#### Mini Project On

# Suicide rates overview 1985 to 2016 Using IBM Cognos

Submitted for the partial fulfilment of process related to

#### **Continuous Internal Assessment 2**

In

### **Business Intelligence & Visualization**

[ MBA - IV Trimester (MBA - 4043B) ]

Submitted By

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#### **Introduction:**

"Many people who commit suicide do so without letting on they are thinking about it or planning it," says Dr. Michael Miller.

According to WHO, approximately one million people commit suicide each year worldwide, that is about one death every 40 seconds or 3,000 per day. Each individual takes at least 20 attempts to end his/her own life.

Suicide alone has a global mortality rate of about 16 per 100,000 people. Suicide is the tenth leading cause of death.

Globally 60% of all suicides occur in Asia. China India and Japan account for about 40% of all suicides, according to WHO. Although some people who commit suicide have an identifiable mental health problem, like depression or addiction, others don't. Some talk about wanting or planning to kill them or give other hints, others don't. The decision to do it might be made just minutes or hours before that act.

But depression by far considered as the major underlying cause of suicide. Understanding and recognizing the warning signs of depression and suicidal behaviour are helpful in preventing suicide. A suicide attempt is an indication something is gravely wrong in a person's life. People consider suicide as an attempt to escape unbearable suffering. Depressed people shouldn't be left alone, hoping the problem will go away if we ignored it. It could make the person feel more isolated and misunderstood.

The dataset was collected from <a href="https://www.kaggle.com/russellyates88/suicide-rates-overview-1985-to-2016/">https://www.kaggle.com/russellyates88/suicide-rates-overview-1985-to-2016/</a>

This compiled dataset has data, based on following headers after

cleaning

- Country
- Year
- Sex
- age group
- Suicide Number
- count of suicides
- Population
- Suicide rate
- gdp for year (\$)
- gdp per capita (\$)
- Generation (based on age grouping average).

#### **Problem statement:**

To find out the reasons for suicide and take effective actions which will help to reduce the suicidal tendency among people

#### **Objective:**

- To understand the relation between various dimensions of the dataset.
- To find out which generation of people are more suicidal.
- To find which country had more suicides

#### **Tables and Schema:**

OLAP is considered as optimum solution for analysis of the situation. Various dimensions and measures from the data base are identified and the fact table is build based on same.

#### **Dimensions:**

- Country
- > Generation
- > Age
- > Sex
- > Year

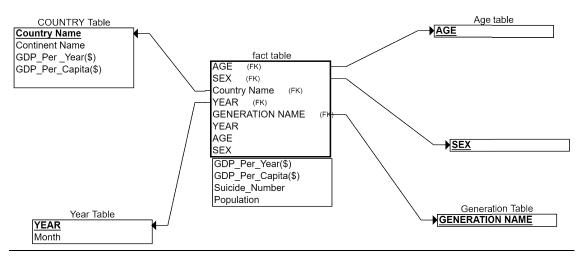
#### Measures:

- > Suicide Number
- > Population
- ➤ Suicides/100k
- ➤ GDP per Capita (\$)
- ➤ GDP for Year (\$)

The different generations in the given data according to the years they were born are

- G.I Generation World war 2 generation(1901-1920)
- Silent (1928-1945)
- Boomers (1946-1964)
- Generation X Gen X follows the Boomers and precedes Millennial. (1960-1980)
- Millennial (1981-1996)
- Generation Z (1997-Present)

Based on the mentioned dimensions and the measures a fact table is build using the Star Schema.

