

Terrorist Attacks in Sub-Saharan Africa from 1970 through 2020: Analysis and Impact from a Counter-Terrorism Medicine Perspective

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Conflicts of interest: The authors declare none.

Keywords: Counter-Terrorism Medicine; disaster medicine; Sub-Saharan Africa; terrorism; violence

Abbreviations:

CBRNE: chemical/biological/radiological/nuclear/explosive

CTM: Counter-Terrorism Medicine

GTD: Global Terrorism Database

GTI: Global Terrorism Index

MCI: mass-casualty incident

NGO: nongovernmental organization

SSA: Sub-Saharan Africa

START: National Consortium for the Study of Terrorism and Response to Terrorism

Received: October 1, 2022

Revised: November 11, 2022

Accepted: November 29, 2022

Abstract

Background: Sub-Saharan Africa (SSA) has become a hotspot for global terrorism, with nearly 50% of global terror-related deaths occurring in SSA in 2021. With a large population and complex geopolitical and social climate, terrorist activity further burdens an already strained medical system. This study provides a retrospective descriptive analysis of terrorist-related activity in SSA from 1970–2020.

Methods: A retrospective analysis of the Global Terrorism Database (GTD) was performed for the region of SSA from 1970–2020. Data were filtered using the internal database search function for all events in the following countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, the Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, People's Republic of the Congo, Republic of the Congo, Rhodesia, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, and Zimbabwe. Number of attacks, deaths, and injuries, as well as primary weapons types, country where attacks occurred, and primary target types, were collated and analyzed.

Results: A total 19,320 attacks were recorded, resulting in 77,565 deaths and 52,986 injuries. Firearms were the most frequent weapons used (8,745), followed by explosives (6,031), unknown (2,615), and incendiary (1,246), with all others making up the remainder (683.) Private citizens and property were the most frequently targeted entities (8,031), followed by general government facilities (2,582), police (1,854), business (1,446), military (805), diplomatic government facilities (741), and religious figures/institution (678), with all other targets making up the remainder (3,183).

Conclusion: The majority of deaths from terrorism in SSA are the result of firearm attacks and explosions. Nigeria, Somalia, South Africa, The Democratic Republic of the Congo, and Sudan have had the largest number of attacks since 1970, and Nigeria has the largest number of people killed and injured. The health implications of terrorist attacks are often compounded by violence and pose unique challenges to governments, populations, and aid organizations. By understanding the impact and scope of terrorist activity in SSA, Counter-Terrorism Medicine (CTM) initiatives can be employed to improve health care outcomes.

Hata R, Hart A, Hertelendy A, Tin D, Taubman C, Cheng L, Ciottone GR. Terrorist attacks in Sub-Saharan Africa from 1970 through 2020: analysis and impact from a Counter-Terrorism Medicine perspective. *Prehosp Disaster Med.* 2023;38(2):216–222.

Introduction

The 2014 Boko Haram kidnapping of over 200 schoolgirls in Chibok, Nigeria¹ focused the world's attention on the threat of terrorism in Sub-Saharan Africa (SSA) and raised significant concerns about both the physical health and psychological impacts of such events.² Since that time, the overall global incidence of terrorist attacks has decreased.³ However,

doi:[10.1017/S1049023X23000080](https://doi.org/10.1017/S1049023X23000080)

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the region of SSA has seen a steady continuance, largely fueled by the actions of established terror organizations such as Boko Haram and Al-Shabab, along with the emergence of groups such as the Islamic State, Al Qaeda in the Islamic Maghreb, and their affiliates.⁴ This growing presence of terrorism has placed additional burden on already strained medical systems,⁵ created a humanitarian crisis, and brought to light the immediate and long-term health implications of such events in SSA.⁶

According to the 2022 Global Terrorism Index (GTI), five of the top ten countries included in the overall terrorism index score are located in SSA,⁷ with the region now making up 48% of all terror-related deaths in 2021. With a population of over 1.6 billion people,⁸ over 1,000 languages,⁹ and encompassing 49 countries throughout four regions, SSA is one of the largest, most populous, and diverse regions on the planet. Within this diversity, terrorist organizations have found fertile ground due to their ability to exploit unstable political environments, domestic and transnational insecurity, poor income growth, and religious extremism.¹⁰⁻¹² Regions such as the Sahel and Central Africa have seen an increase in terrorist activity due to regional power vacuums, and mistrust in governments has fueled activity in places such as Tanzania and Mozambique.¹³ In addition, many people in SSA live in remote rural areas or are nomadic and lack access to adequate baseline health care.¹⁴ This difficulty in access to care is compounded by violent conflicts, with vulnerable populations such as pregnant women and children suffering disproportionately.^{15,16}

