

# **INDIAN SUICIDE STATIDTICAL ANALYSIS (2001-2012)**

# INDEX

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# INTRODUCTION

## What is suicide?

Suicide is the taking of one's own life. It is a death that happens when someone harms themselves because they want to end their life. A suicide attempt is when someone harms themselves to try to end their life, but they do not die.

Suicide is the third leading cause of death among young adults worldwide. There is a growing recognition that prevention strategies need to be tailored to the region-specific demographics of a country and to be implemented in a culturally-sensitive manner.

It is a multifaceted problem and hence suicide prevention programmes should also be multidimensional. Collaboration, coordination, cooperation and commitment are needed to develop and implement a national plan, which is cost-effective, appropriate and relevant to the needs of the community. In India, suicide prevention is more of a social and public health objective than a traditional exercise in the mental health sector. The time is ripe for mental health professionals to adopt proactive and leadership roles in suicide prevention and save the lives of thousands of young Indians.

NGOs also provide support to suicidal individuals by befriending them. Often these centers function as an entry point for those needing professional services. Apart from befriending suicidal individuals, the NGOs have also undertaken education of gatekeepers, raising awareness in the public and media and some intervention programmes. However, there are certain limitations in the activities of the NGOs. There is a wide variability in the expertise of their volunteers and in the services they provide. Quality control measures are inadequate and the majority of their endeavors are not evaluated.

## CODE AND RESOURCES

### Importing Libraries and Loading Data into Pandas

We attempted to analyse the dataset using python. The dataset contains Indian suicide statistics

from the year 2001 to 2012.

Our goal was to be able to find out the major cause of the suicides ,

The first thing we did is imported the libraries. To analyse our dataset, we use NumPy and pandas. We used matplotlib to visualize our dataset.

```
In [1]: import pandas as pd
import numpy as np
```

```
In [2]: %matplotlib inline
from matplotlib import pyplot as plt
```

```
In [3]: suicide_x = pd.read_csv(r"D:\Downloads\suicides_in_india.csv")
```

```
In [4]: suicide_df= pd.DataFrame(suicide_x)
suicide_df
```

Out[4]:

|        | State         | Year | Type                                | Gender | Age_group | Total |
|--------|---------------|------|-------------------------------------|--------|-----------|-------|
| 0      | A & N ISLANDS | 2001 | Cancer                              | Male   | 15-29     | 0     |
| 1      | A & N ISLANDS | 2001 | Divorce                             | Male   | 60+       | 0     |
| 2      | A & N ISLANDS | 2001 | Dowry Dispute                       | Female | 60+       | 0     |
| 3      | A & N ISLANDS | 2001 | Ideological Causes/Hero Worshipping | Female | 60+       | 0     |
| 4      | A & N ISLANDS | 2001 | Illness (Aids/STD)                  | Female | 0-14      | 0     |
| ...    | ...           | ...  | ...                                 | ...    | ...       | ...   |
| 236578 | WEST BENGAL   | 2012 | Professional Activity               | Male   | 60+       | 0     |
| 236579 | WEST BENGAL   | 2012 | Self-employed (Business activity)   | Male   | 0-14      | 0     |
| 236580 | WEST BENGAL   | 2012 | Service (Government)                | Male   | 15-29     | 0     |
| 236581 | WEST BENGAL   | 2012 | Service (Government)                | Male   | 60+       | 0     |
| 236582 | WEST BENGAL   | 2012 | Never Married                       | Male   | 0-100+    | 2658  |

236583 rows × 6 columns

### Query to Extract Data of the Year 2001

```
In [5]: df_2001 = suicide_df.loc[(suicide_df["Year"]==2001)]
df_2001
```

Out[5]:

|        | State         | Year | Type                                | Gender | Age_group | Total |
|--------|---------------|------|-------------------------------------|--------|-----------|-------|
| 0      | A & N ISLANDS | 2001 | Cancer                              | Male   | 15-29     | 0     |
| 1      | A & N ISLANDS | 2001 | Divorce                             | Male   | 60+       | 0     |
| 2      | A & N ISLANDS | 2001 | Dowry Dispute                       | Female | 60+       | 0     |
| 3      | A & N ISLANDS | 2001 | Ideological Causes/Hero Worshipping | Female | 60+       | 0     |
| 4      | A & N ISLANDS | 2001 | Illness (Aids/STD)                  | Female | 0-14      | 0     |
| ...    | ...           | ...  | ...                                 | ...    | ...       | ...   |
| 236377 | WEST BENGAL   | 2001 | By Overdose of sleeping pills       | Male   | 30-44     | 101   |
| 236378 | WEST BENGAL   | 2001 | By touching electric wires          | Female | 0-14      | 8     |
| 236379 | WEST BENGAL   | 2001 | Public Sector Undertaking           | Male   | 45-59     | 137   |
| 236380 | WEST BENGAL   | 2001 | Retired Person                      | Female | 60+       | 28    |
| 236381 | WEST BENGAL   | 2001 | Unemployed                          | Female | 30-44     | 110   |

19719 rows × 6 columns

### Calculating Total Death-Count of the Year 2001

```
In [6]: t2001_dcount = df_2001.loc[:, "Total"]
s1_1 = np.sum(t2001_dcount)
s1_1
```

Out[6]: 542440

### Query to Extract the Record of Male in the Year 2001

```
In [7]: male_2001 = df_2001.loc[(df_2001["Gender"]=="Male")]
male_2001
```

### Calculating Total Death Count of Male in the Year 2001

```
In [8]: m2001_count = male_2001.loc[:, "Total"]
s1_2 = np.sum(m2001_count)
s1_2
```

Out[8]: 331563

### Query to Extract the Record of Female in the Year 2001

```
In [9]: female_2001 = df_2001.loc[(df_2001["Gender"]=="Female")]
        female_2001
```

### Calculating Total Death Count of Female in the Year 2001

```
In [10]: fm2001_count = female_2001.loc[:, "Total"]
         s1_3 = np.sum(fm2001_count)
         s1_3
```

Out[10]: 210877

### Query for Extracting Record of 0-14 Age Group

```
In [11]: df_age_d014_2001 = df_2001.loc[(df_2001["Age_group"]=="0-14")]
        df_age_d014_2001
```

Out[11]:

|        | State         | Year | Type                              | Gender | Age_group | Total |
|--------|---------------|------|-----------------------------------|--------|-----------|-------|
| 4      | A & N ISLANDS | 2001 | Illness (Aids/STD)                | Female | 0-14      | 0     |
| 6      | A & N ISLANDS | 2001 | Property Dispute                  | Male   | 0-14      | 0     |
| 8      | A & N ISLANDS | 2001 | By Consuming Insecticides         | Female | 0-14      | 0     |
| 15     | A & N ISLANDS | 2001 | By touching electric wires        | Male   | 0-14      | 0     |
| 17     | A & N ISLANDS | 2001 | Others                            | Male   | 0-14      | 0     |
| ...    | ...           | ...  | ...                               | ...    | ...       | ...   |
| 236154 | UTTARAKHAND   | 2001 | Public Sector Undertaking         | Female | 0-14      | 0     |
| 236155 | UTTARAKHAND   | 2001 | Self-employed (Business activity) | Female | 0-14      | 0     |
| 236363 | WEST BENGAL   | 2001 | Family Problems                   | Female | 0-14      | 3     |
| 236367 | WEST BENGAL   | 2001 | Insanity/Mental Illness           | Male   | 0-14      | 8     |
| 236378 | WEST BENGAL   | 2001 | By touching electric wires        | Female | 0-14      | 8     |

3749 rows × 6 columns

### Calculating Total Death Count of 0-14 Age Group

```
In [12]: t_014_2001 = df_age_d014_2001.loc[:, "Total"]
         s1_4 = np.sum(t_014_2001)
         s1_4
```

Out[12]: 9010

### Query for Extracting Record of Male of Age Group 0-14

```
In [23]: df_014m_2001 = df_age_d014_2001.loc[(df_age_d014_2001["Gender"]=="Male")]
df_014m_2001
```

### Calculating Total Death Count of Male of Age Group 0-14

```
In [24]: t_014m_2001 = df_014m_2001.loc[:, "Total"]

s1_9 = np.sum(t_014m_2001)
s1_9
```

Out[24]: 4488

### Query for Extracting Record of Female of Age Group 0-14

```
In [25]: df_014fm_2001 = df_age_d014_2001.loc[(df_age_d014_2001["Gender"]=="Female")]
df_014fm_2001
```

### Calculating Total Death Count of Female of Age Group 0-14

```
In [26]: t_014fm_2001 = df_014fm_2001.loc[:, "Total"]

s1_10 = np.sum(t_014fm_2001)
s1_10
```

Out[26]: 4522

## Query for Extracting record of State-Andaman & Nicobar Islands and Calculating Total Death Count

```
In [47]: df_st_AN_2001 = df_2001.loc[(df_2001["State"]=="A & N ISLANDS")]
df_st_AN_2001
```

Out[47]:

|      | State         | Year | Type                                | Gender | Age_group | Total |
|------|---------------|------|-------------------------------------|--------|-----------|-------|
| 0    | A & N ISLANDS | 2001 | Cancer                              | Male   | 15-29     | 0     |
| 1    | A & N ISLANDS | 2001 | Divorce                             | Male   | 60+       | 0     |
| 2    | A & N ISLANDS | 2001 | Dowry Dispute                       | Female | 60+       | 0     |
| 3    | A & N ISLANDS | 2001 | Ideological Causes/Hero Worshipping | Female | 60+       | 0     |
| 4    | A & N ISLANDS | 2001 | Illness (Aids/STD)                  | Female | 0-14      | 0     |
| ...  | ...           | ...  | ...                                 | ...    | ...       | ...   |
| 5119 | A & N ISLANDS | 2001 | Others                              | Male   | 60+       | 1     |
| 5120 | A & N ISLANDS | 2001 | Professional Activity               | Female | 30-44     | 0     |
| 5121 | A & N ISLANDS | 2001 | Public Sector Undertaking           | Female | 45-59     | 0     |
| 5122 | A & N ISLANDS | 2001 | Student                             | Male   | 15-29     | 2     |
| 5123 | A & N ISLANDS | 2001 | Unemployed                          | Male   | 60+       | 0     |

562 rows × 6 columns

```
In [48]: t_AN_2001 = df_st_AN_2001.loc[:, "Total"]
s1_19 = np.sum(t_AN_2001)
s1_19
```

Out[48]: 645

## Calculating Total Death Count of Male & Female in Andaman & Nicobar Islands

```
In [117]: t_ANm_2001 = np.sum(df_st_AN_2001.where(df_st_AN_2001["Gender"]=="Male")["Total"])
t_ANm_2001
```

Out[117]: 395.0

```
In [118]: t_ANfm_2001 = np.sum(df_st_AN_2001.where(df_st_AN_2001["Gender"]=="Female")["Total"])
t_ANfm_2001
```

Out[118]: 250.0

## Query for Listing out all the Causes of Suicide

```
In [187]: l_2001=list(df_2001.loc[:, "Type"].unique())
l_2001.sort()
print(l_2001, end=" ")
```

['Bankruptcy or Sudden change in Economic', 'By Consuming Insecticides', 'By Consuming Other Poison', 'By Drowning', 'By Fire-Arms', 'By Fire/Self Immolation', 'By Hanging', 'By Jumping from (Building)', 'By Jumping from (Other sites)', 'By Jumping off Moving Vehicles/Trains', 'By Machine', 'By Over Alcoholism', 'By Overdose of sleeping pills', 'By Self Infliction of injury', 'By coming under running vehicles/trains', 'By touching electric wires', 'Cancellation/Non-Settlement of Marriage', 'Cancer', 'Causes Not known', 'Death of Dear Person', 'Diploma', 'Divorce', 'Divorcee', 'Dowry Dispute', 'Drug Abuse/Addiction', 'Failure in Examination', 'Fall in Social Reputation', 'Family Problems', 'Farming/Agriculture Activity', 'Graduate', 'House Wife', 'Hr. Secondary/Intermediate/Pre-University', 'Ideological Causes/Hero Worshipping', 'Illegitimate Pregnancy', 'Illness (Aids/STD)', 'Insanity/Mental Illness', 'Love Affairs', 'Married', 'Matriculate/Secondary', 'Middle', 'Never Married', 'No Education', 'Not having Children(Barrenness/Impotency)', 'Other Prolonged Illness', 'Others', 'Paralysis', 'Physical Abuse (Rape/Incest Etc.)', 'Post Graduate and Above', 'Poverty', 'Primary', 'Professional Activity', 'Professional/Career Problem', 'Property Dispute', 'Public Sector Undertaking', 'Retired Person', 'Self-employed (Business activity)', 'Separated', 'Service (Government)', 'Service (Private)', 'Student', 'Suspected/Illicit Relation', 'Unemployed', 'Unemployment', 'Widowed/Widower']



## Calculating Death Count of Respective Causes

```
In [188]: cause_l_2001=[]
for i in l_2001:
    rough= np.sum(df_2001.where(df_2001["Type"]==i)["Total"])
    cause_l_2001.append(rough)

print(cause_l_2001,end=" ")

[2918.0, 21530.0, 20062.0, 8253.0, 395.0, 10822.0, 29757.0, 620.0, 728.0, 671.0, 217.0, 1291.0, 1088.0, 520.0, 3548.0, 1033.0,
924.0, 780.0, 20585.0, 871.0, 1199.0, 316.0, 1351.0, 2414.0, 1414.0, 2062.0, 1209.0, 24162.0, 16415.0, 1870.0, 21659.0, 6747.0,
104.0, 369.0, 741.0, 5858.0, 3114.0, 75123.0, 16384.0, 24910.0, 24063.0, 28725.0, 777.0, 15947.0, 53927.0, 772.0, 376.0, 604.0,
2549.0, 28067.0, 2612.0, 857.0, 1599.0, 2469.0, 884.0, 5275.0, 3044.0, 2293.0, 8981.0, 5474.0, 1200.0, 10252.0, 2734.0, 4925.0]
```

## Creating Data Frame of Causes with their Respective Death Count

```
In [190]: cause_df_2001 = pd.DataFrame(cause_l_2001,l_2001)
cause_df_2001.reset_index()
```

