

A case study for suicide pattern in Europe and other continents

Suicide or deliberately causing one's own death is a major public health problem worldwide. According to a recent study by World Health Organization (WHO), worldwide around 800,000 people commit suicide every year. In United States alone, more than 45,000 people died by suicide in 2017 and currently, it is tenth leading cause of death in this country. Notably, in the age group of 15-29 age, it is second leading cause of death. There is no particular reason for suicide and it varies with age, gender and geographical area/country. Some of the main causes that result in suicide are poor job/financial security, lack of job satisfaction, depression, psychosis, history of being abused and diagnosis with a serious medical condition, such as cancer & HIV.

To understand the pattern and rate of suicide in major countries across the world, dataset available on kaggle with title "WHO suicide statistics 1979-2016" is analyzed. The **crude ratio** for suicide is defined as number of suicide over 100,000 population and the data correspond to four major continents, namely Europe, Asia, North America and South America. Among the four continents, the data suggests that Europe has the highest suicide ratio compare to other continents. The countries under this study are mentioned in fig.1.

Average suicide per 100,000 in different countries

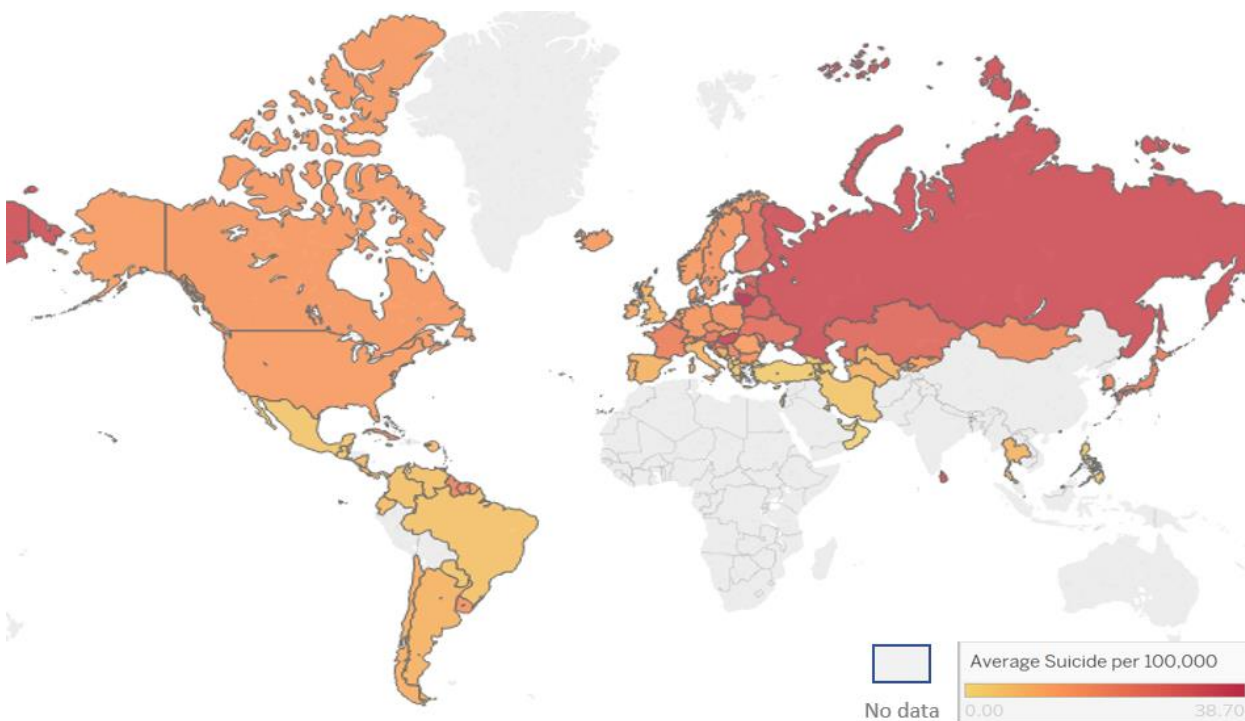


Figure 1

Our analysis also suggests that males are more prone to suicide than females in these four continents (Fig.2). Interestingly, a recent article published in The Guardian says that compared to men, women are more likely to have depression which is one of the major causes of suicide. However, the methods of attempting suicide by women are non-violent such as high-dose of drugs compare to man, who uses more harsh method such as hanging or firearms. Therefore, the chances of death

are more in men's attempt. Consistent with this report, the average crude ratio of suicide per year over 1979-2016 remain high in men across Europe (male 29.31, female 7.69), Asia (male 20.21, female 8.51), North America (male 16.93, female 4.37) and South America (male 8.57, 2.36) (Fig.2).

