University of Toronto

Data Visualization Boot Camp

Exploring Suicide Rates and Factors Over 1990 - 2019

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Project Objective

- This research project seeks to comprehensively investigate suicide rates and their underlying factors over the period from 1985 to 2020.
- It aims to shed light on the complex dynamics surrounding suicide, offering valuable insights to inform preve ntion and support efforts.

kaggle

World Health Organization

Research Goals

1. Explore the correlation between suicide rates and geographical regions by comparing suicide rates across 58 different countries.

2. Identify the age groups most susceptible to suicide.

3. Analyze the relationship between suicide rates and gender by comparing suicide rates between countries in 1990 and 2019.

4. Examine the correlation between GDP per capita and suicide rates in various countries.

Number of Suicides per Country (1990 vs. 2019)

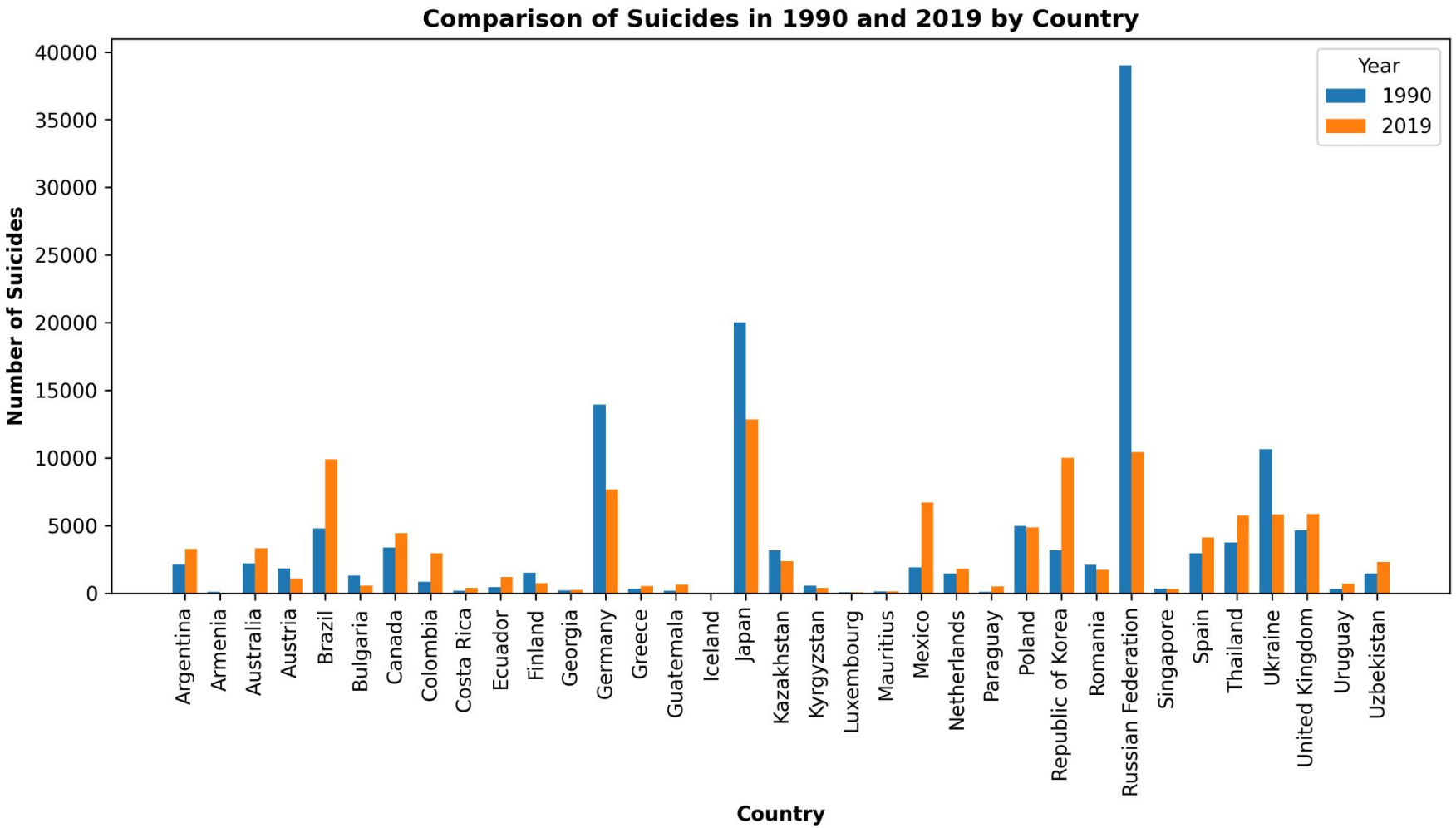
This part of our studies provides critical insights into the deteriorating circumstances of suicide rates over the last two decades. We used a bar graph to visualize the number of suicides in each country.