Out[190]:

|     | index                                   | 0       |
|-----|-----------------------------------------|---------|
| 0   | Bankruptcy or Sudden change in Economic | 2918.0  |
| 1   | By Consuming Insecticides               | 21530.0 |
| 2   | By Consuming Other Poison               | 20062.0 |
| 3   | By Drowning                             | 8253.0  |
| 4   | By Fire-Arms                            | 395.0   |
| ... | ...                                     | ...     |
| 59  | Student                                 | 5474.0  |
| 60  | Suspected/Illicit Relation              | 1200.0  |
| 61  | Unemployed                              | 10252.0 |
| 62  | Unemployment                            | 2734.0  |
| 63  | Widowed/Widower                         | 4925.0  |

64 rows × 2 columns

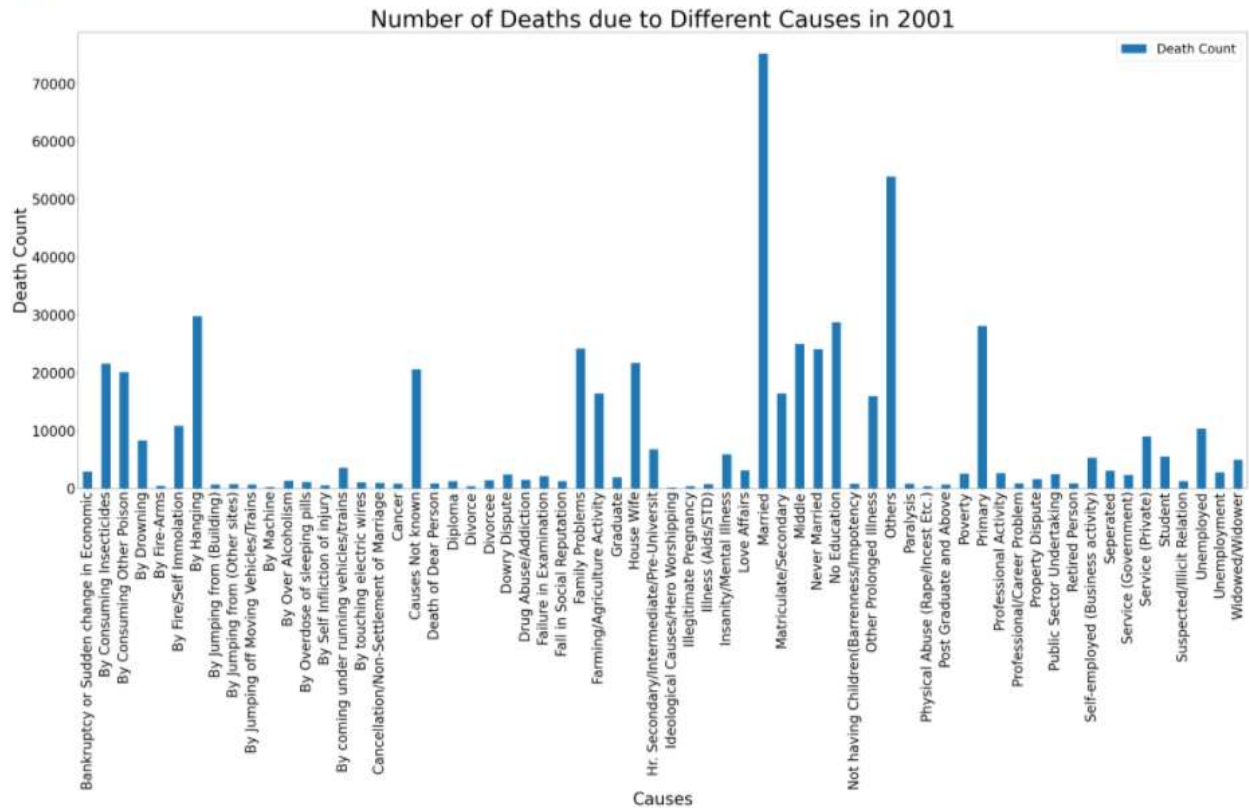
| <b>Cause</b>                              | <b>Death Count</b> |
|-------------------------------------------|--------------------|
| Bankruptcy or Sudden change in Economic   | 2918               |
| By Consuming Insecticides                 | 21530              |
| By Consuming Other Poison                 | 20062              |
| By Drowning                               | 8253               |
| By Fire-Arms                              | 395                |
| By Fire/Self Immolation                   | 10822              |
| By Hanging                                | 29757              |
| By Jumping from (Building)                | 620                |
| By Jumping from (Other sites)             | 728                |
| By Jumping off Moving Vehicles/Trains     | 671                |
| By Machine                                | 217                |
| By Over Alcoholism                        | 1291               |
| By Overdose of sleeping pills             | 1088               |
| By Self Infliction of injury              | 520                |
| By coming under running vehicles/trains   | 3548               |
| By touching electric wires                | 1033               |
| Cancellation/Non-Settlement of Marriage   | 924                |
| Cancer                                    | 780                |
| Causes Not known                          | 20585              |
| Death of Dear Person                      | 871                |
| Diploma                                   | 1199               |
| Divorce                                   | 316                |
| Divorcee                                  | 1351               |
| Dowry Dispute                             | 2414               |
| Drug Abuse/Addiction                      | 1414               |
| Failure in Examination                    | 2062               |
| Fall in Social Reputation                 | 1209               |
| Family Problems                           | 24162              |
| Farming/Agriculture Activity              | 16415              |
| Graduate                                  | 1870               |
| House Wife                                | 21659              |
| Hr. Secondary/Intermediate/Pre-University | 6747               |
| Ideological Causes/Hero Worshipping       | 104                |
| Illegitimate Pregnancy                    | 369                |
| Illness (Aids/STD)                        | 741                |
| Insanity/Mental Illness                   | 5858               |
| Love Affairs                              | 3114               |

|                                                  |       |
|--------------------------------------------------|-------|
|                                                  |       |
| <b>Married</b>                                   | 75123 |
| <b>Matriculate/Secondary</b>                     | 16384 |
| <b>Middle</b>                                    | 24910 |
| <b>Never Married</b>                             | 24063 |
| <b>No Education</b>                              | 28725 |
| <b>Not having children (Barrenness/Impotency</b> | 777   |
| <b>Other Prolonged Illness</b>                   | 15947 |
| <b>Others</b>                                    | 53927 |
| <b>Paralysis</b>                                 | 772   |
| <b>Physical Abuse (Rape/Incest Etc.)</b>         | 376   |
| <b>Post Graduate and Above</b>                   | 604   |
| <b>Poverty</b>                                   | 2549  |
| <b>Primary</b>                                   | 28067 |
| <b>Professional Activity</b>                     | 2612  |
| <b>Professional/Career Problem</b>               | 857   |
| <b>Property Dispute</b>                          | 1599  |
| <b>Public Sector Undertaking</b>                 | 2469  |
| <b>Retired Person</b>                            | 884   |
| <b>Self-employed (Business activity)</b>         | 5275  |
| <b>Separated</b>                                 | 3044  |
| <b>Service (Government)</b>                      | 2293  |
| <b>Service (Private)</b>                         | 8981  |
| <b>Student</b>                                   | 5474  |
| <b>Suspected/Illicit Relation</b>                | 1200  |
| <b>Unemployed</b>                                | 10252 |
| <b>Unemployment</b>                              | 2734  |
| <b>Widowed/Widower</b>                           | 4925  |

## Graph Plotting -Causes vs Death Count

```
In [191]: cause_df_2001.plot.bar(stacked=True,figsize=(50,20))
plt.tick_params(axis='y', labels=33)
plt.tick_params(axis='x', labels=33)
plt.xlabel("Causes",font=40)
plt.ylabel("Death Count",font=40)
plt.title("Number of Deaths due to Different Causes in 2001",font=55)
plt.legend(["Death Count"], prop={"size":30})
```

Out[191]: <matplotlib.legend.Legend at 0x10c41ce8>



The above graph shows that the major cause of suicides is “Married”(13.85%) which depicts that the most suicides are caused after the marriage and the least suicides are due to ideological causes/Hero Worshipping(0.02%).

## Query for Listing out all the States & Calculating their respective Total Death Count

```
In [192]: s_2001=list(df_2001.loc[:, "State"].unique())
s_2001.sort()
print(s_2001,end=" ")

['A & N ISLANDS', 'ANDHRA PRADESH', 'ARUNACHAL PRADESH', 'ASSAM', 'BIHAR', 'CHANDIGARH', 'CHHATTISGARH', 'D & N HAVELI', 'DAMAN
& DIU', 'DELHI (UT)', 'GOA', 'GUJARAT', 'HARYANA', 'HIMACHAL PRADESH', 'JAMMU & KASHMIR', 'JHARKHAND', 'KARNATAKA', 'KERALA',
'LAKSHADWEEP', 'MADHYA PRADESH', 'MAHARASHTRA', 'MANIPUR', 'MEGHALAYA', 'MIZORAM', 'NAGALAND', 'ODISHA', 'PUDUCHERRY', 'PUNJA
B', 'RAJASTHAN', 'SIKKIM', 'TAMIL NADU', 'TRIPURA', 'UTTAR PRADESH', 'UTTARAKHAND', 'WEST BENGAL']
```

```
In [193]: state_s_2001 = [s1_19,s1_20,s1_21,s1_22,s1_23,s1_24,s1_25,s1_26,s1_27,s1_28,s1_29,s1_30,s1_31,s1_32,s1_33,s1_34,
s1_35,s1_36,s1_37,s1_38,s1_39,s1_40,s1_41,s1_42,s1_43,s1_44,s1_45,s1_46,s1_47,s1_48,s1_49,s1_50,
s1_51,s1_52,s1_53]
print(state_s_2001,end=" ")

[645, 52610, 555, 13230, 3015, 350, 20051, 250, 69, 6195, 1280, 23955, 10031, 1535, 765, 1250, 59405, 47860, 0, 34300, 73090, 2
05, 435, 205, 200, 20254, 2645, 3240, 15975, 470, 56450, 4270, 17580, 1555, 68450]
```

## Creating List of Total Death Count of Male & Female of Each State

```
In [194]: state_m_2001=[t_ANm_2001, t_APm_2001, t_ARPm_2001, t_ASM_2001, t_BHm_2001, t_CHm_2001, t_CTm_2001, t_DNm_2001,
t_DDM_2001, t_DLm_2001, t_GOAm_2001, t_GJm_2001, t_HRm_2001, t_HPm_2001,t_JKm_2001, t_JHm_2001,
t_KNm_2001, t_KERm_2001, t_LDM_2001,t_MPm_2001,t_MHm_2001,t_MNm_2001,t_MGm_2001,t_MZm_2001,
t_NGm_2001, t_ODm_2001, t_PDM_2001,t_PBM_2001,t_RJm_2001,t_SMm_2001,t_TNm_2001,t_TPm_2001,
t_UPm_2001, t_UKm_2001, t_WBm_2001]
print(state_m_2001,end=" ")

[395.0, 31895.0, 380.0, 9180.0, 1535.0, 195.0, 13200.0, 175.0, 49.0, 3650.0, 835.0, 13245.0, 6820.0, 885.0, 455.0, 705.0, 3935
5.0, 33935.0, 0.0, 17680.0, 46690.0, 120.0, 345.0, 230.0, 125.0, 10439.0, 1615.0, 1980.0, 9795.0, 310.0, 35640.0, 2315.0, 9005.
0, 910.0, 37475.0]
```

```
In [195]: state_fm_2001=[t_ANfm_2001, t_APfm_2001, t_ARPfm_2001, t_ASfm_2001, t_BHfm_2001, t_CHfm_2001, t_CTfm_2001, t_DNfm_2001,
t_DDfm_2001, t_DLfm_2001, t_GOAfm_2001, t_GJfm_2001, t_HRfm_2001, t_HPfm_2001,t_JKfm_2001, t_JHfm_2001,
t_KNfm_2001, t_KERfm_2001, t_LDfm_2001,t_MPfm_2001,t_MHfm_2001,t_MNfm_2001,t_MGfm_2001,t_MZfm_2001,
t_NGfm_2001, t_ODfm_2001, t_PDfm_2001,t_PBfm_2001,t_RJfm_2001,t_SMfm_2001,t_TNfm_2001,t_TPfm_2001,
t_UPfm_2001, t_UKfm_2001, t_WBfm_2001]
print(state_fm_2001,end=" ")

[250.0, 20715.0, 175.0, 4050.0, 1480.0, 155.0, 6851.0, 75.0, 20.0, 2545.0, 445.0, 10710.0, 3211.0, 650.0, 310.0, 545.0, 20050.
0, 13925.0, 0.0, 16620.0, 26400.0, 85.0, 90.0, 40.0, 75.0, 9815.0, 1030.0, 1260.0, 6180.0, 160.0, 20810.0, 1955.0, 8575.0, 645.
0, 30975.0]
```

