

Terrorist Attacks in Western Europe: A Counter-Terrorism Medicine Analysis

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Abbreviations:

CBRN: Chemical, Biological, Radiation, and Nuclear
CTM: Counter-Terrorism Medicine
EU: European Union

Abstract

Background: The modern concept of terrorism has its roots in the “old continent” of Western Europe, more specifically in France, during the “Reign of Terror” period of the French Revolution. At the time, this form of state terror had a positive connotation: it was a legitimate means of defending the young state. While no single accepted definition of terrorism exists today, it is universally considered an attack on both state and society. The health care impacts of terrorist attacks often extend disproportionately beyond the casualty toll, but the potential for such events to induce mass casualties remains a concern to Disaster Medicine and Counter-Terrorism Medicine (CTM) specialists.

Method: Data collection was performed using a retrospective database search through the Global Terrorism Database (GTD). The GTD was searched using the internal database search functions for all events which occurred in Western Europe from January 1, 1970 - December 31, 2019. Years 2020 and 2021 were not yet available at the time of the study. Primary weapon type, country where the incident occurred, and number of deaths and injured were collated. Results were exported into an Excel spreadsheet (Microsoft Corp.; Redmond, Washington USA) for analysis.

Results: A total of 15,306 events were recorded in Western Europe out of a total of 201,183 events world-wide between the years 1970 and 2019 inclusive. This resulted in a total of 5,548 deaths and 17,187 injuries. Explosives were used as a primary weapon/attack modality in 8,103 attacks, followed by incendiary attacks in 3,050 events and firearm use in 2,955 events. The use of chemical, biological, radiation, and nuclear (CBRN) weapons was rare and only accounted for 47 events.

Conclusion: From 1970 through 2019, 9.11% of all terrorist attacks occurred in Western Europe. Compared to global trends of attack methodologies in the same study period, the use of explosives as a primary attack modality in Western Europe was similar (52.94% in Western Europe versus 48.78% Global). Firearm use was comparatively low (19.31% versus 26.77%) and the use of CBRN as an attack modality was rare (0.30% versus 0.20%). The United Kingdom, Spain, and France accounted for over 65% of all terrorist attacks and over 75% of terrorism-related deaths in Western Europe.

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Introduction

The modern concept of terrorism has its roots in the “old continent” of Western Europe, more specifically in France, at the time of the French Revolution when Maximilien de Robespierre sent many opponents to the guillotine during his “Reign of Terror.” At the time, this form of state terror had a positive connotation: it was considered a legitimate

FLNC: Corsican National Liberation Front
GTD: Global Terrorism Database
GTI: Global Terrorism Index
ISIL: Islamic State of Iraq and the Levant

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Wave	Catalyst	Goals	Targets	Tactics	Reasons for Decline
Anarchist 1870s – 1910s	Slow political reform, declining legitimacies of monarchies	Revolution, eliminate government oppression	Heads of State	Assassinations using dynamite, bank robberies	Aggressive state opposition, beginning of World War I
Nationalist 1920s – 1960s	Versailles Peace Treaty, increased desire for self-determination	Eliminate colonial rule, create new states	Police and military	Guerilla-style hit and run attacks	Achieved goals, colonial rulers withdrew from territories
New Left 1960s – 1980s	Vietnam War, Cold War tensions	Eliminate the capitalist system	Governments, increased focus on the US	Hijackings, kidnappings, assassinations	End of Cold War
Religious 1979 – 2020s (predicted)	Iranian Revolution, new Islamic century, Soviet invasion of Afghanistan	Creation of global Islamic Caliphate	US, Israel, Europe, mass transportation systems, public venues	Suicide bombings, aircrafts and vehicles as weapons	Unknown

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Table 1. The Four Waves of Modern Terrorism

Note: Based on information presented in David Rapoport's "The Four Waves of Modern Terrorism" 2004¹ and Erin Walls' "Waves of modern terrorism: examining the past and predicting the future" 2017.²⁶

means of defending the young state. While no single accepted definition of terrorism exists today, terrorism is universally considered hostile acts against both state and society, and terrorists are considered enemies of the state and the people.

The influential terrorism researcher David Rapoport roughly distinguishes four eras of modern international terrorism, classifying them in waves according to their shared characteristics of ideology/theology, strategy/tactics, and visions for the future: The "anarchist terrorism" first wave targeting political leaders and royals; the "anti-colonial, nationalist terrorism" second wave beginning after the Treaty of Versailles; the "new left terrorism" between 1960–1989, which saw both right- and left-wing extremist groups targeting bankers, state and government departments, as well as security services in Western Europe; and a fourth "religious" wave surfacing since 1979^{1,2} (Table 1³).

