Name: Pranav Karnani

EM 624

Topic: Suicides in the US

Research Questions:

Suicide is death caused by injuring oneself with the intent to die. A suicide attempt is when someone harms themselves with any intent to end their life, but they do not die because of their actions.

Many factors can increase the risk for suicide or protect against it. Suicide is connected to other forms of injury and violence. For example, people who have experienced violence, including child abuse, bullying, or sexual violence have a higher suicide risk. Being connected to family and community support and having easy access to health care can decrease suicidal thoughts and behaviors.

Suicide rates increased 33% between 1999 and 2019. Suicide is the 10th leading cause of death in the United States. It was responsible for more than 47,500 deaths in 2019, which is about one death every 11 minutes. The number of people who think about or attempt suicide is even higher. In 2019, 12 million American adults seriously thought about suicide, 3.5 million planned a suicide attempt, and 1.4 million attempted suicides.

This study is focused on analyzing the file provided to get insights on suicide incidents involving guns between the year 2012 and 2014 in USA and find out any trends or linkage between factors like race, gender, education, or age.

The study should consider the factors affecting the incidents and attempts to answer the following questions:

- Does age play a role in occurrence of suicides?
- Is one gender more prone to suicide than the other one?
- Is any combination of factors indicative of more suicides than other?

The data for this study can be found at the following URL:
https://github.com/fivethirtyeight/guns-data/blob/master/full_data.csv

Research Motivation:

Suicide is the outcome of a process starting with the experiences of an unbearable pain or hopelessness, passing from suicidal ideation and planning to possible para-suicidal behaviors or actual attempts. Recent studies have evidenced the necessity to integrate approaches based on the identification of psychopathological diagnoses and other variables as possible predictors of suicidal conduct with a more clinically based approach. A clinical assessment is needed that focuses on the patients' mental state with respect to thoughts concerning death and suicide.

Suicide is one of the leading causes of death among all American adults and rates are increasing in both men and women".

Dataset Description:

The data for this study can be found at the following URL:
https://github.com/fivethirtyeight/guns-data/blob/master/full_data.csv

Data Preparation:

A perfect and simple dataset for us was provided by our professor. It is an overview of suicide rates from 2012 to 2014. Although there are only 11 columns, it is still necessary to clean up the dataset. It didn't require much cleaning.

The data was analyzed, the data had almost 101,000 rows and 10 columns.

Methodology:

The data in this interactive graphic comes primarily from the Centers for Disease Control and Prevention's Multiple Cause of Death database, which is derived from death certificates from all 50 states and the District of Columbia and is widely considered the most comprehensive estimate of firearm deaths. In keeping with the CDC's practice, deaths of non-U.S. residents that take place in the U.S. (about 50 per year) are excluded. All figures are averages from the years 2012 to 2014, except for police shootings of civilians, which are from 2014.

The "homicides" category includes deaths by both assault and legal intervention (primarily shootings by police officers). "Young men" are those ages 15 to 34; "women" are ages 15 and older. Because the CDC's estimates of police shootings are unreliable, we used estimates from non-governmental sources. Our figure is for 2014, the first year for which such estimates are generally available.
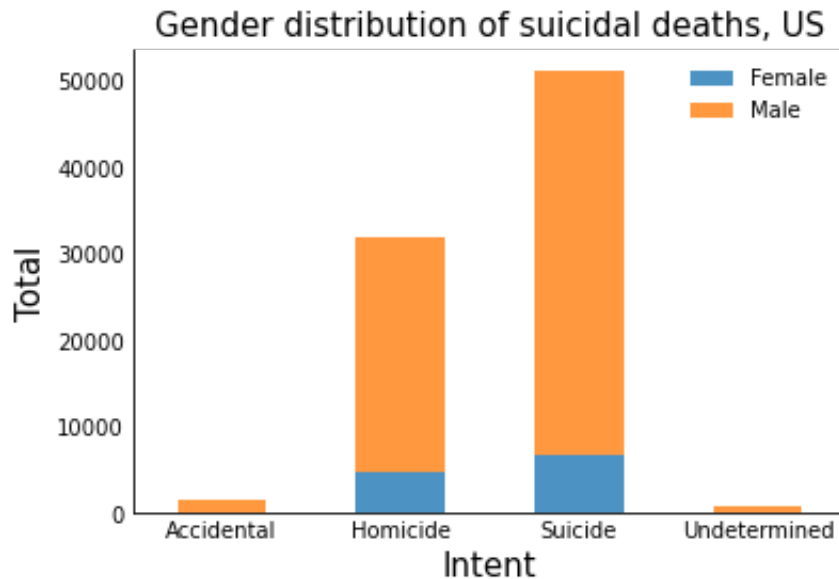