No. of countries : **58**

Years looked at : **1990 & 2019**

The country with the highest number of suicides in **1990** is the **Russian Federation** with a number of **(39,028)**, and the country with the highest number of suicides in **2019** is **Japan** with a number of **(12,858)**.

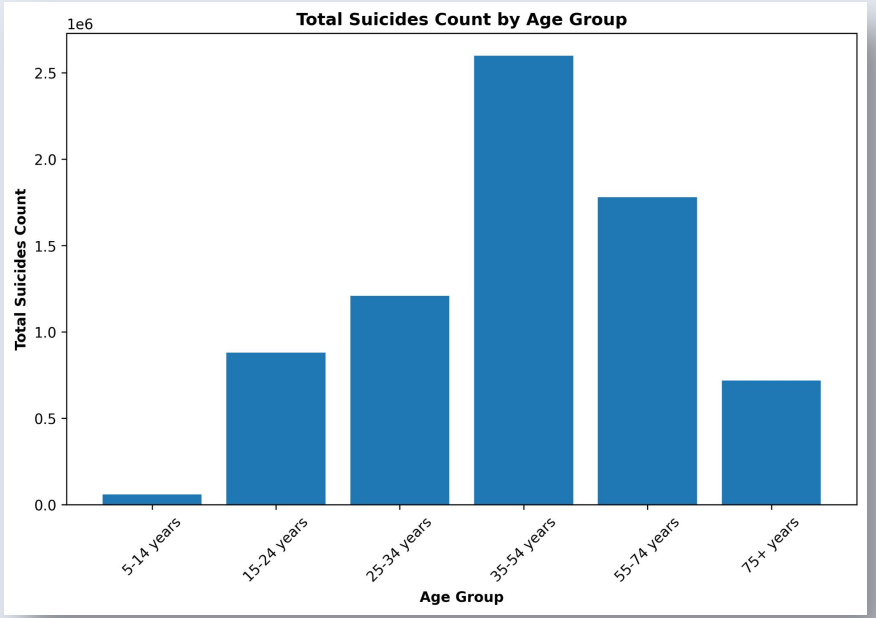
***The result that was extracted from this was a clear drop in the overall number of suicides between 1990 & 2019**


Comparison of Suicides in 1990 and 2019 by Country
Number of Suicides
Country
Year
1990
2019
0
5000
10000
15000
20000
25000
30000
35000
40000
Argentina
Armenia
Australia
Austria
Brazil
Bulgaria
Canada
Colombia
Costa Rica
Ecuador
Finland
Georgia
Germany
Greece
Guatemala
Iceland
Japan
Kazakhstan
Kyrgyzstan
Luxembourg
Mauritius
Mexico
Netherlands
Paraguay
Poland
Republic of Korea
Romania
Russian Federation
Singapore
Spain
Thailand
Ukraine
United Kingdom
Uruguay
Uzbekistan

Total Suicide Number by Age Group

35-54 years: This age category shows the highest count of suicides, suggesting that this age range should be a focal point for targeted suicide prevention efforts.

