

World Happiness Report Visualization

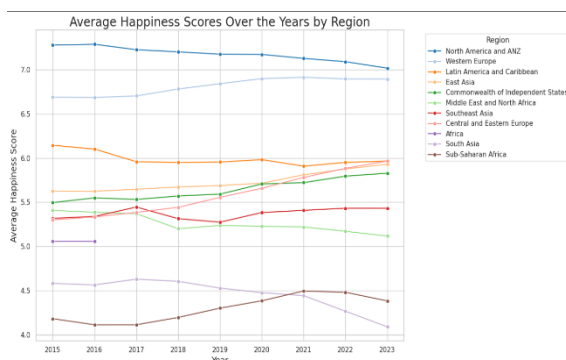
Figure1: Yearly Happiness Scores for Well Known Countries 2015 – 2023 (HeatMap)



The heatmap visualizes the yearly happiness scores of several well-known countries from 2015 to 2023. Each row represents a country, with the color gradient indicating the level of happiness, ranging from lower (yellow) to higher (red) scores. The heatmap illustrates the variation in happiness levels over the years for each country, allowing us to compare trends across countries and time periods. For example, Countries like **Denmark, Australia, and Netherlands**

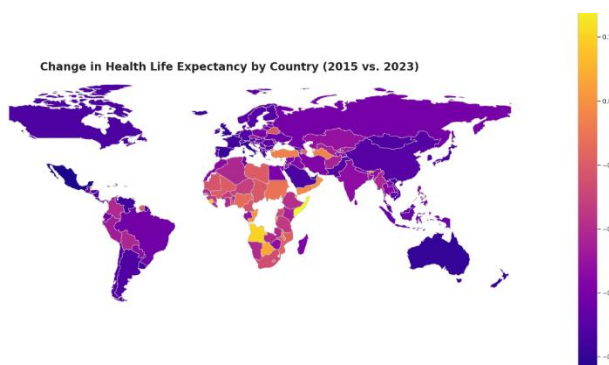
consistently maintain higher happiness scores, staying in the red zone (above 6.5) throughout the years.

Figure 2: Average Happiness Score Over the Years By Region (Line Plot)



The line graph shows the variation in average happiness scores across global regions from 2015 to 2023, with unique colors for each region. It highlights regional disparities, with Western and North American regions consistently scoring high, while Africa and South Asia face ongoing challenges in achieving higher happiness levels.

Figure 3: Changes in Health Life Expectancy in countries from 2015–2023 (Map Plot)



The map visually represents the change in health life expectancy across the globe between 2015 and 2023. The color gradient ranging from purple to yellow signifies the degree of change, with purple indicating a decrease in health life expectancy and yellow representing an increase. The map highlights the

disparities in health life expectancy improvements globally, with certain regions like Sub-Saharan Africa facing considerable setbacks, while others continue to make progress in enhancing public health.

Figure4: Plot between healthy_life_expectancy and Happiness score (Regression Plot)

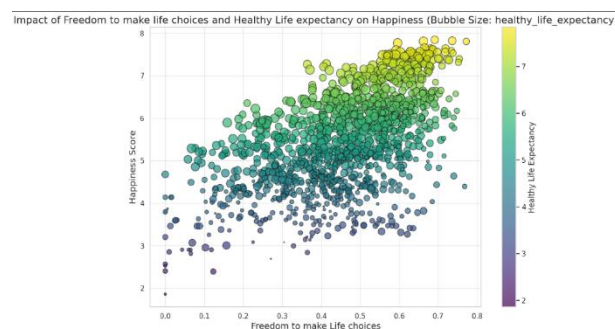
The plot shows the relationship between healthy life expectancy and happiness score,



with a regression line overlayed. The scatterplot demonstrates a positive correlation between healthy life expectancy and happiness score. As healthy life expectancy increases, the happiness score tends to increase as well. The red regression line captures the overall trend, illustrating that higher healthy life expectancy is typically associated with higher happiness

scores. There appears to be clustering around the middle range of the healthy life expectancy axis (0.4–0.6), indicating many countries/regions fall within this range.

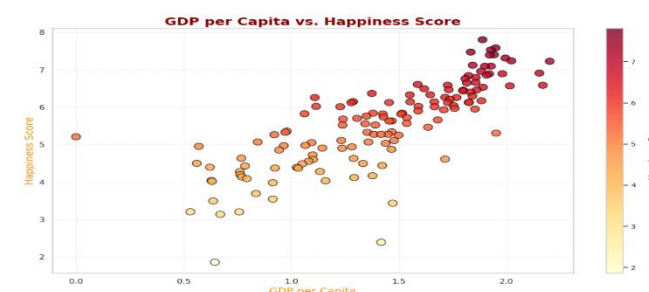
Figure5: Impact of Freedom to make life choices and Healthy Life expectancy on Happiness (Bubble Size: healthy_life_expectancy) – Bubble Plot



The plot explores the interaction between **freedom to make life choices** (x-axis), **happiness score** (y-axis), and **healthy life expectancy** (indicated by bubble size and color gradient). Larger bubbles appear more prevalent at higher freedom and happiness levels, emphasizing the role of healthy life expectancy in enhancing

societal well-being. Countries or regions with greater freedom and longer healthy lives are likely to be happier.

