

World Happiness Report

JAE ZAKARAUSKAS, EDUARDO ALEMAN, NING GAO, IRENA MEHIC





Data: World
Happiness Report,
2015 - 2019

Corruption

Social
Support

Generosity

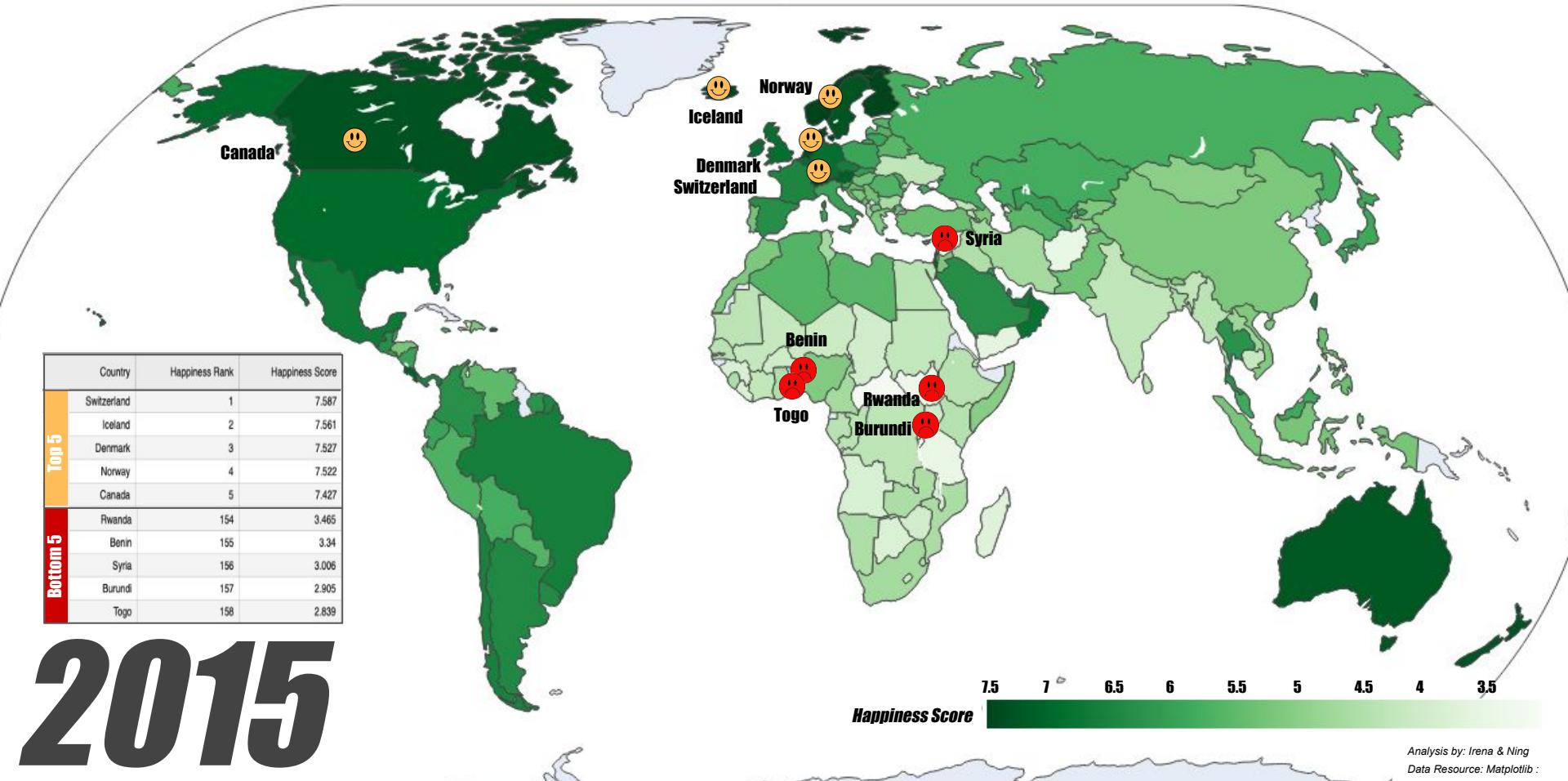
Freedom

Life
Expectancy

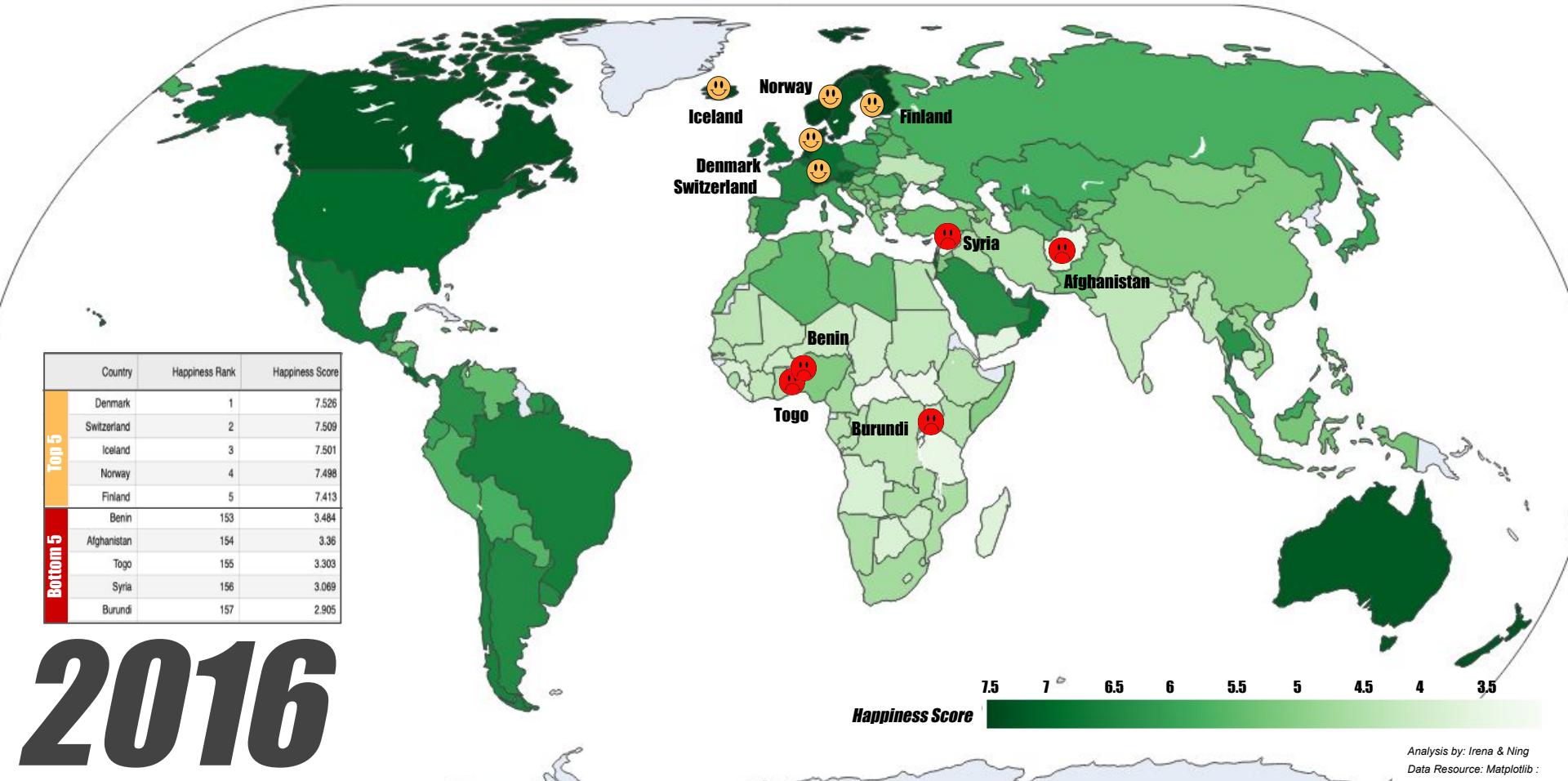
GDP

What do we want
to learn? What is
the focus of our
analysis?

