**Data Analysis on Suicides from 1985 to 2016**

**Study based on the "Suicide\_rates" dataset**

This document presents the results of a study utilizing various data analysis methods, including the construction of correlation matrices, histograms, pair plots, and time series analysis across different intervals and demographic characteristics (including social factors). The main findings highlight factors influencing suicide statistics from multiple perspectives.

**Analytical Procedures and Objectives**

**Correlation Analysis:** The first step was constructing a correlation matrix to identify relationships between various factors. Correlation coefficients close to 1 indicate strong dependencies. Key findings from this analysis include:

* HDI for year and GDP per capita ($) with a correlation coefficient of 0.77.
* Suicides and population size with a coefficient of 0.62.
* suicides/100k pop and suicides\_population\_ratio with a coefficient of 1 were not considered further as they are essentially the same.

**Histograms:** Histograms for key variables were created to better understand data distribution. Several bin sizes (30, 40, 100, 200) were tested, with 80 bins deemed optimal for detailed yet clear data representation.

**Pair Plots:** Pair plots were utilized to visualize relationships between pairs of variables. This analysis showed minimal outliers, indicating reliable data. However, further detailed analysis of parameter interrelationships was needed.

**Top 10 Countries by Suicide Numbers:** A quantitative analysis identified the top 10 countries by absolute suicide numbers. This analysis did not consider the percentage relative to the population, so a comparative analysis was not reliable. Adjusting for this, data was later analyzed in percentage terms, altering the picture but keeping Russia in the top three. Both histograms indicate that most suicides occur in developed or European countries.

**Suicide Distribution Over Time (By Year):** The year-by-year analysis showed the highest number of suicides from 1995 to 2005. This could be linked to various socio-economic factors specific to this period, necessitating further study from historical, political, economic, and social perspectives.

**Age and Gender Groups:** Analyzing suicides among age and gender groups revealed that people aged 35-54, predominantly men, commit the most suicides. This generation, known as "boomers," was most susceptible to suicide from 1985 to 2016.

**Gender Differences by Country:** Data by country was examined to determine where men or women commit more suicides. Men tend to commit more suicides in large developed countries, possibly due to greater economic and administrative responsibilities and psychological pressure. Analysis of female suicides suggested that social roles and the need to balance family and professional responsibilities might be factors, warranting more detailed study.

**Male to Female Ratio by Country:** The percentage of male and female suicides in each country was analyzed. Data on the ratio of male to female suicides revealed the top 10 countries with the highest ratios, suggesting that cultural and psychological pressures may contribute to higher female suicide rates.

**Suicide Dynamics by Year and Gender:** An analysis of suicide dynamics by year and gender showed a tendency for male suicides to fluctuate sharply, while female suicide rates remained relatively stable.

**Economic Factors:** Economic factors' influence on suicides was analyzed. The highest suicide rates were observed during transitional periods between centuries, possibly related to economic changes. The correlation between suicides and GDP per capita indicates a link with economic difficulties, requiring further analysis for precise conclusions.

**Impact of Human Development Index (HDI):** Finally, the influence of HDI on suicide propensity was analyzed. Results showed that higher HDI correlates with a higher likelihood of suicide. Men with average or above-average HDI commit suicides more frequently, with a similar trend among women, though fewer women with average HDI committed suicide.

**Conclusion:**

**Hypothesis 1:** High HDI and GDP per capita correlate with increased suicide rates.

* **Confirmation:** Correlation between HDI and GDP (0.77).

**Hypothesis 2:** Developed countries have high suicide rates.

* **Confirmation:** Histograms and percentages indicate developed countries often rank high in suicide numbers.

**Hypothesis 3:** Men commit suicides more frequently than women, especially in economically developed countries.

* **Confirmation:** Analysis of age and gender groups.

**Hypothesis 4:** Transitional periods between centuries are accompanied by increased suicides.

* **Confirmation:** Analysis of suicides by year and GDP per capita.

**Hypothesis 5:** High HDI is associated with a higher propensity for suicide.

* **Confirmation:** Analysis of suicides and HDI.

**Hypothesis 6:** Social and economic pressure in developed countries is a major factor in female suicides.

* **Confirmation:** Percentage ratios and cultural-psychological factors.