

Assessment of US Gun Control Laws by States: A 5-Point Likert Scale  
from Laxest to Strictest and Its Impact on Firearm Mortality.

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## Ranking:

I categorized the gun control laws by states in the United States as thus:

1 - Most Lax/laxest

2 - Lax

3 - Moderate

4 – Strict

5 – Strictest

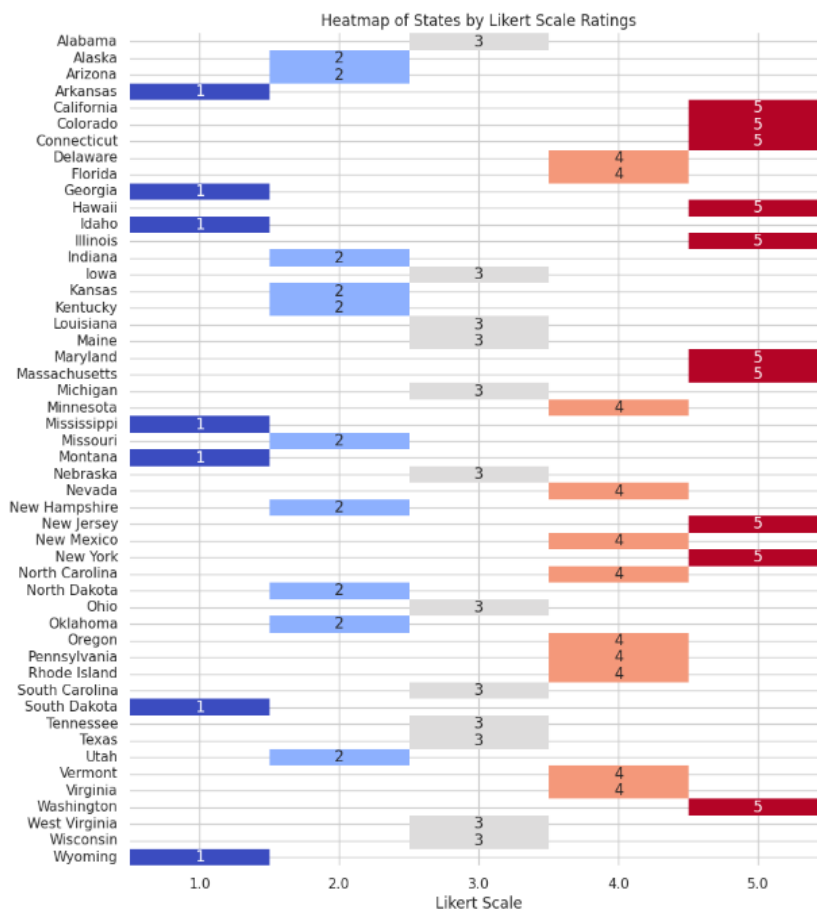


Figure 1: Here is the heatmap visualizing the states by their Likert scale ratings. Each state is represented on the y-axis, and the Likert scale ratings are on the x-axis. The color intensity indicates the Likert scale rating for each state, providing a clear visualization of how each state is rated according to the dataset provided.

This heatmap above (Figure 1) allows for an at-a-glance understanding of how different states compare based on the Likert scale ratings. States with higher ratings are immediately noticeable due to their red color, which signifies states with strictest gun policy. Conversely, states with lower ratings are identifiable by their lighter color, indicating areas that may require attention or improvement based on the strictness of their gun policy. It's important to note that this visualization is best suited for showcasing the distribution and comparison of ratings across states, rather than providing detailed insights into why states received their specific ratings or the factors contributing to those ratings. Further analysis is as shown below.