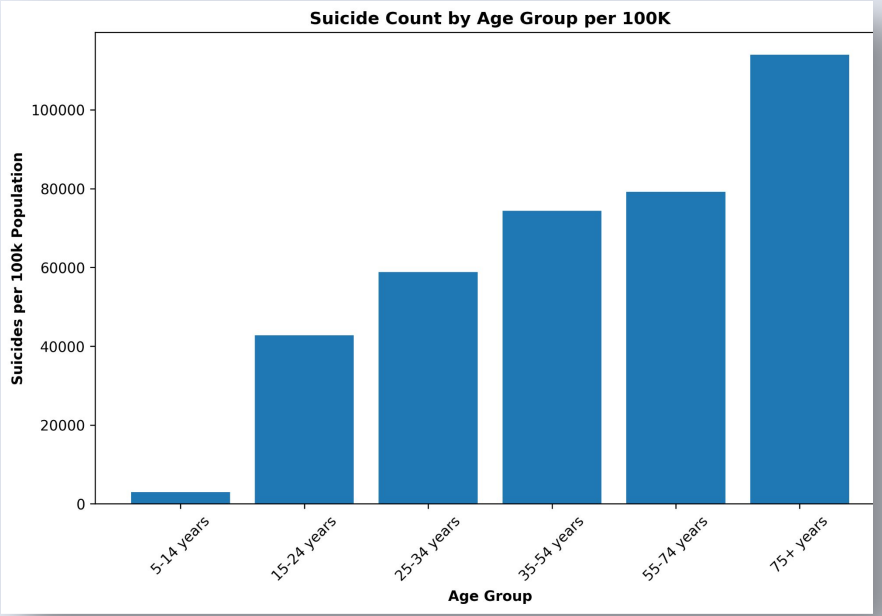
55-74 years: This highlights the need for comprehensive mental health support and intervention strategies for individuals in this age range.



Suicides per 100,000 Population by Age Group

75+ years: This indicates a significantly elevated risk of suicide for individuals in this age group when adjusted for population size.

35-54 years and 55-74 years: This finding underscores the urgent need for targeted mental health support and suicide prevention initiatives tailored to middle-aged and early elderly individuals.



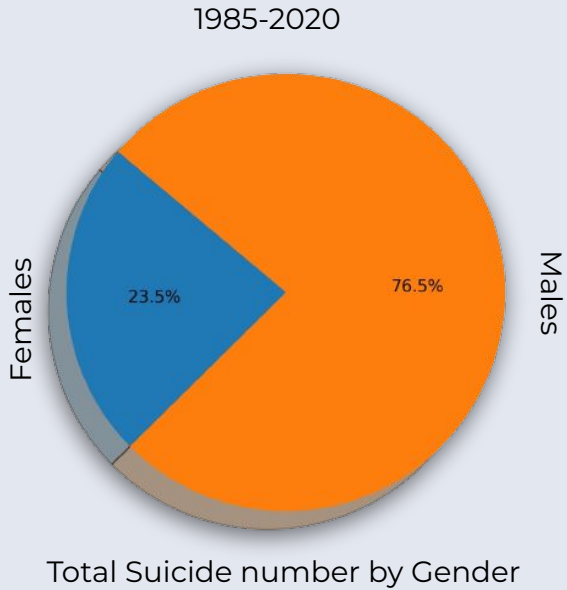
Suicide Counts by Gender (1990 vs. 2019)

In this analysis, we employed a bar graph to examine the total suicides per 100k population for males and females in both 1990 and 2019. This visual comparison allows us to identify gender-specific trends in suicide rates over the two decades.

