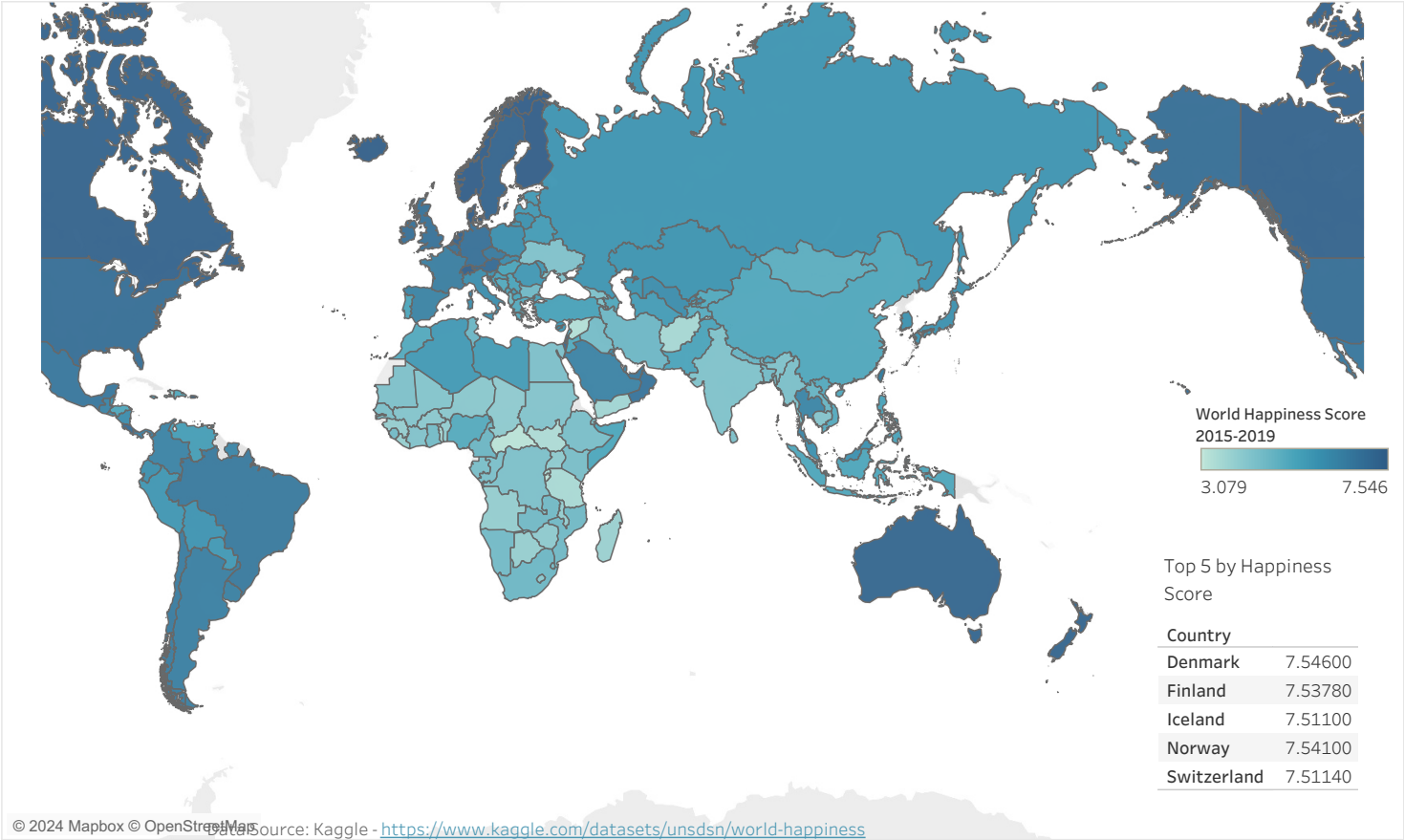


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World Happiness Report Analysis