Figure 1

Figure 1 states that there are far more male incidents than female. From this visual we can infer that it will be hard to learn from 'Accidental' cases since there is so little of them. The number of male incidents is way more than that of women in suicidal cases.
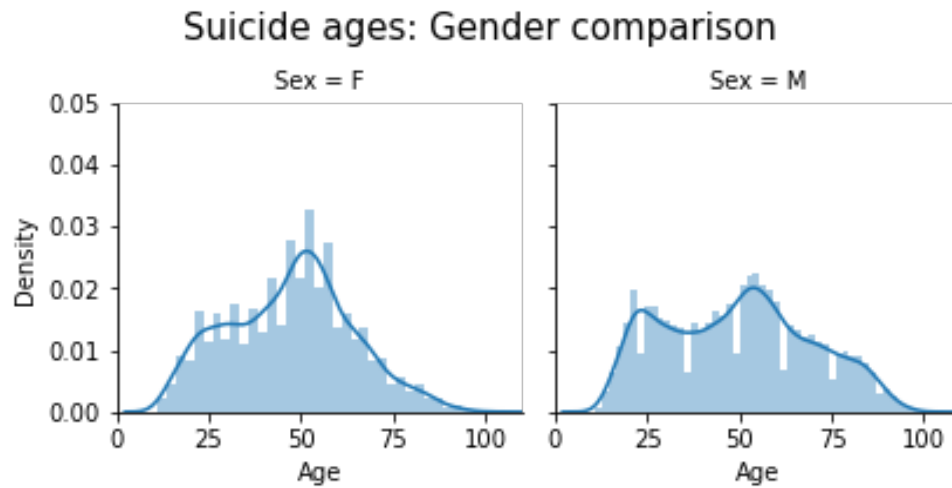
Suicide ages: Gender comparison

Figure 2

Figure 2 states the density of women is more than men according to the age.
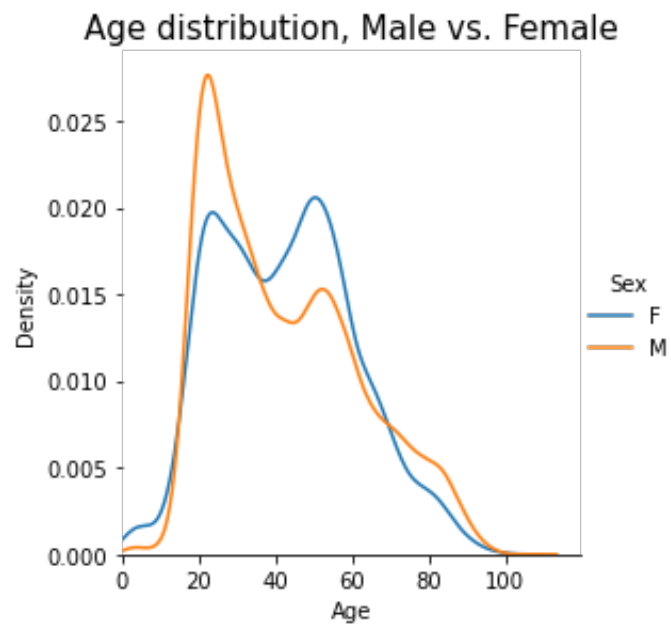
Age distribution, Male vs. Female

Figure 3

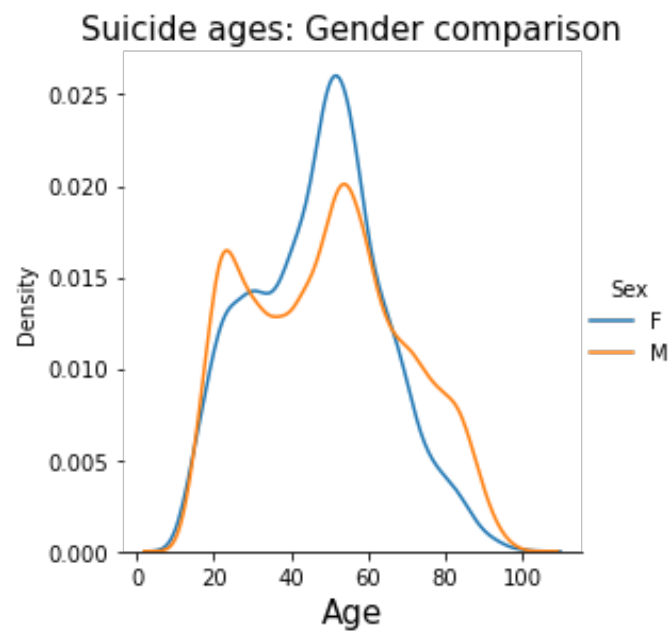**Figure 3** shows the age distribution of the genders.