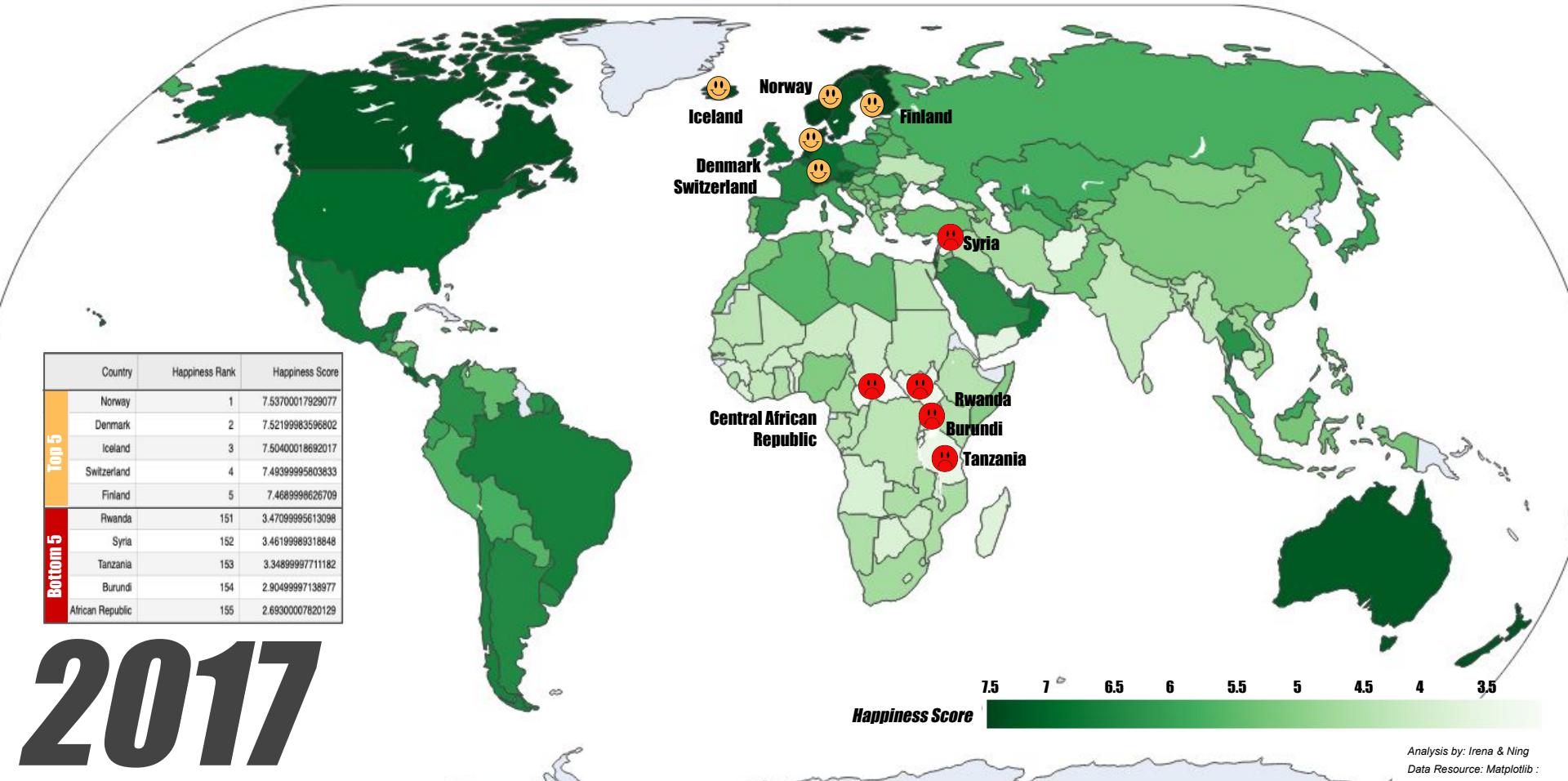
The World's Happiest Countries



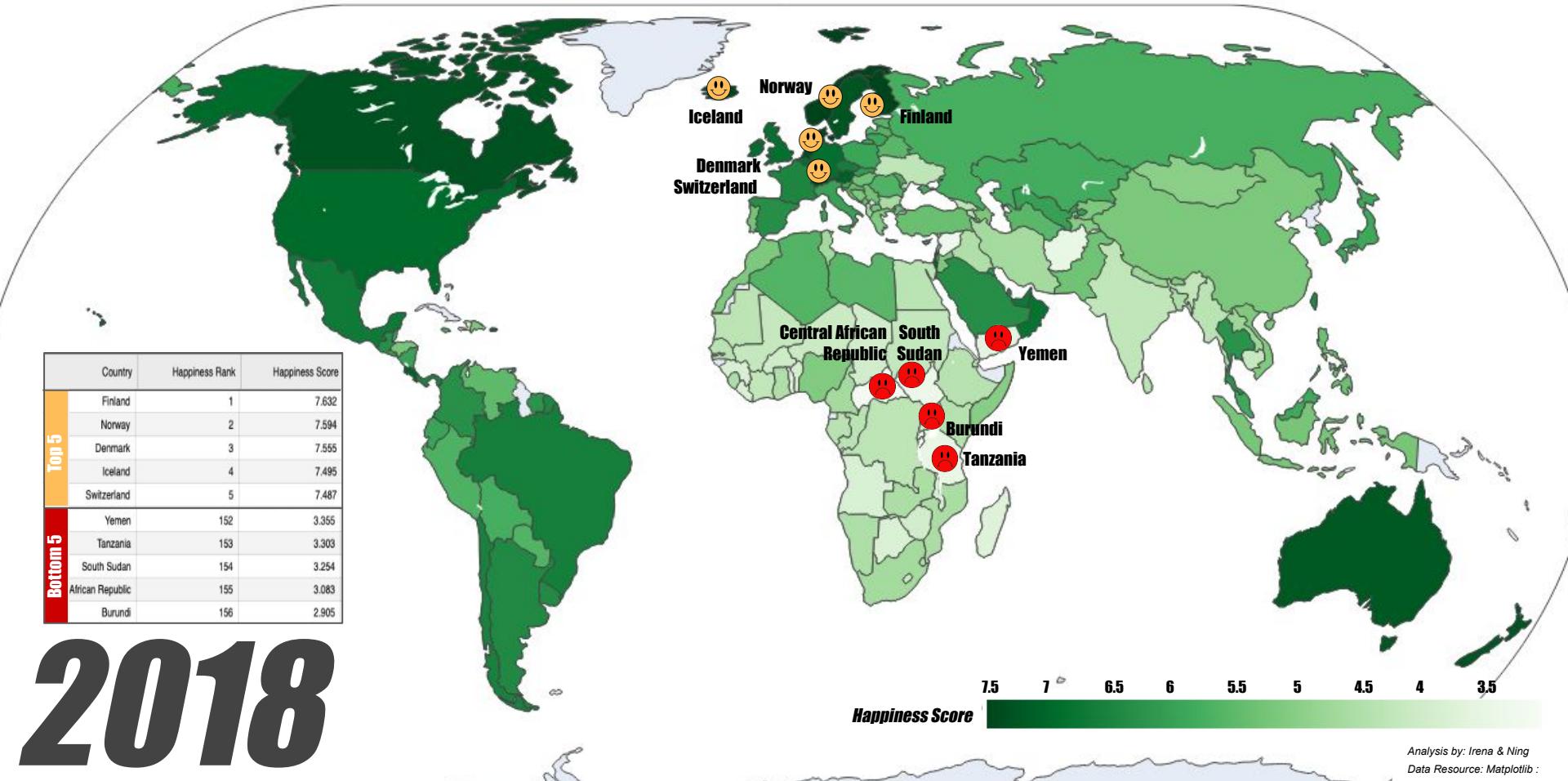
The World's Happiest Countries