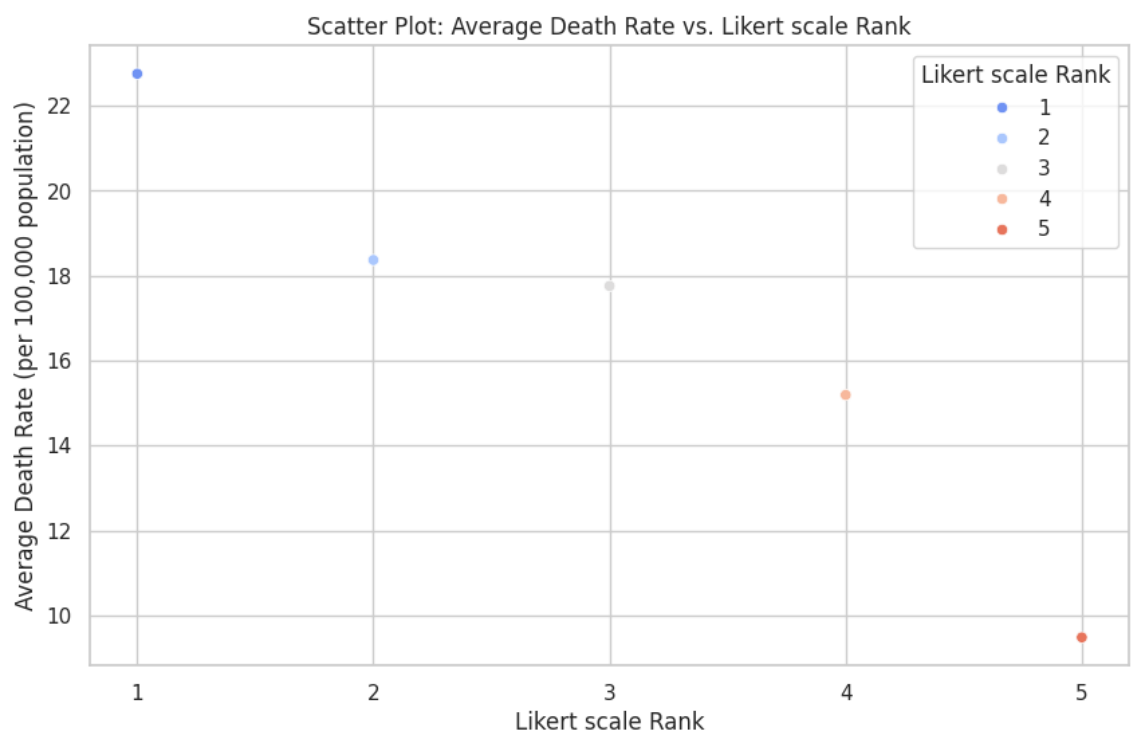


Figure 2: The scatter plot above shows the relationship between the Average Death Rate (per 100,000 population) and the Likert scale values across different states. Each point represents the corresponding average death rate. This visualization helps to explore if there's any apparent trend or pattern between the qualitative assessments (Likert scale values) and the average death rates.

The above scatter plot serves as a visual tool to investigate the potential correlation between two distinct variables: the Average Death Rate per 100,000 population and the Likert scale values across various states. Each point plotted on this graph corresponds to a state's average death rate, effectively mapping out a visual representation of how these rates correlate with qualitative

assessments captured by the Likert scale. This method of visualization is instrumental in identifying any discernible trends or patterns that may exist between these qualitative evaluations and the quantitative data on mortality rates. By examining the distribution and arrangement of points across the plot, one can assess that states with most lax (1) gun control laws have the highest average Death rate. While the states with the strictest (5) gun control laws have the least average Death rate. In other words, the stricter the gun control laws, the lesser the average Death rate.