To address the growing burden of terrorism-related health implications, the field of Counter-Terrorism Medicine (CTM) seeks to study the triad of intent, violence, and health care impacts, and to implement medical and educational initiatives within the disaster cycle phases of mitigation, preparedness, response, and recovery.¹⁷ Terrorism, by its very nature, often targets vulnerable infrastructure and soft targets, thus understanding the nature, prevalence, and impact of terrorism can better prepare health care entities to prevent and address the sequela of terrorist attacks. This study is a retrospective descriptive analysis of terror-related attacks, fatalities, and injuries recorded in the Global Terrorism Database (GTD) in SSA from 1970-2020.

Methods

Data collection was performed using a retrospective database search through the GTD.¹⁸ This database is open-access with publicly available data collection methodology utilizing artificial intelligence that identifies events from news media around the world on a daily basis, and is confirmed by human evaluation of the events by the National Consortium for the Study of Terrorism and Responses to Terrorism (START; College Park, Maryland USA). The GTD defines terrorist attacks as: "The threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." The GTD database does not include acts of state terrorism. The GTD contains no personal identifiers for victims and links specific events to open-source news articles.

The GTD was searched using the internal database search functions for recorded events which occurred in SSA from January 1, 1970 - December 31, 2020. Years 2021 and 2022 were not yet available at the time of the study. Data from 1993 were lost before compilation by START. Recovered data from 1993 are incomplete and represent approximately 15% of total attacks, therefore data from 1993 were excluded from this study.

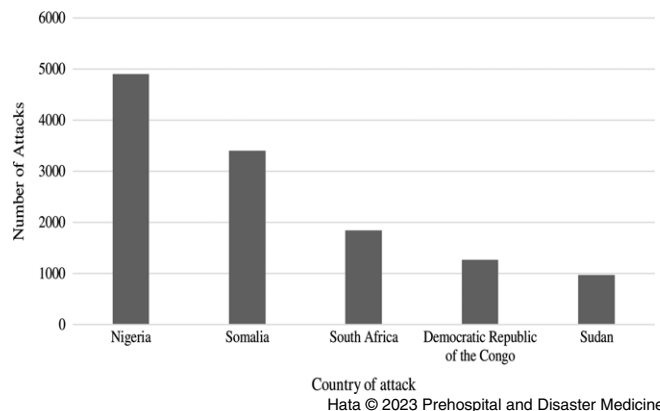


Figure 1. Top Five Countries by Number of Attacks.

Countries classified under SSA by the GTD for the study period include: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, People's Republic of the Congo, Republic of the Congo, Rhodesia, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, and Zimbabwe.

Primary weapon type, primary target type, country where the incident occurred, and the number of total deaths and injured were collated. Results were exported into an Excel spreadsheet (Microsoft Corp.; Redmond, Washington USA) for analysis. Ambiguous events (this field is only systematically available with incidents occurring after 1997) were excluded when there was uncertainty as to whether the incident met any of the criteria for GTD inclusion as a terrorist incident. Attacks met inclusion criteria if they fulfilled the following three terrorism-related criteria, as set by the GTD.

These criteria are determined within the database and not by the authors:

- Criterion I: The act must be aimed at attaining a political, economic, religious, or social goal.
- Criterion II: There must be evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) than the immediate victims.
- Criterion III: The action must be outside the context of legitimate warfare activities (ie, the act must be outside the parameters permitted by international humanitarian law, particularly the admonition against deliberately targeting civilians or non-combatants).