## Creating a Dictionary of States with Total Death Count, Male Death Count & Female Death Count

```
In [196]: df_state_2001 = {  
  
    "State":['A & N ISLANDS', 'ANDHRA PRADESH', 'ARUNACHAL PRADESH', 'ASSAM', 'BIHAR', 'CHANDIGARH', 'CHHATTISGARH',  
             'D & N HAVELI', 'DAMAN & DIU', 'DELHI (UT)', 'GOA', 'GUJARAT', 'HARYANA', 'HIMACHAL PRADESH', 'JAMMU & KASHMIR',  
             'JHARKHAND', 'KARNATAKA', 'KERALA', 'LAKSHADWEEP', 'MADHYA PRADESH', 'MAHARASHTRA', 'MANIPUR', 'MEGHALAYA',  
             'MIZORAM', 'NAGALAND', 'ODISHA', 'PUDUCHERRY', 'PUNJAB', 'RAJASTHAN', 'SIKKIM', 'TAMIL NADU', 'TRIPURA',  
             'UTTAR PRADESH', 'UTTARAKHAND', 'WEST BENGAL'],  
  
    "Total":[s1_19,s1_20,s1_21,s1_22,s1_23,s1_24,s1_25,s1_26,s1_27,s1_28,s1_29,s1_30,s1_31,s1_32,s1_33,s1_34,  
             s1_35,s1_36,s1_37,s1_38,s1_39,s1_40,s1_41,s1_42,s1_43,s1_44,s1_45,s1_46,s1_47,s1_48,s1_49,s1_50,  
             s1_51,s1_52,s1_53],  
  
    "Male":[t_ANm_2001, t_APm_2001, t_ARPm_2001, t_ASm_2001, t_BHm_2001, t_CHm_2001, t_CTm_2001, t_DNm_2001,  
            t_DDm_2001, t_DLm_2001, t_GOAm_2001, t_GJm_2001, t_HRm_2001, t_HPm_2001,t_JKm_2001, t_JHm_2001,  
            t_KNm_2001, t_KERm_2001, t_LDm_2001,t_MPm_2001,t_MHm_2001,t_MNm_2001,t_MGm_2001,t_MZm_2001,  
            t_NGm_2001, t_ODm_2001, t_PDm_2001,t_PBm_2001,t_RJm_2001,t_SMm_2001,t_TNm_2001,t_TPm_2001,  
            t_UPm_2001, t_UKm_2001, t_WBm_2001],  
  
    "Female":[t_ANfm_2001, t_APfm_2001, t_ARPfm_2001, t_ASfm_2001, t_BHfm_2001, t_CHfm_2001, t_CTfm_2001, t_DNfm_2001,  
              t_DDfm_2001, t_DLfm_2001, t_GOAfm_2001, t_GJfm_2001, t_HRfm_2001, t_HPfm_2001,t_JKfm_2001, t_JHfm_2001,  
              t_KNfm_2001, t_KERfm_2001, t_LDfm_2001,t_MPfm_2001,t_MHfm_2001,t_MNfm_2001,t_MGfm_2001,t_MZfm_2001,  
              t_NGfm_2001, t_ODfm_2001, t_PDfm_2001,t_PBfm_2001,t_RJfm_2001,t_SMfm_2001,t_TNfm_2001,t_TPfm_2001,  
              t_UPfm_2001, t_UKfm_2001, t_WBfm_2001]  
  
}  
  
df_All_st_2001 = pd.DataFrame(df_state_2001)  
df_All_st_2001
```



## Creating Pivot Table using the above Data Frame(df\_All\_st\_2001)

```
In [197]: pivot_2001 = pd.pivot_table(df_All_st_2001, values=None, index='State', columns=None,
                                     fill_value=None, margins=False, dropna=True, margins_name='All', observed=False)

pivot_2001
```

Out[196]:

|    | State             | Total | Male    | Female  |
|----|-------------------|-------|---------|---------|
| 0  | A & N ISLANDS     | 645   | 395.0   | 250.0   |
| 1  | ANDHRA PRADESH    | 52610 | 31895.0 | 20715.0 |
| 2  | ARUNACHAL PRADESH | 555   | 380.0   | 175.0   |
| 3  | ASSAM             | 13230 | 9180.0  | 4050.0  |
| 4  | BIHAR             | 3015  | 1535.0  | 1480.0  |
| 5  | CHANDIGARH        | 350   | 195.0   | 155.0   |
| 6  | CHHATTISGARH      | 20051 | 13200.0 | 6851.0  |
| 7  | D & N HAVELI      | 250   | 175.0   | 75.0    |
| 8  | DAMAN & DIU       | 69    | 49.0    | 20.0    |
| 9  | DELHI (UT)        | 6195  | 3650.0  | 2545.0  |
| 10 | GOA               | 1280  | 835.0   | 445.0   |
| 11 | GUJARAT           | 23955 | 13245.0 | 10710.0 |
| 12 | HARYANA           | 10031 | 6820.0  | 3211.0  |
| 13 | HIMACHAL PRADESH  | 1535  | 885.0   | 650.0   |
| 14 | JAMMU & KASHMIR   | 765   | 455.0   | 310.0   |
| 15 | JHARKHAND         | 1250  | 705.0   | 545.0   |
| 16 | KARNATAKA         | 59405 | 39355.0 | 20050.0 |
| 17 | KERALA            | 47860 | 33935.0 | 13925.0 |
| 18 | LAKSHADWEEP       | 0     | 0.0     | 0.0     |
| 19 | MADHYA PRADESH    | 34300 | 17680.0 | 16620.0 |
| 20 | MAHARASHTRA       | 73090 | 46690.0 | 26400.0 |
| 21 | MANIPUR           | 205   | 120.0   | 85.0    |
| 22 | MEGHALAYA         | 435   | 345.0   | 90.0    |
| 23 | MIZORAM           | 205   | 230.0   | 40.0    |
| 24 | NAGALAND          | 200   | 125.0   | 75.0    |
| 25 | ODISHA            | 20254 | 10439.0 | 9815.0  |
| 26 | PUDUCHERRY        | 2645  | 1615.0  | 1030.0  |
| 27 | PUNJAB            | 3240  | 1980.0  | 1260.0  |
| 28 | RAJASTHAN         | 15975 | 9795.0  | 6180.0  |
| 29 | SIKKIM            | 470   | 310.0   | 160.0   |
| 30 | TAMIL NADU        | 56450 | 35640.0 | 20810.0 |
| 31 | TRIPURA           | 4270  | 2315.0  | 1955.0  |
| 32 | UTTAR PRADESH     | 17580 | 9005.0  | 8575.0  |
| 33 | UTTARAKHAND       | 1555  | 910.0   | 645.0   |
| 34 | WEST BENGAL       | 68450 | 37475.0 | 30975.0 |

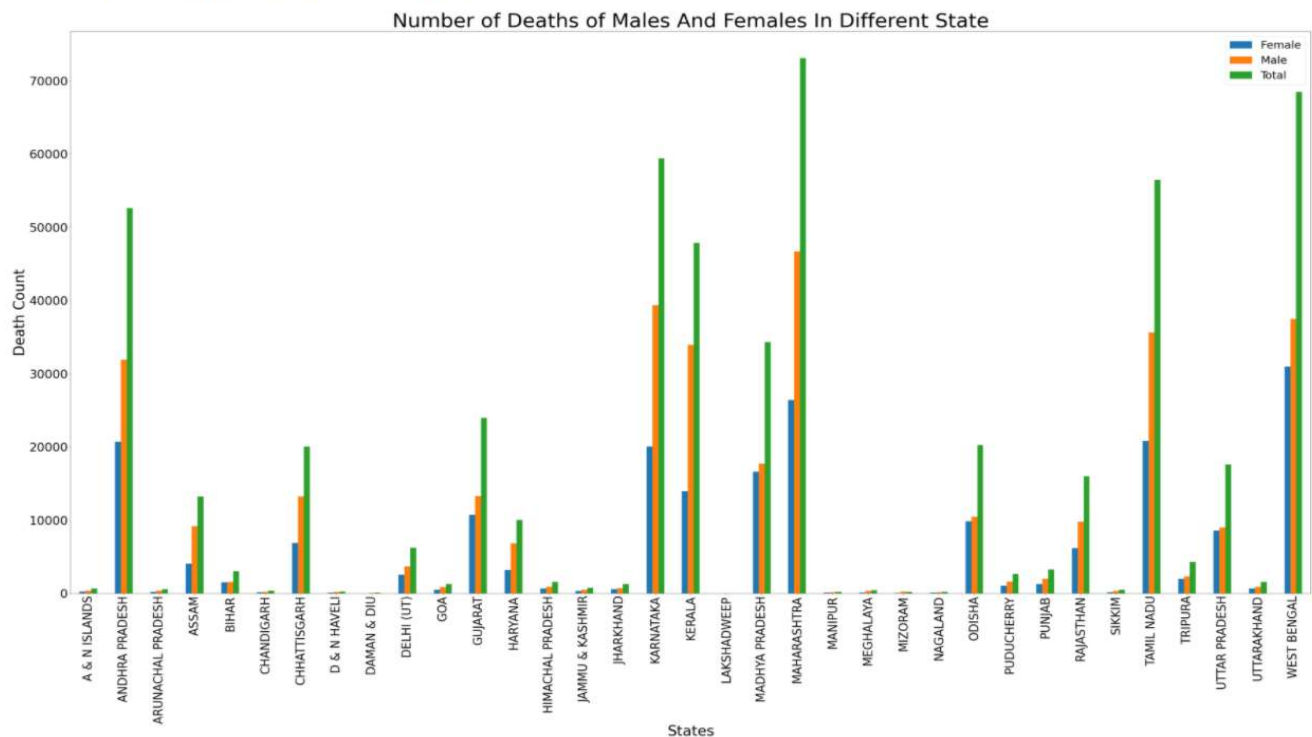
## Graph Plotting-State vs Death Count

```
In [198]: pivot_2001.plot(kind='bar',figsize=(60,30))

plt.tick_params(axis='y', labels=33)
plt.tick_params(axis='x', labels=33)
plt.xlabel("States",font=40)
plt.ylabel("Death Count",font=40)
plt.title("Number of Deaths of Males And Females In Different State",font=55)
plt.legend(["Female","Male","Total"], prop={"size":30})

plt.show
```

Out[198]: <function matplotlib.pyplot.show(close=None, block=None)>



The above graph depicts the total number of suicides in each state, number of suicides of male, and female in respective states.

Total male suicide rate is (61.1243%).

Total female suicide rate is (38.875%).

Maximum total death count is in Maharashtra (73090 i.e. (13.475%)) followed by West Bengal (68450 i.e. (12.620%)) and the Minimum total death count is in Lakshadweep (0 i.e. (0%)).

Maximum death count among Male is in Maharashtra (46690) and Minimum death count among Male is in Daman & Diu (49) after Lakshadweep (0).

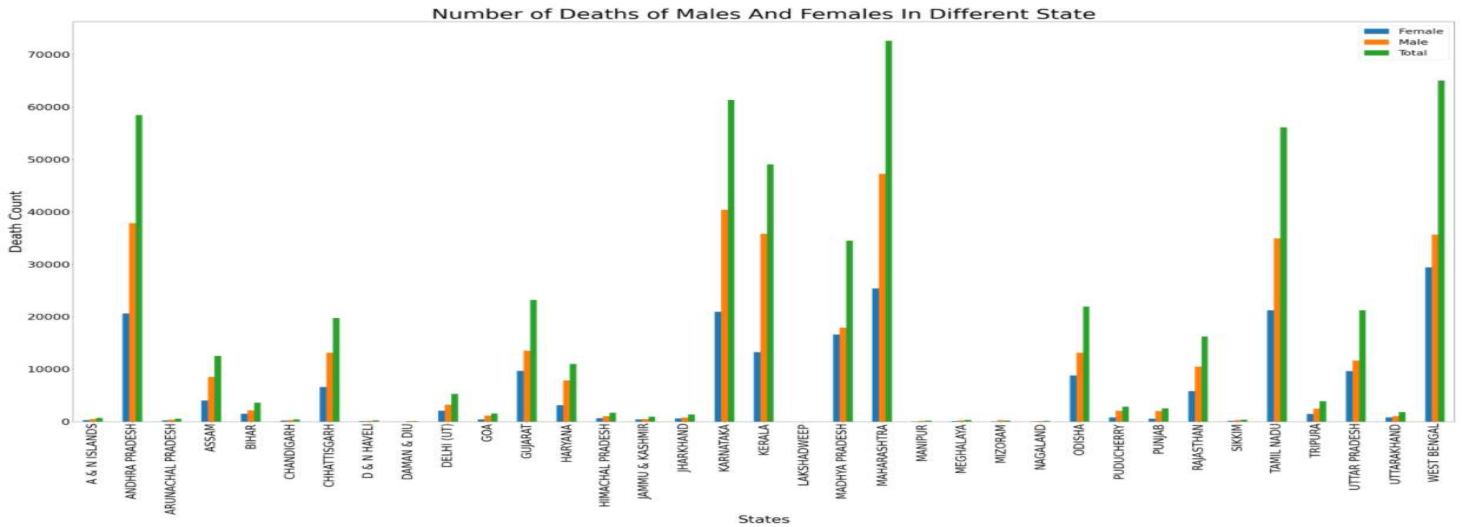
Maximum death count among Female is in Maharashtra (26400) and Minimum death count among Male is in Daman & Diu (20) after Lakshadweep (0).