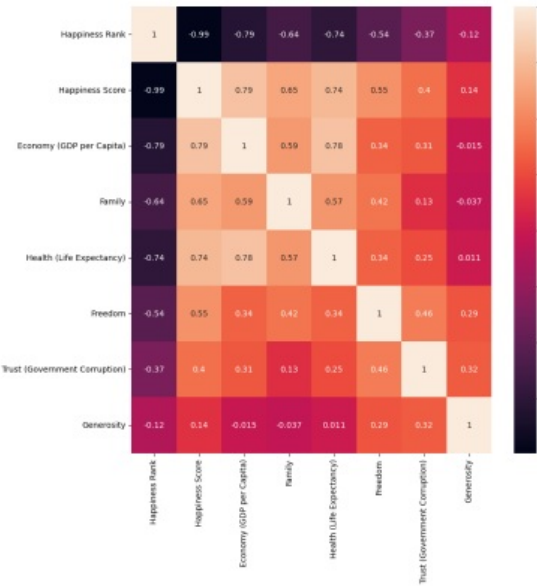
Since 2015, the Gallup World Poll has surveyed adults in nearly **160 countries**. The data from this poll is used to calculate six measures: **Dystopia Residual**, **Economy (GDP per Capital)**, **Health (Life Expectancy)**, **Freedom**, **Generosity**, and **Trust (Perceptions of Corruption in Government)**. These values are then used to generate a happiness rank and score for each country.



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Linear Regression Analysis

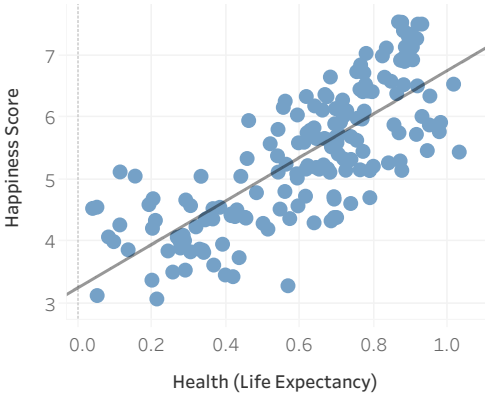
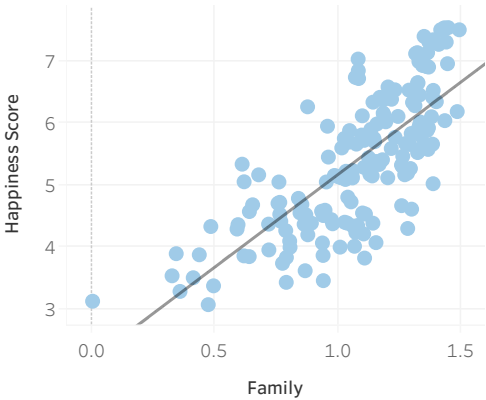
As seen on the **heatmap** below, we can see a very compelling **positive correlation** between a high happiness score and key factors such as **Economy(GDP per capita)**, **Family** and **Health (life expectancy)**. These correlations are notably strong, however, other variables such as Freedom, Trust (government corruption) and Generosity are displaying a much weaker correlation to the happiness score.



For the sake of exploration, I am looking for **linear relationships** between the three variables positively correlated (Famils, Health & Economy).

I have found there is **linear dependence** between all three variables and the Happiness Score. In the plots to the right you can see that when either **Family**, **Health** or **Economy** is higher, is then the average **Happiness Score** is generally higher.

This trend led me to the following **hypotheses**: - There is a positive correlation between a country's level of social support (as measured by the Family, Health and Economy) and its overall Happiness Score.
Null Hypothesis: If a country has a high GDP per capita and high life expectancy, but a low family score, then the country will not have a high happiness score.
Hypothesis 2 - Happiness Scores for each country measured between 2015 and 2019 does not change within more than 10 places (in rank).
Null Hypothesis 2 - Happiness Scores over 2015-2019 for specific countries ..



World Happiness Report

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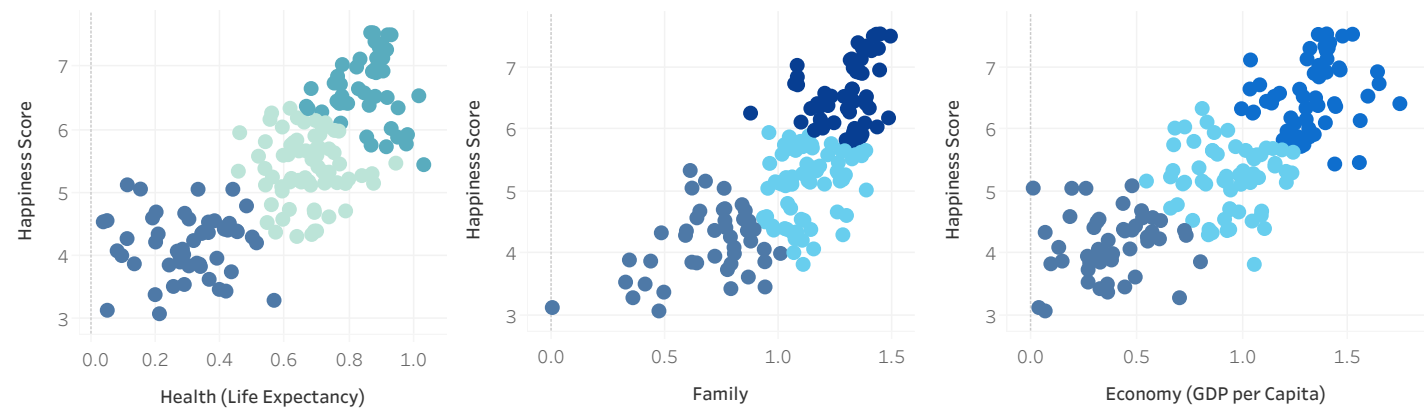
Cluster Analysis