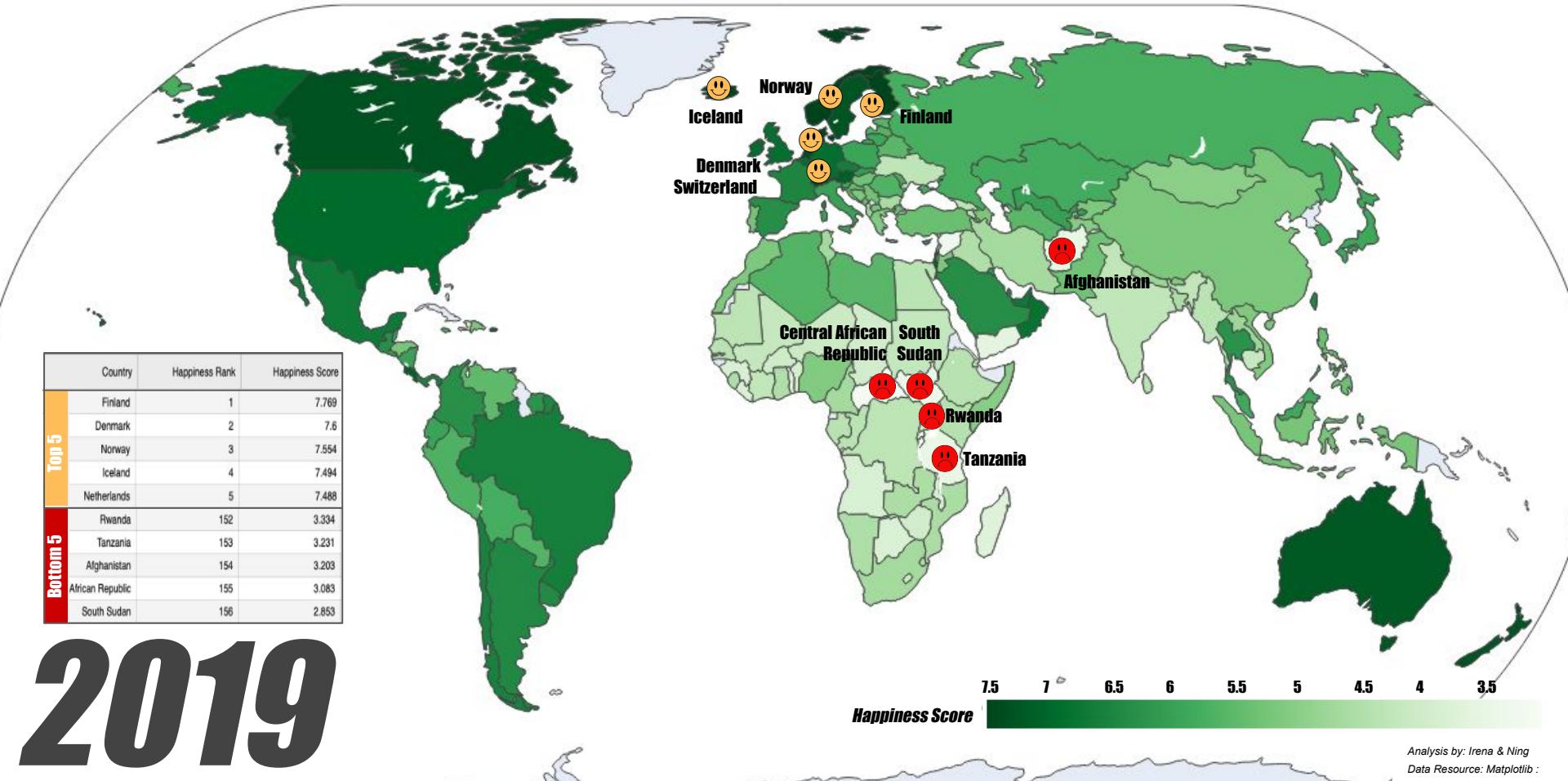
The World's Happiest Countries



The World's Happiest Countries



The World's Happiest Countries



How To Measure A Country's Happiness

World Happiness Report

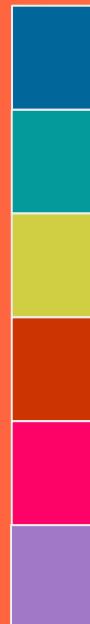
Ladder Score

(aka. Happiness Score)

