# Uncovering Trends in Global Suicide Rates (1985–2016)


## Abstract

This project explores patterns in global suicide rates from 1985 to 2016 using the WHO suicide statistics dataset. The objective is to uncover key trends based on time, gender, country, and age group, and present insights through clear visualizations. Tools used include Python (Pandas, Matplotlib) and the Spyder IDE.


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## 1. Introduction

Suicide is a complex global issue influenced by social, psychological, and economic factors. This analysis investigates global suicide patterns over three decades, focusing on time trends, gender disparities, regional differences, and vulnerable age groups.

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## 2. Dataset Overview

- **Source**: WHO Suicide Statistics (via Kaggle)
- **Years covered**: 1985–2016
- **Initial shape**: 43,776 rows × 6 columns
- **Key columns**:
    - `country`, `year`, `sex`, `age`, `suicides_no`, `population`

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## 3. Data Cleaning

- Removed rows with missing `suicides_no` or `population` values
- Final dataset shape: 36,060 rows
- Created a new column `suicide_rate = (suicides_no / population) × 100,000`

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## 4. Analysis and Visualizations

### 4.1 Global Suicide Rate Over Time

Global rates peaked in the mid-1990s and steadily declined into the 2010s.


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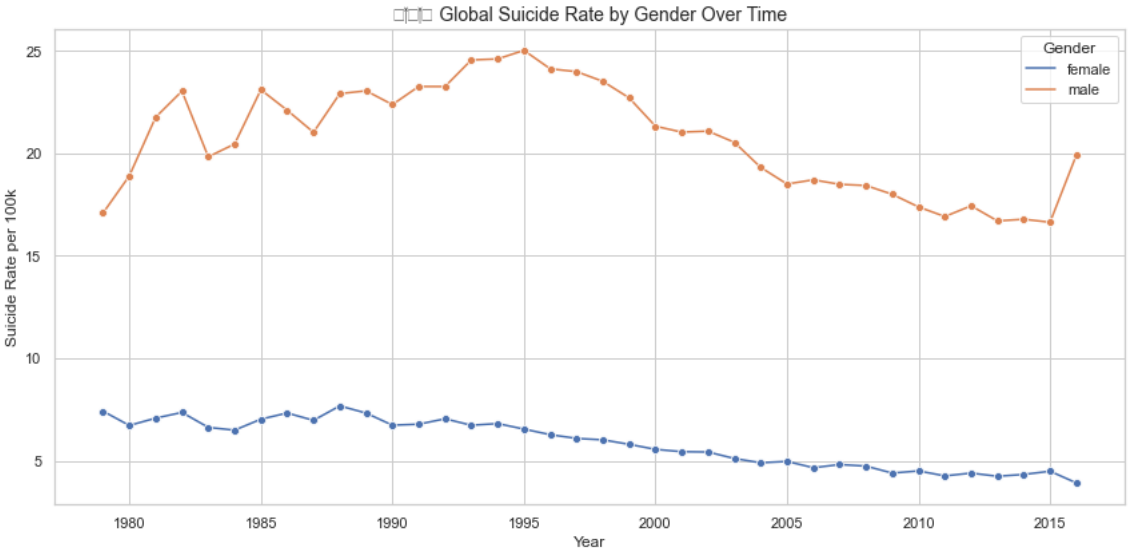
### 4.2 Suicide Rate by Gender

Males consistently had significantly higher suicide rates than females, often 3 to 4 times higher. Both genders showed a decline over the years, but the gap remained.