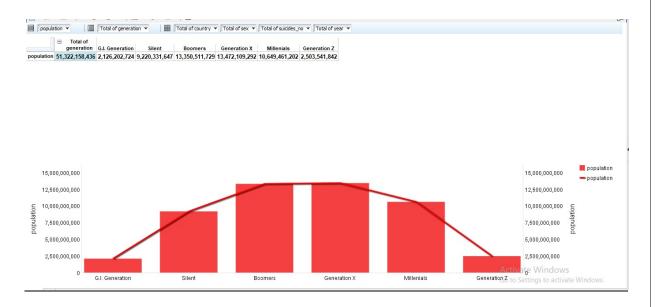


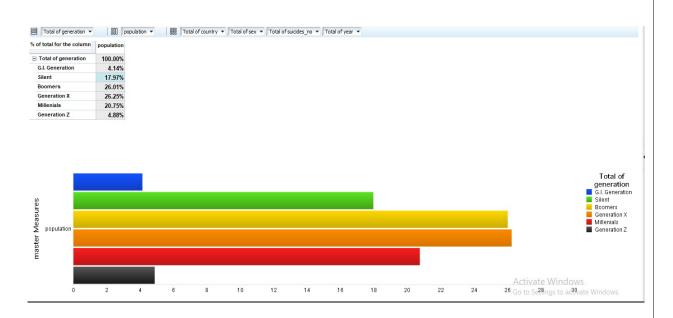
Star Schema of tables

#### **Constraints and Limitations:**

- ➤ Quantities of certain dimensions big to be accommodated into an axis (countries, suicide number).
- ➤ Certain measures of year 2016 is not complete, hence we've to discard 2016 from all time series analysis.
- Application of CRISP-DM frame work is not possible with the given data set. CRISP DM talks about the business perspective of a problem, but I feel like the suicidal rate and the efforts to combat suicidal tendency is more humane value than querying how to make business from it. So this project will be done using traditional frame work.

## **CHART**Population in each Generation:



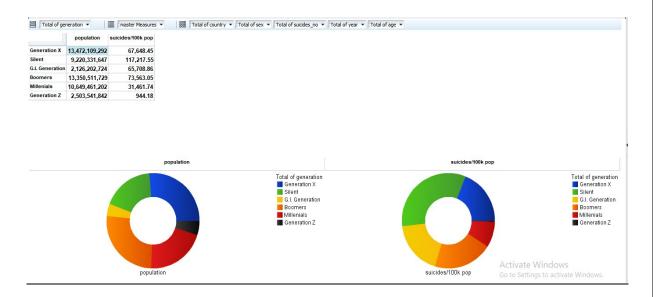


#### Insights:

- It can be found that there has been an increase in the population by almost 13% during 1928 -1945 after the time of World War 2, compared to pre war stats and another increase of 10% post world war.
- ❖ Mortality declines and continuing high birth rates in developing countries combined with the sudden short-term rise in birth rates in the US and other developed countries caused the rate of world population growth to accelerate in the 1950s and 1960s. (S.)
- ❖ This surge in births was largely due to the rapid expansion of the job market created by World War II. (Hishmeh, 2016)

- After the war, economy shot up and subsequent financial comfort produced an overall positive attitude towards child bearing, which later results in a population explosion.
- Population became almost stable during the periods of 1946-1980, during the time was recorded as the all time highest.
- ❖ The 1970s was the first period in which the rate of world population growth had ever significantly declined due to family planning. (S.)
- There was a significant reduction in population after 1980, which can be attributed to the above reasons.

Population, Suicide rate throughout each Generation:



