

What factors are related to our bed time?

BY:

ARTURO CRUZ RIVERA

Yael Antonio Calzada Martin

Fernando Bueno

Eduardo Esquivel Amado



Hypothesis

A HIGHER OVERALL QUALITY OF LIFE IS ASSOCIATED WITH MORE SLEEPING HOURS.

Is Quality of life correlated with sleep hours?

How are the hours of sleep distributed in different countries?

Are there any regional or continental patterns that stand out?



SLEEP HOURS

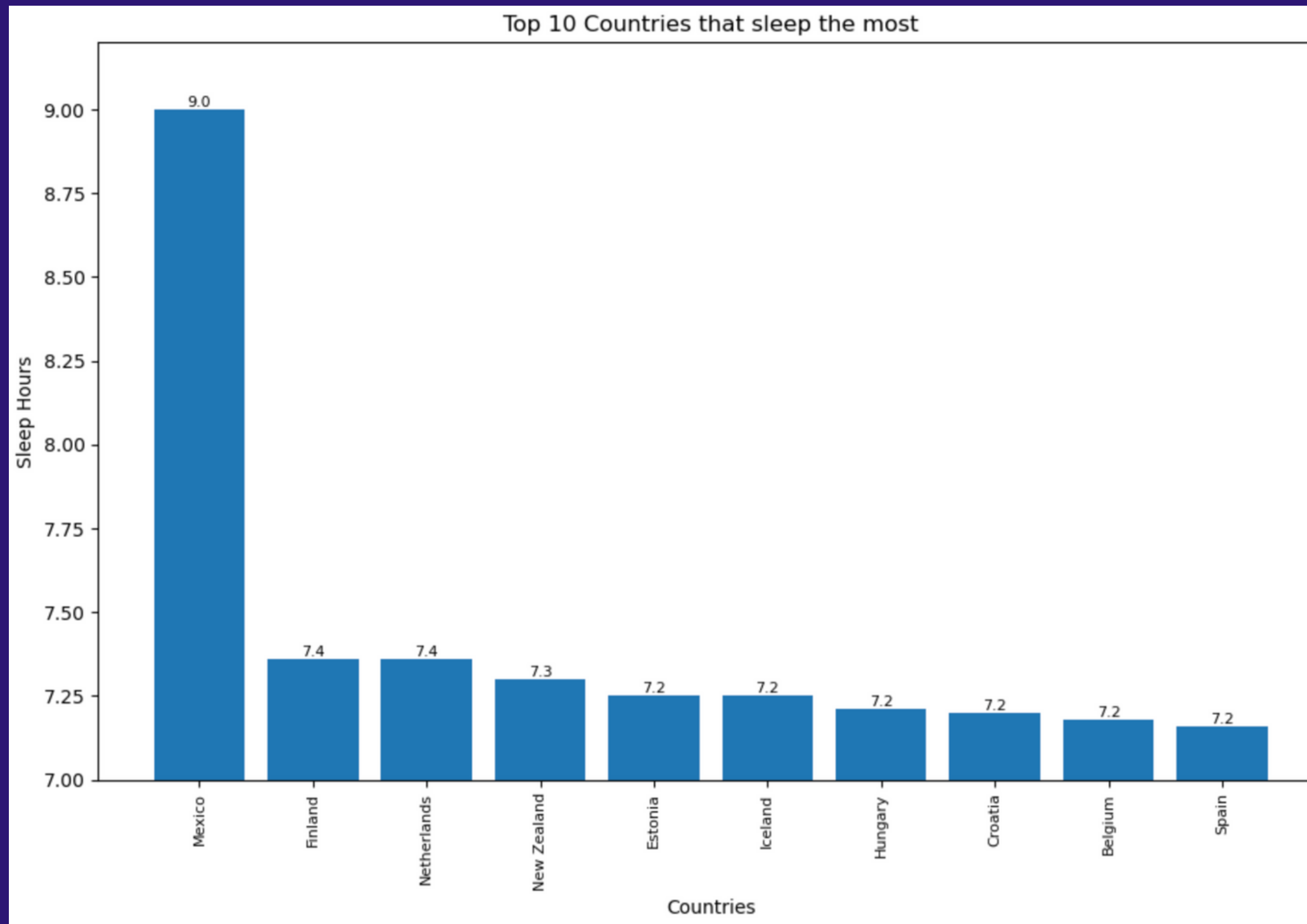


IS QUALITY OF LIFE CORRELATED TO HOURS OF SLEEP?