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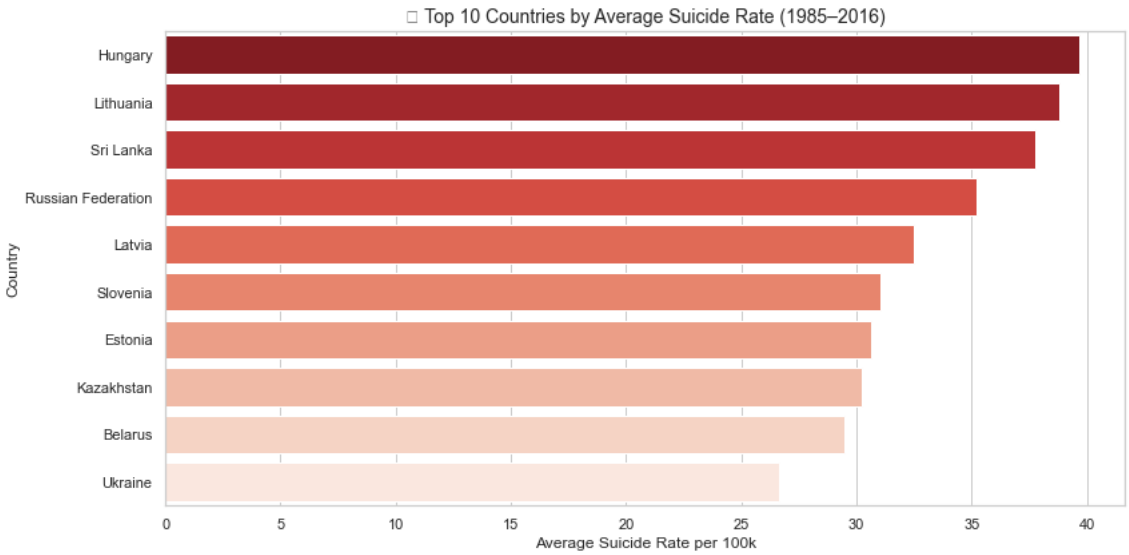
### 4.3 Suicide Rate by Country

The top 10 countries with the highest average suicide rates were primarily located in Eastern Europe and Central Asia.
These include Hungary, Lithuania, Sri Lanka, Russia, and Ukraine.

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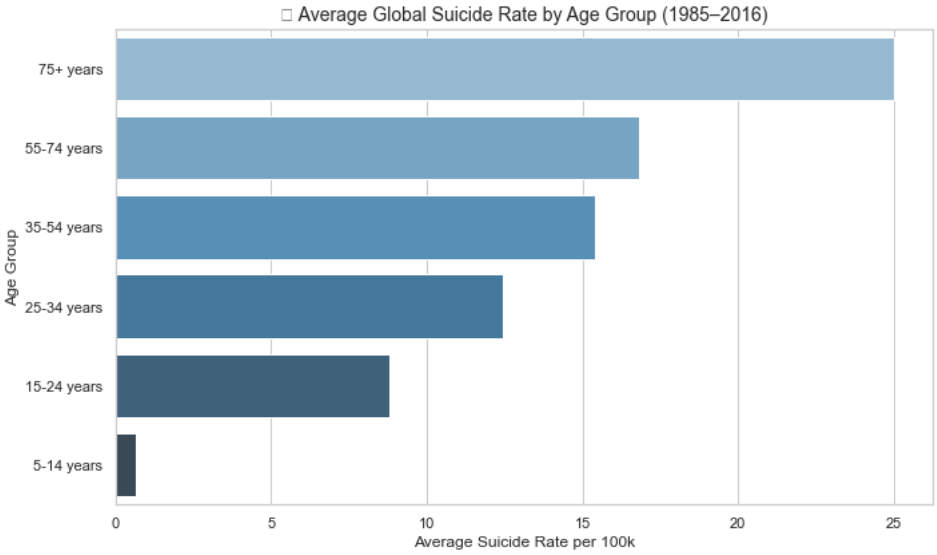
### 4.4 Suicide Rate by Age Group

Older adults, especially those aged 55–74, had the highest average suicide rates globally. Children (ages 5–14) had the lowest.

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## 5. Key Findings

- Global suicide rates have declined significantly since the 1990s
- Men are more likely to die by suicide than women
- Eastern Europe and Central Asia report the highest average rates
- Adults aged 35–74 are the most at-risk age groups globally

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## 6. Limitations

- Underreporting or misreporting may exist in some countries
- Dataset ends at 2016 and may not reflect recent trends
- Suicide causes (economic, psychological, social) are not included in this dataset

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## 7. Future Work

- Extend analysis with recent data post-2016
- Include additional features such as GDP, unemployment rate, or healthcare access
- Build an interactive dashboard using Plotly or Streamlit
- Use machine learning to predict future trends or identify clusters

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## 8. Conclusion

This project presents a comprehensive analysis of global suicide trends across 31 years. Through this work, we observe that suicide affects certain populations more than others, especially men and older adults. While global rates are declining, targeted interventions remain essential to address demographic and regional disparities.

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## 9. References


- WHO Suicide Statistics: https://www.kaggle.com/datasets/szamil/who-suicide-statistics
- Matplotlib documentation: https://matplotlib.org/
- Pandas documentation: https://pandas.pydata.org/