Global Terrorism Data Analysis

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Abstract

This report analyses global terrorism data from 1970 to 2017, focusing on trends over the years, countries with the highest frequency of attacks, the most common types of attacks, and changes in targets over time. The analysis uses a Shiny application to visualise the data interactively. Key findings indicate a significant rise in terrorist incidents in the early 2000s, with countries like Iraq and Afghanistan being the most affected. Bombings and armed assaults are the predominant forms of attacks, with a shift towards civilian targets over time. Additionally, the report examines the ratio of terrorist attacks to population for the top 5 most affected countries. This analysis incorporates real-life events and research to provide a deeper understanding of the causes and impacts of terrorism.
Word Count: 1800 words (excluding figures)

Contents

1 Introduction

Terrorism remains a significant global threat, impacting countries worldwide. Understanding the patterns and trends in terrorist activities can help policymakers and security agencies develop better strategies to combat terrorism. This report uses data from the Global Terrorism Database (GTD) to explore key questions related to terrorism incidents from 1970 to 2017. The interactive Shiny application developed for this analysis provides visual insights into various aspects of the data. This analysis aims to uncover trends, identify high-risk regions, and understand the evolution of attack methods and targets.

2 Data and Methodology

The data used in this report is sourced from the Global Terrorism Database (GTD), which includes information on terrorist events around the world from 1970 to 2017. The dataset contains various attributes such as date, location, attack type, target type, and the number of casualties.

2.1 Data Preprocessing

The data was preprocessed to ensure consistency and accuracy. Missing values in critical fields like date and location were handled appropriately. Data cleaning involved removing duplicates, handling missing values, and normalising the data for consistency. The `R` programming language was used for data manipulation and visualisation.

2.2 Interactive Shiny Application

An interactive Shiny application was developed to allow users to explore the data dynamically. The application includes features such as filtering by year, country, and attack type. Visualisations include trend lines, bar charts, heat maps, and more. This tool enables a comprehensive exploration of the dataset, providing valuable insights into terrorism patterns.

3 Results and Discussion

3.1 Trends in Global Terrorism Incidents Over the Years

Figure 1 shows the trend in the number of terrorism incidents from 1970 to 2017. The data indicates a significant increase in incidents starting from the early 2000s, peaking around 2014. This rise can be attributed to various geopolitical factors, including the rise of groups like ISIS [1]. The post-9/11 era saw heightened global awareness and reporting of terrorist activities, contributing to the observed increase in incidents.

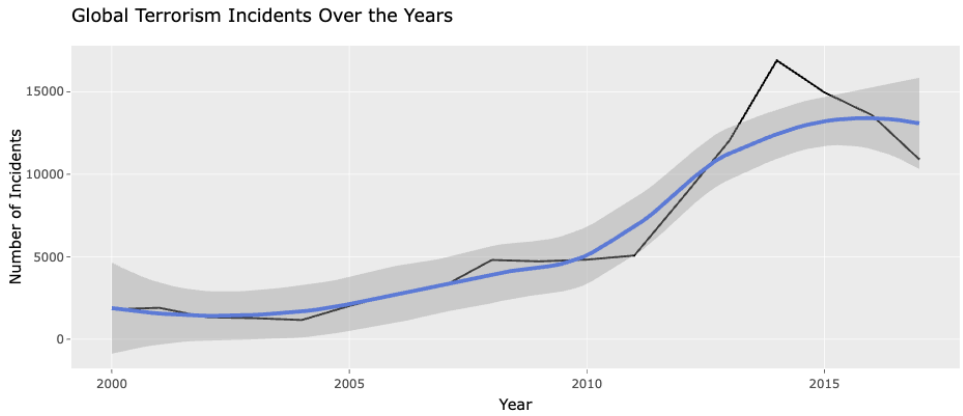

Figure 1: Global Terrorism Incidents Over the Years

3.2 Countries with the Highest Frequency of Terrorist Attacks

Figure 2 lists the top 10 countries with the highest frequency of terrorist attacks. Countries like Iraq and Afghanistan are at the top, reflecting ongoing conflicts and instability in these regions [1]. For instance, Iraq's high number of attacks is largely due to the rise of ISIS and the subsequent conflicts that ensued. The invasion of Iraq in 2003 created a power vacuum that fuelled sectarian violence and the rise of extremist groups [4].