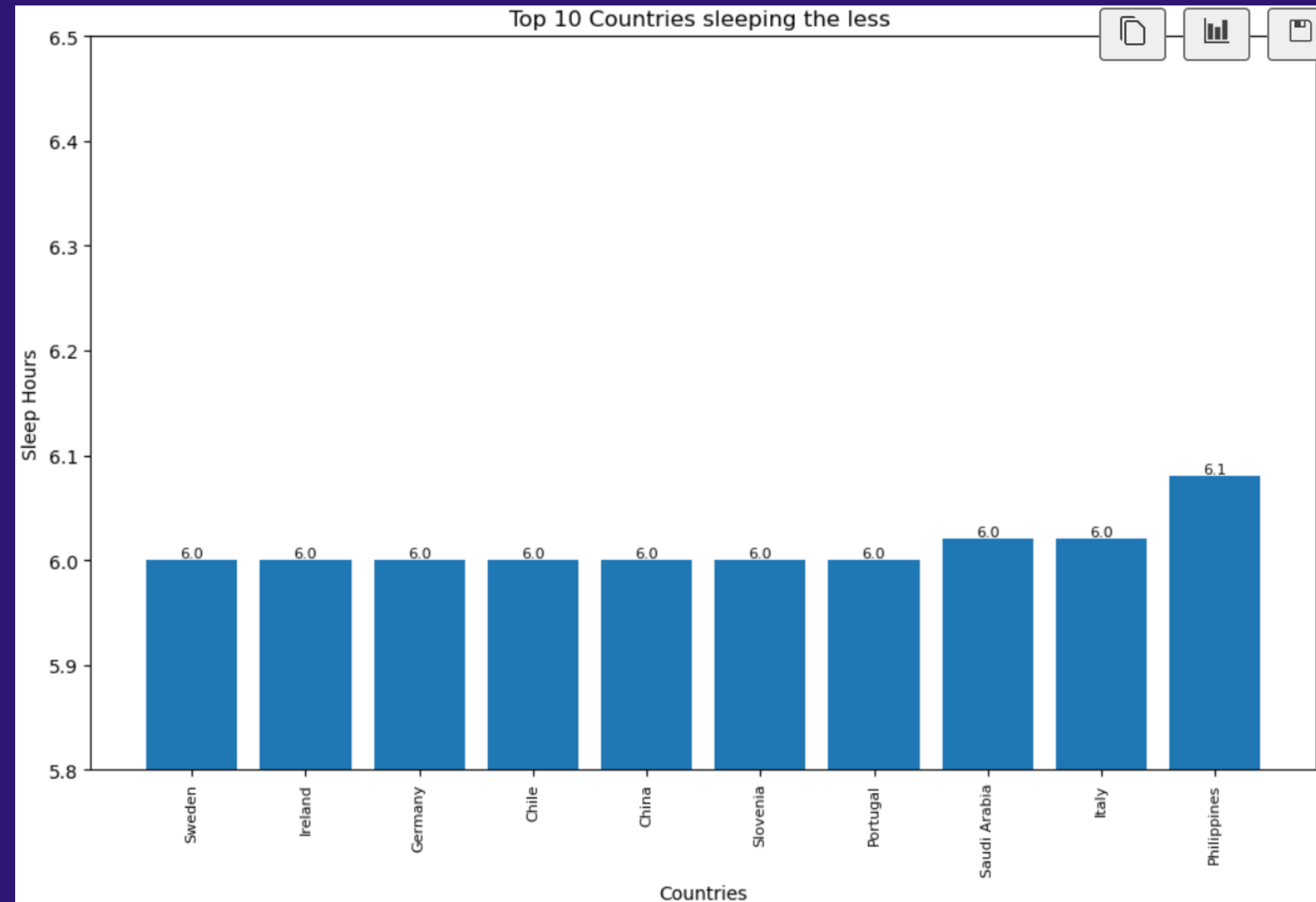
QUALITY OF LIFE



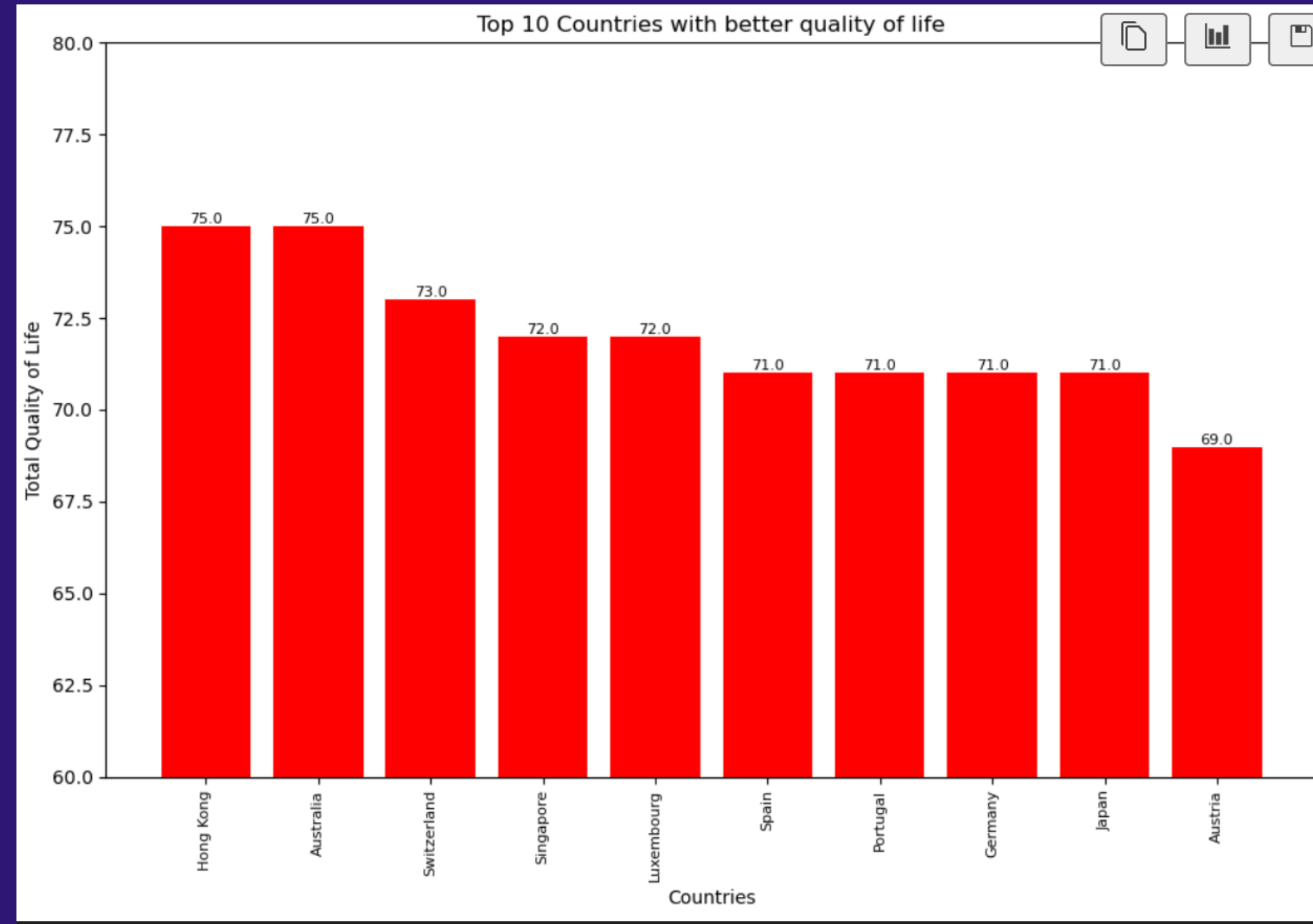
Hours of sleep around the world