Results

From 1970-2020, a total of 19,320 terrorist attacks occurring in SSA were identified. The total number of fatalities was 77,565 and the total number injured was 52,986. The top five countries with the most terrorist attacks were Nigeria (4,899); Somalia (3,404); South Africa (1,844); The Democratic Republic of the Congo (1,270); and Sudan (970); Figure 1. Nigeria had the highest number of fatalities (25,365) and injuries (11,061), Rwanda had the highest number of persons killed per attack (12.7), and

Country	Number of Attacks	Number Killed (Average per Attack)	Number Wounded (Average per Attack)	Total Number Killed and Wounded (Average per Attack)
Angola	436	2316 (5.3)	2101 (4.8)	4417 (10.1)
Benin	10	2 (0.2)	9 (0.9)	11 (1.1)
Botswana	10	11 (1.1)	11 (1.1)	22 (2.2)
Burkina Faso	315	1303 (4.1)	561 (1.8)	1864 (5.9)
Burundi	563	3483 (6.2)	2303 (4.1)	5786 (10.3)
Cameroon	760	2266 (3.0)	1485 (2.0)	3751 (4.9)
Central African Republic	346	1957 (5.7)	1376 (4.0)	3333 (9.6)
Chad	87	924 (10.6)	1693 (19.5)	2617 (30.1)
Comoros	7	1 (0.1)	3 (0.4)	4 (0.6)
Republic of the Congo	33	114 (3.5)	54 (1.6)	168 (5.1)
Democratic Republic of the Congo	1270	5611 (4.4)	1569 (1.2)	7180 (5.7)
Djibouti	16	91 (5.7)	124 (7.9)	215 (13.4)
Equatorial Guinea	2	2 (1.0)	3 (1.5)	5 (2.5)
Eritrea	16	46 (2.9)	62 (3.9)	108 (6.8)
Ethiopia	249	2727 (11.0)	1183 (4.8)	3910 (15.7)
Gabon	9	8 (0.9)	3 (0.3)	11 (1.2)
Gambia	3	13 (4.3)	2 (0.7)	15 (5)
Ghana	30	26 (0.9)	25 (0.8)	51 (1.7)
Guinea	24	213 (8.9)	58 (2.4)	271 (11.3)
Guinea-Bissau	8	16 (2.0)	27 (3.4)	43 (5.4)
Ivory Coast	54	206 (3.8)	150 (2.8)	356 (6.6)
Kenya	752	1982 (2.6)	6305 (8.4)	8287 (11.0)
Lesotho	28	41 (1.5)	34 (1.2)	75 (2.7)
Liberia	31	154 (5)	36 (1.2)	190 (6.1)
Madagascar	24	27 (1.1)	185 (7.7)	212 (8.8)
Malawi	9	32 (3.6)	1 (0.1)	33 (3.7)
Mali	688	2157 (3.1)	1251 (1.8)	3408 (5.0)
Mauritania	16	31 (1.9)	24 (1.5)	55 (3.4)
Mozambique	725	3397 (4.7)	1602 (2.2)	4999 (6.9)
Namibia	132	133 (1.0)	347 (2.6)	480 (3.6)
Niger	195	1438 (7.4)	502 (2.6)	1940 (9.9)
Nigeria	4899	25,365 (5.2)	11,061 (2.3)	36,426 (7.4)
People's Republic of the Congo	4	15 (3.8)	0 (0.0)	15 (3.8)
Rhodesia	80	216 (2.7)	158 (2.0)	374 (4.7)
Rwanda	156	1966 (12.6)	911 (5.8)	2877 (18.4)
Senegal	91	253 (2.8)	247 (2.7)	500 (5.5)
Seychelles	2	0 (0.0)	0 (0.0)	0 (0.0)
Sierra Leone	86	651 (7.6)	108 (1.3)	759 (8.8)
Somalia	3404	7721 (2.3)	8465 (2.5)	16186 (4.8)
South Africa	1844	2148 (1.2)	3661 (2.0)	5809 (3.2)
South Sudan	242	1807 (7.5)	1210 (5.0)	3017 (12.5)
Sudan	975	3325 (3.4)	2153 (2.2)	5478 (5.6)
Swaziland	15	2 (0.1)	2 (0.1)	4 (0.3)
Tanzania	65	111 (1.7)	230 (3.5)	341 (5.2)
Togo	44	64 (1.5)	34 (0.8)	98 (2.2)
Uganda	362	2656 (7.3)	1122 (3.1)	3778 (10.4)
Zambia	62	70 (1.1)	62 (1.0)	132 (2.1)
Zimbabwe	94	149 (1.6)	264 (2.8)	413 (4.4)
Zaire	47	318 (6.8)	209 (4.4)	527 (11.2)
Total	19,320	77,565 (4.0)	52,986 (2.7)	130,551 (6.8)