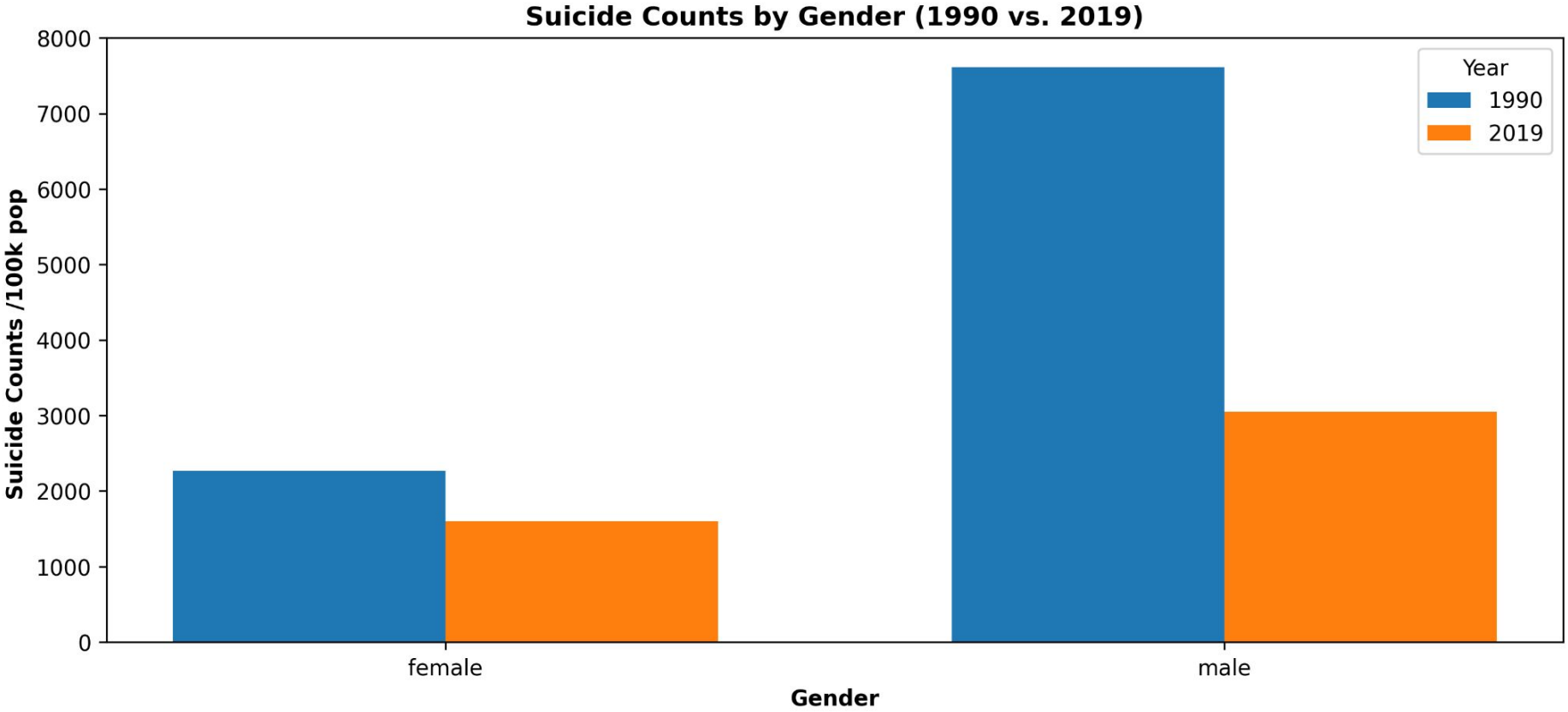
- For males in **1990**, the suicide rate has increased to almost **8000** per 100k population, signifying a considerable surge in suicides among males during that year.

- For males in 2019, the suicide rate has Decreasd to a bit over **3000** v per 100k population, which is significantly lower compared to **1990**.

- For females in **2019**, the suicide rate has also decreased, falling to under **2000** per 100k population.



Total Suicide number by Gender


Suicide Counts by Gender (1990 vs. 2019)
Suicide Counts /100k pop
8000
7000
6000
5000
4000
3000
2000
1000
0
Year
1990
2019
female
male
Gender

GDP per Capita vs. Number of Suicides

This scatter plot examines the relationship between GDP per capita and suicide rates across about 40 countries. The goal is to identify trends and patterns in this relationship.

- Rising Suicide Rates with GDP Increase: Suicide rates tend to increase as GDP per capita rises from 20,000 to 45,000, indicating potential socioeconomic pressures.

