



Insight into Suicide Rate 2016

Yon Garber
Zhenming Yang
2019-12-05

Problem Statement

Problem :

The suicide rate increased 33 percent from 1999 through 2017, from 10.5 to 14 suicides per 100,000 people on average worldwide.

Why is it important :

Suicide was the 10th leading cause of death in the United States.

Initial Hypotheses

- The average suicide rate for male is going to be higher than the average suicide rate for female in a worldwide perspective.
- Higher average suicide rate among older people — age of 70 and above.
- Higher suicide rate in countries with higher absolute latitude value.

Analytical Tools

Tools

```
graph TD; Tools --> Regression; Tools --> EDA; Regression --- List1["Both sexes vs Latitude- Europe and World<br/>Both sexes vs Longitude- Europe"]; EDA --- List2["Numerical vs numerical adding a third numerical variable"]
```

Regression

- Both sexes vs Latitude- Europe and World
- Both sexes vs Longitude- Europe

EDA

- Numerical vs numerical adding a third numerical variable

Description of datasets

- The suicide rate data is coming from World Health Organization (WHO).
- We found two files containing information regard latitudes, longitudes and continent of each country.



Male vs Female Suicide Rate per Continent

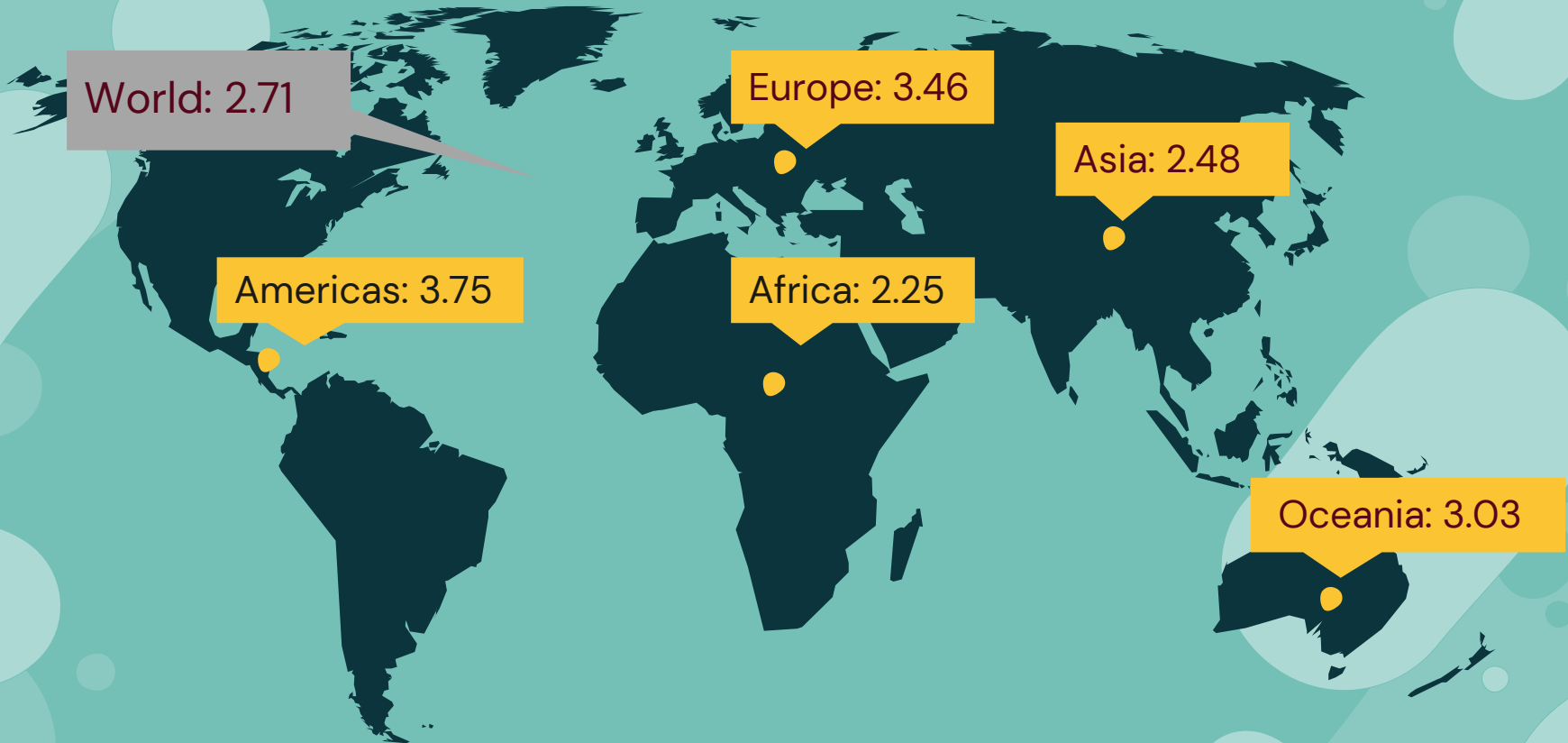


Figure 1 : Male vs Female Suicide Rate per Continent