While Rapoport's wave theory is widely accepted as a useful historical model, it is not without its criticisms and limitations. There remain cases where terrorist groups defy classification.⁴ Terrorism motivations and strategies are complex and the medical aftermath of attacks can be long lasting. While medical mitigation of such attacks remains one of the core goals of Counter-Terrorism Medicine (CTM) specialists, it also necessitates integration with security, intelligence, law enforcement, and an array of specialist craft groups to formulate robust preparedness and response plans.

The 2020 Global Terrorism Index (GTI), a ranking system of nations according to terrorist activity, had no Western European countries in the "very high" or "high" impact zones. Three countries ranked in the "medium" terrorism impact zone: United Kingdom (30th), France (38th), and Greece (44th). Seven countries (Germany, Belgium, Italy, Sweden, Ireland, Spain, and the Netherlands) fall into the "low" terrorism impact zone, six in the "very low" zone (Finland, Denmark, Norway, Austria, Switzerland, and Cyprus), and two in the "no impact" zone (Iceland and Portugal).⁵

This study aims to provide an epidemiological description of all terrorism-related fatalities and injuries in Western Europe sustained from 1970 through 2019. These data will be useful in the development of education programs in CTM and provide an insight into potential attacks in the future.

Methods

Data collection was performed using a retrospective database search through the Global Terrorism Database (GTD).⁶ This database is open-access with publicly available data collection methodology utilizing artificial intelligence that identifies events from news media around the world and confirms them through human examination by the National Consortium for the Study of Terrorism and Responses to Terrorism (College Park, Maryland USA).⁷ 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."⁶ The GTD does not include acts of state terrorism, 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 all events which occurred in Western Europe from January 1, 1970 - December 31, 2019. Years 2020 and 2021 were not yet available at the time of the study. Primary weapon type, country where the incident occurred, and number of deaths and injuries were collated by two separate data extractors and compared to locate any conflicts in extraction.

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; and
- 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).

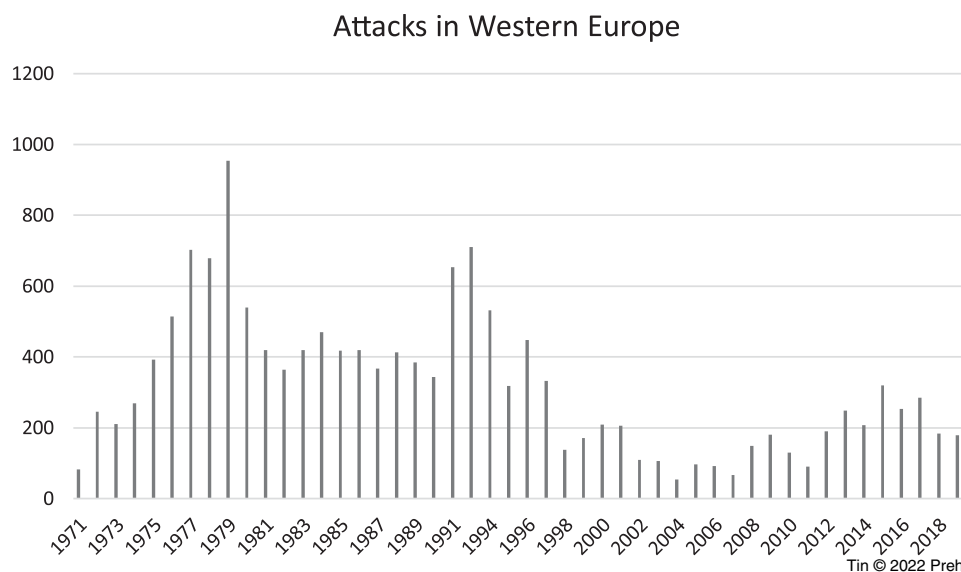


Figure 1. Attacks in Western Europe.

Results

A total of 15,306 events were recorded in Western Europe out of a total of 201,183 events world-wide between the years 1970 and 2019 inclusive (Figure 1).

This region represented 9.11% of all historic terrorism events.⁸ A total of 5,548 deaths and 17,187 injuries were recorded as a result of these events. This equated to 0.36 deaths and 1.12 injuries per event (Table 2).

Explosives were used as a primary weapon/attack modality in 8,103 (52.94% of total) attacks, inflicting 2,310 (41.63%) deaths and 13,488 (78.48%) injuries. This was followed by incendiary attacks in 3,050 (19.92%) events and firearm use in 2,955 (19.31%) events. Incendiary events had disproportionately low death (0.02 deaths per event) and injury (0.18 injured per event) rates. This was in contrast to vehicle attacks which recorded the highest death and injury rates of all attack methodologies (1.79 deaths and 9.95 injuries per event; Table 2).