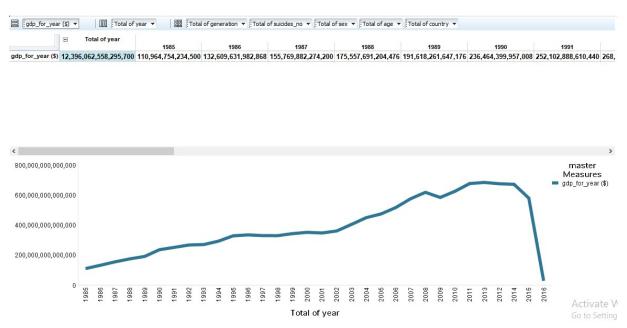
- The suicide rate according to each generation is made visible in the above graph.
- The rate of suicide is as follows: Silent > Boomers > Generation X > G.I Generation > Millennial > Generation Z, respectively
- Silent generation are the group of people born during the time preceding World War 2.
- ❖ Their suicidal tendency can be attributed to the after effects of war. Observations confirm that war veterans are really more likely to die of suicide as compared to the general population; they are also more likely to experience suicidal ideation and suffer from mental health problems. Suicides are more frequent in those who develop PTSD, depression and co morbid states due to war exposure. (Vsevolod Rozanov1 and Vladimir Carli2, 2012)
- Second highest suicide rating are for boomers. These are the generation of people brought up in the new growing economy after war.
- ❖ Most reports of suicide are related to job, financial, or legal distress. A possible explanation of this reporting is the correlation between these suicides and the effects

of the Great Recession. The Great Recession, triggered by the bursting of the 8 trillion dollar housing bubble in 2007, caused the U.S. labour market to lose 8.4 million jobs and reduce wages all across the board. The Boomers were born at a time of economic optimism, so they tend to have had high expectations for their financial futures. Seeing the wealth that they spent their lives accumulating dwindle away because of an economic downturn may have been a large blow to their prides/egos. (Hishmeh, 2016)

• Then we've both G.I generation and Generation X followed by Millennial and Generation Z.

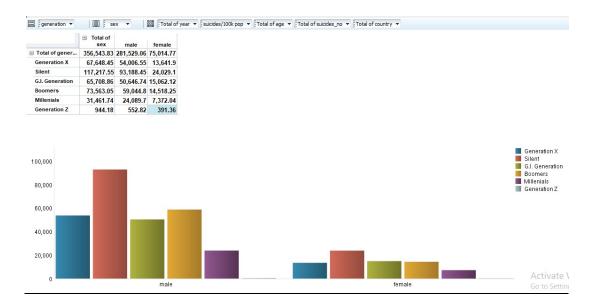
#### **CHART**

#### GDP PER CAPITA(\$) throughout YEAR:



- It can be found that the gdp per capita (\$) has been increasing through out the years till 2014, then during the next couple of years there has been some decrease in gdp on a global scale.
- The fluctuations in 2008-2009 can be attributed to the economic crisis and due to great depression.

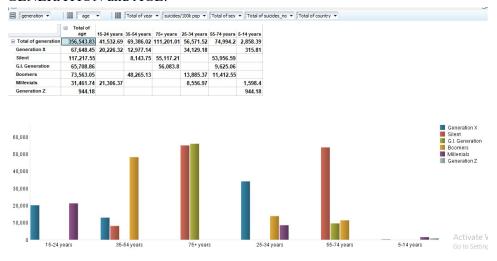
#### **GENERATION** and SEX:



- Males have higher suicides rate than female.
- Comparing the suicide rate among males, men belonging to Silent > Boomers >
   Generation X > G I Generation > Millennial > Generation z
- Whereas for women, Silent > G I generation > Boomers > Generation X > Millennial > Generation Z
- ❖ The suicide rate of men follows the same pattern as the suicidal rate of total population trend. So we can attribute the same reason for this trend. Whereas for females it is different. We can assume that the effects of World War 2 would have been the reason for the higher number of suicide in GI generation women.

