Serial Killer Trends in the United States Since 1900

**Report Topic**

A serial killer is defined as a person who has killed two or more people with cooling off periods in between. In this report, I investigate the following questions:

* + How has the number of active serial killers changed over time?
  + Which states have had the most serial killers?
  + What are the traits of serial killers? What are the traits of their victims?
    - Both: Age, Race, Gender, relationship between killer and victim
    - Killers: Mental disorders, Criminal History, IQ (Compare with rates of general Population)
  + What methods are most frequently used for killing?
  + What were the motivations for the killings?

**Visualization Choices**

To create the visualizations necessary for this report, I chose Tableau because of its flexibility and ease of use. I think that this is the best choice because Tableau produces visually appealing charts and maps. It also has the capability to create all the graphs described below. I wanted to use only Tableau because I think the use of a single tool makes the presentation look cohesive and better overall, but I ended up creating the pictograph manually since I did not like the look of any of the ones created by online generators.

Each of the questions mentioned above has a separate visualization to address it. To start the presentation, I wanted to put things into perspective for the reader. I only discuss serial killers in the United States in this report, but to convey to the user the astronomically high number of serial killers the US has had compared to other countries, I included two bar charts. The first shows the number of serial killers in each country where the US has over 3,000 and the next highest country has only 200. To show that this phenomenon is not simply due to the US’ large population, I included another bar chart that shows the ratio of serial killers in the world to percent of world population. I then demonstrated the change in the number of active serial killers over the years using a simple line chart. I believe this was the most effective choice because it is easy to read and exact values of data can easily be seen using the tooltip. To show the states with the most serial killers, I created a choropleth where I grouped the states into one of five categories based on victim count. This was a necessity because the range was so large (50-1600) with only California having a victim count over 1000 and a lot of the detail was lost by simply plotting the numbers in the choropleth. Since the data covered a 100-year period, it was not possible to scale it to a state’s population, but I have included ranks based on the victim count and population in the tooltip.

To show the traits of serial killers and their victims, I created multiple pages in the story. In order to show the racial makeup and genders of serial killer and how they have changed over the past century, I included two stacked bar charts of the proportions of each category. This was the most effective way to show the trends of so many different groups at the same time while still being easy for the reader to understand. In order to show the IQs of serial killers, I created a dashboard that included a box plot of IQs and bar charts that showed the relationship between IQ and level of organization, number of kills and method of killing. Bar charts were chosen because of their readability and the box plot was chosen to highlight the difference between the mean and median values. In order to show the diagnoses of mental disorders and the criminal histories of serial killers, I used bar charts to show what proportion of the population was in each group. I then created a second set of bar charts that showed the details of the serial killers who had been diagnosed with mental illnesses and had arrest records prior to their first murder. Bar charts were again an effective choice because there were many different categories and bar charts are an easy way to compare the proportions of the different groups. Similarly, a bar chart was used to display the relationships between killer and victim.

To depict the racial and gender makeup of victims, I chose to use a pictograph. This visualization included 100 people-shaped figures with different shapes representing the different genders. The figures were then color-coded to represent different races. In order to ensure that readers would notice the different genders, I chose to use one color to for the males of each race and another lighter version of the same color to represent the females of the same race. I think this was an efficient way to depict the information because there are a lot of different categories and you can compare the proportions of each with just a quick glance. I also created a histogram to depict the ages of the victims. This was an effective choice because each year had its own bar so the fact that children under one year of age are killed at a rate that doesn’t match the rest of the curve really stood out. It also makes the overall trend of the data easy to see.

Lastly, I included two bar charts to show the methods and motivations of the murders. Bar charts were again chosen here because of their readability and effective way of displaying the proportions of many categories.

**Findings**

From the visualizations created, it is evident that the United States has more serial killers than any other nation, even after adjusting for population. The number of active serial killers had a huge spike in the 1980s and has since reduced significantly. Unsurprisingly, the states that have had the most serial killer victims are those with the largest populations, such as California, Texas, Florida, Illinois and New York. When you consider the difference in the rankings of victim count and population, the District of Columbia had the worst difference followed by Louisiana while Minnesota had the best.

The analysis on the traits of serial killers and how they have changed over time revealed that the majority of serial killers up until the 1990s were white. In the past 30 years, black serial killers have become more common. Serial killers have always been predominantly male. The percentage of female serial killers in the United States shifted from about 30% in the 1920s to 13% in the 1930s. It has remained this low ever since.

The average IQ of serial killers has been shown to be 94.5, which is 3.5 points below the national average. It has been observed that serial killers with higher IQs show a larger amount of organization in their behavior. There is also a positive relationship between IQ and number of murders committed. There is also an association between the IQs of offenders and their preferred method of killing. The use of bombs or strangulation is associated with higher IQs while bludgeoning is associated with lower IQs. Thirty-six percent of serial killers have been diagnosed with a mental illness, which is ten percent higher than the national average. Of those diagnosed with mental illnesses, forty-two percent have been diagnosed with personality disorders and nineteen percent have been diagnosed with a psychotic disorder. The majority of serial killers, 78.3% had criminal records prior to their first murder. The most common arrest was for assault and the second most common was for theft/larceny.

The most common relationship between killer and victim was that of a customer and client. This category ranks so high because it includes prostitutes, who are murdered at a higher rate than any other professionals, and their clients. Of the known relationships, the lowest ranking one was target strangers which accounted for only 11%. The victims of serial killers are mostly white and split almost equally between men and women overall. The most common age for a victim is 19, but the whole range from 15 to 30 is very common. The main method that is used by serial killers is shooting, which is twice as common as strangulation, the next most popular method. The lest popular methods chosen by serial killers and running someone over, drug overdosing, and neglect and abuse. The motive most commonly reported was enjoyment. This category includes killing for thrill, lust, or power. The second most common motivation was financial gain. The least common motivation was attention.

**Future Work**

In the future, it would be interesting to explore in greater detail the methods of serial killers. If there is data available, I would like to look more into the way serial killers select their victims, where they find them, where they kill them, and how they dispose of the bodies. I also think it would be interesting and important to explore the upbringings of serial killers. This would include if they suffered from childhood abuse or had a traumatic event occur. This information could be useful to those in law enforcement, those who study behavioral analysis, or anyone interested in the patterns of serial killers.

**Data Sources**

Radford University and Florida Gulf Coast University put together a Serial Killer Database in 2016 that contains data for all serial killers since 1900. The majority of the data used in this report was obtained from there. I also used a report by the Federal Bureau of Investigation’s Behavior Analysis Unit that details the criminal histories and mental illnesses of a subset of 92 serial killers. This report also includes data about methods and locations of killings as well as details about the relationships between the offender and victims. Both data sources only include information about serial killers who have been caught. Some of the data in these datasets has been self-reported by the murderer and therefore may not be accurate.

<http://maamodt.asp.radford.edu/Serial%20Killer%20Information%20Center/Project%20Description.htm>

<https://www.fbi.gov/file-repository/serialmurder-pathwaysforinvestigations.pdf/view>