Hours of sleep around the world

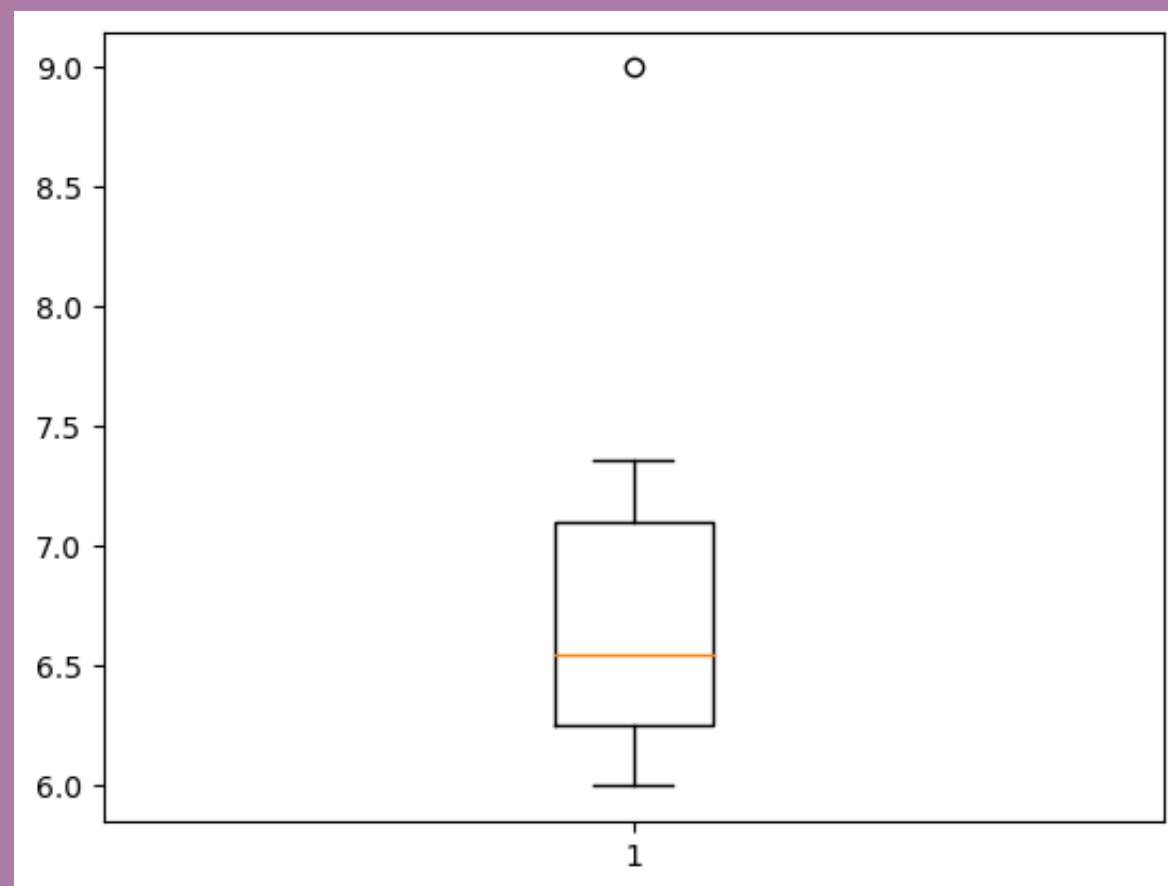


Quality life around the world



How are the hours of sleep distributed in different countries? Are there any regional or continental patterns that stand out?