The United Kingdom accounted for 4,413 events within Western Europe, representing 28.83% of all events in the region (Table 3). A total of 1,829 out of the 4,413 events were attributed to the Irish Republican Army and a further 828 events were attributed to the Protestant Extremists, Ulster Volunteer Force, Ulster Freedom Fighters, and Irish Republican Extremists groups as part of the wider Northern Ireland Conflict which spanned across three decades until the Good Friday Agreement of 1998.

From 1974 through 2012, during the nationalist conflict of Corsica, the Corsican National Liberation Front (FLNC) and the FLNC-Historic Channel contributed to 753 attacks (28.83% of all attacks in France since 1970) resulting in 13 deaths and 96 injuries. From the mid-2010s, terrorist attacks in France were dominated by religious extremist groups. The November 2015 Paris attack by the Islamic State of Iraq and the Levant (ISIL) and the Jihadi-inspired 2016 Nice Truck attack were the two deadliest attacks in Western Europe in the 21st century (Table 4).

The Pan Am Flight 103 Lockerbie bombing of 1988 remains the single deadliest terrorist event in Western Europe with 270 deaths.

Discussion

The time immediately following the United States September 11, 2001 attacks was arguably the most significant turning point in global counter-terrorism history. Following the 9/11 attacks, the world's attention and counter-terrorism resources were refocused on radical religious extremism. 2014 saw a peak in both terrorist events and related deaths, largely attributed to ISIL in Iraq and Syria, as well as Boko Haram in Nigeria.⁹ In the past decade, however, there has been a quiet surge in western domestic, right-wing extremism, a sector largely neglected by local law enforcement and counter-terrorism agencies in prior years. The 2011 Norway attack, which killed 77 victims through the use of explosives and firearms, is considered by many to be the start of a resurgence in white supremacy-related terrorism in western countries, providing a "proof of concept" as to how deadly a lone wolf attacker could be and inspiring many more copycat events.¹⁰

Compared to global trends of attack methodologies in the same study period, the use of explosives as a primary attack modality in Western Europe is similar (52.94% in Western Europe versus 48.78% Global).⁸ Firearm use was comparatively low (19.31% versus 26.77%), likely as a result of more stringent firearm and gun ownership regulation in that region. The use of chemical, biological, radiation, and nuclear (CBRN) as an attack modality was higher but remained rare (0.30% versus 0.20%).⁸

In the aftermath of deadly firearms-related terror attacks in Western Europe, both local country authorities and the European Union (EU) further tightened their Firearms Directive to ban converted semi-automatic weapons.¹¹ Current European cooperation in the field of counter-terrorism includes the European Police Office (Europol), an EU agency, and The International Criminal Police Organization (Interpol), which is headquartered in Lyon, France.

While some of the most recent terrorism events in Western Europe (such as the November 2015 Paris, the 2016 Nice truck attack, the 2011 Utoya Massacre, and the 2004 Madrid train bombings) highlighted known issues in responding to attacks using conventional weapons, there is a potential increasing shift towards the use of novel attack methodologies.¹² The proliferation of drones and their potential use as a CBRN and explosives delivery

	Events (% of total)	Deaths (% of total)	Injuries (% of total)	Deaths per Event	Injuries per Event
Explosives	8103 (52.94%)	2310 (41.63%)	13488 (78.48%)	0.29	1.66
Incendiary	3050 (19.92%)	73 (1.32%)	540 (3.14%)	0.02	0.18
Firearms	2955 (19.31%)	2792 (50.32%)	2147 (12.49%)	0.94	0.73
Unknown	769 (5.02%)	190 (3.42%)	235 (1.37%)	0.25	0.31
Melee	321 (2.10%)	143 (2.58%)	480 (2.80%)	0.45	1.50
Chemical	43 (0.28%)	6 (0.11%)	95 (0.55%)	0.14	2.21
Other	23 (0.15%)	0 (0.00%)	13 (0.08%)	0.00	0.57
Vehicle (not to include vehicle-borne explosives, ie, car or truck bombs)	19 (0.12%)	34 (0.61%)	189 (1.10%)	1.79	9.95
Sabotage Equipment	14 (0.09%)	0 (0.00%)	0 (0.00%)	0.00	0.00
Fake Weapons	5 (0.03%)	0 (0.00%)	0 (0.00%)	0.00	0.00
Biological	2 (0.01%)	0 (0.00%)	0 (0.00%)	0.00	0.00
Radiological	2 (0.01%)	0 (0.00%)	0 (0.00%)	0.00	0.00
Grand Total	15306	5548	17187	0.36	1.12

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Table 2. Breakdown of Events, Deaths, and Injuries by Weapon Type

