violence. Paris OECD; 2016. Available: https://www.oecd-ilibrary.org/development/states-of-fragility-2016_9789264267213-en
- World Health Organisation, United Nations Development Programme, United Nations Office on Drug and Crime. Global status report on violence prevention 2014. Geneva World Health Organisation; 2014. Available: <https://www.undp.org/publications/global-status-report-violence-prevention-2014>
- United Nations Office on Drug and Crime. Global study on Homicide. Vienna United Nations; 2019. Available: <https://www.unodc.org/unodc/en/data-and-analysis/global-study-on-homicide.html>
- World Health Organisation. Suicide. 2021. Available: <https://www.who.int/news-room/fact-sheets/detail/suicide>
- World Health Organisation. *Global and regional estimates of violence against women: Prevalence and health effects of intimate partner violence and non-partner sexual violence*. Geneva, Switzerland: World Health Organization, 2013.
- Garcia-Moreno C, Jansen HA, Ellsberg M, et al. Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *Lancet* 2013;383:941–8.
- World Health Organisation. Injuries and violence. 2021. Available: <https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence>
- Pérouse de Montclos M-A. *Violence in Nigeria: a qualitative and quantitative analysis*. Leiden: African Studies Centre, 2016.
- Okoro CO, Nwogu EC, et al, Department of Statistics, Imo State University, Owerri. Estimation of adult mortality in Nigeria in the era of sustainable development goals: insight from census-based methods. *JPS* 2020;28:38–50.
- World Bank. World development indicators report: conflict, security and development. Washington DC The World Bank; 2011. Available: https://web.worldbank.org/archive/website01306/web/pdf/wdr2011_full_text.pdf
- World Health Organisation. Preventing youth violence: an overview of the evidence. Geneva World Health Organisation; 2015. Available: www.who.int/violence_injury_prevention/violence/youth/youth_violence/en
- Murray CJL, Wang H, Abajobir AA, et al. Global, regional and national under-5 mortality, adult mortality, age-specific mortality, and life expectancy, 1970–2016: a systematic analysis for the global burden of disease study 2016. *Global Health Metrics* 2017;390:1084–150.
- Chukwu AU, Oladipupo EO. Modelling adult mortality in Nigeria: an analysis based on the lee-Carter model. *Studies in Mathematical Sciences* 2012;5:1–12.
- Gakidou E, Hogan M, Lopez AD. Adult mortality: time for a reappraisal. *Int J Epidemiol* 2004;33:710–7.
- Grinshteyn E, Hemenway D. Violent death rates: the US compared with other high-income OECD countries, 2010. *Am J Med* 2016;129:266–73.
- Web-based injury Statistics query and reporting system [WISQARS]. weapon-related injury surveillance [Centres for Disease Control and Prevention]. 2015. Available: <http://www.cdc.gov/injury/wisqars>
- Ukoji VN, Okolie-Osemene J. Prevalence of lethal and non-lethal crimes in Nigeria. *J Adv Res Humani Social Sci* 2016;3.
- Butchart A, Mikton C, Dahlberg LL, et al. Global status report on violence prevention 2014. *Inj Prev* 2015;21:213.
- Armed conflict location and event data (ACLED). Armed conflict and location event data project, version 6 data [ACLED]. 2016. Available: www.acleddata.com/data/version-6-data-1997-2015
- This Day Newspaper. Nigeria recorded 5,222 violent killings in six months, says US agency [Thisday]. 2022. Available: <https://www.thisdaylive.com/index.php/2022/07/24/nigeria-recorded-5222-violent-killings-in-six-months-says-us-agency/>
- PM News. Violence claims 13,537 lives in Nigeria in one year – report [PM News]. 2022. Available: <https://pmnewsnigeria.com/2022/08/02/violence-claims-13537-lives-in-nigeria-in-one-year-report/>
- Ekeke ON, Okonta KE. Trauma: a major cause of death among surgical in-patients of a Nigerian tertiary hospital. *Pan Afr Med J* 2017;28:6.
- Armed Conflict Location and Event Data. Armed conflict and location event data project, version 5 data [ACLED]. 2015. Available: www.acleddata.com/data/acleddata-versions-1-5-data-1997-2014
- Gates S, Nygard HM, Strand H, et al. Trends in armed conflict, 1946–2014 [Peace Research Institute Oslo (PRIO) Conflict Trends Project]. 2016. Available: www.prio.org/ConflictTrends
- International Crisis Group. *Easy prey: Criminal violence and Central American migration*. Latin America Report No 57. Brussels, Belgium, 2016.
- Lauger TR, Lee S. Gang violence: examining ecological, cultural, social psychological, and psychological factors across the life course. In: Geffner R, White JW, Hamberger LK, et al., eds. *Handbook of interpersonal violence and abuse across the lifespan*. Cham: Springer, 2020.
- Rahitz E. The psychological impact of gang violence [The Conversation]. 2017. Available: <https://theconversation.com/the-psychological-impact-of-gang-violence-77267>
- Reza A, Mercy JA, Krug E. Epidemiology of violent deaths in the world. *Inj Prev* 2001;7:104–11.
- Kleinfeld R. Reducing all violent deaths, everywhere: why the data must improve. Washington DC Carnegie Endowment for International Peace; 2017. Available: https://carnegieendowment.org/files/CP_297_Kleinfeld_Crime_Final_Web.pdf
- Sheats KJ, Wilson RF, Lyons BH, et al. Surveillance for violent deaths - national violent death reporting system, 39 States, the District of Columbia, and Puerto Rico, 2018. *MMWR Surveill Summ* 2022;71:1–44.