BOX PLOT ANALYSIS



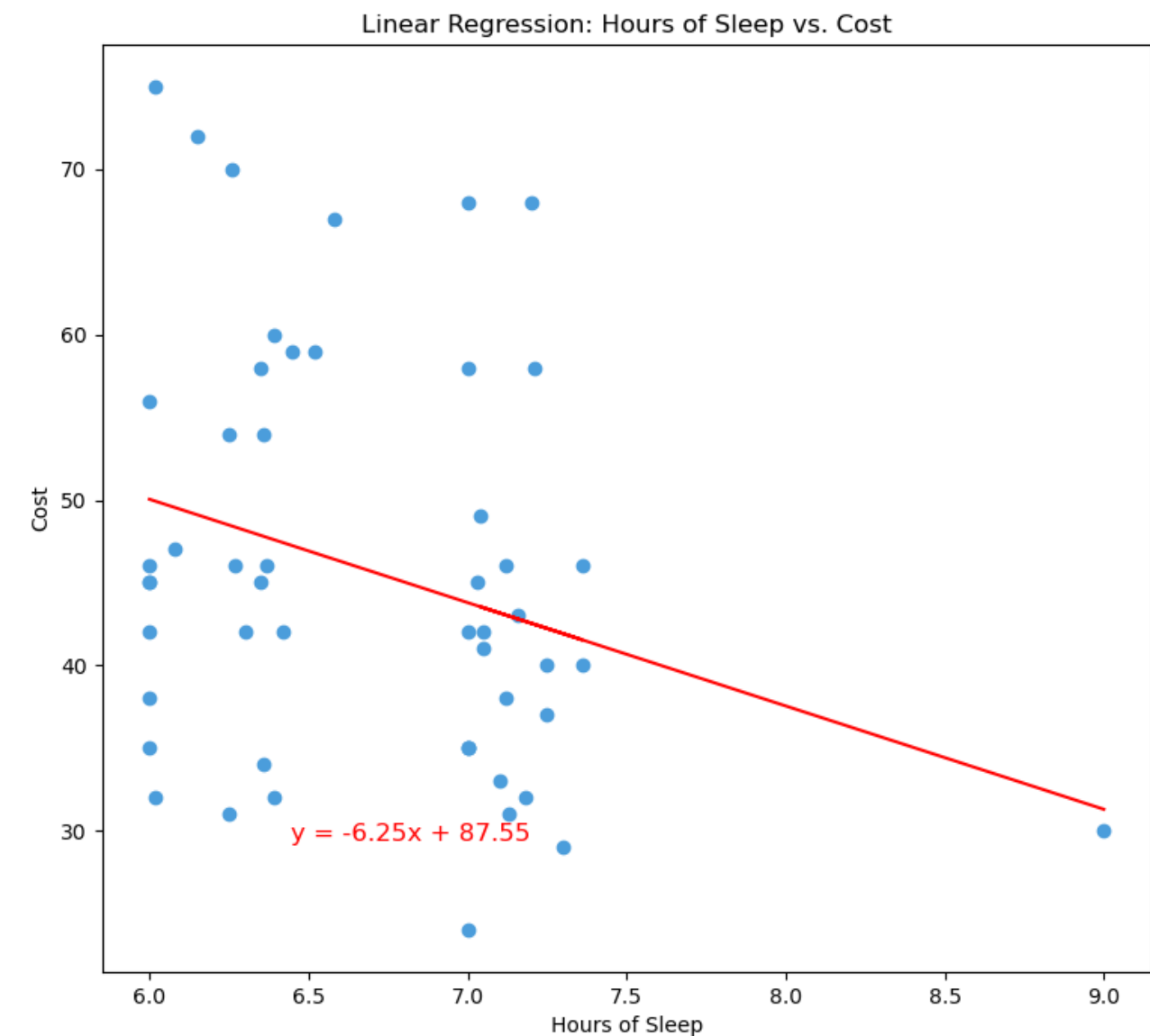
- Q1 (25th percentile): The first quartile (Q1) is 6.2575, indicating that 25% of countries have individuals with sleep hours below this value.
-
- Q3 (75th percentile): The third quartile (Q3) is 7.105, meaning that 75% of countries have individuals with sleep hours below this value.
-
- Interquartile Range (IQR): The IQR is 0.8475, representing the range between the 25th and 75th percentiles. This shows the spread of the middle 50% of the data.
-
- Lower Bound for Outliers: The lower bound for outliers is 4.98625. Any data point below this value is considered an outlier.
-
- Upper Bound for Outliers: The upper bound for outliers is 8.37625. Any data point above this value is considered an outlier.
-
- Outliers: Based on the box plot, it appears that there is at least one outlier in the dataset. The country "Mexico" has a sleep hour value of 9.0, which is beyond the upper bound for outliers.
- Conclusions: The box plot provides insights into the distribution of sleep hours in different countries. The majority of countries have individuals who sleep between approximately 6.25 to 7.10 hours, with the median at 6.55 hours. There is at least one outlier, Mexico, where the sleep hours are unusually high at 9 hours.

