The World Happiness Score Data Analysis

SUBMITTED BY:

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INTRODUCTION

This project analyzes the relationship between various factors and countries' overall happiness and well-being globally. The study focuses on how economic performance (GDP per capita), social support, life expectancy, perceptions of freedom, trust in government, and generosity contribute to a country's happiness. It also explores whether these relationships vary across different world regions.

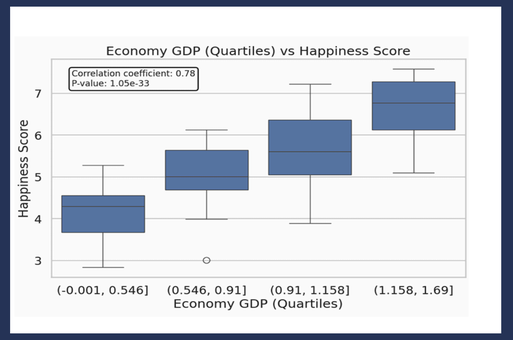
HYPOTHISIS

Economy and Life Expectancy:
Question: Does higher GDP correlate with longer life expectancy?
H_0 (Null Hypothesis): No correlation; GDP does not impact life expectancy.
H_1 (Alternate Hypothesis): Positive correlation; higher GDP is associated with longer life expectancy.
Economy and Happiness:
Question: Is higher GDP associated with higher happiness scores?
H_0 (Null Hypothesis): No correlation; GDP does not affect happiness.
H_1 (Alternate Hypothesis): Positive correlation; higher GDP is associated with higher happiness scores.
Happiness and Perceptions of Freedom:
Question: Are higher happiness scores correlated with greater perceptions of freedom?
H_0 (Null Hypothesis): No correlation; perceptions of freedom do not impact happiness.
H_1 (Alternate Hypothesis): Positive correlation; higher happiness scores are associated with greater perceptions of freedom.

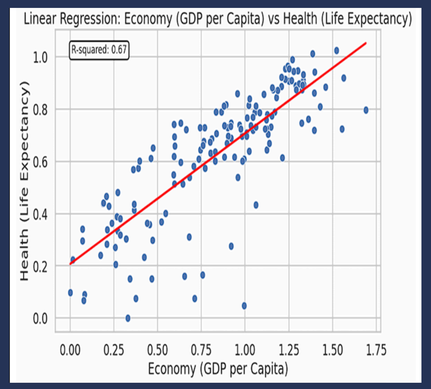
DATA USED

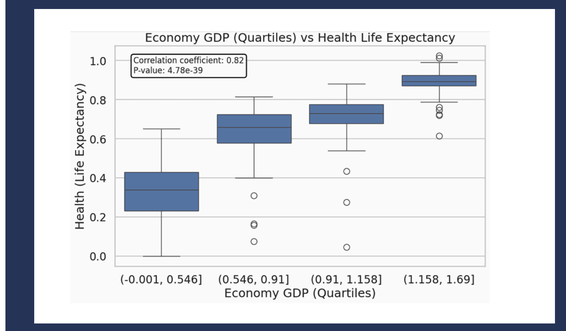
Dataset:
Sourced from the 2019 World Happiness Report, publicly available on Kaggle.
Includes data from 158 countries, covering economic, social, and health-related indicators.
Collected by the Sustainable Development Solutions Network (SDSN) under the United Nations, using data from the World Bank, WHO, and Gallup World Poll.
Population of Interest: Countries worldwide.

ANALYSIS

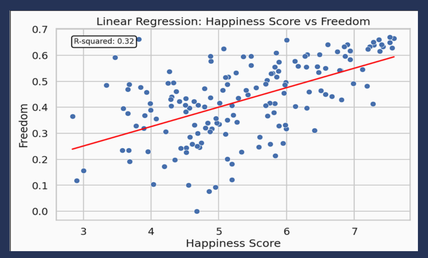


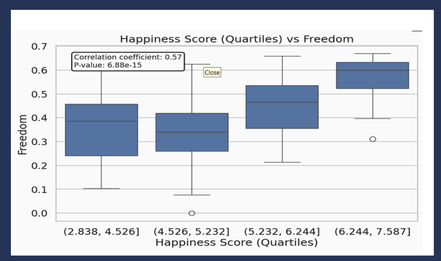
The analysis of the two graphs reveals a strong positive correlation between a country's economic performance (measured by GDP per capita) and its happiness score. The box plot indicates that countries with higher GDP per capita tend to have significantly higher happiness scores, as evidenced by the clear upward trend across GDP quartiles. The correlation coefficient of 0.78 underscores this strong positive relationship, indicating that as GDP per capita increases, happiness scores tend to rise as well.





Both graphs demonstrate a strong positive correlation between a country's economic performance and its life expectancy, indicating that wealthier countries tend to have better health outcomes, particularly in terms of longer life expectancy. The correlation is strong and statistically significant, suggesting that economic prosperity is a key factor in improving health and longevity.





The analysis reveals a significant positive relationship between happiness and freedom. As happiness scores increase, there is a noticeable rise in the levels of freedom. This relationship is supported by a moderate correlation coefficient of 0.57, indicating that the two variables are positively related. The statistical significance of this correlation, with a p-value of 6.88e-15, reinforces the reliability of this finding. However, the R-squared value of 0.32 suggests that while happiness explains some of the variation in freedom, other factors also contribute to this relationship.

BIAS IDENTIFICATION:

Selection Bias: The dataset includes only 158 countries, which may not represent all regions equally. Missing or unreliable data could skew results, affecting the generalizability of findings.

Reporting Bias: Self-reported measures of happiness or freedom might be influenced by cultural, political, or social factors, potentially distorting the relationship with other variables like GDP.

Survivorship Bias: The dataset may overrepresent stable, developed countries, excluding those with unstable governance or poor data collection, leading to a skewed analysis of global trends.

Temporal Bias: Data is from 2019, and relationships observed may have changed over time due to evolving economic, public health, or social conditions, limiting the relevance of the findings today.

Cultural Bias: Cultural differences in perceptions of happiness or freedom could affect the validity of cross-country comparisons, as similar scores might have different meanings in different cultural contexts.

SUMMARY:

from our analysis, the correlation scores and p-values indicate the following: • Strong positive correlations were found between: GDP per capita and life expectancy GDP per capita and happiness scores Perceptions of freedom and happiness scores the p-values for all these correlations were highly significant, suggesting that these relationships are unlikely to be due to chance. These findings support the hypothesis that economic factors and perceived well-being are interconnected.

CONCLUSION:

The analysis shows that a higher GDP is positively linked to better life expectancy and happiness, highlighting the role of economic prosperity. While freedom also influences happiness, it is not the sole factor. Overall, enhancing national happiness requires not just economic growth but also improvements in social support, health, governance, and trust.