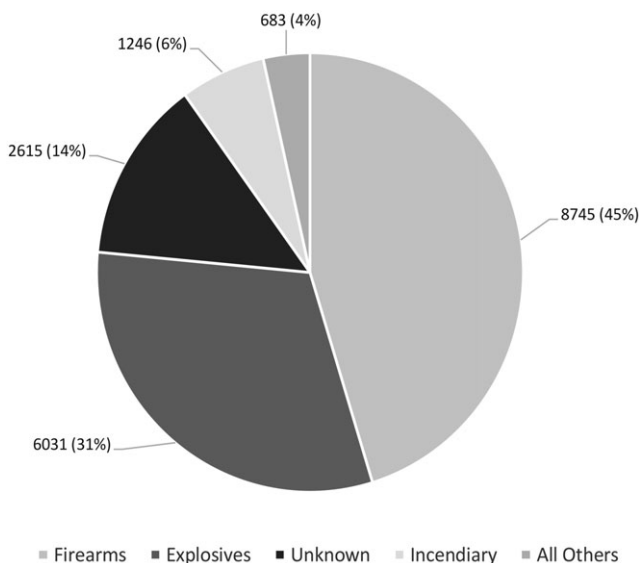
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Table 1. Total Number Killed and Wounded by Country

Primary Weapon Type	Number of Attacks	Number Killed (Killed per Attack)	Number Wounded (Wounded per Attack)
Firearm	8745	39,167 (4.5)	15,378 (1.8)
Explosives	6031	20,708 (3.4)	32,002 (5.3)
Unknown	2615	10,233 (3.9)	2943 (1.1)
Incendiary	1246	3064 (2.5)	663 (0.5)
Melee	630	4101 (6.3)	1417 (2.2)
Other	21	26 (1.2)	59 (2.8)
Sabotage Equipment	14	0 (0.0)	0 (0.0)
Chemical	13	266 (20.5)	519 (39.9)
Biological	3	0 (0.0)	5 (1.7)
Fake Weapons	1	0 (0.0)	0 (0.0)
Vehicle	1	0 (0.0)	0 (0.0)
Total	19,320	77,565 (4.0)	52,986 (2.7)

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Table 2. Number of Attacks, Number Killed, and Number Wounded by Primary Weapon Type



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Figure 2. Number of Attacks by Primary Weapon Type.

Chad had the highest number wounded per attack (19.5) as well as the highest total killed and wounded per attack (30.1); Table 1.

The most frequently used primary weapon types were firearms (8,745), followed by explosives (6,031), unknown (2,615), and incendiary devices (1,246). Biological weapons, chemical weapons, fake weapons, melee, vehicle, sabotage of equipment, and other weapons made up the remainder (683). Chemical weapons were the deadliest per attack (20.5) and also caused the most injuries per attack (39.9); Figure 2 and Table 2.

The primary target types were private citizens and property (8,031); general government facilities (2,582); police (1,854); business (1,446); military (805); diplomatic government facilities (741); and religious figures/institution (678), with all other targets making up the remainder (3,183); Figure 3.

Discussion

While terrorism is not new to the African continent, the overall concentration of global terror has significantly increased in SSA over the past 10 years (Figure 4). In response, there have been attempts to harmonize Africa’s preventative and reactionary responses to terrorism.^{19,20} The 2022 UN Security Council Counter-Terrorism Executive Directorate (CTED; New York USA) identified several areas of action for governments, relevant authorities, and international aid stakeholders to combat the threat and impacts of terrorism in Africa.²¹ Within these recommendations, the field of CTM is uniquely positioned to address several key areas of the health care implications of intentional asymmetrical disasters. By focusing on aspects of care such as mass-casualty incidents (MCIs), psychological care, chemical/biological/radiological/nuclear/and explosive (CBRNE) injuries, and community prevention programs, CTM initiatives can assist governments, health care organizations, nongovernmental organizations (NGOs), and local communities in the prevention, mitigation, response, and recovery from such attacks.^{22–24}

Terrorist attacks often result in significant trauma and may lead to MCIs. Long-term psychosocial impacts aside, attacks are often designed to injure or kill multiple people and produce devastating wounds, which explains the prevalence of attacks involving explosives, firearms, or incendiary devices.^{25,26} The management of such injuries often requires complex surgical procedures followed by prolonged hospitalization and rehabilitation.²⁷ This study shows that firearm attacks have incurred the highest number of total fatalities amongst terrorist attacks in SSA, with explosives causing the second highest number of fatalities and causing the largest number of total injuries. Chemical attacks, while rare, caused the most injuries and deaths per attack.