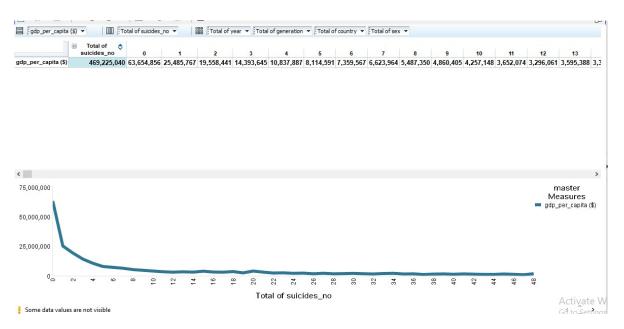
#### **CHART**

#### GENERATION and AGE:



- People of silent generation have the highest rate of suicide it is highest for the age group of 75+ years, then 55-74 year category. Silent generation people of age 35-54 have committed far lesser suicides compared to other age groups of same generation.
- The second highest rate of suicides is done by Boomer generation in the age group of 35-54, followed by 25-34 year category. There is only a less rate of suicides as in the age group of 55-74 year.
- In the age group of 25-34 years, people from Generation X have committed more suicides than Boomers and Millennial.
- Generation X and Millennial have almost same amount of suicide rates for youngsters.
- ❖ The suicide of people from Silent and GI generation during the age of 75+ year category can be attributed to the diseases, psychological pain, chronic physical illness etc. These generations consist of people who are used to having a social life with a lot of friends and relatives. But as they get older they gets isolated from them and this can cause depression. Loss of spouse, functional impairment, treatment seeking behaviour, hopelessness etc can trigger suicidal thoughts. (Ismael Conejero, 2018)
- ❖ Youngsters of Generation X and Millennial have almost same suicide rates, which can be attributed to emotional, physical or sexual abuse or dealing with bisexuality in a hostile environment, social isolation, drug use (about 95% of people who die by suicide have a psychological disorder at the time of death) (Lyness, 2015)

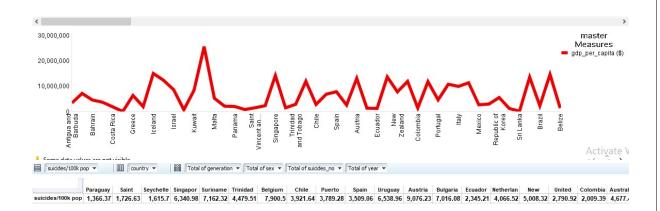
GDP\_PER\_CAPITA (\$) and suicide number:

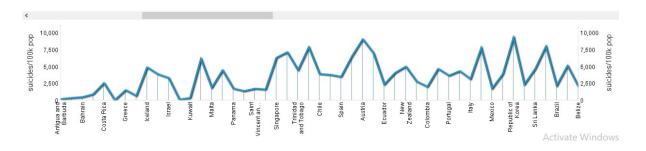


• It can be infered that as the gdp per capita increases, the number of suicides decreases less.

GDP PER CAPITA(\$) in various Countries and Suicide rates:

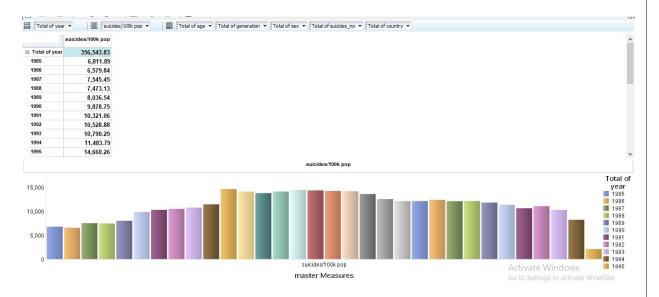






 Republic of Korea has higher suicide rate compared to all other countries, second comes Austria, Italy etc and most of these countries have GDP per capita low compared to their counter parts. This might be a possible reason for higher suicides in these countries.

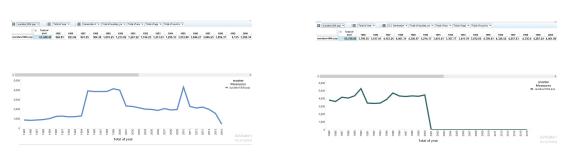
Suicide rate throughout year:



• Suicide was the highest in 1995, then the suicide rate kept on decreasing throughout the year after 2000. This may be due to increase in awareness program against suicides and improved global economic stability.