Life evaluations from the Gallup World Poll



Six Explanatory Variables



GDP Per Capita

Social Support

Healthy Life Expectancy

Freedom

Generosity

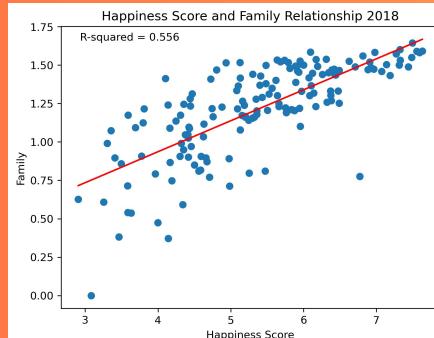
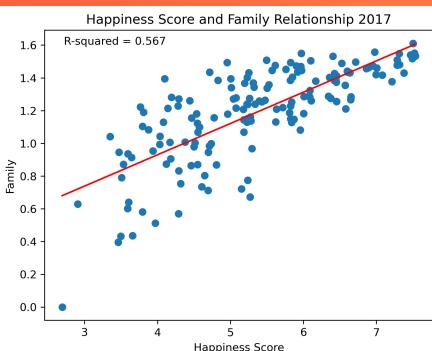
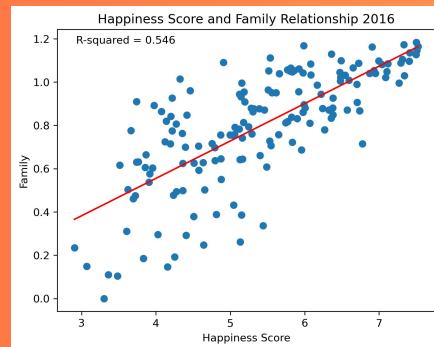
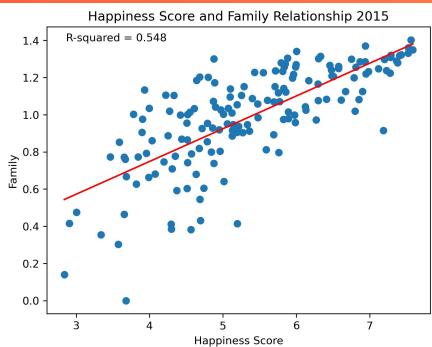
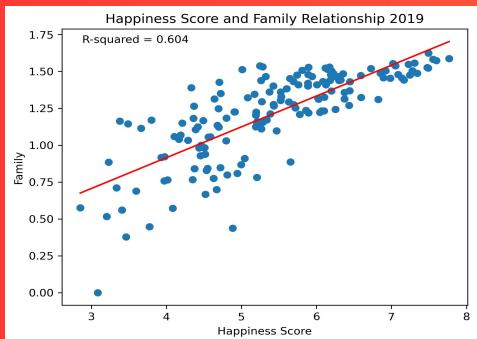
Corruption

Family

(Scatter Plot & line regression on Happiness score)



When creating a scatter plot I wanted to compare my variable (family) to the happiness score and found that my average R-squared is moderate to strong relationship being at its highest in 2019 (.604)



Analysis by: Eduardo Aleman

Data Source:

www.kaggle.com/datasets/mathurinache/world-happiness-report-20152021?select=2015.csv

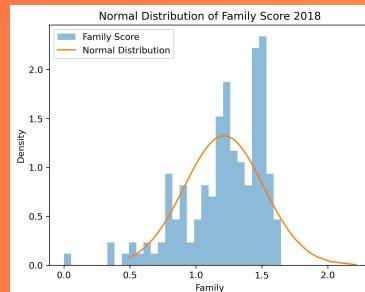
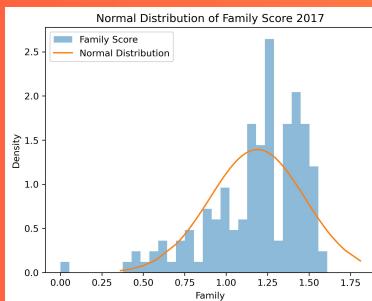
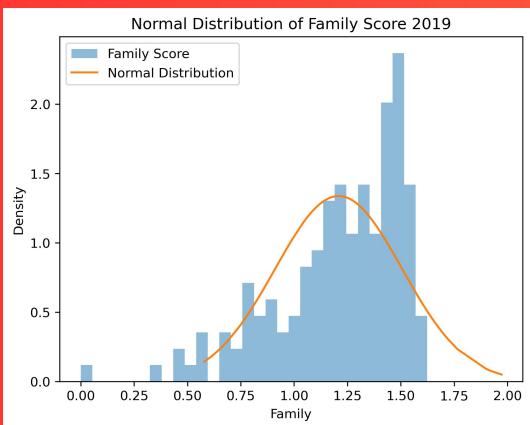
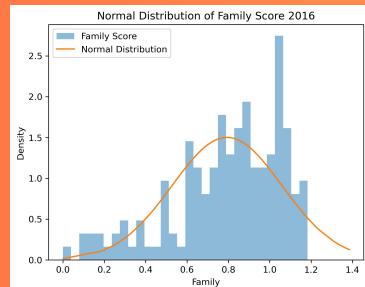
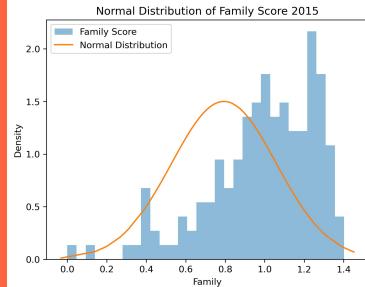
Family

(Normal Distribution of family Score)



Sadly when creating a normal dist. year over year its clear to see that the data is skewed to the left.