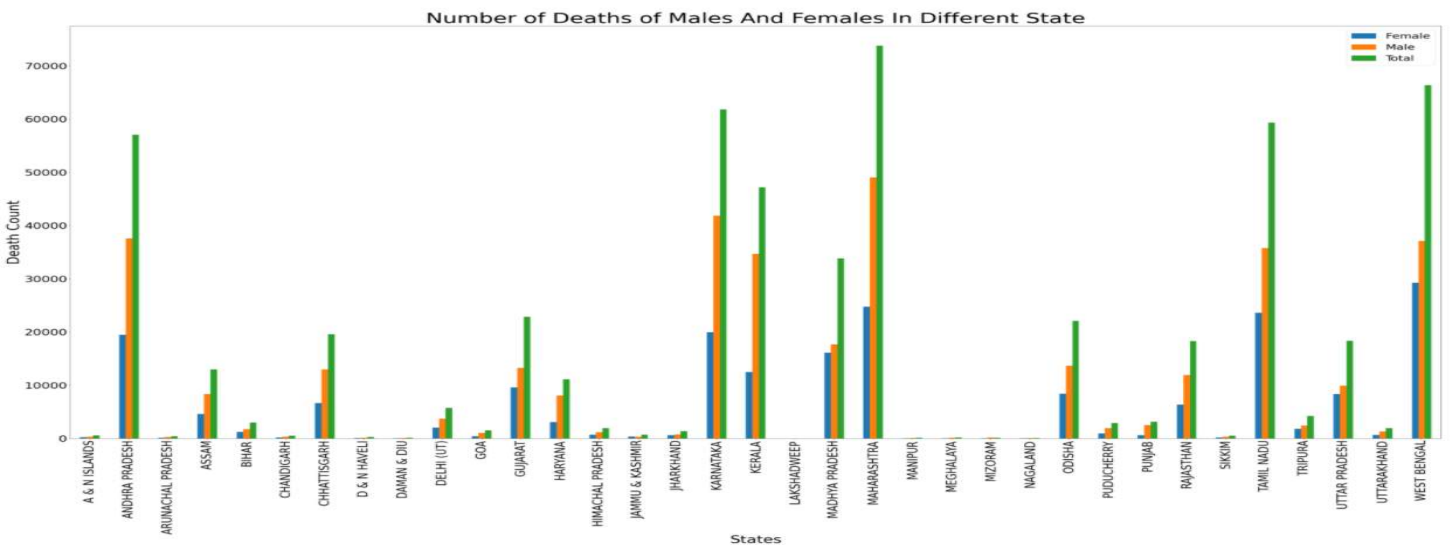
## GRAPH PLOTTING (2002 – 2012)