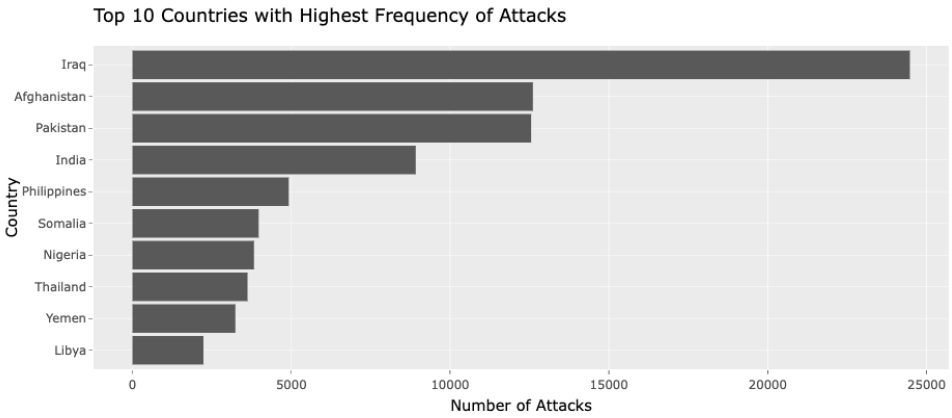

Figure 2: Top 10 Countries with Highest Frequency of Attacks

3.3 Most Common Types of Attacks

Figure 3 illustrates the distribution of attack types. Bombings/explosions and armed assaults are the most common forms of terrorist attacks. This information is crucial for understanding the prevalent tactics used by terrorists [1]. Bombings are often used for their potential to cause mass casualties and media coverage, while armed assaults allow terrorists to engage directly with targets.

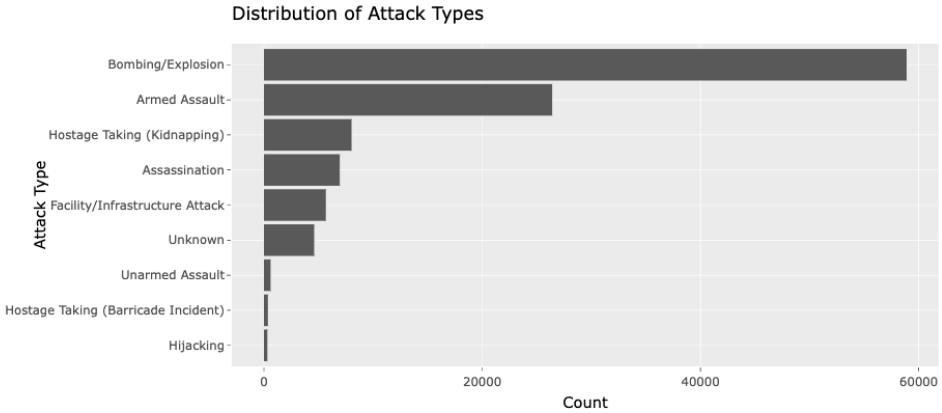

Figure 3: Distribution of Attack Types

3.4 Changes in Targets Over Time

Figure 4 shows how the targets of terrorist attacks have evolved over time. There has been a noticeable shift in targets from government-related to civilian targets, indicating a change in terrorist strategies [1]. For example, the 2015 Paris attacks targeted civilian venues to maximize fear and media coverage [5]. Terrorist organizations often target civilians to gain international attention and pressure governments [6].