What Variables from our data set have the most impact in sleep hours?

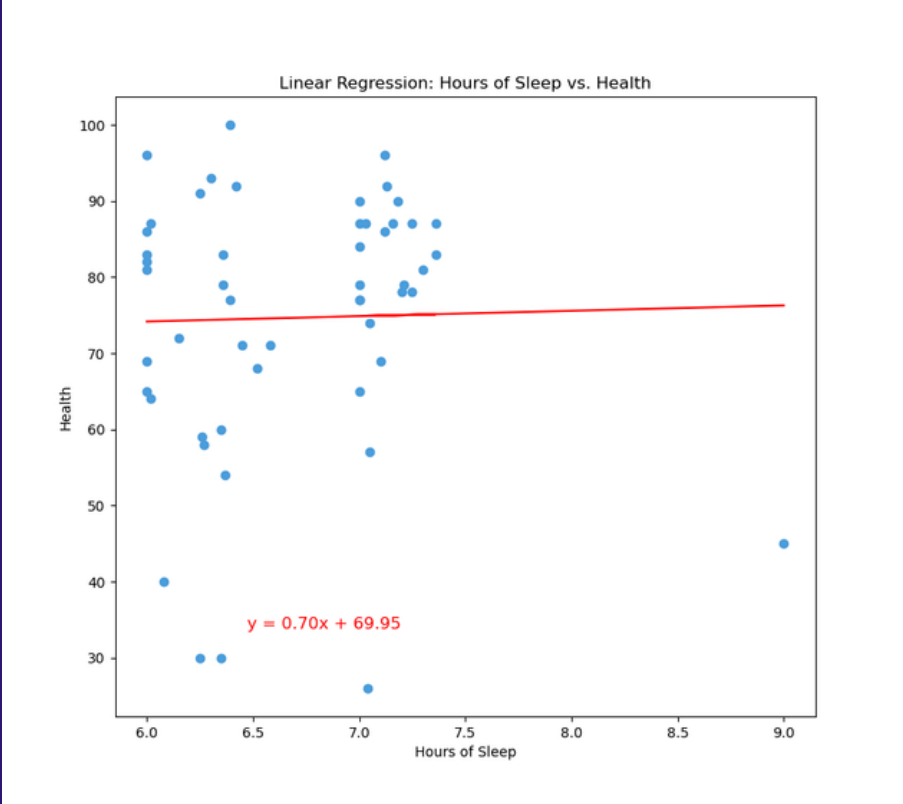
LINEAR REGRESION AND SPEARMAN TEST



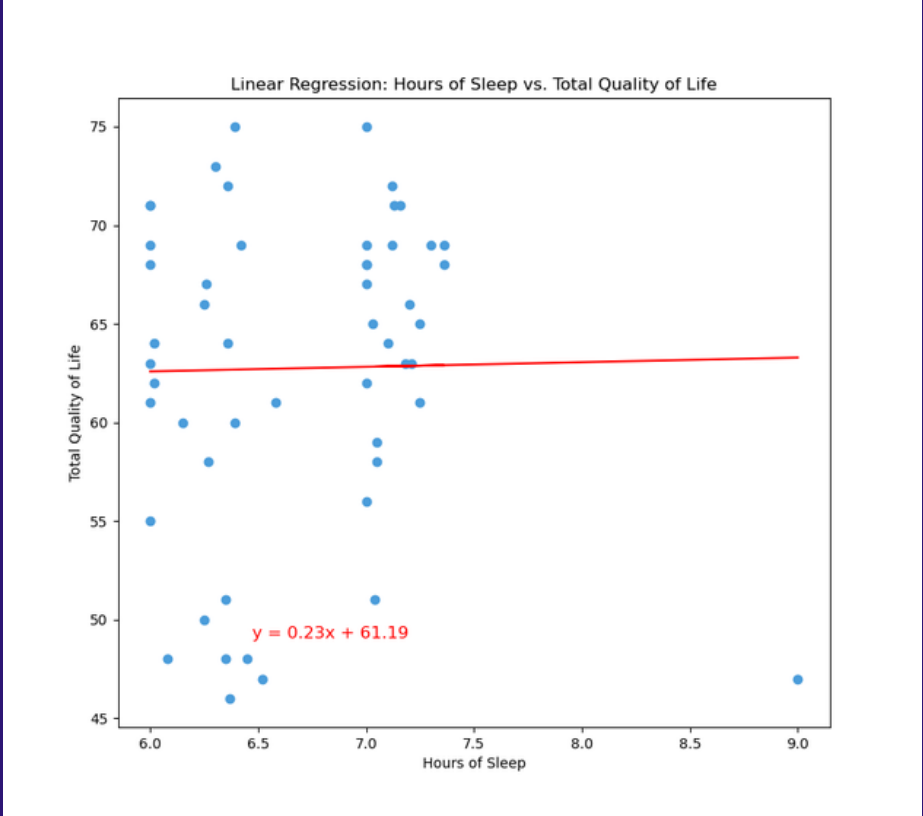
Using the Spearman test, we found a moderately weak negative correlation (-0.251) between sleep and cost of living. The p-value (0.073) indicates