### Number of Deaths Of Males And Females in Different State

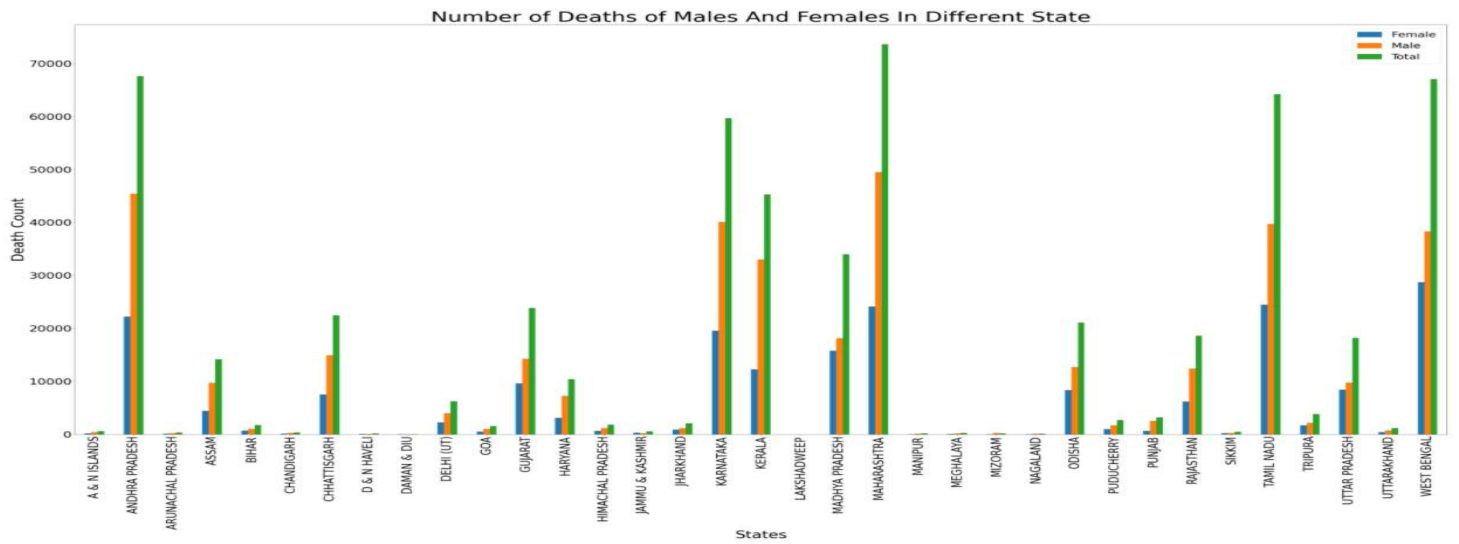
2002



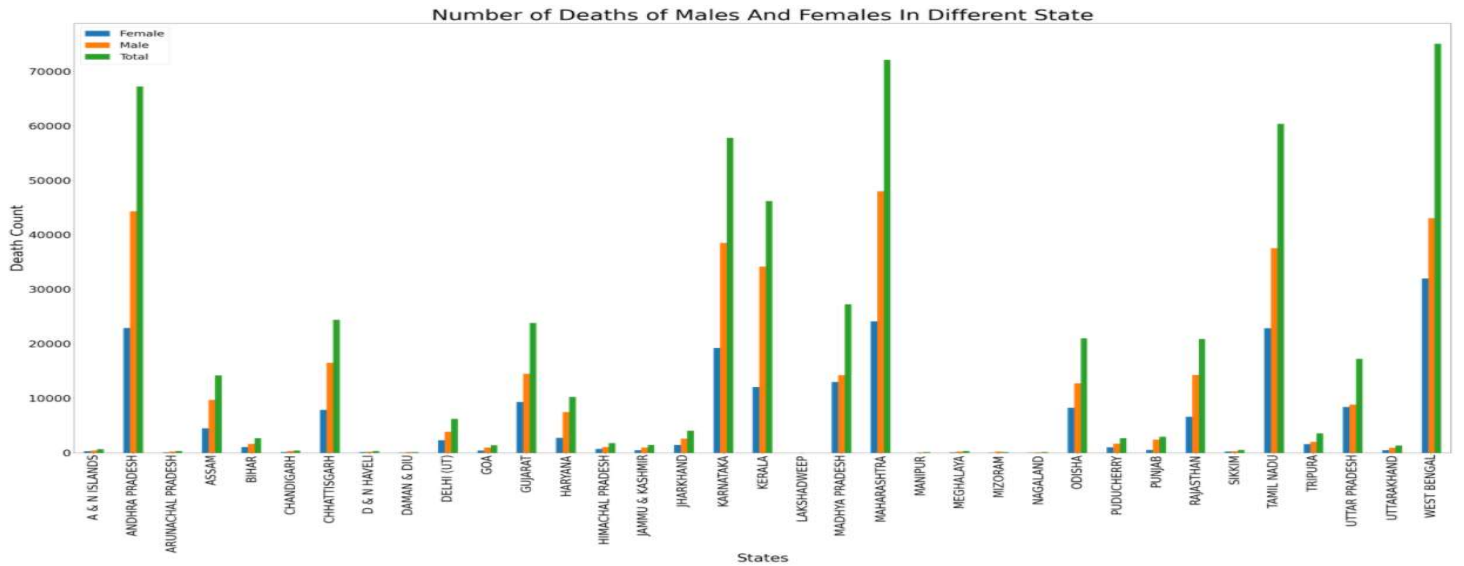
2003



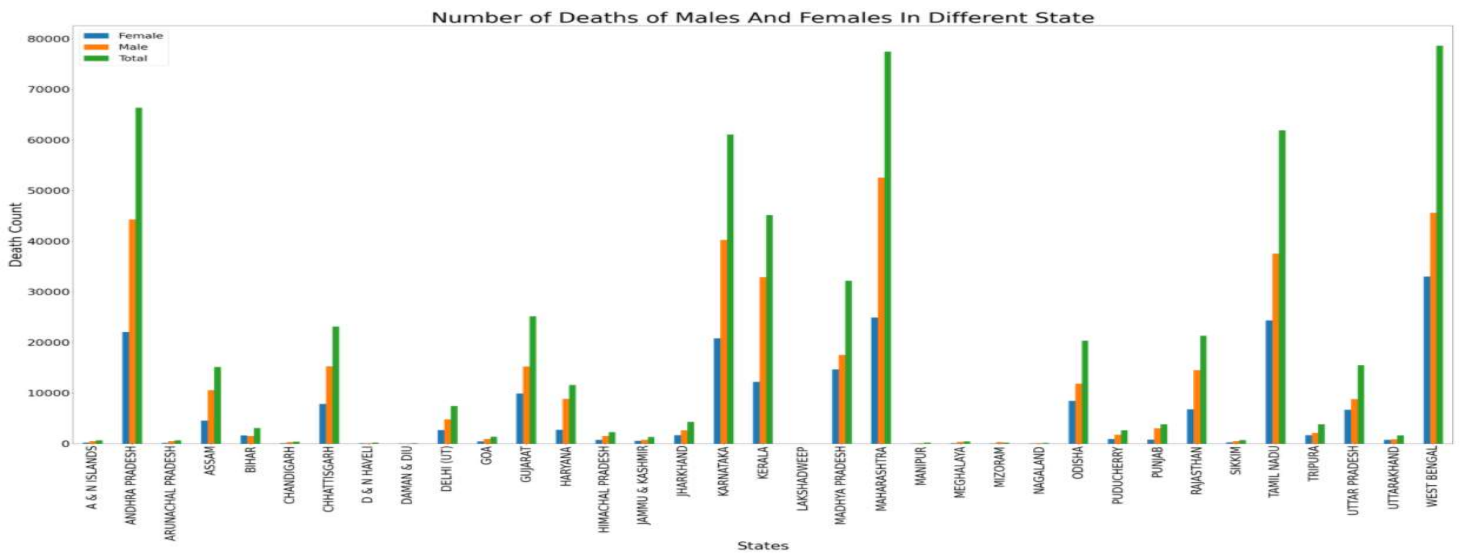
2004



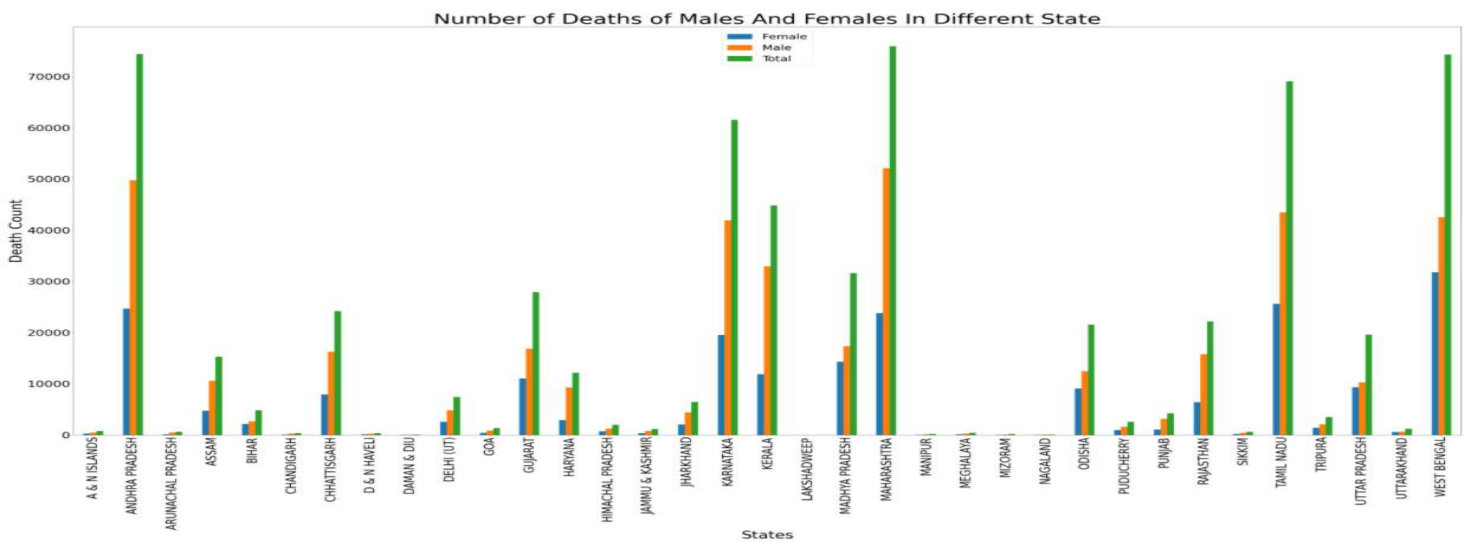
2005



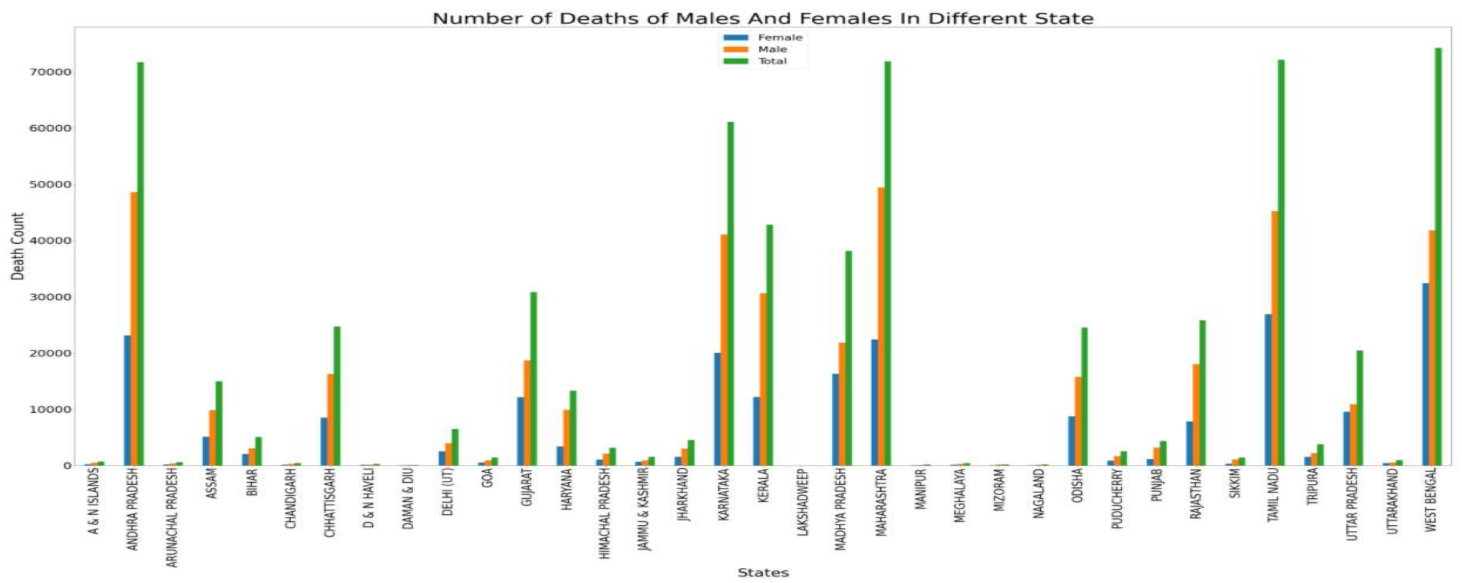
2006



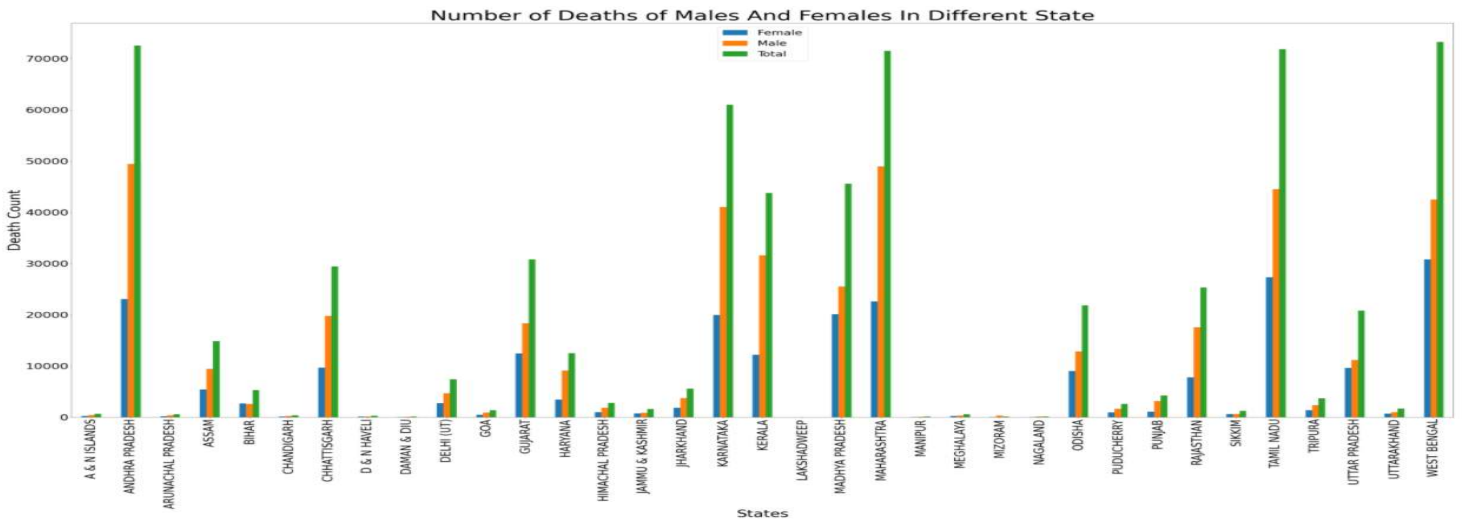
2007



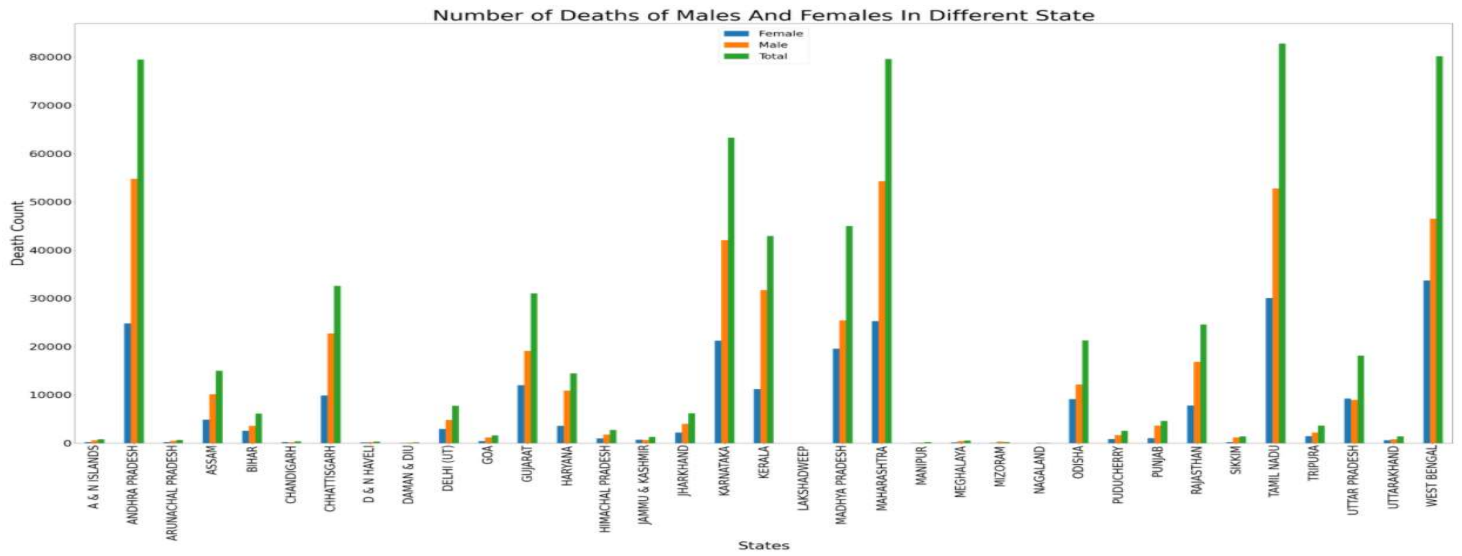
2008



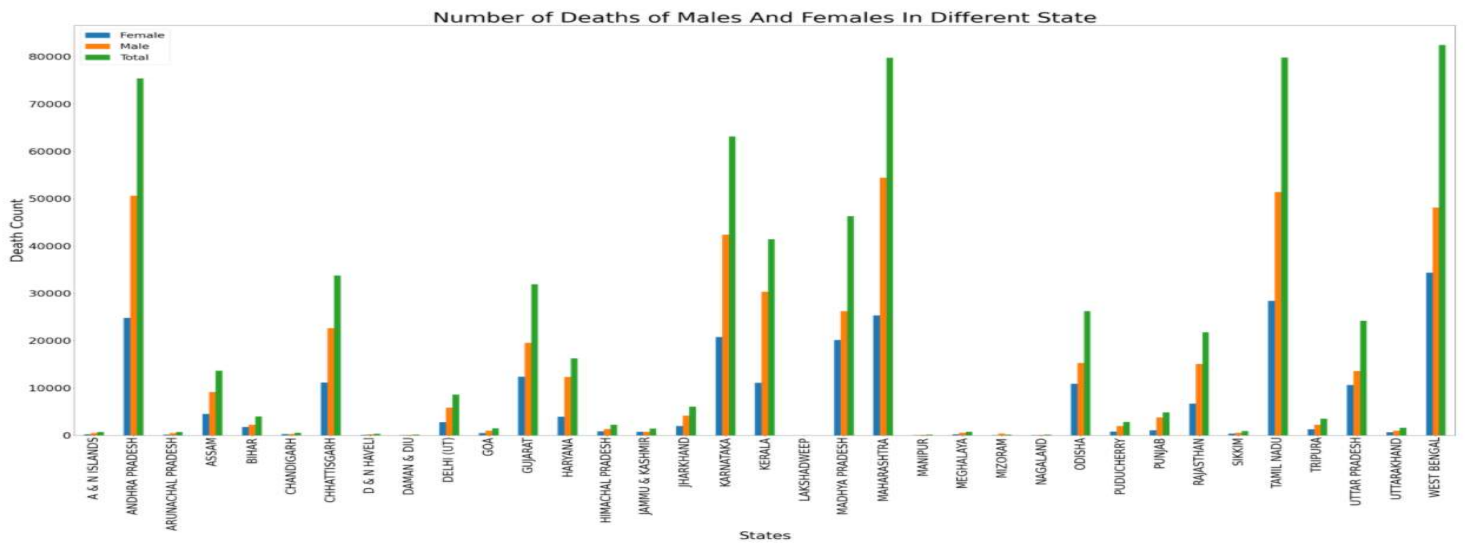
2009



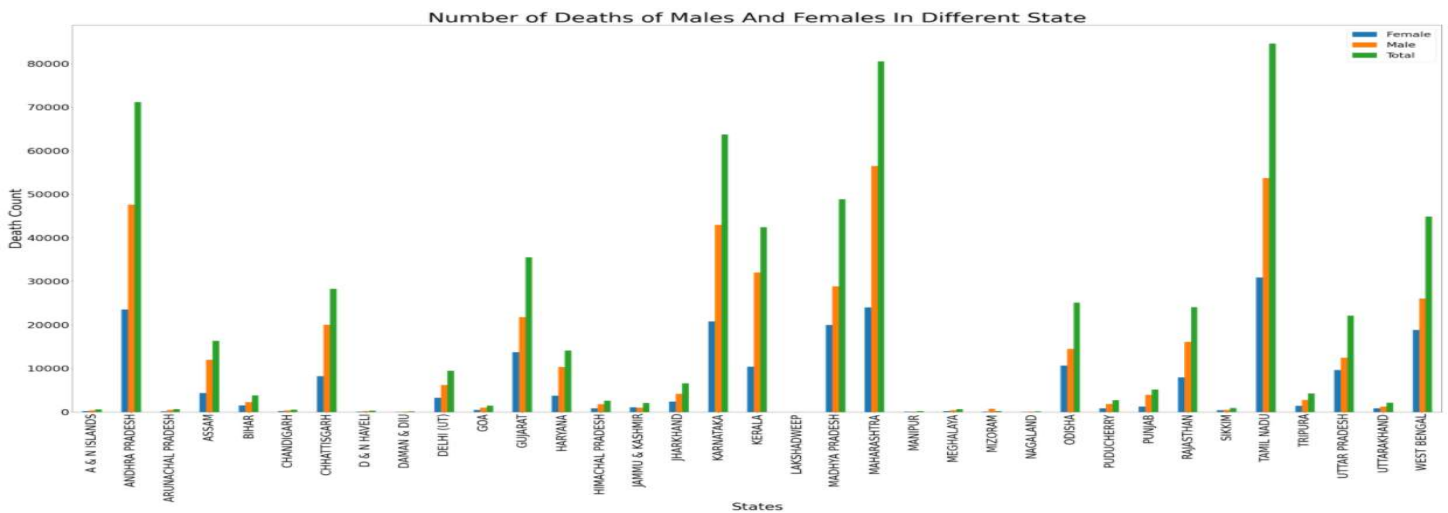
2010



2011

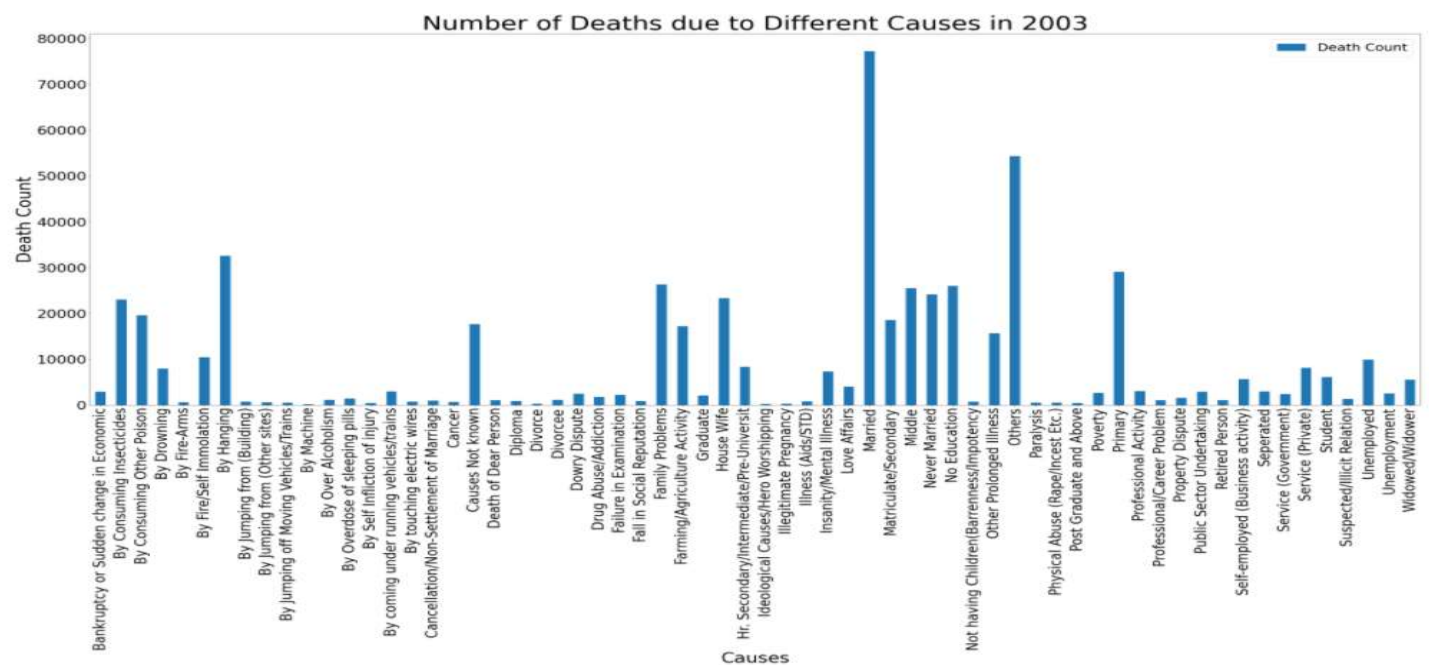
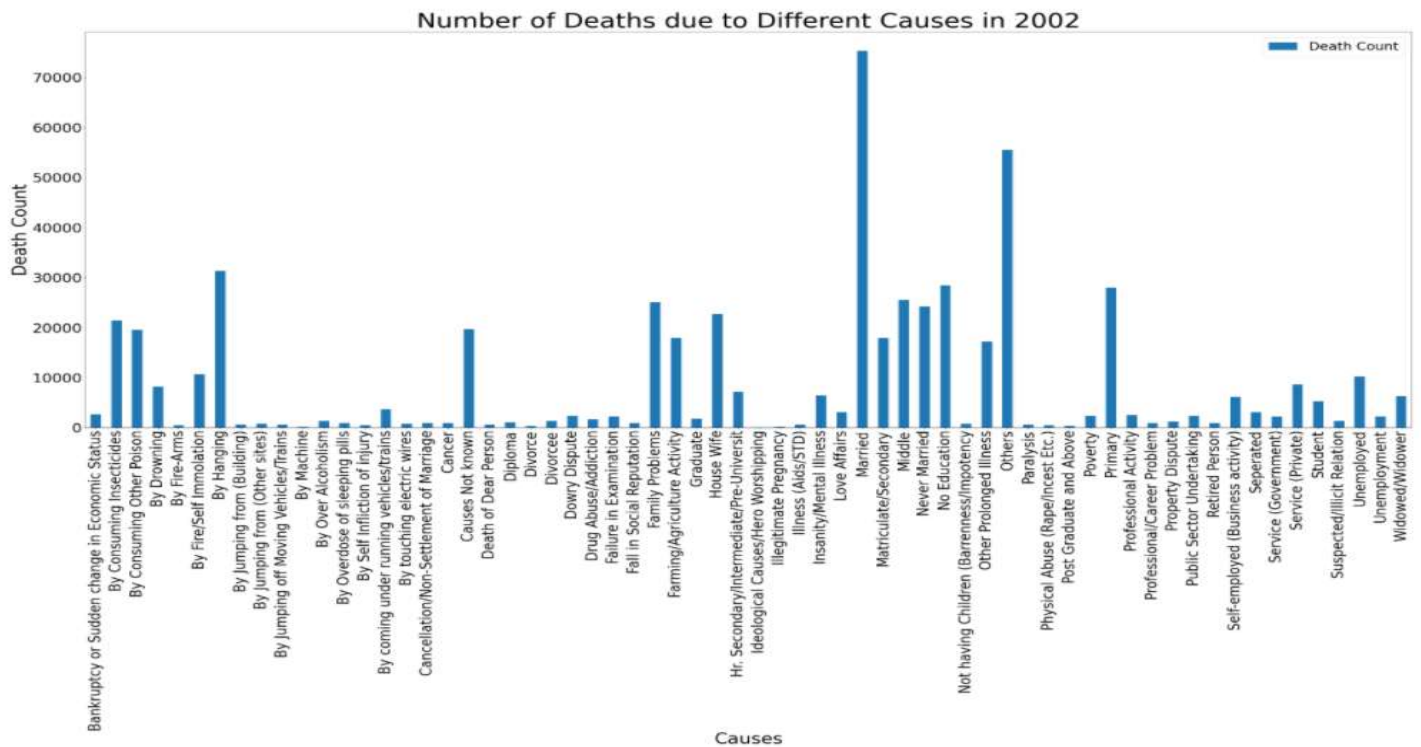