Optimal care of MCIs and complex trauma requires the resources of mature Emergency Medical Service systems, as well as fully operational and available trauma centers.^{28,29} Unfortunately, this type of care is often unorganized or unavailable in many regions of SSA. A recent study by Baranbas, et al showed that the largest geographical gaps in trauma and intensive care are in Central Africa, francophone West Africa, and the conflict-heavy areas in East Africa,³⁰ while South Africa has the most advanced trauma system.³¹ Three of the top five countries for number of attacks (Somalia, Democratic Republic of the Congo, and Sudan) were within these gap regions, with South Africa having the third highest number of attacks.

Private citizens, governments, police, business, and the military are the top five targets for terrorists in SSA. Training NGOs, military personnel, prehospital providers, and hospital staff in military battlefield Tactical Combat Casualty Care (TCCC), the civilian equivalent, Tactical Emergency Casualty Care (TECC), as well as the unique aspects of CBRNE care, may help to reduce military and civilian casualties.³² All NGOs and other civilian or governmental humanitarian personnel should be trained in Hostile Environment Awareness Training (HEAT) to prepare for deployment into high-threat areas.^{33,34}

Sub-Saharan Africa has both the highest incidence of maternal deaths (533 per 100,000)³⁵ and neonatal deaths (27 per 1,000)³⁶ in the world, with women and infants having further increased deaths if exposed to armed conflicts.^{37,38} Additionally, complications such as stillbirth, miscarriage, and prematurity are also increased in violence-prone regions.³⁹ In areas where care is already restricted due to physical or socioeconomic barriers, terrorist attacks further limit access to appropriate antenatal care.⁴⁰ This vulnerable population

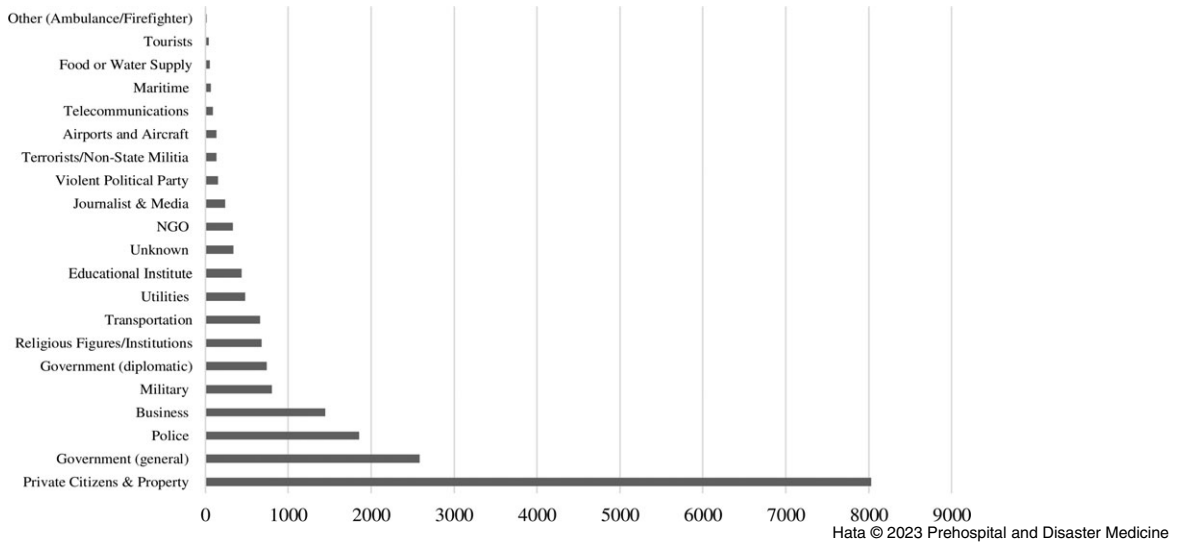


Figure 3. Number of Attacks by Primary Target Type.
Abbreviation: NGO, nongovernmental organization.