The **cluster analysis** below groups data points into “clusters” allowing us to then **compare** the groups of data to uncover new patterns. My cluster analysis yielded three distinct groups of data points, which you can see represented in different tones of blue on this scatterplot. Although each variable is clustered differently:

Below, we see that a strong correlation exists between **Health (life expectancy)** and Happiness Score. The countries with higher life expectancies tend to have higher happiness scores, emphasising the vital role of health in overall well-being, with tighter cluster between the higher values.

Again, we strong correlation exists between **Family** bonds and happiness with a very tight cluster in the higher value third. Societies with close-knit family connections tend to have higher happiness scores, emphasizing the vital role of interpersonal relationships in overall well-being.

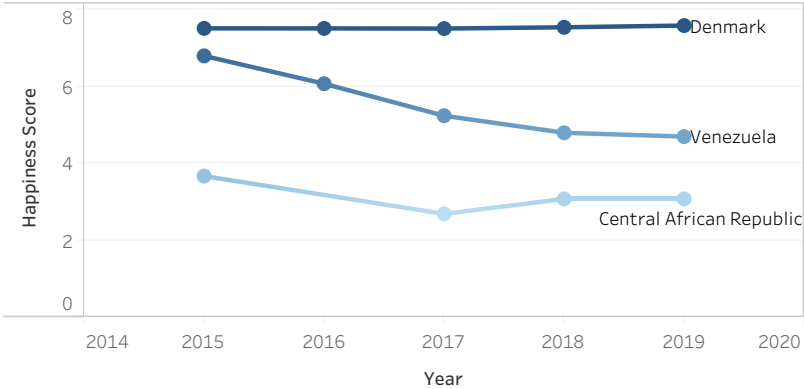
Finally, a correlation emerging between a country’s **Economy (GDP per capita)** and its’ Happiness Score. This demonstrates how economic prosperity directly influences overall well-being and how important it is to the happiness of a nation. As GDP per capita rises, so does the happiness score, emphasizing the crucial role of financial stability in fostering contentment and satisfaction among citizens, we can see this displays tighter correlations amongst all three cluster groups.