2012

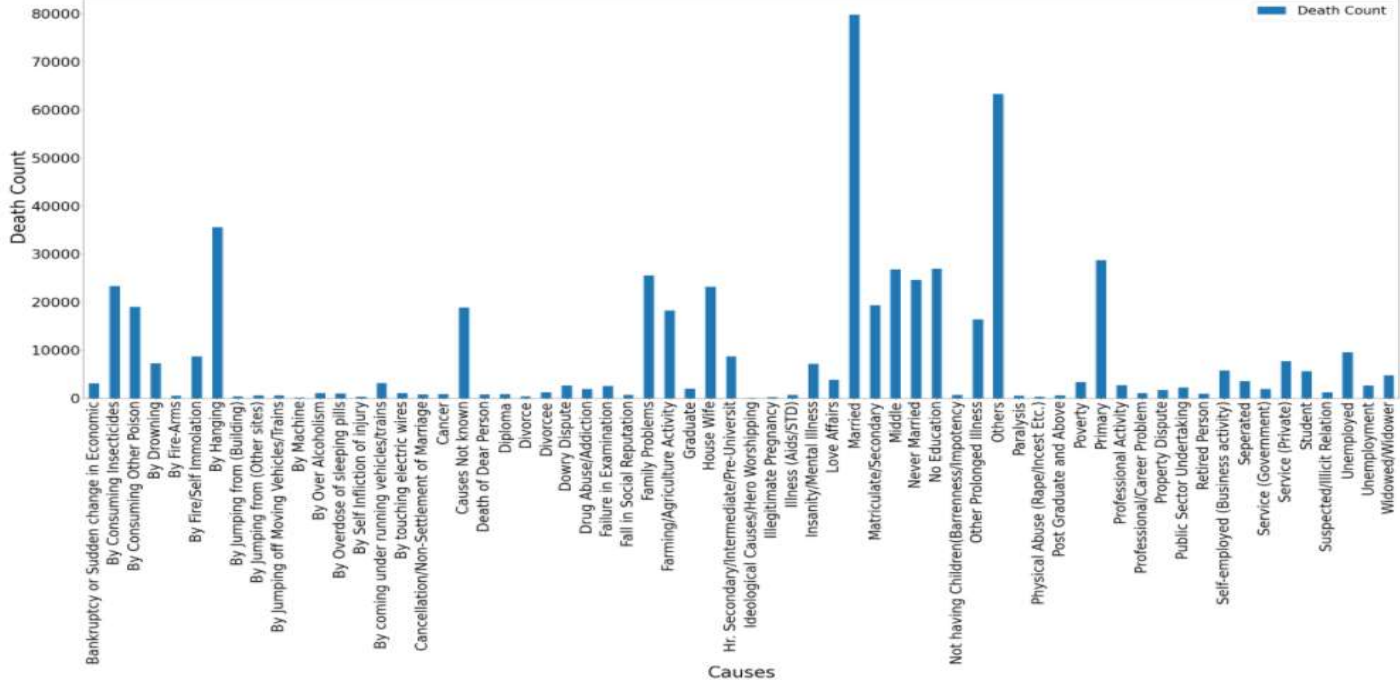


- From the above graph we notice that the highest death rate is in Maharashtra from the year 2002 to 2004 but then it was shifted to West Bengal in the year 2005 to 2006 where Maharashtra was the second highest. But again in 2007 Maharashtra has the highest death rate followed by Andhra Pradesh. In 2008 and 2009, most suicides were done in West Bengal followed by second highest being Tamil Nadu in 2008 and Andhra Pradesh in 2009. In year 2010 and 2012, the highest death rate was in Tamil Nadu. West Bengal was having maximum suicide rate in 2011 followed by Tamil Nadu.
- Lakshadweep has least suicide rate in all the years (2002-2012) followed by Daman & Diu (2002, 2004, 2006, 2007, 2008, 2009, 2011) being state with second least suicide rate in the respective years.
- In 2003, 2010 and 2012 Nagaland was the state with second least suicide rate. Manipur was the state with second least suicide rate in 2005.

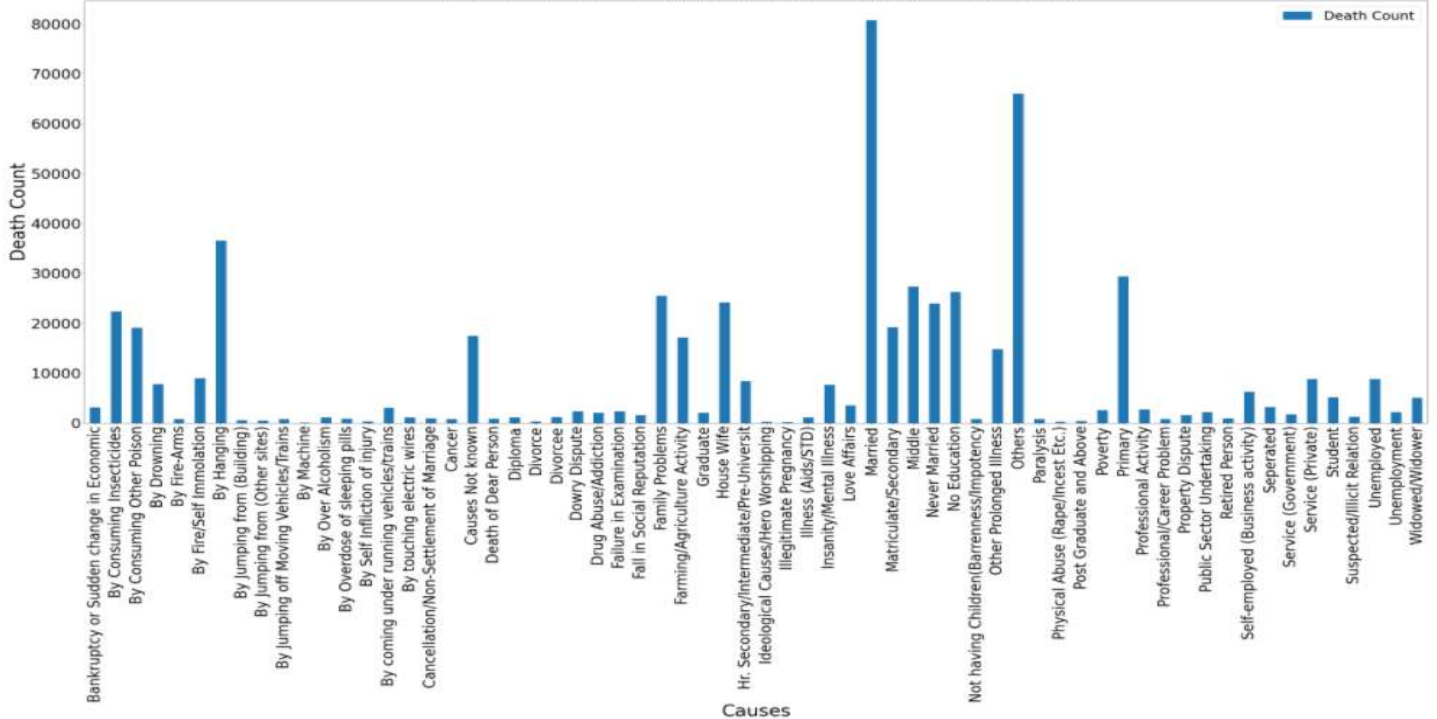
## Number of Deaths due to Different Causes V/S Death State