- Stable Rates Beyond 45,000: Beyond a GDP per capita of approximately 45,000 to 50,000, suicide rates stabilize around 50 per 100k population.

- Outliers at High Income Levels: Some countries with high GDP per capita exhibit unexpectedly high suicide rates, emphasizing the role of non-economic factors.

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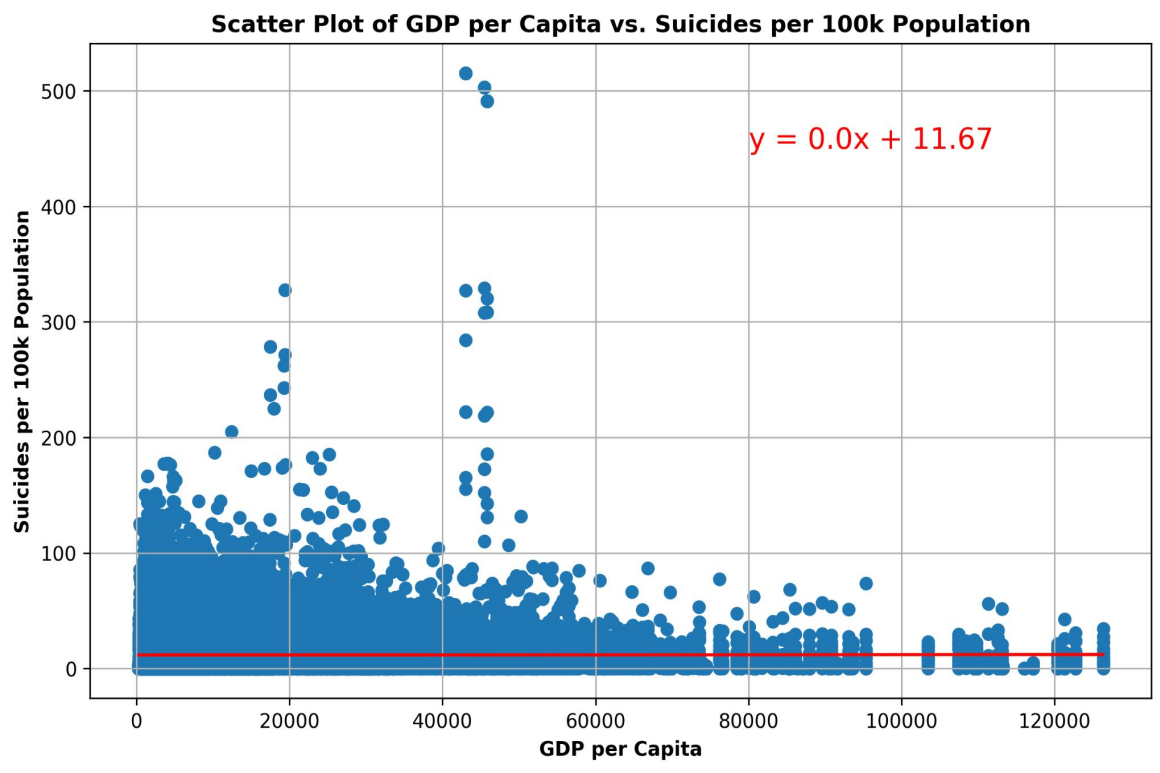

Conclusion

- The drop in rates seen in 2019 for all countries indicates potential advancements made in the strategies employed for suicide prevention and support systems for mental well-being throughout the years.
- This study demonstrated how, when population size is taken into consideration, middle-aged adults and early elderly people suffer substantially greater chances of suicide.
- Over the years, male suicide rates have significantly decreased, with a significant decrease from 7000 in 1990 to slightly above 3000 per 100k population in 2019.This reduction signifies a noteworthy improvement from its previous years.
- High levels of GDP in countries exhibit unexpectedly elevated suicide rates when compared against their counterparts, indicating potential socioeconomic pressures and highlighting the importance of non-economic factors in influencing such behaviors.

Q&A