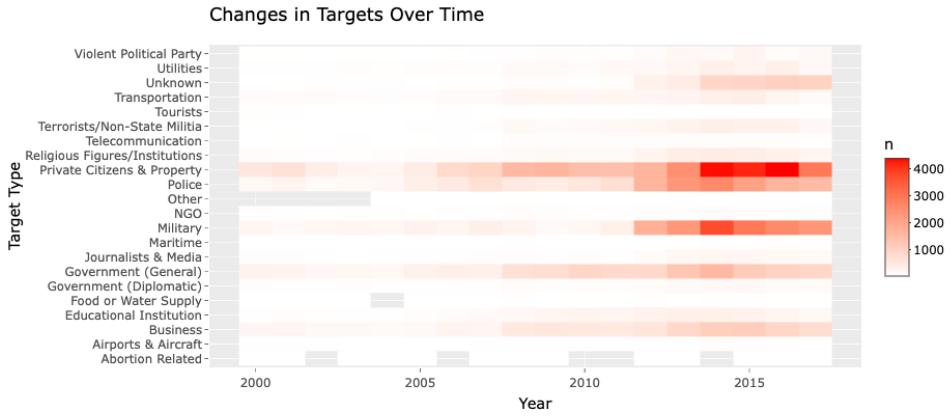

Figure 4: Changes in Targets Over Time

3.5 Ratio of Terrorist Attacks to Population

Figure 5 shows the ratio of terrorist attacks to the population for the top 5 most affected countries. This metric provides a clearer understanding of the impact of terrorism relative to the population size, revealing that countries like Afghanistan and Iraq experience a disproportionately high number of attacks per capita. For instance, Afghanistan's high ratio is influenced by the prolonged conflict with the Taliban and ongoing insurgent activities [7].

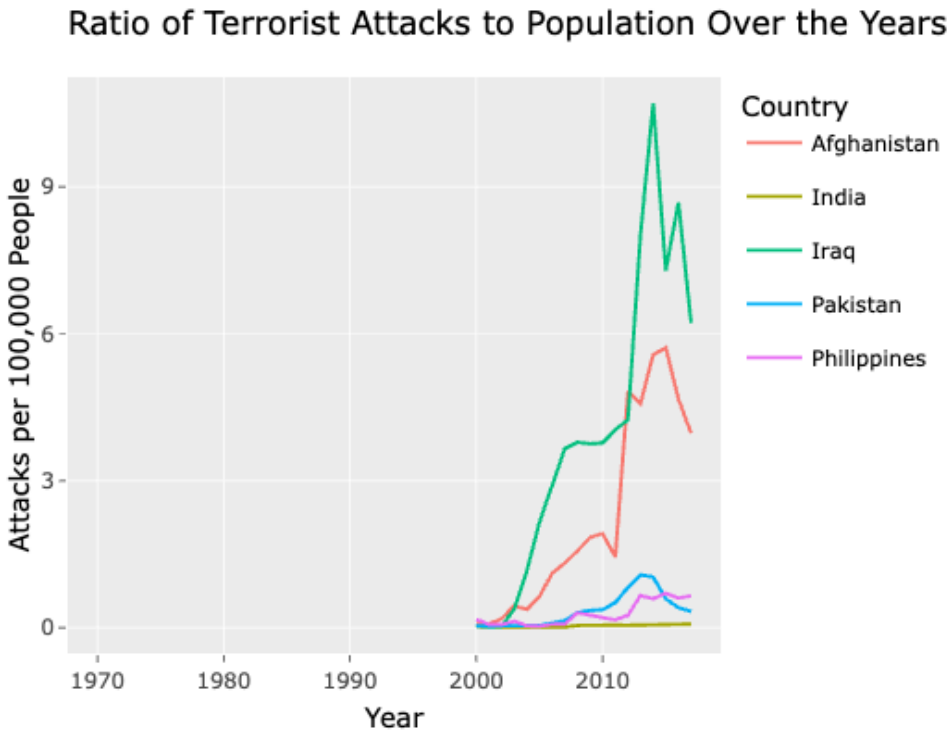

Figure 5: Ratio of Terrorist Attacks to Population Over the Years

3.6 Casualties Analysis

Figure 6 illustrates the number of casualties over the years, separating killed and wounded individuals. This analysis shows the human cost of terrorism and highlights periods with particularly high casualties, such as the 9/11 attacks and the peak of ISIS activities. High casualty events tend to provoke significant political and military responses, reshaping national and international security policies.