Suicide rate across each generation based on years are given below

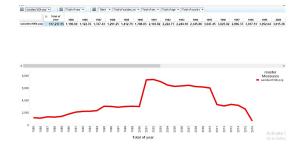
GEN X: GIGEN:

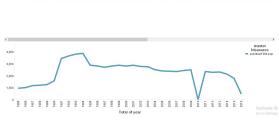


- Suicide rate of Generation X can mainly be attributed to change in economic scenario.
   After the economic fallout of mid 90's and Housing price bubble recession of 2008 there was a spike in suicide rates, which came back to normal rate as the economy also settled.
- Where as for G I Gen, the suicide rate was fluctualting till 2000, but it dropped to zero after that. It is mainly because it marks the end of a generation.

#### SILENT:

#### **BOOMERS:**





© Total of year 1886 1887 1888 1887 1888 1989 1990 1997 1992 1893 1894 1996 1997 1998 1899 2008 1997 1998 1899 2008 1997 1998 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008 1997 1898 1899 2008

#### MILENNIAL:



• For people from Silent generation, the suicide rate shot up during the year of 2000 and had a dip in year 2010, but for Boomers suicide rate shot up during the year of 1990 and had a huge dip 20 years after that. For Millennial the suicide rate shot up after the year 2000, it can be mainly because of the fact that they reached their youth by that time only and only after that they started to commit suicides.

#### **Recommendations and Suggestion:**

- There is a clear relation with the economic condition of the country and the suicidal rate of people. A sound and encouraging economic condition of the country can reduce the rate of suicide.
- People who are above 75 year old have more number of suicides. People of old age should be loved and properly cared. A gentle gesture of affection would save them from depression and could help to drive their suicidal thoughts away.
- According to some articles boomers have been given high hopes of their life in their childhood, which they couldn't achieve in later stages. This depression caused them to commit suicide. Care should be taken not to overshoot the expectations of other people and proper mental care should be given to people in need.

- According to the analysis on given data Men are found to be more suicidal than women. But it can be found that in our society men are often stereotyped more than women on the context of their emotional capacities. It is quite often seen that teachers and parents telling their male child that "Boys don't cry", which could create more adverse effect than being helpful. Men as normal as any human being have emotion and they often become prey for these stereotyping from which they couldn't easily escape. Taking appropriate and understanding approach towards men could help to minimize the suicide rates among them.
- The IBM cognos file and excel sheet of the data is inserted here along in the document





• IBM cognos is one of the best visualization tools in the industry, but student version of this software hinders us from using the full potential of the software. I strongly feel that Tableau would have been more effective in data manipulation and visualization as it is more user friendly.

#### **Conclusion:**

Crisis of youth and the despair of the old, these were the words once used to describe suicides, but from the analysis we found that it's not just the old who are troubled with this problem. People of every age are affected by the clutches of both despair and depression. They find easier to end the suffering because of the fear to come out and talk to other people, fear of being not understood.

We have heard news about famous, rich people committing suicide, so we can extend the tendency to commit suicide to more than financial distress, but the moment of loneliness they feel when they lose all hope in their life. People who are going through depression and psychological trauma should be handled with love, care and hope.

"Hope is a necessity for normal life and the major weapon against the suicide impulse."

— Karl A. Menninger

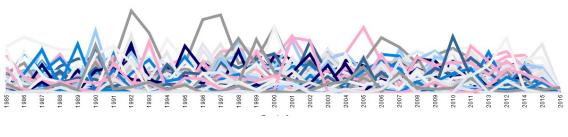
IBM Cognos helped in providing fair insight on Suicide rate data through multi dimensions and helped to find various insights. IBM Cognos helps to drill down of data for all categories to the lowest level, which helped to identify the problem and take necessary measures.

IBM Cognos is very useful tool for analysing huge amount of data. It helps Managers and Key Stake holders to make appropriate decisions based on understanding the data in different dimensions. But the user comfort and data manipulation have its own constraint while using student version of this software.

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