Global Terrorism Analysis

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Abstract:

Terrorism is the unlawful use of violence against civilians and government bodies in pursuit of political aims. Throughout the world, terrorism exists in many forms. They are Conventional Terrorism, Ecological Terrorism, Cyber Terrorism and Narcoterrorism, etc. In this analysis our focus is on Global Terrorism, which comprises domestic as well as international terrorist attacks.

The Global Terrorism Database (GTD) is an open-source database including information on terrorist attacks around the world from 1970 through 2017. The GTD includes systematic data on domestic as well as international terrorist incidents that have occurred during this time period and now includes more than 180,000 attacks. The database is maintained by researchers at the National Consortium for the Study of Terrorism and Responses to Terrorism (START), headquartered at the University of Maryland.

From Exploratory Data Analysis (EDA), we can find the trends of the number of attacks, number of people dead and which group is responsible for the major number of attacks, major number of casualties, etc. And also, we can explore about weapons used, regions, countries, states and cities.

Keywords: GTD, START, EDA.

Problem Statement:

Look at the given dataset and study the relationship between different features or trends in different features. Find the regions and countries where the number of terrorist attacks is higher. Find the top terrorist groups and their activities over the years. After analysing the important features in the data set, give a summary of the findings and give countermeasures to reduce global terrorism.

About Dataset:

- **Year:** An attack happened in this year.
- **Country:** An attack took place in this country.
- **Region:** An attack took place in this region.
- **State:** An attack took place in this state.
- **City:** An attack took place in this city.
- **Attack_Type:** The type of the attack.
- **Target_Type:** The type of the target.
- **Group:** An attack was carried out by this group.
- **Weapon_Type:** In an attack, this weapon was used.
- **Killed:** The number of people killed in an attack.
- **Wounded:** The number of people wounded in an attack.
- **Casualties:** The total sum of killed and wounded people.

- Some other parameters such as day, month, longitude, and latitude are there as well.

Steps involved in EDA:

1. **Important Features Selection:** In the original dataset, the total number of features was 135, but we selected 16 features that are important for our analysis and renamed them for better understanding.

2. **Null Values Treatment:** In wounded and killed features, null values exist, so those null values were replaced by zero. The features named state, city had some values as nulls, these null values replaced with unknown. The features named longitude, latitude, and summary also exist some values as nulls, which can be dropped or replaced with some value. If we drop them, the data belonging to a particular time or region is totally deleted, so I decided to keep them the same because if any problem arises because of these null values, we can handle it.

3. **Univariate Analysis:** Each feature was analysed, and visualisation tools were used. Some conclusions were drawn from the EDA.

4. **Bivariate Analysis:** The relationship between the two features was studied and came to some conclusions.

Observations:

- **Year:** The attacks in our dataset happened from 1970 to 2017. In the year of 2014, a greater number of attacks (16903 attacks) took place. More people died (more than 41,000 people) in the same year. The number of attacks decreased after 2014, but it remains high.

- **Country:** Terrorist organisations have targeted Iraq the most. In Iraq, from 1970 to 2017, more than 24,000 attacks took place. After Iraq (13.6%), Pakistan (7.9%) and Afghanistan (7%) are in the list of countries which are most attacked by terror groups. Iraq has the highest number of people killed and injured (78.6k dead, 134.7k wounded), followed by Afghanistan (39.4k dead, 44.3k wounded) and Pakistan (23.8k dead, 42k wounded).

- **Region:** The most attacked region is "Middle East & North Africa" (137.6k dead, 214.3k wounded) followed by "South Asia" (101.3k dead, 141.4k wounded). Around 27.8% of total attacks happened in the Middle East & North Africa and 24.8% of total attacks in South Asia. In these two regions, the number of people killed and wounded is higher compared to other regions.

- **State And City:** For almost every attack information, the state name and city name are the same. So, the statics for both features will be the same. The most attacked (more than 7,400 attacks) city is Baghdad, which is the capital of Iraq, followed by Northern Ireland (more than 4,300 attacks). The cities with the highest number of wounded people are Baghdad (55k+ people), New York (17k+ people) and Saladin (13k+ people). The cities with the highest recorded

number of deaths due to terrorist attacks are Baghdad (21k+ people) and Nineveh (15k+ people).