Europe VS the ratio between men and women

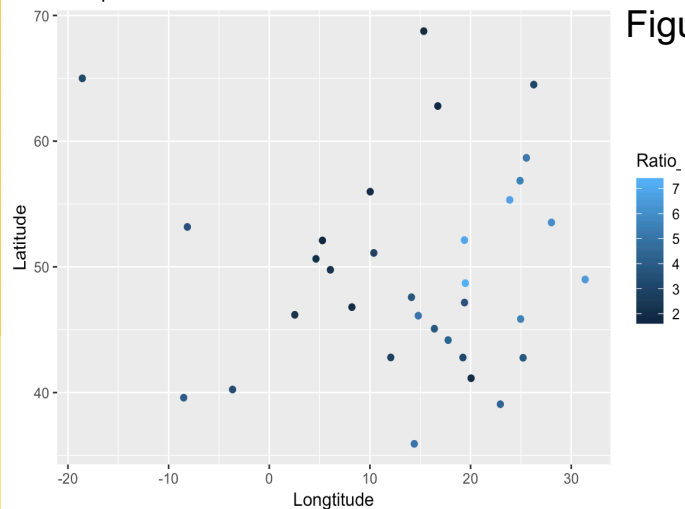


Figure 2

Africa VS the ratio between men and women

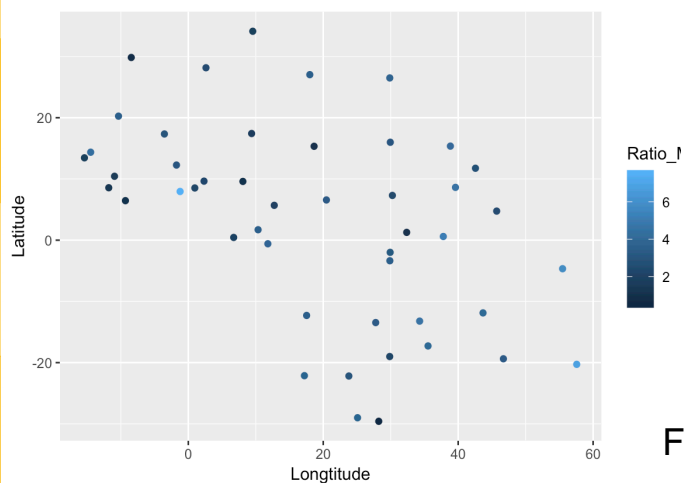


Figure 3

World map of the ratio between men and women

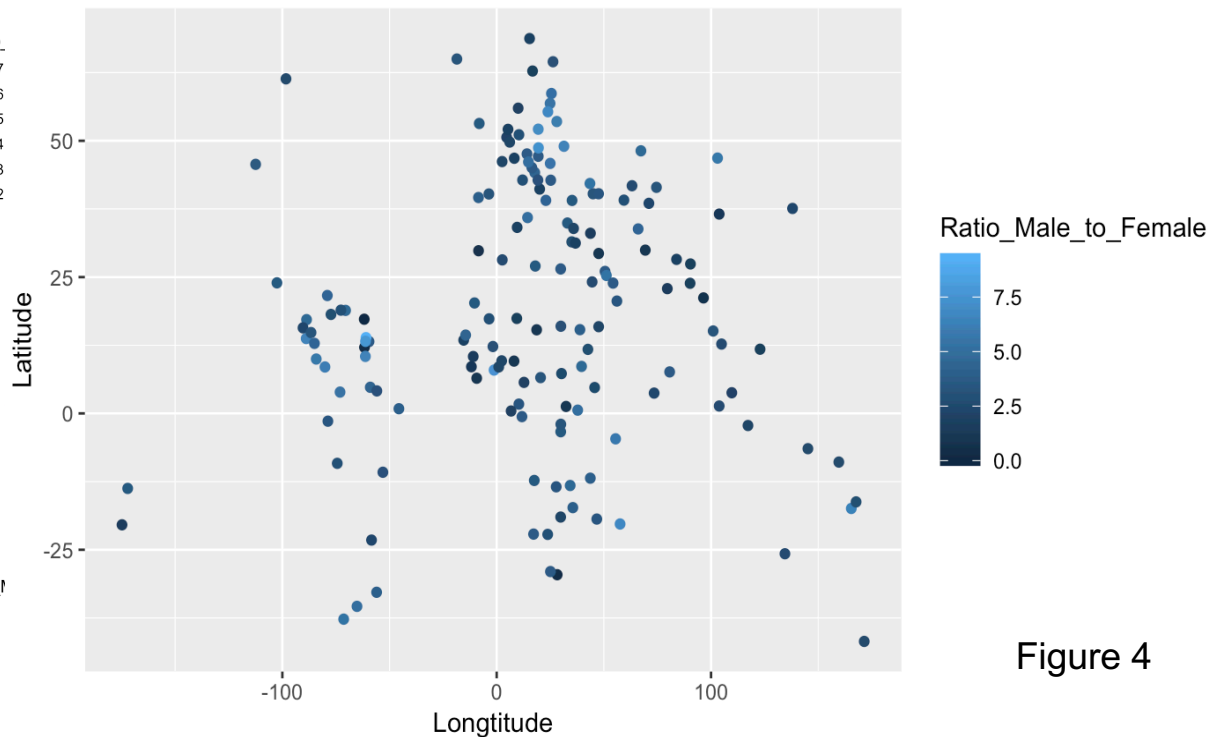


Figure 4

Figure 2 : suicide rate (male/Female) on a map of Europe

Figure 3 : suicide rate (male/Female) on a map of Africa

Figure 4 : suicide rate (male/Female) on a map of World

Hypothesis 2