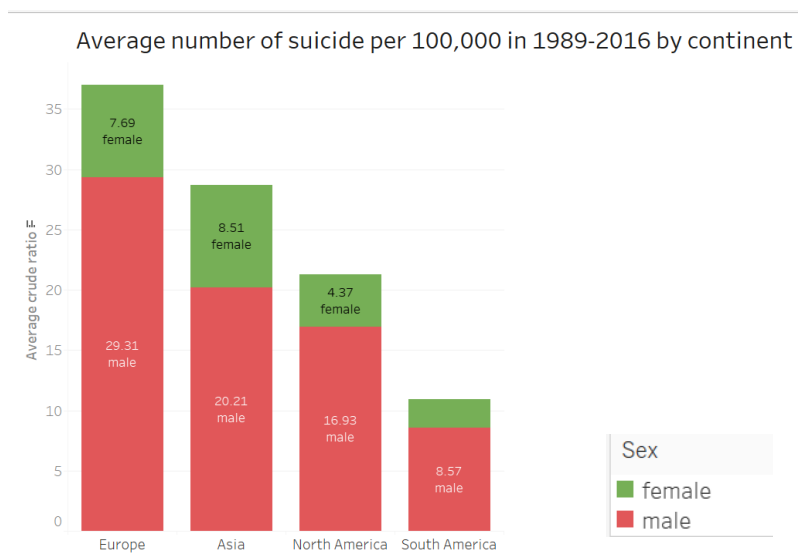


Figure 2.

Moreover, as mentioned above, during this time (1979-2016) the crude ratio of suicide was always higher in Europe compared to other continent (Fig1&2). Interestingly, in the 20th century, crude ratio was found to be decreasing more rapidly compared to the previous years (Fig 3). This was mostly possible because of combined effort of governments and social workers across the world to wipe out this global problem. Therefore, a continuous directed effort by government, local support groups and family members in general is required to further reduce suicide attempts and death related to that.