- **Attack_Type:** The "Bombing/Explosion" (48.6% of total attacks), armed assault (23.5% of total attacks), and assassination (10.6% of total attacks) are the most common attack types. Due to the "Bombing/Explosion," 372.7k people were wounded and 157.3k people were killed. whereas in the case of "Armed Assault", 77.4k people were wounded and 160.3k people were dead.

- **Target_Type:** The most frequently attacked target types are 'Private Citizens & Property', which is around 24% of the total number of attacks, followed by 'Military' (15.4%), 'Police' (13.5%), and 'Government (General)' (11.7%), which are the most frequently attacked target types. Due to attacks on "Private Citizens & Property", 178.7k people were wounded and 140.5k people were dead. Due to attacks on the "military", 71k people were wounded and 106k people were dead.

- **Group:** The highest number of attacks were carried out by the Taliban (7478), followed by ISIL (5613) and Shining Path (4555). Even though the number of attacks by ISIL is less compared to the Taliban, the fatalities are high. In ISIL attacks, 30.7k people were wounded and 38.9k people were dead. In Taliban attacks, 27.9k people were wounded and 29.4k people were dead. Taliban

activities were recorded from 1970 to 2017, ISIL (2013 to 2017) and Boko Haram (2012 to 2017).

- **Weapon Type:** The most likely weapon types used are explosives (around 50%) and firearms (around 32%). Due to explosives, people were wounded and 174.28k people were killed. And due to terror attacks using firearms, 77.2k people were wounded and 174.89k people were killed.

- **Killed:** From 1970 to 2017, due to terror attacks, around 411.8k people were killed in different regions of the world.

- **Wounded:** From 1970 to 2017, due to terror attacks, around 523.8k people were killed in different regions of the world.

- **Casualties:** This is the sum of killed and wounded people in an attack. The total number of casualties from 1970 to 2017 is 935.6k people.

Summary:

- The number of attacks has increased over the years. That means the terrorist groups are getting support for different reasons.

- The total number of people killed over the years from 1971 to 2017 due to terrorist attacks is 4,11,868.

- The most active terrorist group in the world is the Taliban.

- The year with the highest number of terrorist attacks is 2014.

- The year with the lowest number of terrorist attacks is 1971.

- The most likely type of attack is bombing/explosion (48%), followed by armed assault (23.35%), assassination (10.6%), hostage-taking (kidnapping), and so on.

- Iraq is the country which is most frequently attacked by terrorist groups, followed by Pakistan, Afghanistan, and so on.

- Most of the time, the attacked target type is 'Private Citizens & Property', which accounts for around 24% of the total number of attacks. After that, 'Military', 'Police', and 'Government (General)' are the most frequently attacked target types.

- The most attacked region is "Middle East & North Africa", followed by "South Asia". The most attacked city is "Baghdad", which is the capital of Iraq.

- The most likely weapon type used is "explosives" (around 50%) and then "firearms" (around 32%).

- Terrorist activities steeply increased from 2000 to 2014. The attacks reached their peak in the year of 2014. After 2014, the number of attacks decreased, but there are still a large number of attacks.

- The "Middle East & North Africa" region has the highest number of wounded people (more than 214.3k).

- The "Middle East & North Africa" region has the highest number of killed people (more than 136.7k).

- The country named Iraq has the highest number of wounded, around 134.7 people. The same country listed the highest number of people killed in terror attacks (around 78.6k).

- The highest number of attacks were carried out by the Taliban group (more than 7000).

- Taliban group attacks increased drastically after 2011. A high number of attacks were carried out in the year of 2015 (more than 1200).

Suggestions:

- The government should have some policies over production, usage, and tracking of explosives.

- The government should allocate security forces for tightly dense 'Private Citizens' and 'Property' areas.

- Counter terrorism agencies, must focus on the "Middle East & North Africa" region and Iraq.

References:

- Analytics Vidhya
- Medium blogs
- Google