- Relief Web International. Nigeria's most violent States – June 21, 2022 [Relief Web International]. 2022. Available: <https://reliefweb.int/report/nigeria/nigerias-most-violent-states-june-21-2022#:~:text=Kaduna%20and%20Borno%20states%20follow,a%20handful%20of%20cult%20wars>
- Cable Index. Insecurity: 1,743 Nigerians killed in Q1 2022 – Niger, Zamfara top list of victims [The Cable]. 2022. Available: <https://www.thecable.ng/insecurity-1743-nigerians-killed-in-q1-2022-niger-zamfara-top-list-of-victims>
- NexTier SPD. Nigeria conflict trends: summary of key trends from the Nextier SPD violence conflict database [NexTier SPD]. 2021. Available: www.nextierspd.com

- 35 Ogbonna BO, Mgbemena BC, Ezenekwe LN, *et al.* Terrorism, population health, and epidemiological Dynamics in Nigeria: implications for public health. *JDC* 2020;9:27–31.
- 36 The Cable Index. Insecurity: 14 Nigerians killed every day in 2021 – Zamfara, Kaduna top list of deaths [The Cable]. 2022. Available: <https://www.thisdaylive.com/index.php/2022/07/24/nigeria-recorded-5222-violent-killings-in-six-months-says-us-agency/>
- 37 Okoli AC, Abubakar M. Crimelordism: understanding a new phenomenon in armed Banditry in Nigeria. *J Asian Afr Stud* 2021;56:1724–37.
- 38 Okoli AC, Ochim FI. Forestlands and national security in Nigeria: a threat-import analysis. *Journal of Political Science and Leadership Research* 2016;2.
- 39 Parkinson J, Hinshaw D. *Bring back our girls: the untold story of the global search for Nigeria's missing school girls*. Harper Collins, 2021.
- 40 Armed Conflict Location and Event Data (ACLED). Mapping Nigeria's kidnapping crisis: players, targets and trends [ACLED]. 2021. Available: www.acleddata.com/2021/05/20/mapping-nigerias-kidnapping-crisis-players-targets-and-trends/
- 41 BBC. The ultra-violent cult that became a global mafia [BBC]. 2021. Available: <https://www.bbc.com/news/world-africa-59614595>
- 42 Mike Alumona I, Amusan L. Youth Cultism, crime and lethal violence in Nigerian cities. *African Renaissance* 2019;16:11–29.
- 43 SBM. Rivers of blood: gang violence in Nigeria's garden state [SB Morgan]. 2020. Available: <https://www.sbintel.com/2020/06/rivers-of-blood-gang-violence-in-nigerias-garden-state/>
- 44 Vanguard Newspaper. Cult groups that dominate different areas of Lagos [The Vanguard News]. 2019. Available: <https://www.vanguardngr.com/2019/06/revealed-cult-groups-that-dominate-different-areas-of-lagos/>
- 45 Lizardo PG. The complex relationship between Nigeria, Boko Haram, and ISWAP [McGill Journal of Political Studies]. 2020. Available: <https://mjps.ssmu.ca/2020/04/03/the-complex-relationship-between-nigeria-boko-haram-and-iswap/>
- 46 BBC. Abubakar Shekau: Nigeria's Boko Haram leader is dead, say rival Militants [BBC]. 2021. Available: <https://www.bbc.com/news/world-africa-57378493>
- 47 Centre for Strategic and International Studies. Boko Haram's leader is dead: what are the humanitarian and security implications? [CSIS]. 2021. Available: <https://www.csis.org/analysis/boko-harams-leader-dead-what-are-humanitarian-and-security-implications>
- 48 Binder S, Runge JW. Road safety and public health: a US perspective and the global challenge. *Inj Prev* 2004;10:68–9.
- 49 Peden M, Sminkey L. World Health Organisation dedicates world health day to road safety. *Inj Prev* 2004;10:67.
- 50 Onyemaechi N, Ofoma UR. The public health threat of road traffic accidents in Nigeria: a call to action. *Ann Med Health Sci Res* 2016;6:199–204.
- 51 Shantajit T, Kumar CR, Zahiruddin QS. Road traffic crashes in India: an overview. *IJCRR* 2018;4:36–8.
- 52 Gopalakrishnan SA. Public health perspective of road traffic crashes. *J Family Med Prim Care* 2012;1:144.
- 53 Labinjo M, Juillard C, Kobusingye OC, *et al.* The burden of road traffic injuries in Nigeria: results of a population-based survey. *Inj Prev* 2009;15:157–62.
- 54 Olayoku PA. Trends and patterns of cattle grazing and rural violence in Nigeria. In: Pérouse de Montclos M, ed. *Violence in Nigeria: A qualitative and quantitative analysis*. Leiden: African Studies Centre, n.d.: 61–76.
- 55 Orji S. Nigeria cattle crisis: how drought and Urbanisation led to deadly land grabs [The Guardian]. 2021. Available: <https://www.theguardian.com/environment/2021/jan/11/nigeria-cattle-crisis-how-drought-and-urbanisation-led-to-deadly-land-grabs>
- 56 Ezenwa OE. Nigeria's deadly conflicts over water and grazing pasture are escalating – here's why [The Conversation]. 2022. Available: <https://theconversation.com/nigerias-deadly-conflicts-over-water-and-grazing-pasture-are-escalating-heres-why-193249>
- 57 Tade O. What's triggered new conflict between farmers and Herders in Nigeria [The Conversation]. 2020. Available: <https://theconversation.com/whats-triggered-new-conflict-between-farmers-and-herders-in-nigeria-145055>
- 58 United Nations Sustainable Development Group. Climate crisis in Nigeria: the UN fosters dialogue between farmers and cattle Herders over shrinking land [UNSDG]. 2020. Available: <https://unsdg.un.org/latest/stories/climate-crisis-nigeria-un-fosters-dialogue-between-farmers-and-cattle-herders-over>