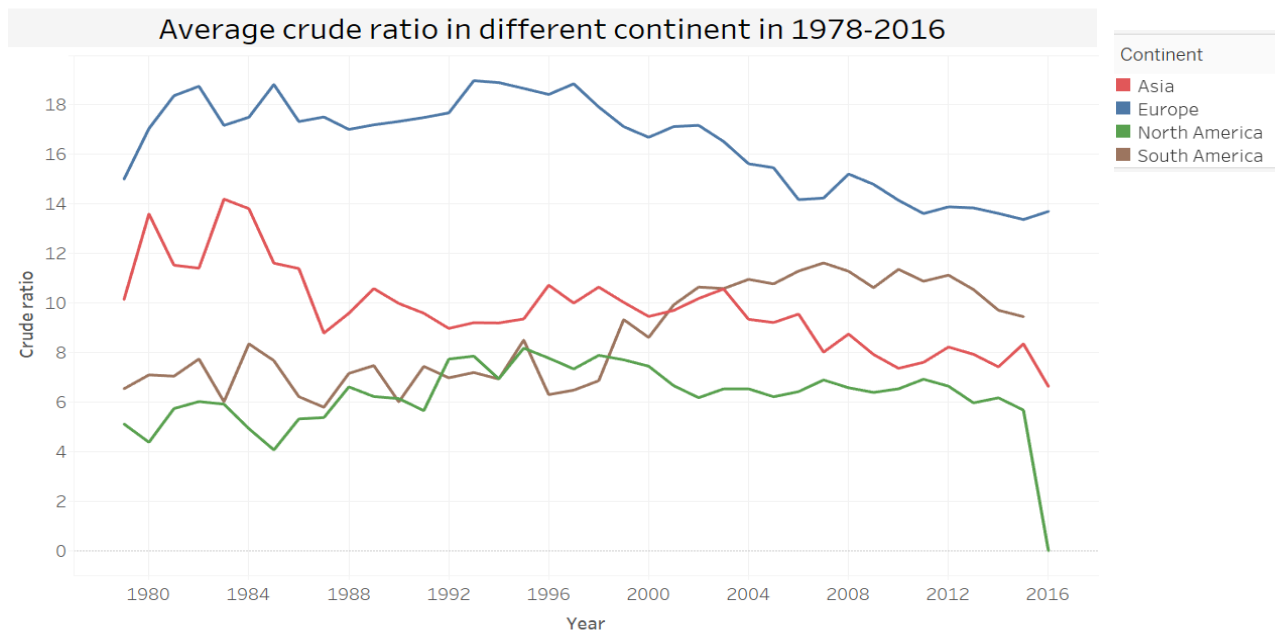


Figure 3.

Furthermore, the data also suggests that older people (75+ years) are more prone to suicide compared to other younger one (Fig 4). There could be many possible reason for this. Few among them that I can think of are depression, complicated medical conditions & related physical pain, social isolation, family discord and loss. Therefore, while overall crude ratio of suicide is decreasing, efforts are required especially among older people by providing them better social, medical and financial care.