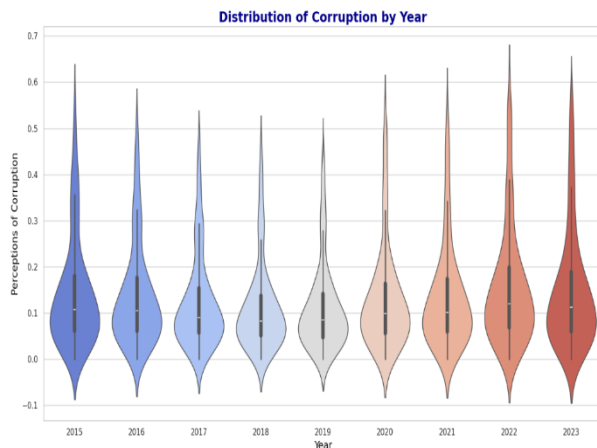
Figure 6: Plot between GDP per capita and Happiness Score (Bubble Plot)



The above plot effectively illustrates the relationship between a country's economic status and the happiness of its population. The color gradient from yellow to dark red reflects happiness scores, with darker colors representing higher happiness. Most data points in

the top-right cluster (high GDP per capita and high happiness score) are dark red. The strong clustering of high GDP countries with high happiness scores emphasizes the significance of economic prosperity in enhancing happiness.

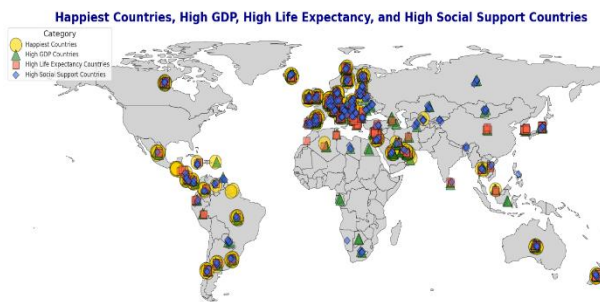
Figure 7: Distribution of Perception of corruption by Year (Violin Plot)



The violin plot captures the evolution of corruption perceptions over nine years, with colors transitioning from cool blues in 2015 to fiery reds in 2023, highlighting an intensifying trend. From 2015 to 2018, narrower violins reflect consistent perceptions, while post-2020, widening shapes and rising medians signal increased corruption, greater variation, and growing polarization in public

sentiment.

Figure 8: Visualization of the top Happiest Countries having High Life Expectancy and High Social Support (Point Density Plot)



This global map highlights the interplay between happiness, GDP, life expectancy, and social support. Europe stands out as a hub where these factors converge, showcasing holistic well-being. In the Americas, North America links economic prosperity with happiness, while South and

Central America emphasize strong social ties. Overall, the map underscores that happiness thrives in regions where economic stability, health, and social support.

Importance:

The insights from the above visualizations collectively suggest that an increase in healthy life expectancy, higher GDP, greater freedom in making life choices, and a reduction in corruption are key factors that contribute to higher happiness scores. Over the past nine years, most countries have seen stable happiness scores, while some experienced an increase due to improvements in GDP, healthy life expectancy, and other factors. Conversely, a few countries saw a decline in happiness scores. These visualizations highlight how various factors influence one another and ultimately affect a country's happiness level. By focusing on improving GDP, reducing corruption, promoting generosity, enhancing life expectancy, and providing individuals with more freedom in making life choices, countries can increase happiness scores in the years to come. These findings provide valuable insights that can help guide society towards a happier and more prosperous future. By combining geographical context, density visualization, and regression analysis, this report gives a holistic understanding of how various factors interact to shape global happiness scores.

Data and Methodology

The data, has been taken from Kaggle - Global Happiness datasets, which includes metrics like happiness scores, GDP per capita, life expectancy, and corruption perceptions. Visualizations are crafted in Google Colab using Python libraries such as Matplotlib, Seaborn, and Folium. Relevant codes for the above visualizations are found in the below links.

Code Links

Github Link: <https://github.com/bhavana-devulapally/world-happiness-report-data-visualizaton>

Collab Link:

https://drive.google.com/file/d/1tNUM2eyOofeMI5wQK9Kq7WVY8swcPCWC/view?usp=drive_link