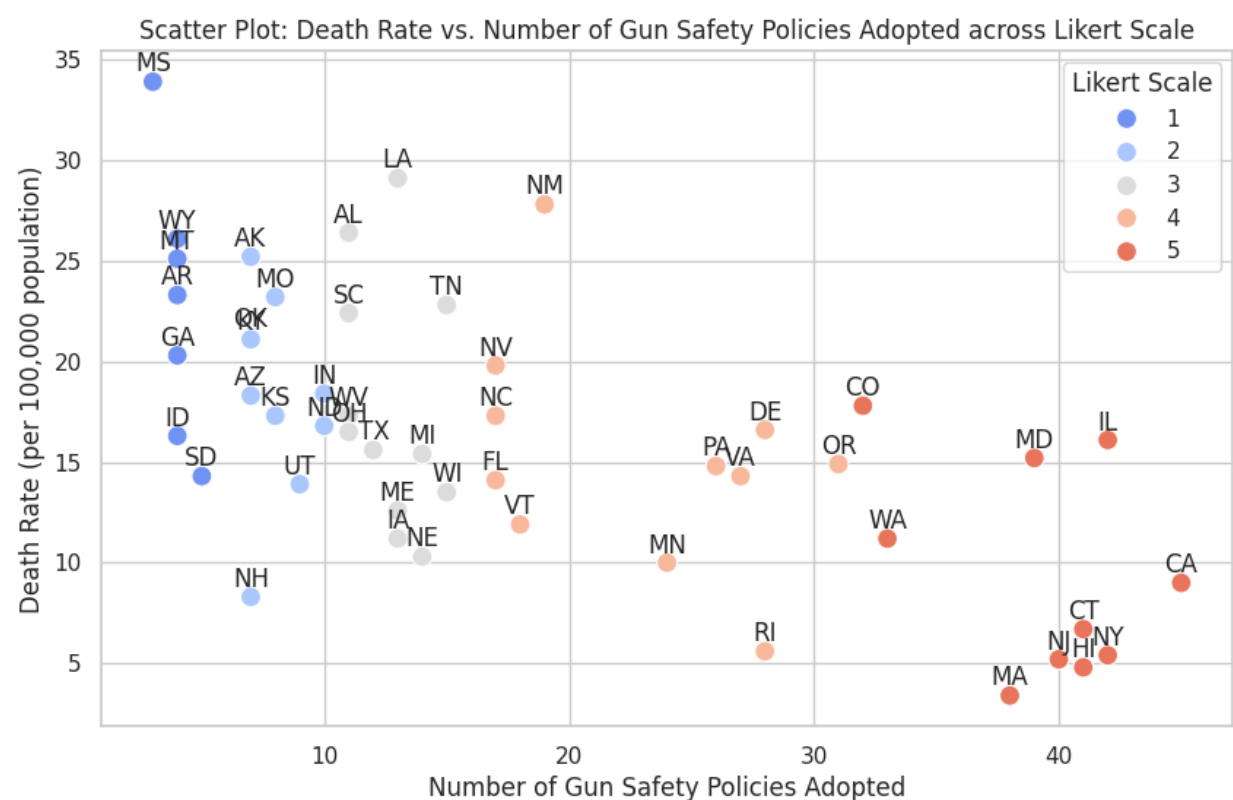


Figure 3: The scatter plot above illustrates the relationship between the Death Rate (per 100,000 population) and the Number of Gun Safety Policies Adopted by different states, differentiated by their Likert scale values. Each point represents a state, with its position indicating the number of gun safety policies adopted and the corresponding death rate. The color of the points indicates the Likert scale value, suggesting a qualitative assessment or categorization related to gun safety policies.

## **Conclusion:**

The scatter plot above (Figure 3) visualizes the relationship between the number of gun safety policies adopted by each state and the death rate due firearm. Each point represents a state, colored according to the strictness of its gun control laws, from "most lax" (1) to "strictest" (5). From the visualization, we can observe a trend where states with a higher number of gun safety policies adopted (which are also categorized as having stricter gun control laws) tend to have fewer firearm deaths. This suggests that stricter firearm control laws may be associated with a reduction in firearm mortality. However, it's important to note that this is a correlation and does not necessarily imply causation. Factors such as socioeconomic conditions, law enforcement practices, and cultural attitudes towards firearms also play a significant role in firearm mortality rates and should be considered in a comprehensive analysis. Meanwhile, the following implies:

1. The correlation coefficient between the number of gun safety policies adopted and the death rate is approximately -0.63, indicating a moderate to strong negative relationship. This suggests that states with a higher number of gun safety policies tend to have lower firearm death rates, implying that stricter firearm control laws might be associated with reduced firearm mortality.
2. The correlation coefficient between the number of gun safety policies adopted and the number of deaths is approximately 0.08, indicating a very weak positive relationship. This correlation is so weak that it suggests there is little to no linear relationship between the number of gun safety policies and the total number of deaths due to firearms in this dataset.
3. The negative correlation with the death rate supports the hypothesis that stricter firearm control laws may help reduce firearm mortality rates. However, the very weak correlation with the total number of deaths suggests that the effectiveness of these policies might not straightforwardly translate into fewer overall deaths, potentially due to the influence of other variables not accounted for in this analysis.
4. However, it's important to interpret these findings with caution as correlation does not imply causation, and the observed relationships could be influenced by other factors not

captured in the dataset. A comprehensive analysis, possibly including multivariate statistical methods and consideration of confounding factors, would be necessary to understand the impact of firearm control laws more definitively on firearm mortality.

### **Reference:**

1. CDC Firearm mortality by state  
[https://www.cdc.gov/nchs/pressroom/sosmap/firearm\\_mortality/firearm.htm](https://www.cdc.gov/nchs/pressroom/sosmap/firearm_mortality/firearm.htm)
2. <https://wonder.cdc.gov/controller/datarequest/D158;jsessionid=F60BFBEA1D226153879EFB2A6F80#API>
3. <https://sightmark.com/blogs/news/states-ranked-by-how-strict-their-gun-laws-are>
4. Everytown Gun Law Rankings: <https://everytownresearch.org/rankings/>