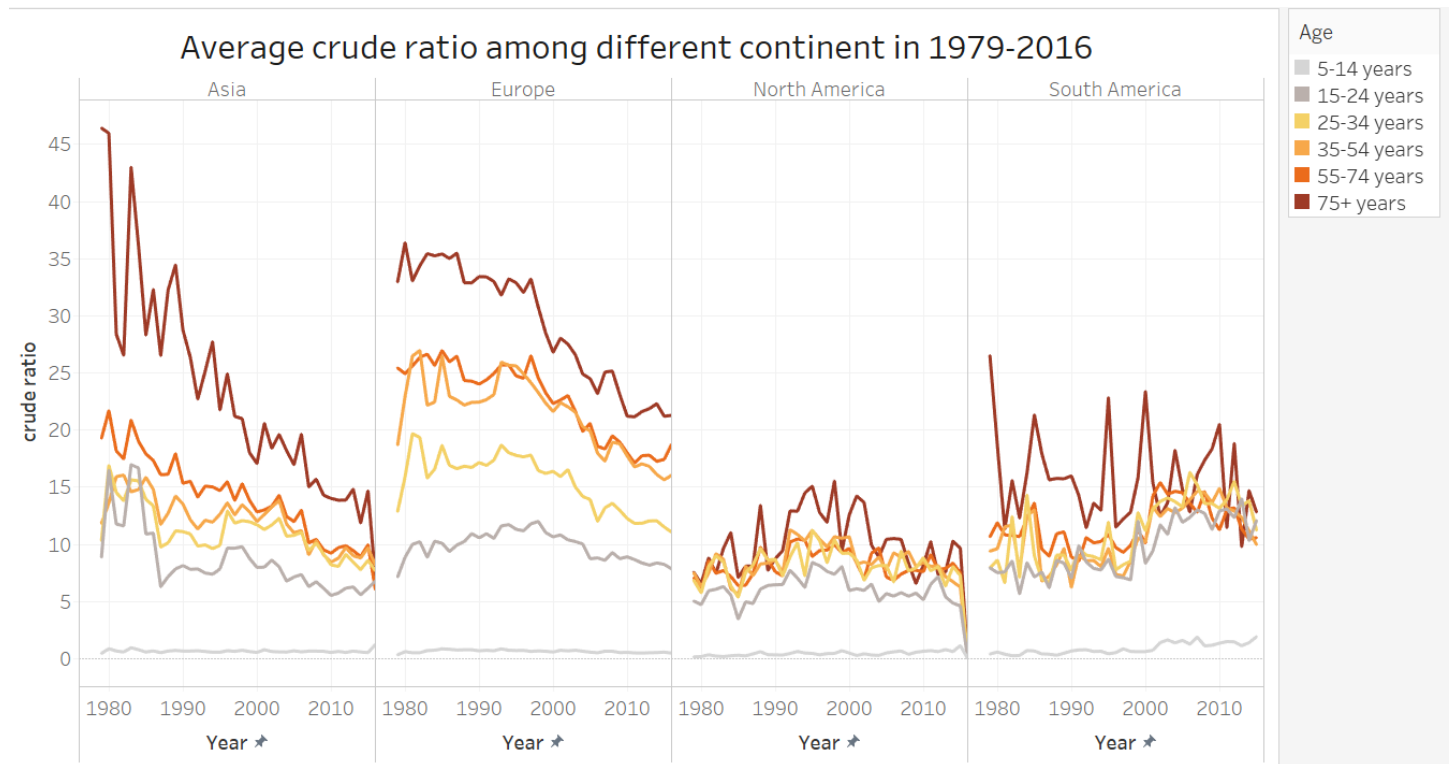


Figure 4

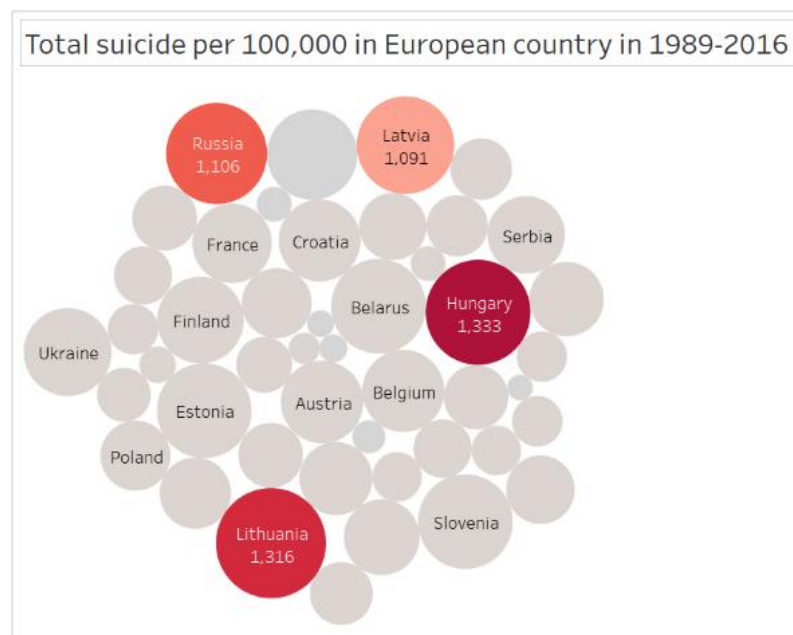


Figure 5.

Additionally, while the trend of suicide in Europe over time (1980-2016) is decreasing but it has always remained higher for the age 25 and above compared to other continents (fig. 4). Within Europe, Hungary, Lithuania, Russian federal and Latvia have highest crude ratio over 1980-2016 (fig. 5). Although, suicide rate in Hungary is decreasing constantly over time. However, the average crude ratio of Lithuania, Russian federal and Latvia increased significantly from 1992 to 1997 which is consistent with economic crisis in these countries at that time. This suggests a direct correlation of suicide rate with financial wellbeing.

