In this project, I examine a dataset on suicides across various countries from 1985- 2016.  This dataset is also broken down into age and sex groups.  I chose this topic because I have an increasing interest in mental health awareness.  Suicides are an easily quantifiable metric indicating issues with mental health.

I felt that it was more appropriate to look at suicide rates in countries (per 100k population) as opposed to simply totaling the suicides reported in each country. I felt this was more strategic because more populated countries have the likelihood of showing high totals of suicides just naturally based on sheer numbers. But if you want to determine if citizens of a country are more prone to suicide, then you need to examine the rates at which suicides occur.

When transforming the data to identify the top 10 countries by average suicide rate, you get the following result set:

|  |  |  |  |
| --- | --- | --- | --- |
| **country** | **avg\_rate\_per\_100k\_pop** | **avg\_gdp\_per\_year** | **avg\_pop** |
| Lithuania | 40.58396825 | 27112901387 | 260475.8492 |
| Sri Lanka | 35.29515152 | 15326445829 | 1382769.894 |
| Russian Federation | 34.89237654 | 8.84323E+11 | 11391366.11 |
| Hungary | 33.0491 | 88314035915 | 800846.2867 |
| Belarus | 31.0759127 | 30676414843 | 783223.381 |
| Kazakhstan | 30.51128205 | 78687217446 | 1209980.349 |
| Latvia | 29.2593254 | 18316604056 | 177986.6667 |
| Slovenia | 27.82785714 | 35900063292 | 159796.1071 |
| Estonia | 27.27690476 | 14445861374 | 107503.2143 |
| Ukraine | 26.58232143 | 83891109354 | 3828777.333 |

Something that stands out from this table is that most of the countries are relatively similar in population size except for the Russian Federation. It is important to be aware of this because having a high rate of suicide is “easier” to obtain if you don’t have a large population. While this is worth investigation, for the purpose of this project, I want to see what the average suicide rates are for the top 10 most populated countries. Looking for this produces the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **country** | **avg\_rate\_per\_100k\_pop** | **avg\_gdp\_per\_year** | **avg\_pop** |
| Russian Federation | 34.89237654 | 8.84323E+11 | 11391366.11 |
| Japan | 21.57319892 | 4.33922E+12 | 9895228.075 |
| Germany | 15.55990385 | 2.74223E+12 | 6489985.936 |
| United States | 13.81981183 | 1.05107E+13 | 21650610.76 |
| United Kingdom | 7.502473118 | 1.81607E+12 | 4674106.935 |
| Thailand | 7.053549383 | 2.03282E+11 | 4726414.444 |
| Brazil | 5.846021505 | 1.02256E+12 | 13054014.91 |
| Mexico | 4.7075 | 6.80308E+11 | 7454191.288 |
| Philippines | 2.421277778 | 1.13685E+11 | 5917045.439 |
| Turkey | 2.371071429 | 8.3823E+11 | 5745721.214 |

From this table there are a couple of standouts in terms of suicide rates. Namely the Russian Federation, Japan, Germany, and the United States. The Russian Federation is of particular interest because not only is it one of the most populated countries, but it also has one of the highest suicide rates from the previous table. Thus, this is a populated country that is also seemingly experiencing a national suicide problem.

I transformed the data to only show the statistics for the Russian Federation and then graph this as a time series. There is a very noticeable increase in suicides from about 1991 to 1997 about where it peaks and then from there steadily declines. Upon a quick search online of why this might be the case, it would seem that this is related to the Dissolution of the Soviet Union and economic hardships that the country faced at the time (Source: <https://en.wikipedia.org/wiki/Suicide_in_Russia>). This might lead to issues such as job or home loss which would contribute to a mental health crisis. A couple of articles lean towards the idea that alcohol also plays a role in these suicides since binge drinking is common in this part of the world and people are more likely to act on suicidal thoughts when intoxicated (<https://www.ozy.com/around-the-world/the-story-behind-russias-male-suicide-problem/76845/>).

Something else that I was curious to analyze was the possibility of a relationship between the average suicide rate in a country and the countries average yearly GDP. I graphed this as a scatterplot to see if any correlation existed. From what I saw, there is no correlation between country wealth and suicide rates. Some wealthy countries have just as much if not more suicides when compared to poorer countries.

Additionally, suicide is not necessarily higher in wealthier countries than poorer countries. This would have been a hypothesis of mine in that I would assume suicide rates are higher in richer countries. My reasoning behind this assumption is that unhappiness in wealth when your basic needs are being met might lead to individuals experiencing existential crises. However, the data does not appear to support this kind of theory. I would be curious to examine this theory but with rates of depression instead of rates of suicide.

35-54 years old is the most represented age group when it comes to suicides. This is most likely due to issues with depression when dealing with mid-life crises. It can also probably be attributed to cases of job or home loss due to economic hardship, a situation that probably occurred within Russia during it’s highest years of suicides. This is speculation on my part and would take further research to confirm.

When comparing the sexes, males are overrepresented when it comes to suicide, with about 75% of successful suicides being male. Just from my own knowledge based on books I have read; this is typically because the methods of suicide chosen by males are more lethal. Females tend to self-mutilate or over medicate whereas males tend to commit suicide by use of firearms or jumping.

In summary, mental health is gaining attention as an element of overall health and wellness. Suicides are one manifestation of a mental health crisis. If I were to further the research began by this project, I would like to learn more about the countries dealing with the highest rates of suicides and try to identify factors contributing to these rates. Additionally, I would like to compare the factors discovered to other countries to see if some common themes can be determined for the purpose of predicting future national suicide crises. Lastly, when data becomes available, I would like to compare the rates of suicides from this dataset to the suicide rates during the COVID pandemic that is ongoing at the time of this writing.