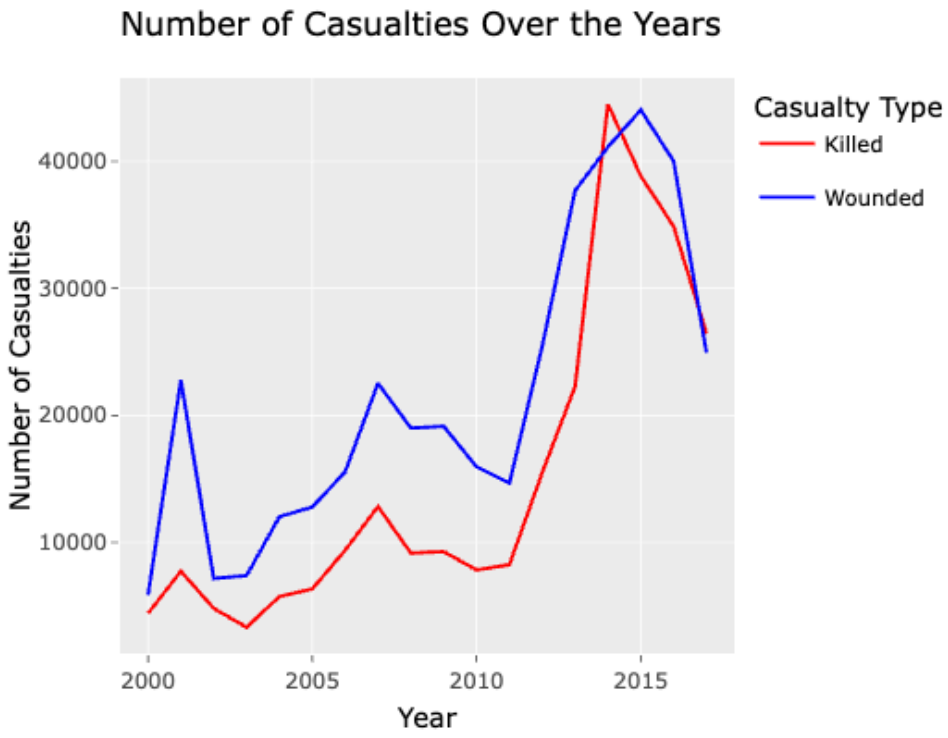

Figure 6: Number of Casualties Over the Years

3.7 Attack Frequency by Region

Figure 7 displays the number of terrorist attacks by region. This analysis helps identify regions with high levels of terrorist activity and can guide regional security policies. The Middle East, South Asia, and Africa are notable regions with high terrorism frequency, often linked to political instability, armed conflicts, and weak governance.

3.8 Geographic Distribution of Attacks

Figure 8 shows the geographic distribution of terrorist incidents. The heatmap reveals regions with the highest intensity of attacks, highlighting hotspots of terrorist activity [1]. Notable hotspots include areas in the Middle East and South Asia, regions that have experienced significant political instability and conflict.

3.9 Summary Statistics

- Total Number of Attacks: 111855
- Average Number of Attacks per Year: 6214.17
- Top 5 Countries with Most Attacks:
  - Iraq: 24475
  - Afghanistan: 12607
  - Pakistan: 12551
  - India: 8918
  - Philippines: 4920
- Most Common Attack Types:
  - Bombing/Explosion: 58099
  - Armed Assault: 26417

