Topic

This literature explores the US unique gun violence problems compared with other developed countries, the reasons behind the problems, and difficulties to implement gun control policy. Here are the major points:

1. Compared with other developed countries, the US has much higher firearm homicides, though there is the decreasing trend of firearm homicides death in the US.
2. In general, America has the average crime rate compared with other countries. However, gun crime stands out. Particularly, most gun-related death are suicides.
3. The #1 reason behind the problem in the US is that Americans have more guns than people around the world. Statistics show that more guns cause more homicide and suicide deaths among countries and within the states. However, the more gun controls, the less death.
4. The easiest way to fix the problem is gun control. Unfortunately, it's difficult to implement due to the public support of gun ownership and partition gap between parties.

Analysis of Data Product

The author illustrates his points by visualizing data in 17 graphs and maps. Some graphs are helpful in the literature where some of them are improper. In the following chart, I would like to demonstrate the data products that both a plus or minus to the article.

Data Products	Judgement	Comment
All charts in general	Appropriate data (--) Question to ask (--)	Several charts use different year of data to illustrate the problem. For example, chart (1)'s data is for 2012, and chart (7) data is for 2000. To state the problem in consist, it's better to use same year data. The article tries to seek difference between US and other developed countries. Here, the meaning of developed countries is undefined and so the selection of developed countries. For example, chart (6) and chart (7) have different number of developed countries. It's better for the charts have same defined developed countries for comparison. Otherwise, it's not convincing.
Chart (1) Chart (2)	Visual encoding (+ / --)	I like these charts use different color to make comparison, but the size/shape of chart (1) is too big. The size of chart (2) fits more.
Chart (3)	Visual encoding (--)	The chart should add a legend to explain color shades; The circle is same size, and it's better adjust circle size based on the number of injured/death people per shooting, or adding different color in the circle to represent the injured/dead people gender/age to show how devastating of mass shooting.

Chart (4)	Visual encoding (+)	Using calendar to visualize the number of mass shooting for the whole year catches reader's eyes, and it's convincing support.
Chart (5) Chart (6)	Visual encoding (+ / -)	Simple plot is a clear and powerful tool to access relationship. The background color in chart (5) is more aggressive to urge the gun violence problem, better than chart (6).
Chart (7)	Appropriate data (--)	This chart is ineffective to show the US is an outlier regarding to the gun deaths. Per FBI, "violence crime includes murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault." It's not directly related to gun death, thus it's better illustrate more about percent of gun related death in each category of violence crime.
Chart (8)	Visual encoding (+)	This chart is effective to difference between states with tight control policy and that with not.
Chart (9) Chart (11) Chart (12)	Appropriate data (--)	Chart (9) use data from 1981 to 2010, and the article is written in 2018. It's a little out of date. It's better to update data. So does chart (11) and chart (12).
Chart (13)	Question to ask (--)	This chart use data from Australian research, and it's ineffective to prove gun control to limit suicides since our target is the US, and the foundation or other social indicators may have huge difference between these two countries.
Chart (16)	Visual encoding (--)	Vertical bar chart may do better job to compare 'before and after' results.
Chart (10) Chart (14) Chart (15) Chart (17)	Visual encoding (+)	Chart type, size, and shape are effective to demonstrate. Chart color is ok, but more contrastive might give more visual impact.

Proposal to Redesign Data Products

Based on the analysis of data products above, several redesign ideas come into mind:

- Try to keep data appropriate, consistent, and representative
- Redesign the question to ask, analyze the reason behind the question, find enough data to support
- Enhance visualization impact, such as change the size, shape, color of chart

Deceptive Visualization

According to a research paper conducted by New York University School of Law, "deceptive visualization" is defined as "*a graphical depiction of information, designed with or without an*

intent to deceive, that may create a belief about the message and/or its components, which varies from the actual message" (Pandey, 15-3). To create a deceptive version, people are likely to start with manipulation of axis orientation, change the scale of chart size, misrepresentation of data. The possible reason that causes people to create deceptive version is to deliver the desired message to readers. Therefore, it must be careful and honest to redesign the data products of the gun violence problem, letting the data to speak the true story, instead of forcing the data to represent what we want to represent.

Access of Data

Data is accessible from the link of article. But additional data are selected to redesign the data products from credit websites, such as FBI crime and prevention.

Reference

Pandey, Anshul Vikram and Rall, Katharina and Satterthwaite, Margaret L. and Nov, Oded and Bertini, Enrico, How Deceptive are Deceptive Visualizations?: An Empirical Analysis of Common Distortion Techniques (February 18, 2015). Proceedings of the ACM Conference on Human Factors in Computing Systems 2015, Forthcoming; NYU School of Law, Public Law Research Paper No. 15-03. Available at SSRN: https://ssrn.com/abstract=2566968