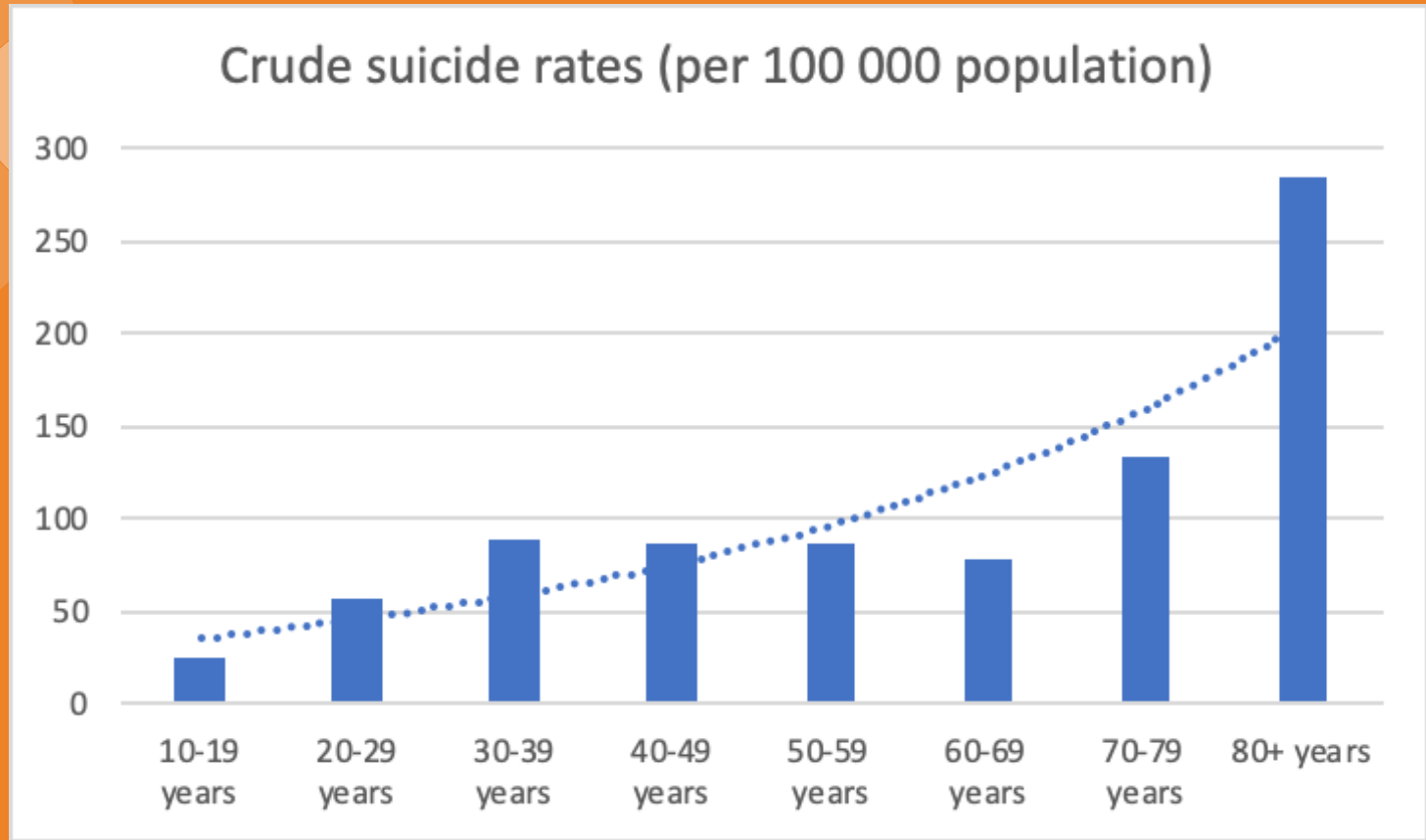


Figure 5 : Suicide rate vs 10 years age interval

Hypothesis 3

$$y = -0.478x + 141.045$$

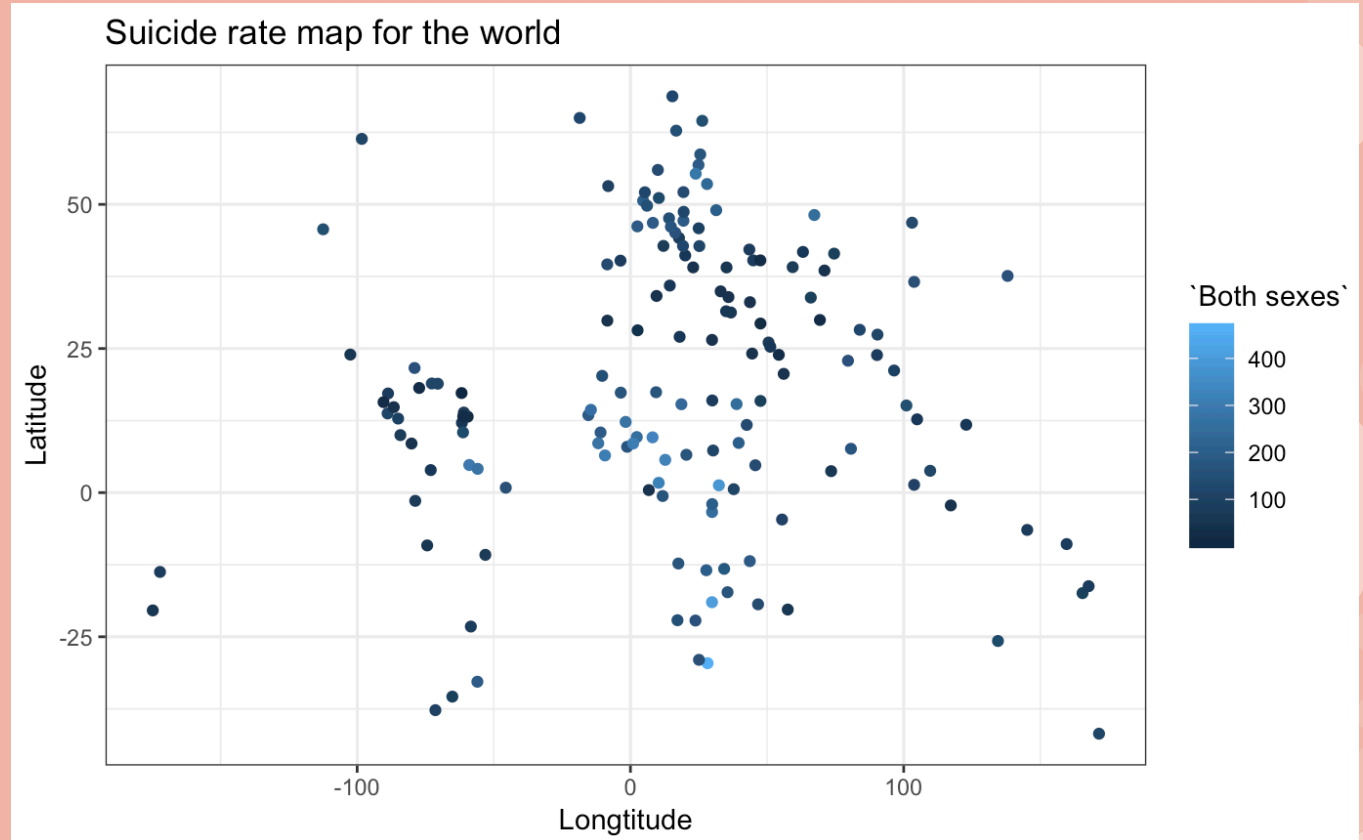


Figure 6 : Suicide rate map for both sexes in absolute value of the world

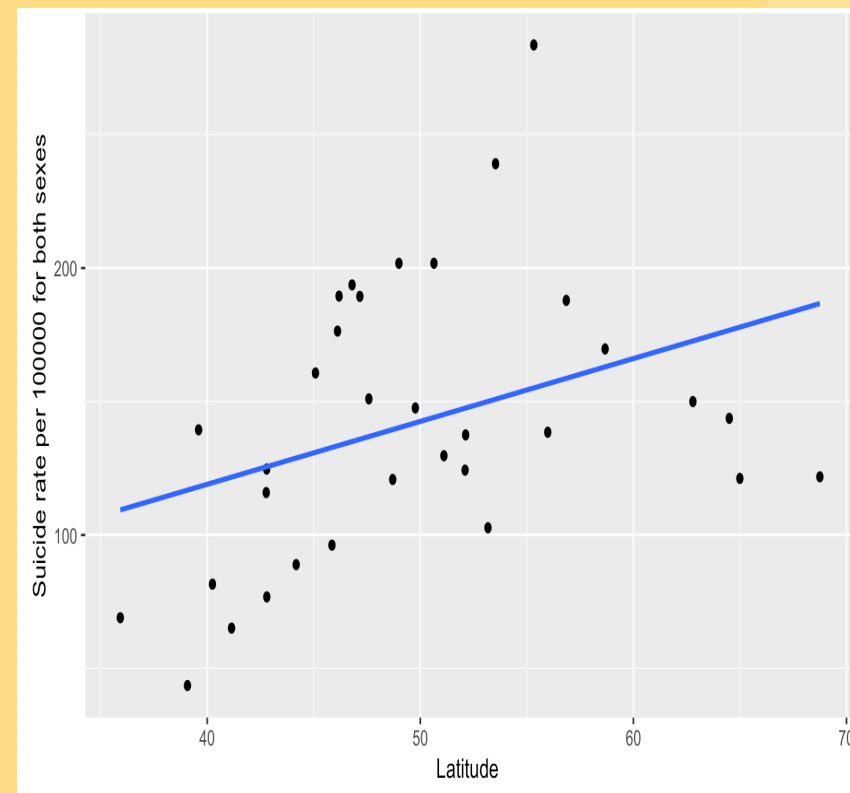
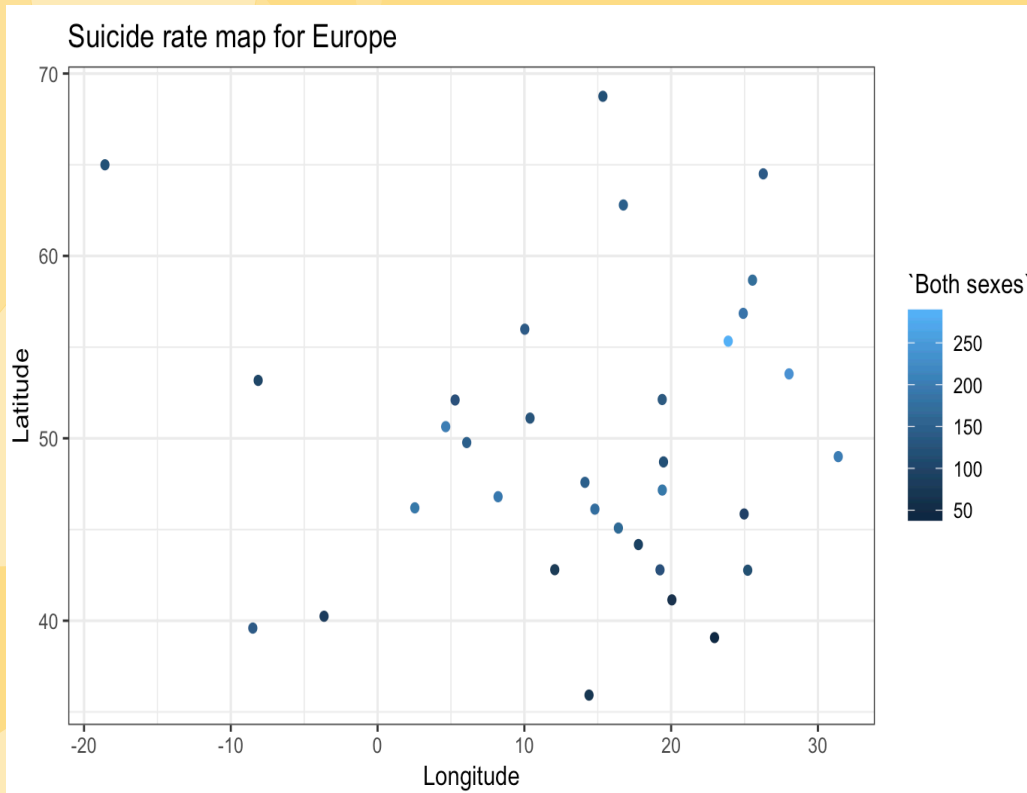


Figure 7 : Suicide rate map for both sexes in absolute value of the world

Figure 8 : Regression for latitude (suicide rate vs latitude)

$$y = 2.35x_{\text{latitude}} + 24.7$$

$$y = 0.913x_{\text{longitude}} + 129.18$$

Future Directions

- We need to further investigate the effect of culture on suicide rate.
- We want to further investigate the increase in suicide rate from the age of 30-50.
- We want to further investigate the difference in male to female suicide rate ratio between continents (culture/social).
- We want to check those trends and the cultural effect over several years.