a marginally significant result, close to the commonly used threshold of 0.05 for statistical significance. Some researchers may consider this borderline significant. This were the only variables found to have correlation.



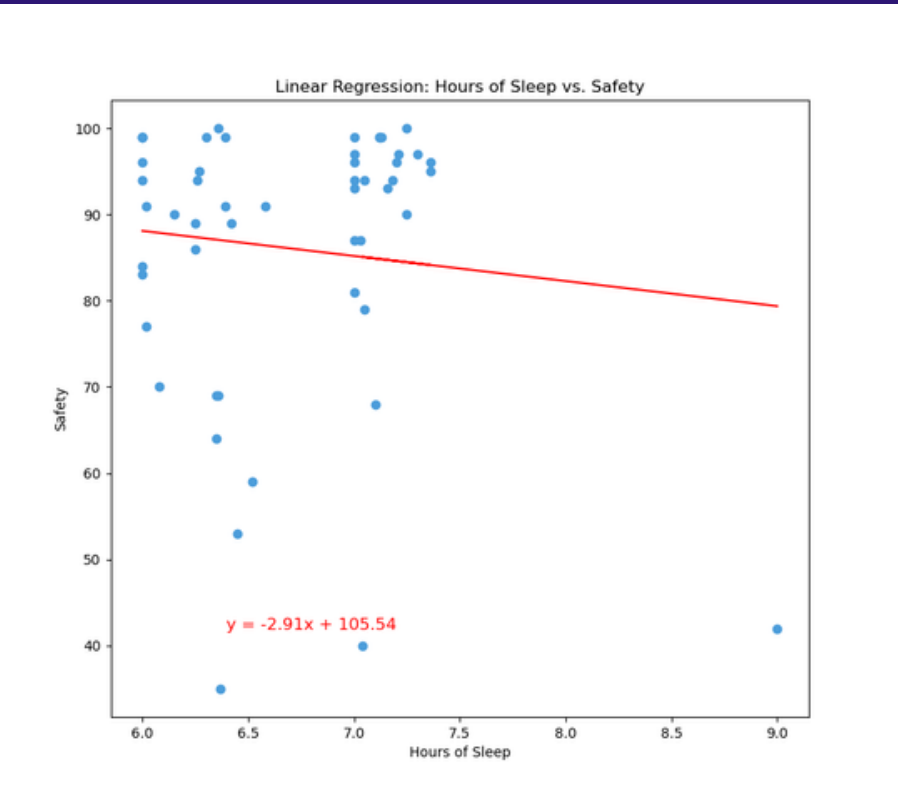
Other variables with no correlation with bed time