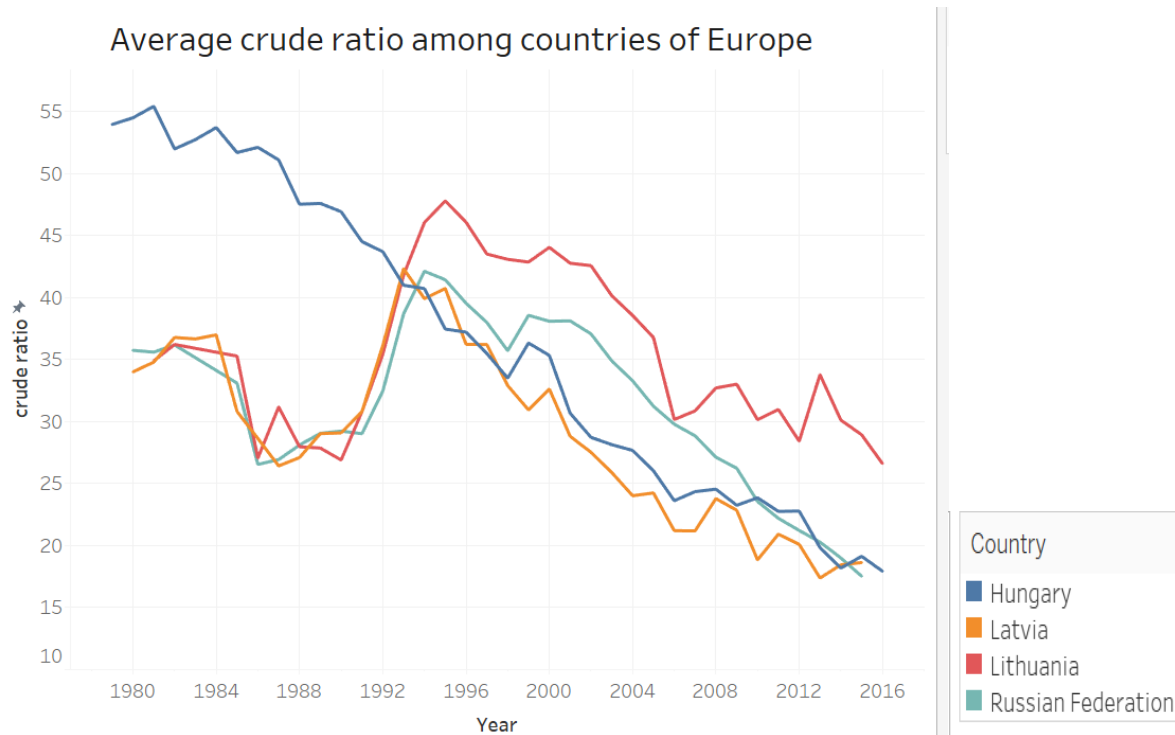


Figure 6.

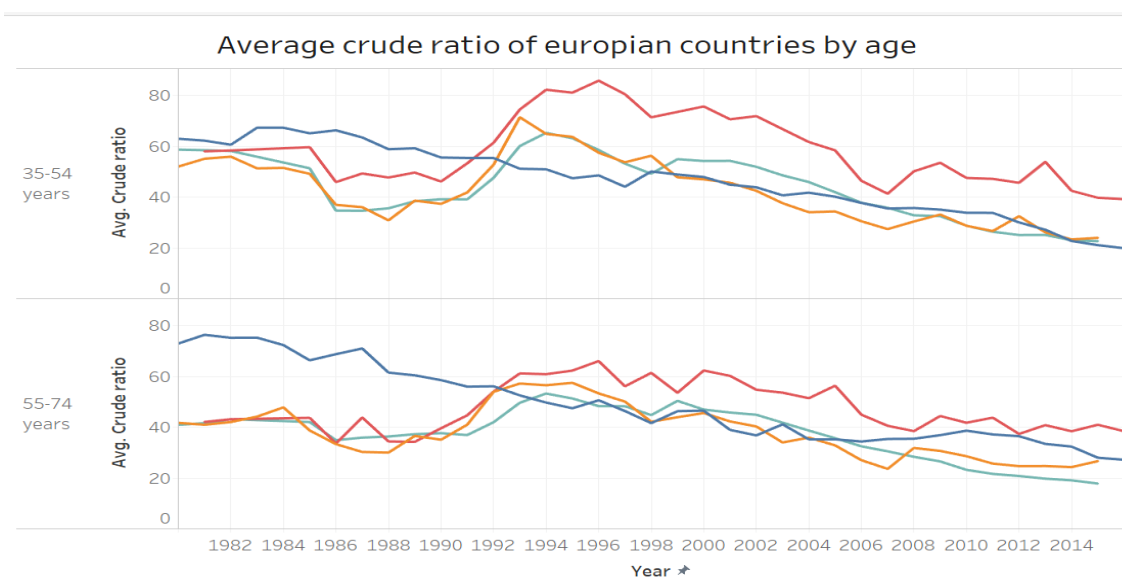


Figure 7.

Though suicide rate over time is almost decreasing (1979-2016) in many countries , better monitoring of people under risk can reduce overall number dramatically. Some of the steps required by society and government are greater awareness towards mental health. Second, more support to people under risk in term of counseling. Finally, a careful monitoring of those who show symptom of loss of self-esteem, hope and withdraw from family can result in better results.