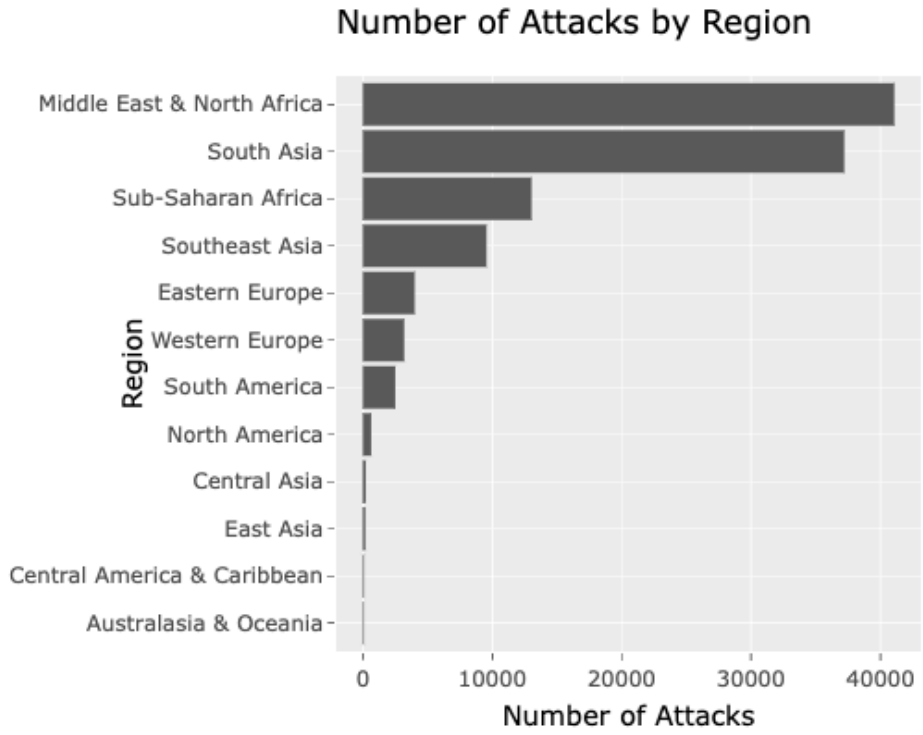

Figure 7: Number of Attacks by Region

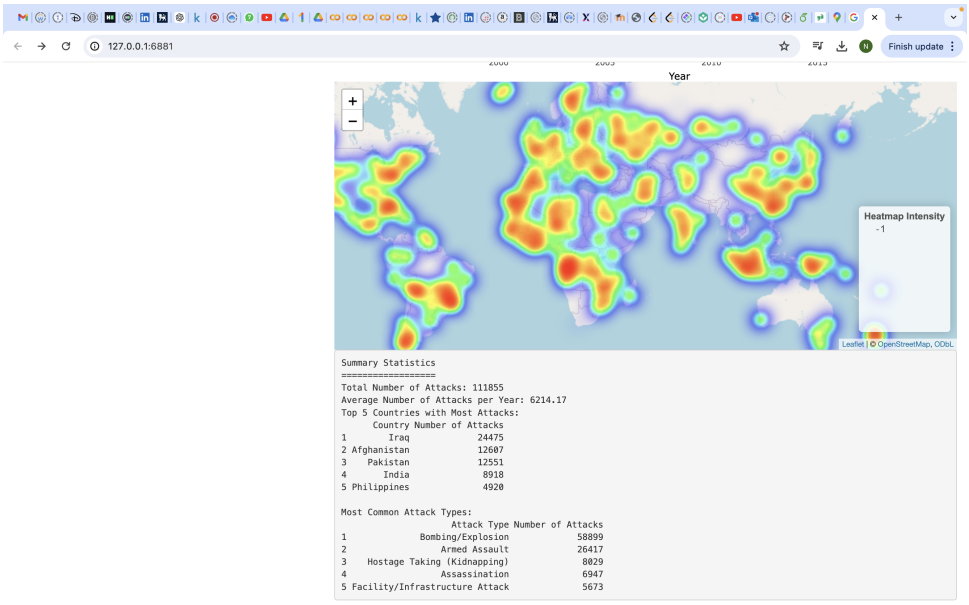

Figure 8: Geographic Distribution of Terrorist Incidents

- Hostage Taking (Kidnapping): 8029
- Assassination: 6947
- Facility/Infrastructure Attack: 5673

4 Conclusion

This report provides a comprehensive analysis of global terrorism data from 1970 to 2017. Key findings include an increase in terrorism incidents over the years, with specific countries like Iraq and Afghanistan experiencing the highest number of attacks. Bombings and armed assaults are the most common attack types, and there has been a shift in targets towards civilians over time. The geographic distribution of incidents reveals hotspots of terrorist activity. These insights can help inform policy and strategic decisions to combat terrorism more effectively. Additionally, by examining the ratio of attacks to population, we gain a deeper understanding of the relative impact of terrorism on different countries.

To combat terrorism effectively, it is crucial to address the underlying causes such as political instability, economic disparity, and social injustice. Strengthening international cooperation and intelligence sharing, along with promoting inclusive governance and economic development, can help mitigate the threat of terrorism. Furthermore, targeted interventions that address the specific needs and vulnerabilities of regions with high terrorism rates are essential.

4.1 Recommendations

Based on the analysis, several recommendations can be made:

- **Address Root Causes**: Tackle underlying issues such as poverty, lack of education, and political instability that contribute to the rise of terrorism.
- **Strengthen Governance**: Improve governance and reduce corruption in countries with high terrorism rates to build public trust and reduce the appeal of extremist ideologies.
- **Enhance Intelligence Sharing**: Foster international cooperation and intelligence sharing to prevent and respond to terrorist activities more effectively.
- **Promote Economic Development**: Invest in economic development programs that create jobs and provide opportunities, reducing the economic incentives for joining terrorist groups.
- **Support Community Engagement**: Engage with local communities to understand their grievances and involve them in developing solutions to prevent radicalisation.

5 References

References

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