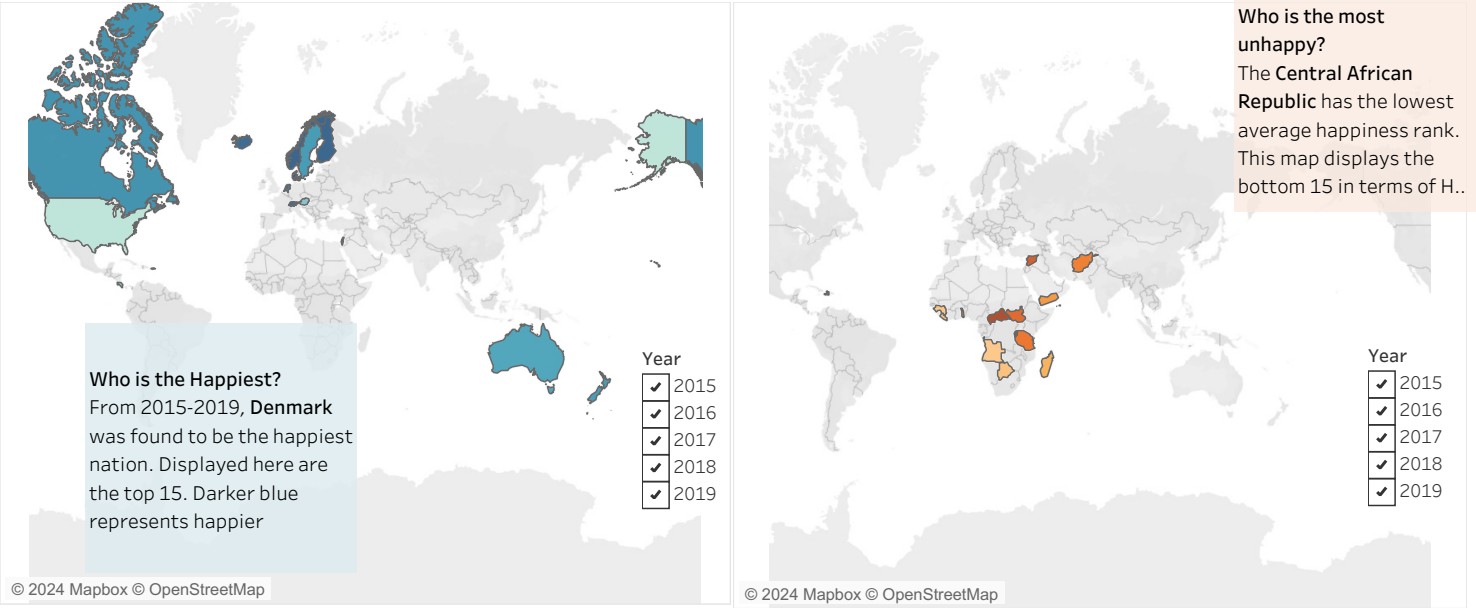
World Happiness Report

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Most/least unhappy & the changes over..



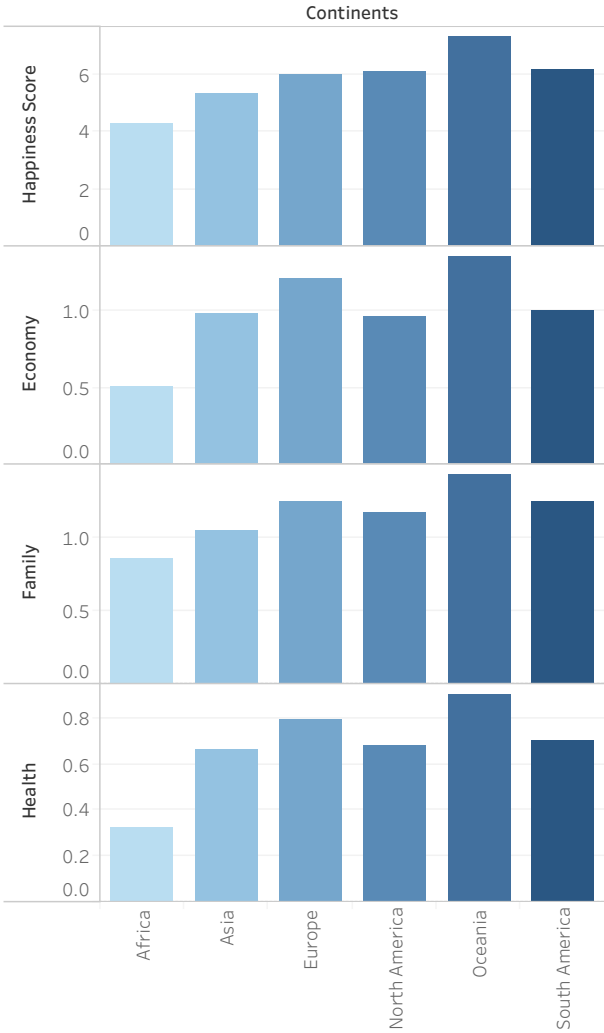
The graph to the left shows the changes to the top and bottom Happiness Scored countries over time, as well as the 'biggest mover'. **Venezuela** dropped from a staggering 23rd to 108th over the 5 years the survey was conducted.



World Happiness Report

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Conclusion



In conclusion, this analysis of the World Happiness Report has revealed that Economy (GDP per Capita), Family, and Health (life expectancy) are three factors that significantly influence happiness scores. Interestingly, if we look to the left, where the countries have been grouped by continent, we can see North America shows surprising results in terms of Economy and Health in terms of trends. Oceania lead the way in Happniness, Economy, Family and Health.

Geographically, top-ranking countries are mainly in Western Europe, North America, Oceania, while lower-ranking nations are located in Africa and Asia.

These findings emphasize the importance of economic prosperity in countries as well as social connections and health . These variables help foster global happiness and call for targeted interventions to address disparities worldwide.