Figure 4

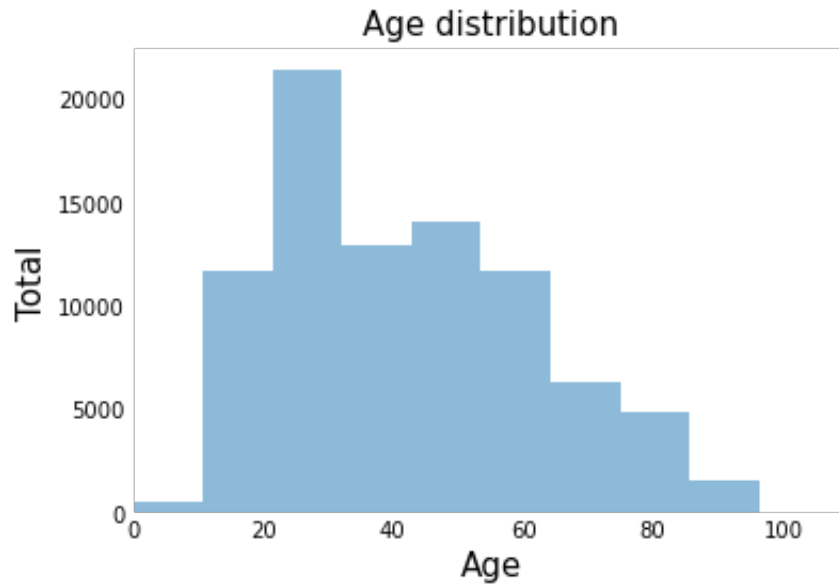**Figure 4** shows the age and gender comparison in suicide cases.

Figure 5

Figure 5 shows the age distribution and total deaths committed by suicide.
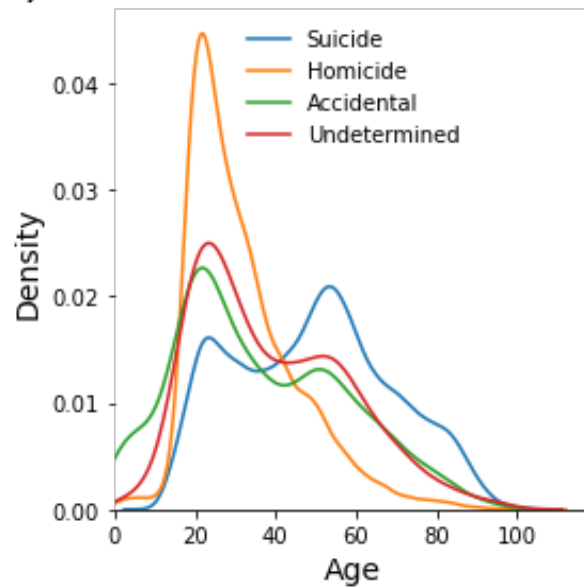

Figure 6

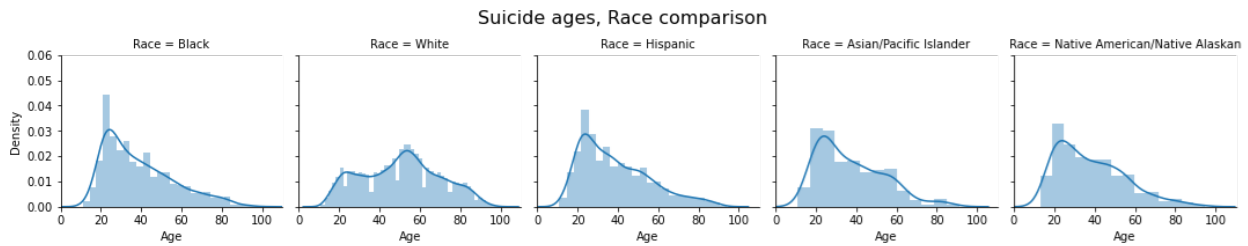**Figure 6** shows the comparison between all the intents via age comparison.

Figure 7

Figure 7 shows the comparison between all the races in a particular group (suicide).

Results:

Throughout the analysis, now we can answer the developed questions.

Q.1 Does age play a role in occurrence of suicides?

A: Age, gender may be helpful in predicting intent. The data illustrates that middle-aged adults between the ages of 30 through 60, have the **highest suicide** count. While elderly and adolescents have about **half** the amount as middle-aged adults.

Q.2 Is one gender more prone to suicide than the other one?

A: Throughout the analysis, men are more prone on committing suicide than women. **It** states that there are far more male incidents than female. The number of male incidents is way more than that of women in suicidal cases.

Q.3 Is any combination of factors indicative of more suicides than other?

It's very apparent that the peak in most races in both suicide incidents is around age 20, while the peak in the race 'white' is much higher - around 55 in suicide cases.

References:

www.ssmhealth.com/blogs/ssm-health-matters/october-2019/middle-aged-men-more-likely-to-die-by-suicide.

https://towardsdatascience.com/the-suicide-crisis-in-data-7025f8551ca8