Number of Deaths due to Different Causes in 2004

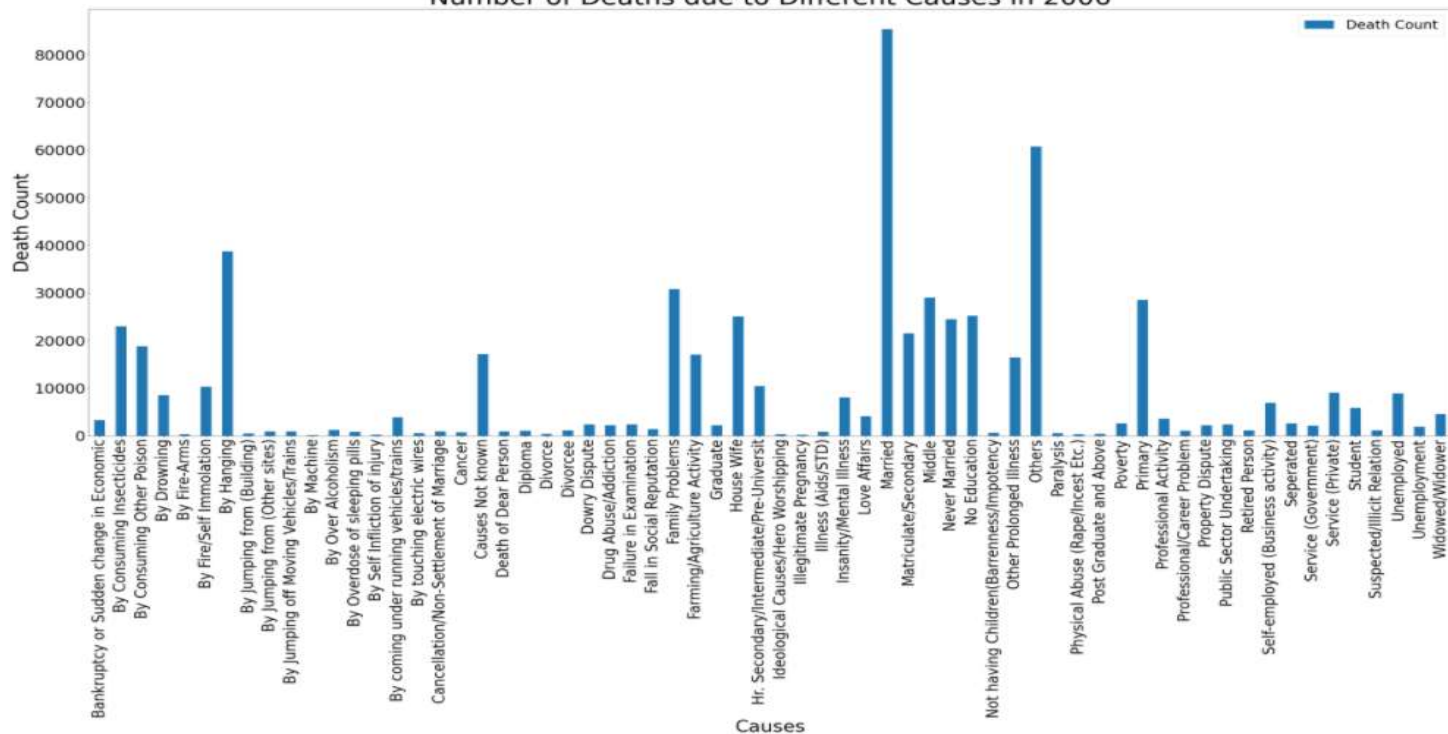


Number of Deaths due to Different Causes in 2005

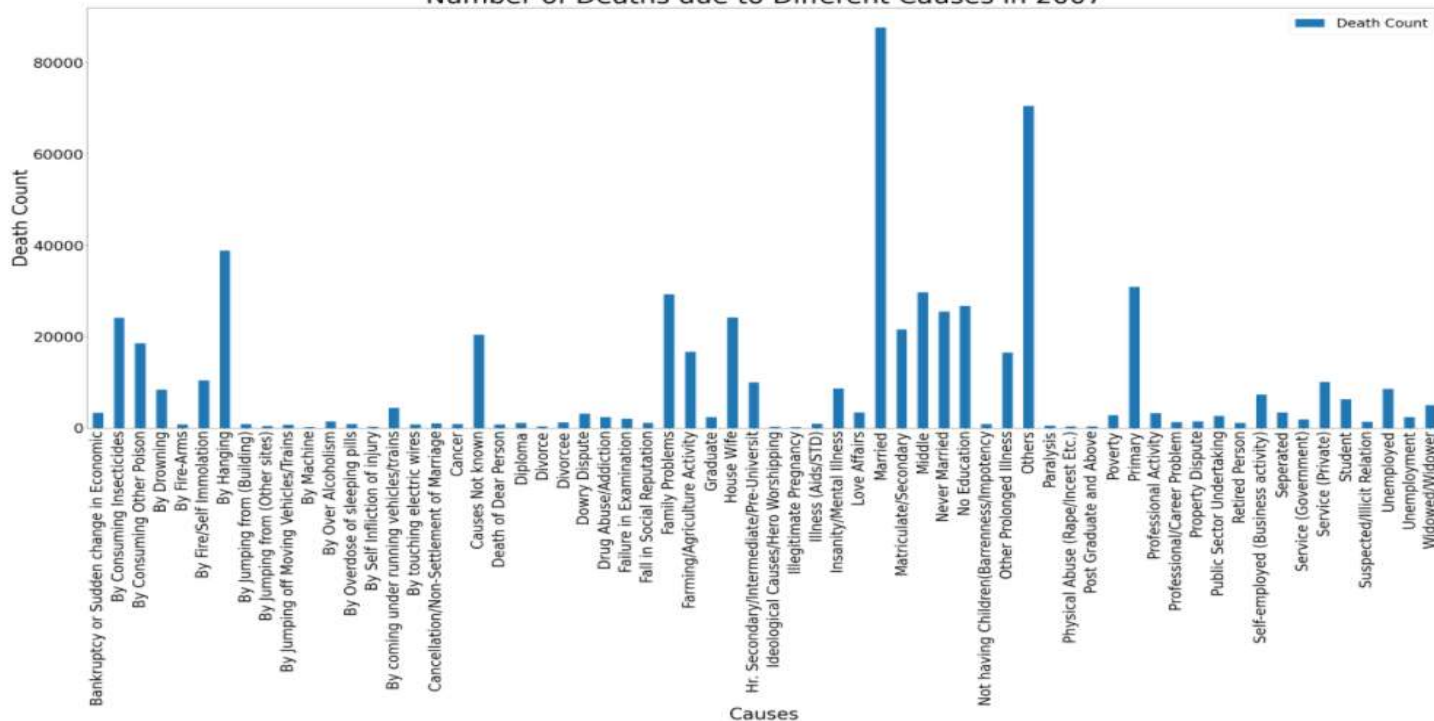




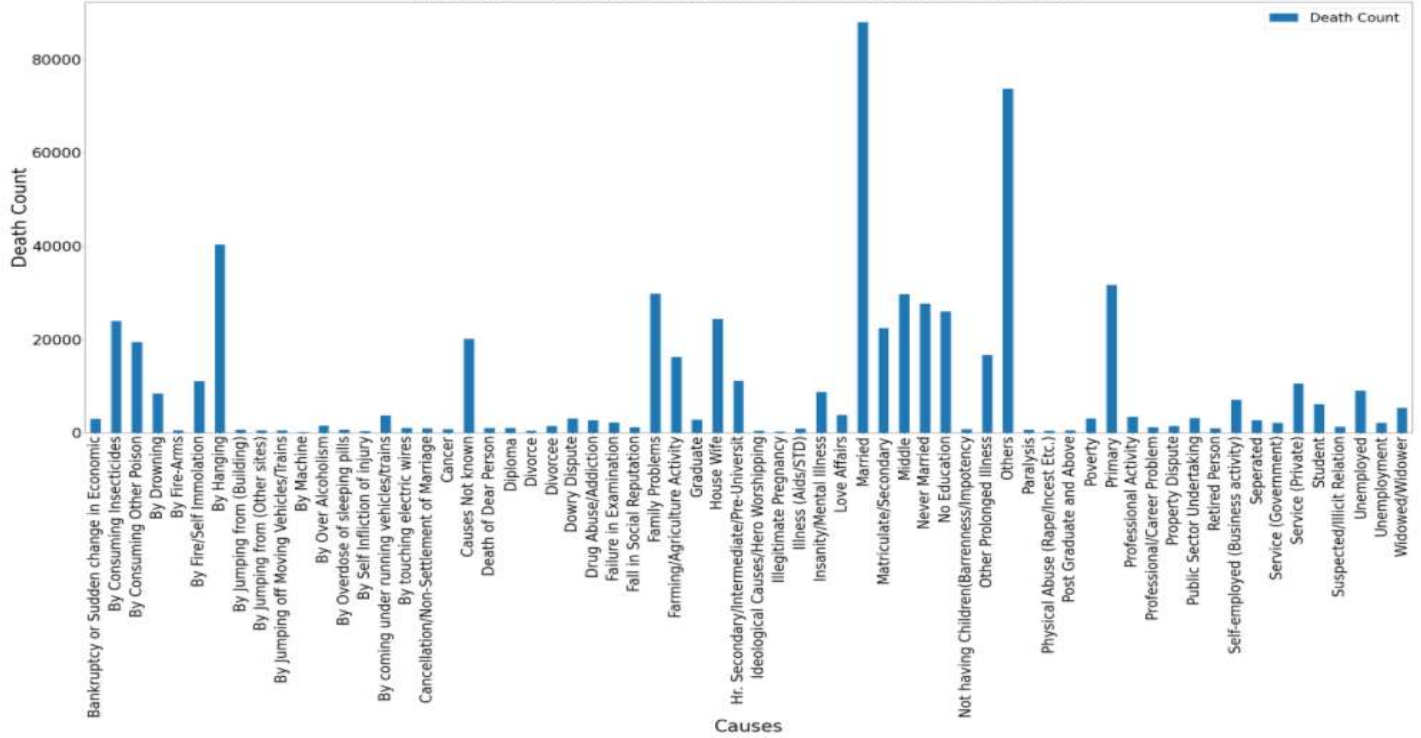
Number of Deaths due to Different Causes in 2006



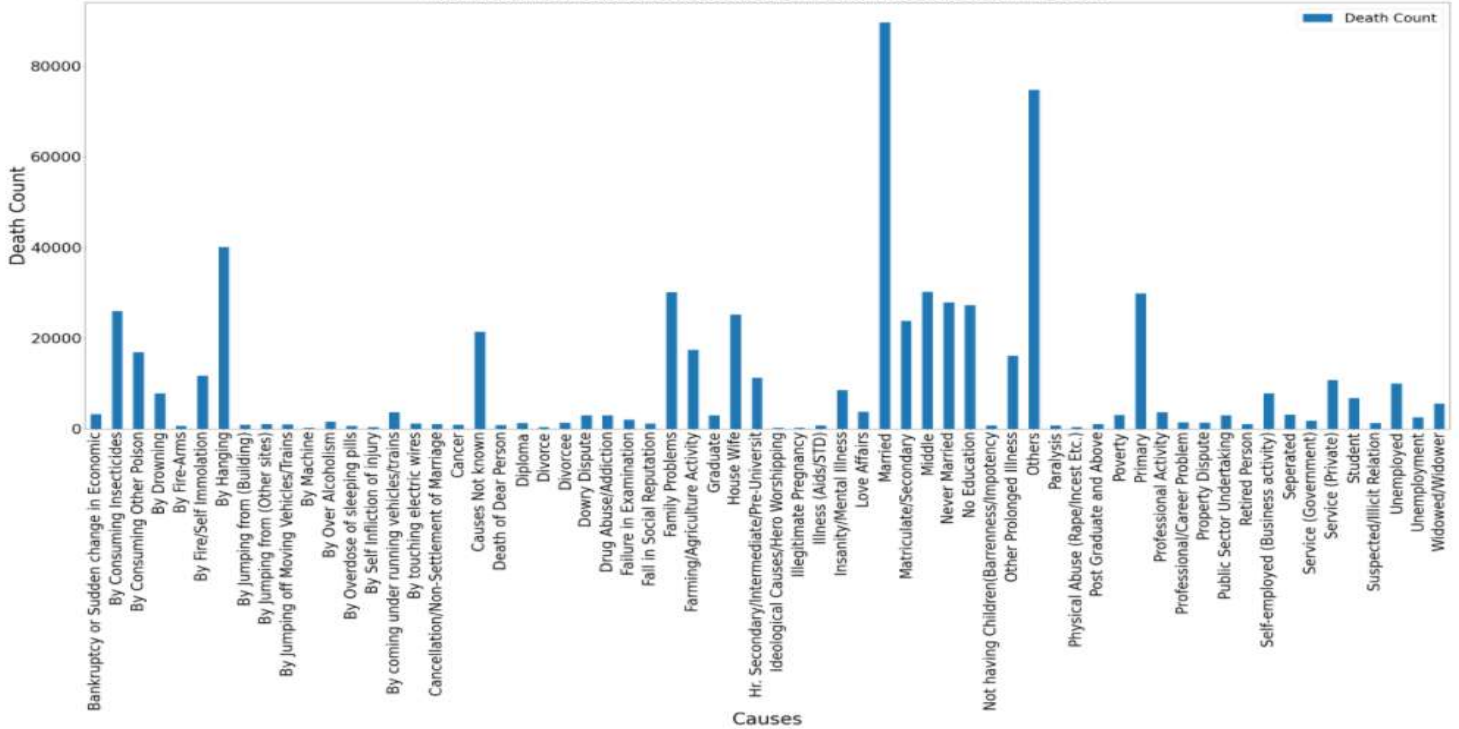
Number of Deaths due to Different Causes in 2007



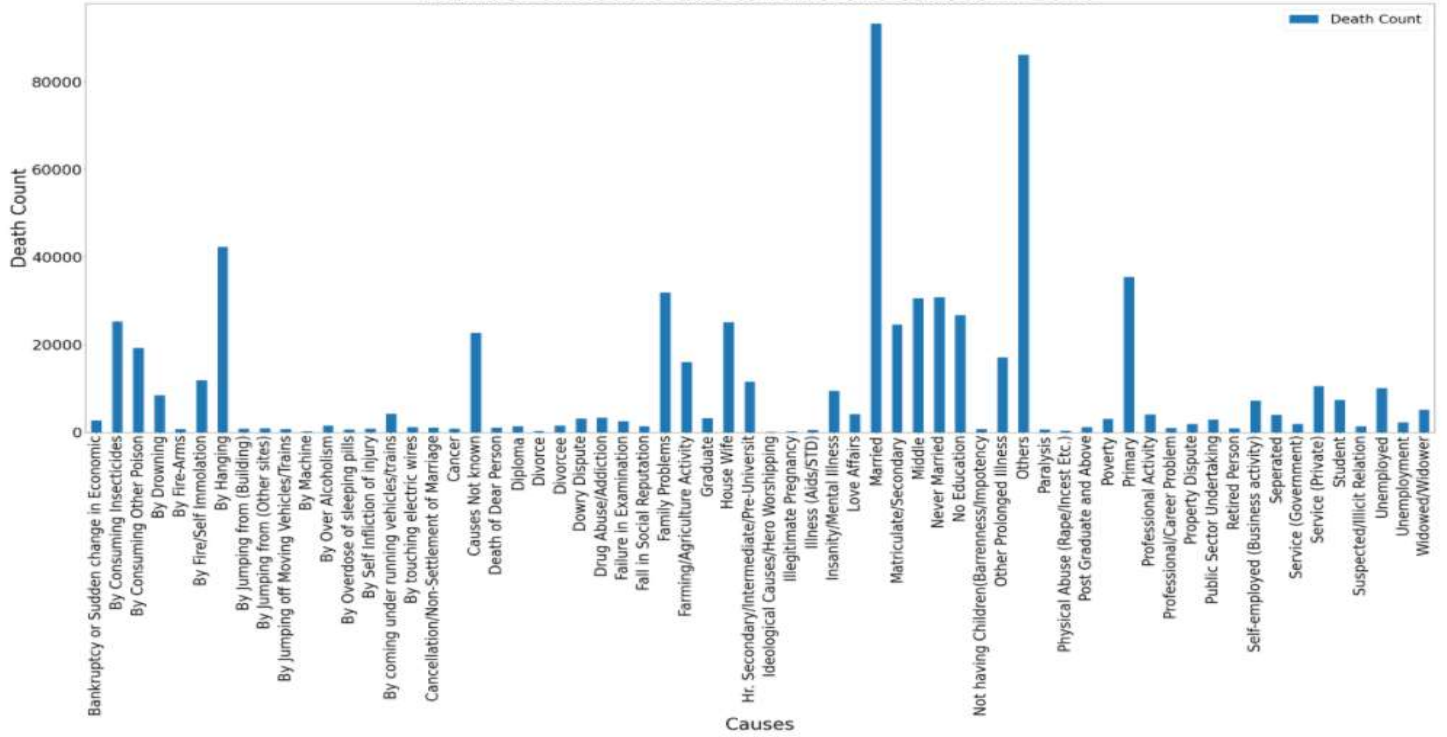
Number of Deaths due to Different Causes in 2008