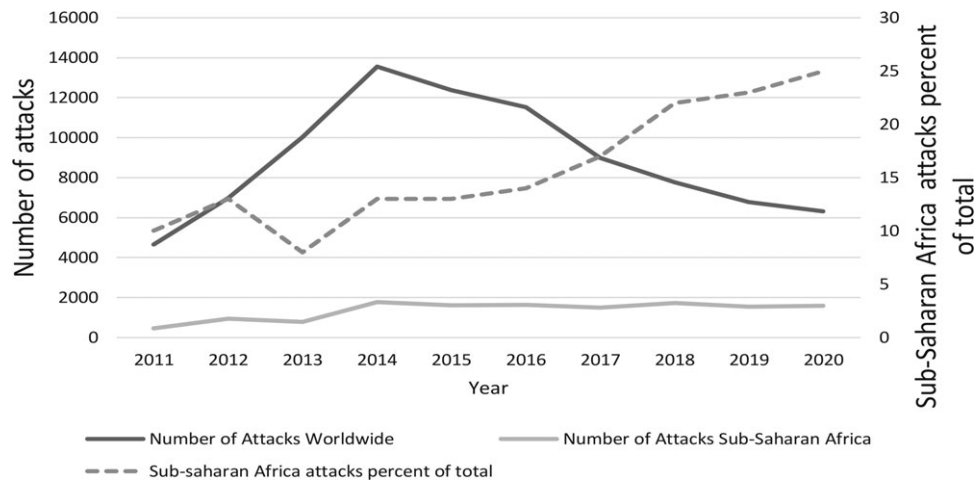


Figure 4. Concentration of Global Terrorism in SSA: Number of Attacks in SSA, World-Wide, and Percent of Attacks in SSA by Year.
Abbreviation: SSA, Sub-Saharan Africa.

can see benefits in morbidity and mortality rates from the implementation of targeted strategies to improve maternal and perinatal care in hostile or terrorist-prone environments.⁴¹

Along with pregnant women and infants, children are particularly susceptible to the effects of violence, with restricted growth and development from indirect effects such as disruption of food, family, and social services.⁴² Kidnapping and forced recruitment by armed groups is common, and since 2005, nearly 50% of recruited children globally were in West and Central Africa. Girls are often victims of kidnappings, rape and sexual abuse, and other forms of gender-based violence.⁴³ Physical and sexual intimate partner violence may also increase in conflict areas, further adding to the detrimental effects of terrorism on children.⁴⁴ The longstanding physical and psychological impacts of these systematic violations will be felt for generations, and will require intensive and focused pediatric care if the cycle of violence is to be stopped.

While the future of SSA is one of potential growth and opportunity,⁴⁵ the coronavirus disease 2019/COVID-19 pandemic posed a complex problem to the region of SSA, with a slow vaccine roll-out and a high burden of disease.^{46,47} In general, the people of SSA rate their health care lower than any other population in the world,⁴⁸ and as the pandemic has progressed, terrorist organizations have sought to use the pandemic as a propaganda tool to advance their agenda and recruit new members.⁴⁹ By working with community education groups, vaccine programs, social media outlets, governments, and health care organizations, CTM initiatives can assist in creating culturally sensitive awareness and education campaigns to combat misinformation and propaganda.

Limitations

The GTD is a comprehensive record of documented global terrorist events obtained through convenience sampling, thus sampling error and selection bias cannot be determined for the data used in

this study. It is maintained by START and is the basis for other terrorism-related measures, such as the GTI. Due to the nature of the information and the collection methodology, accuracy cannot be reliably validated. However, database developers attempt to corroborate each piece of data among multiple independent open sources. Reliance wholly on the GTD is partially mitigated by confirmation with other lay sources and searches for other online information, but if there are incidents not reported in the GTD, this could limit the accuracy of the findings. Using pre-existing databases such as the GTD as a data source also inherently introduces potential challenges such as changing coding methodologies, mis-coding errors, or data entry errors. Furthermore, the lack of a universally agreed-upon definition of the term “terrorism” can create inconsistencies between databases in the labeling of such events. Clear and detailed documentation of terrorist events is further hindered by restrictions on reporting, the lack of independent

corroboration, and the lack of transparency within certain government sources. Infrastructure needed to report, detect, and investigate terrorism events is also lacking in many parts of the world, leading to potential under-reporting of events.

Conclusion

Sub-Saharan Africa continues to be a focal point for global terrorism. From 1970–2020, there were 19,320 attacks resulting in 77,565 fatalities and 52,986 injuries. The primary weapon types were firearms (45%), followed by explosives (31%), unknown (14%), incendiary devices (6%), and all others (4%). Nigeria has the largest burden of terrorism both in number of attacks (4,899) as well as in numbers killed (25,365) and wounded (11,061).

Understanding the nature of terrorism in SSA and its impact on health care will help to better inform CTM strategies to improve health and wellness outcomes in the region of SSA.

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