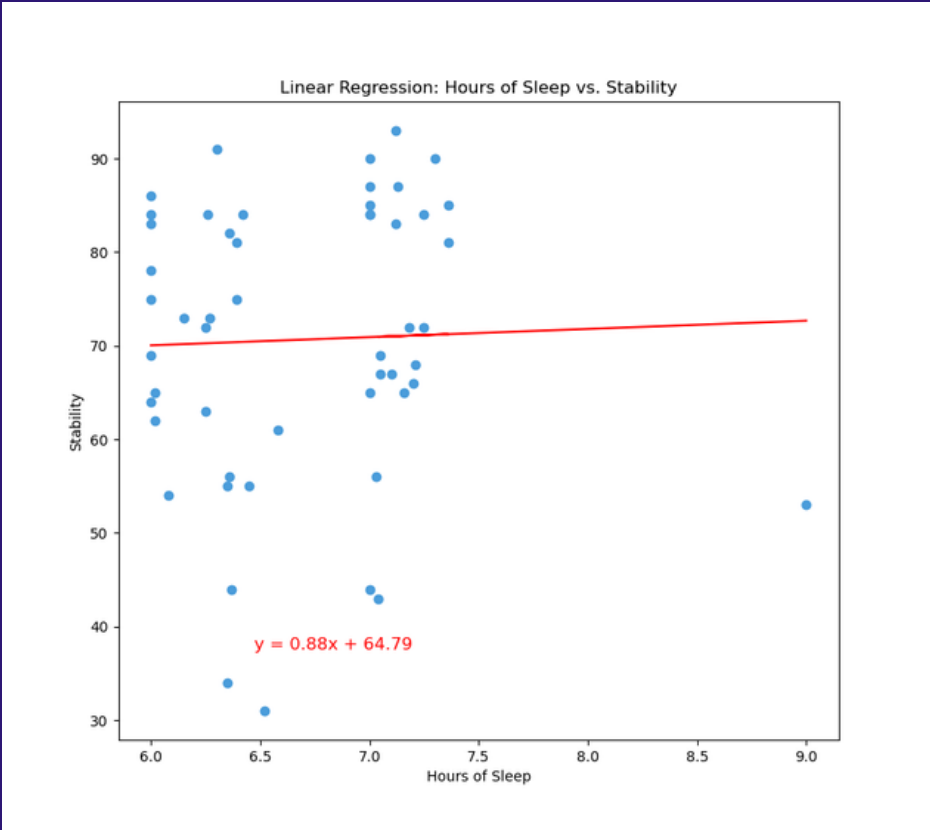
Health



Life Quality



Safety



Stability

Conclusion

Based on the statistical experiments conducted in this project, our conclusions are as follows:

1. There is no significant relationship between hours of sleep and quality of life.
2. However, we observed a correlation indicating that higher cost of living is associated with fewer hours of sleep.
3. Additionally, when examining the geographical distribution through maps, it is evident that Europe and Asia have fewer sleep hours compared to other continents among the available countries.

Based on the statistical analysis and the observed results, we must reject our initial hypothesis, which suggested a potential relationship between hours of sleep and overall quality of life. The data and experiments do not provide evidence to support this hypothesis. Instead, the analysis indicates that other factors, such as the cost of living, may have a more noticeable impact on sleep patterns.



Thank you for your time.