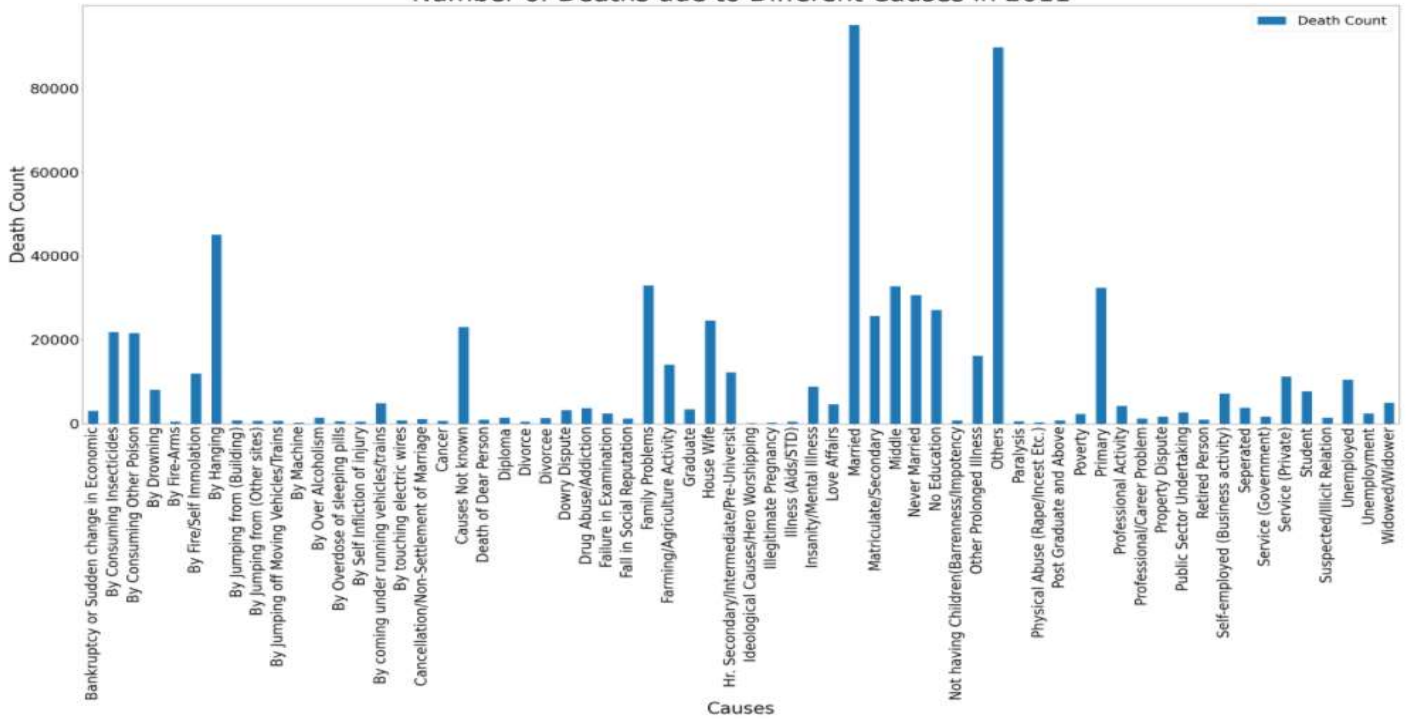
Number of Deaths due to Different Causes in 2009

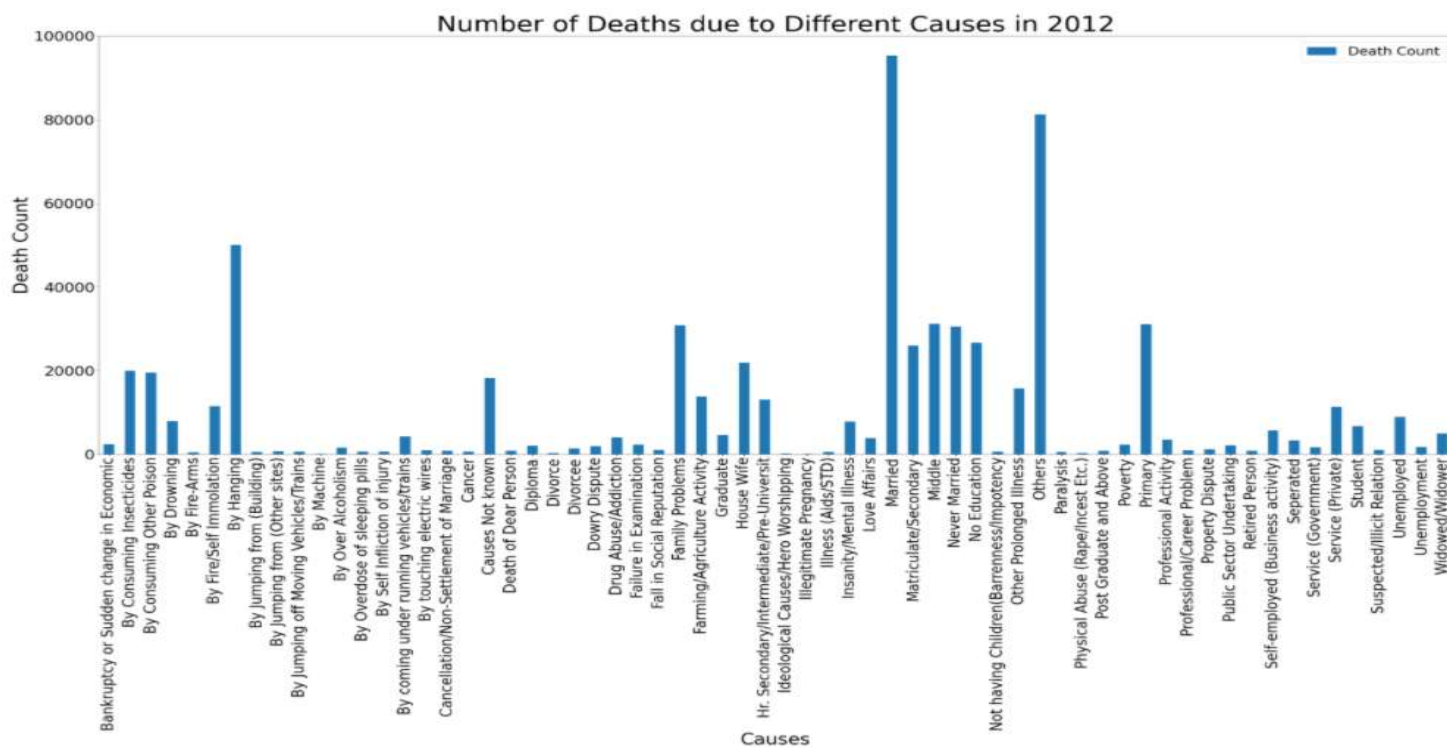


Number of Deaths due to Different Causes in 2010



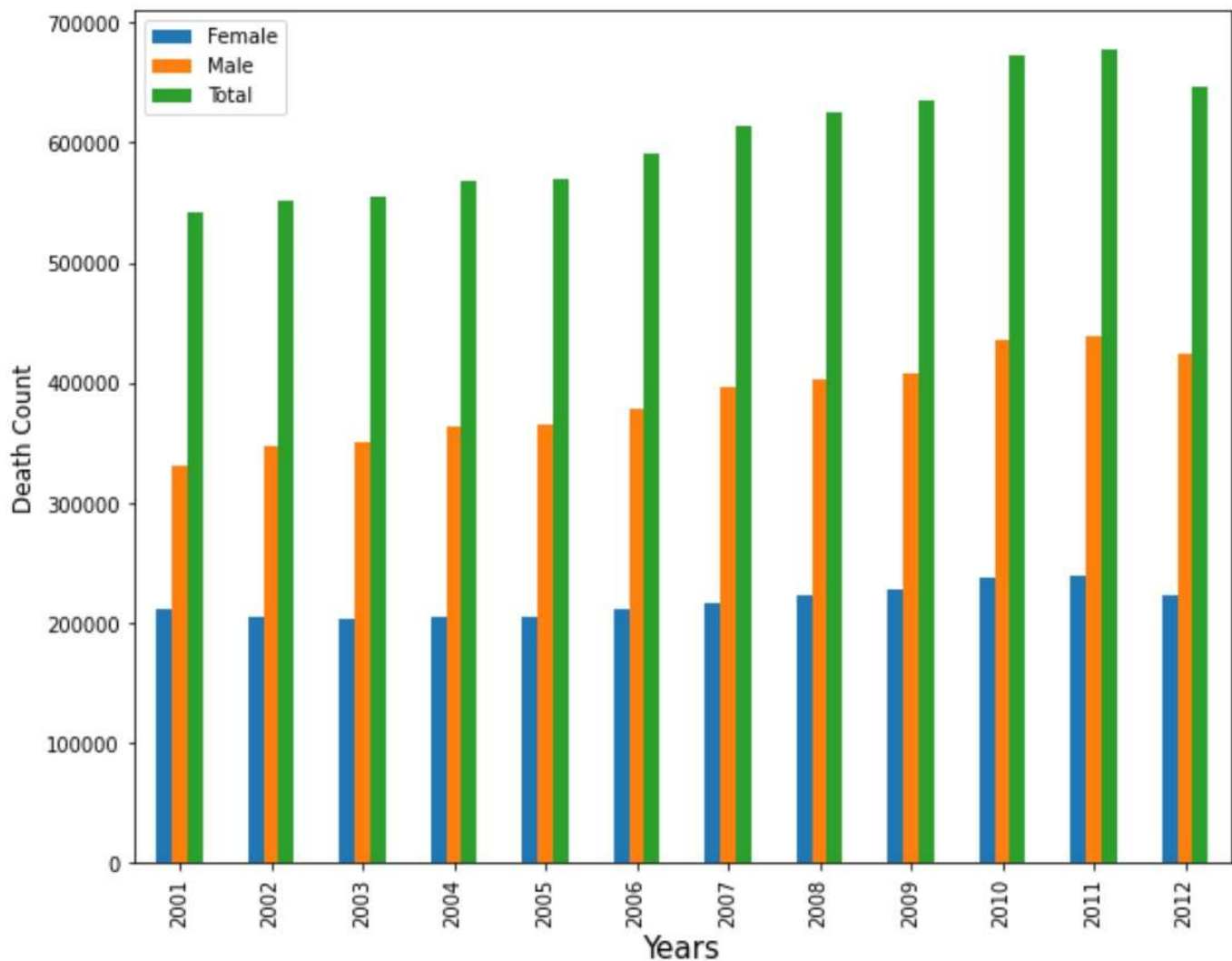
Number of Deaths due to Different Causes in 2011





- The above graphs depict that the cause with maximum suicide rate is “Married” in all the years (2002-2012).
- Ideological Causes/Hero Worshipping is the cause that has the least suicide rate in all the years (2002-2012).

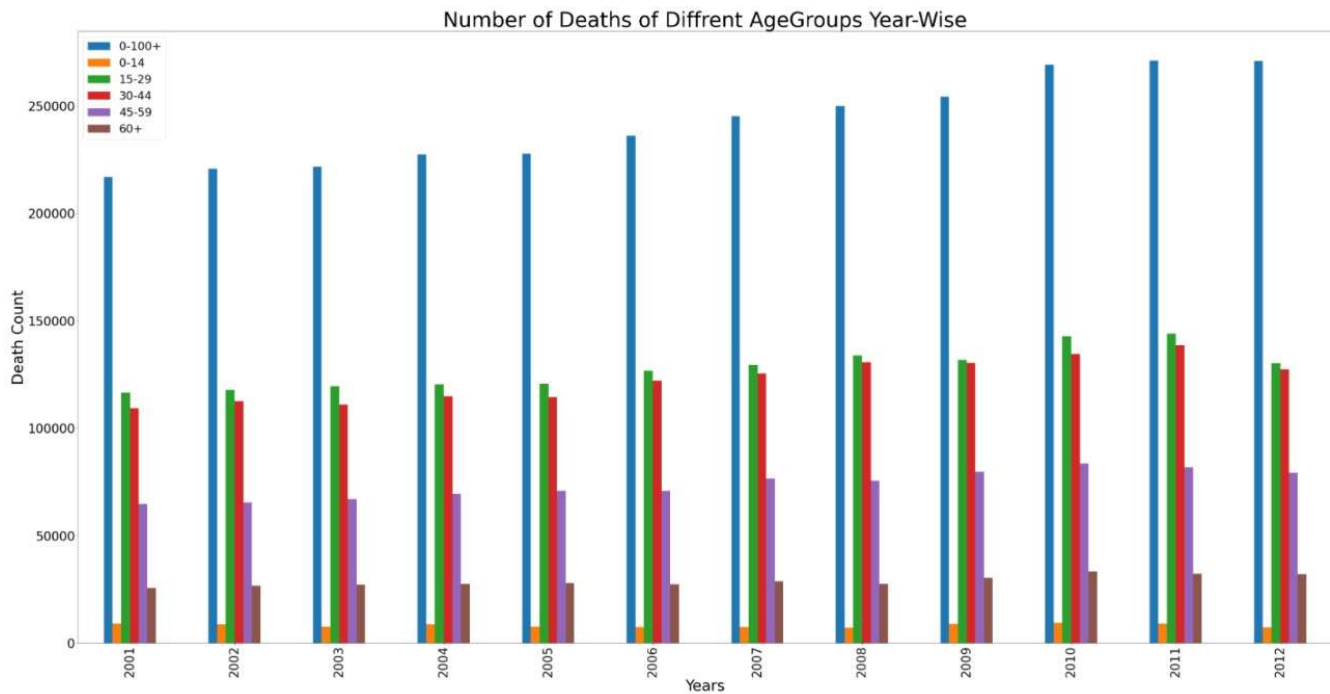
**Graph Plotting -Total Death Count Year-Wise**



2011 is the year with maximum suicide rate for male, female and total followed by 2010 being the year with the second highest suicide rate.

2001 is the year with minimum suicide rate for male and total followed by 2002 being the year with the second least suicide rate. 2003 is the year with minimum suicide rate for female followed by 2005 being the year with the second least suicide rate.

## Graph Plotting – Number of Deaths Of Different Age Groups Year-Wise



People with age group 15-29 are having the maximum suicide rate among all the years (2002-2012) followed by 30-44 age group having the second highest suicide rate.

0-14 age group has the least suicide rate (2002-2012) followed by age group 60+ being the second least.

# SUMMARY

The Analysis of the Indian Suicide Statistics (2001-2012) depicts that among the various causes of suicides, "MARRIED" is the major cause which accounts for average of 14.08% suicides per year between 2001-2012. States like Maharashtra, West Bengal, Andhra Pradesh and Tamil Nadu have majority of suicides. Among all the age groups, people of age 15-29 have highest suicide rate from 2001-2012. Males have higher suicide rate than Females in years 2001-2012. Year 2011 has the maximum number of suicides.

The quality of the information about suicide in India is quite limited, but the picture drawn from the eclectic mix of studies identified in this review indicates that it is an important and growing public health problem that is not being given sufficient attention by the government or the society at large.

## REFERENCES

- [www.kaggle.com](http://www.kaggle.com)
- [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
- <https://www.wikipedia.org/>