	Events	Deaths	Injuries	Deaths per Event	Injuries per Event
United Kingdom	4413	2567	5579	0.58	1.26
Spain	3024	1166	4681	0.39	1.55
France	2612	516	2476	0.20	0.95
Italy	1530	409	1263	0.27	0.83
Greece	1263	254	712	0.20	0.56
Germany	741	81	648	0.11	0.87
West Germany (FRG)	435	84	697	0.19	1.60
Ireland	293	95	13	0.32	0.04
Belgium	143	72	497	0.50	3.48
Sweden	138	20	76	0.14	0.55
Netherlands	134	38	71	0.29	0.53
Portugal	128	31	86	0.24	0.67
Austria	114	30	126	0.26	1.11
Switzerland	110	60	76	0.55	0.69
Cyprus	104	36	37	0.35	0.36
Denmark	42	4	27	0.10	0.64
Malta	21	4	11	0.19	0.52
Finland	20	2	13	0.1	0.65
Norway	19	79	89	4.16	4.68
Luxembourg	16	0	6	0.00	0.38
Iceland	4	0	0	0.00	0.00
Andorra	1	0	0	0.00	0.00
Vatican City	1	0	3	0.00	3.00
Grand Total	15306	5548	17187	0.36	1.12

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Table 3. Breakdown of Events, Deaths, and Injuries by Country

platform is of great concern.¹³ In addition, the recent Natanz cyberhack has been labelled nuclear terrorism, and other cyber events such as the 2017 “WannaCry” attack which forced closures of multiple emergency departments in the United Kingdom and the 2021 ransomware attack on the Irish health system have been

escalating to a crisis point, exposing multiple cyber vulnerabilities carrying a high morbidity and mortality risk.^{14–18} Specialists in CTM, in collaboration with the counter-terrorism counterparts, aim to understand, analyze, and mitigate the health care risks of such attack methodologies.

Date and Location	Perpetrator Group	Deaths	Injuries	Attack Modality
November 2015 Paris, France	Islamic State of Iraq and the Levant	93	217	Explosives/Firearms
July 2016 Nice, France	Jihadi-Inspired Extremists	87	433	Firearms/Vehicle
March 2004 Madrid, Spain	Al-Qaida (suspected)	73	450	Explosives
2011 Utoya/Oslo, Norway	Right-Wing Extremists	69	60	Explosives/Firearms
March 2016 Brussels, Belgium	Islamic State of Iraq and the Levant	35	270	Explosives

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Table 4. Deadliest Terrorist Attacks in Western Europe in the 21st Century

The modern-day socio-political complexities behind the motivation of intentional man-made events highlight the importance of a cross-border collaborative approach between intelligence, security, and medical services in order to mitigate the human costs of terrorist attacks. The COVID-19 pandemic has further highlighted the importance of multi-agency collaboration, crisis leadership, public health messaging, and societal cohesion in combatting biological events. Specialists in CTM recognize the critical need to expand discussions beyond the medical world to effectively mitigate the health care risks associated with intentional events.¹⁹ Additionally, while attacks on health care organizations, facilities, and professionals have existed throughout history, a surge in anti-science, anti-government, politically motivated sentiment poses an increased risk to health care workers in the modern era.²⁰

Health care security is an area of concern for CTM specialists, resulting in discussions on hardening hospital defenses and where the balance between staff, security, and the provision of medical services lies.^{21–23} Furthermore, the threat of cyberterrorism is rising and the health care sector remains a vulnerable and attractive target.^{24,25}

Limitations

The GTD is a comprehensive record of global terrorist events. It is maintained by the National Consortium for the Study of Terrorism

and Responses to Terrorism and is the basis for other terrorism-related measures such as the GTI. Reliance wholly on the GTD is partially mitigated by confirmation with other lay sources and searches for other online searches, but if there are incidents not reported in the GTD, this could limit the veracity of the findings. Furthermore, the lack of a universally agreed-upon definition of the term terrorism can create inconsistencies between databases in the labelling of such events.²⁶

Conclusion

From 1970 through 2019, 9.11% of all terrorist attacks occurred in Western Europe, recording a total of 5,548 deaths and 17,187 injuries. Explosives were used as a primary weapon/attack modality in 8,103 attacks, followed by incendiary attacks in 3,050 events and firearm use 2,955 events. The use of CBRN weapons was rare and only accounted for 47 events. There were no documented nuclear events.

Compared to global trends of attack methodologies in the same study period, the incident use of explosives as a primary attack modality in Western Europe was similar (52.94% in Western Europe versus 48.78% Global). Firearm use was comparatively low (19.31% versus 26.77%) and the use of CBRN as an attack modality was rare (0.30% versus 0.20%). The United Kingdom, Spain, and France accounted for over 65% of all terrorist attacks and over 75% of terrorism-related deaths in Western Europe.

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