This can however give insights to prove that family is an import factor as it relates to happiness in general as there is a heavy lean towards a higher score.



Analysis by: Eduardo Aleman

Data Source:

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Happiness Score and Family top and bottom 5

	Year	Country	Happiness Rank	Happiness Score	Family
1	2015	Switzerland	1	7.587	1.34951
2	2015	Iceland	2	7.561	1.40223
3	2015	Denmark	3	7.527	1.36058
4	2015	Norway	4	7.522	1.33095
5	2015	Canada	5	7.427	1.32261
6	2016	Denmark	1	7.526	1.16374
7	2016	Switzerland	2	7.509	1.14524
8	2016	Iceland	3	7.501	1.18326
9	2016	Norway	4	7.498	1.1269
10	2016	Finland	5	7.413	1.13464
11	2017	Norway	1	7.53700017929077	1.53352355957031
12	2017	Denmark	2	7.52199983596802	1.55112159252167
13	2017	Iceland	3	7.50400018692017	1.6105740070343
14	2017	Switzerland	4	7.49399995803833	1.51691174507141
15	2017	Finland	5	7.4689998626709	1.5402467250824
16	2018	Finland	1	7.632	1.592
17	2018	Norway	2	7.594	1.582
18	2018	Denmark	3	7.555	1.59
19	2018	Iceland	4	7.495	1.644
20	2018	Switzerland	5	7.487	1.549
21	2019	Finland	1	7.769	1.587
22	2019	Denmark	2	7.6	1.573
23	2019	Norway	3	7.554	1.582
24	2019	Iceland	4	7.494	1.624
25	2019	Netherlands	5	7.488	1.522

Recurring top and bottom 5 throughout the 5 years

High rank mostly in Europe with an average mean of 1.44

Low ranking reside mostly in Africa with an average mean of 0.47

By looking at the extremes we are able to tell that there is a correlation between happiness score/rank to family

	Year	Country	Happiness Rank	Happiness Score	Family
1	2015	Rwanda	154	3.465	0.7737
2	2015	Benin	155	3.34	0.35386
3	2015	Syria	156	3.006	0.47489
4	2015	Burundi	157	2.905	0.41587
5	2015	Togo	158	2.839	0.13995
6	2016	Benin	153	3.484	0.10419
7	2016	Afghanistan	154	3.36	0.11037
8	2016	Togo	155	3.303	0.0
9	2016	Syria	156	3.069	0.14866
10	2016	Burundi	157	2.905	0.23442
11	2017	Rwanda	151	3.47099995613098	0.945707023143768
12	2017	Syria	152	3.46199989318848	0.396102607250214
13	2017	Tanzania	153	3.3489997711182	0.10419880331421
14	2017	Burundi	154	2.9049997138977	0.629793584346771
15	2017	Central African Republic	155	2.69300007820129	0.0
16	2018	Yemen	152	3.355	1.073
17	2018	Tanzania	153	3.303	0.991
18	2018	South Sudan	154	3.254	0.808
19	2018	Central African Republic	155	3.083	0.0
20	2018	Burundi	156	2.905	0.627
21	2019	Rwanda	152	3.334	0.711
22	2019	Tanzania	153	3.231	0.885
23	2019	Afghanistan	154	3.203	0.517
24	2019	Central African Republic	155	3.083	0.0
25	2019	South Sudan	156	2.853	0.575



Analysis by: Eduardo Aleman

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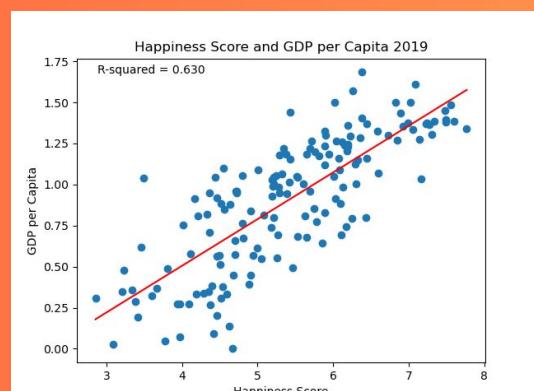
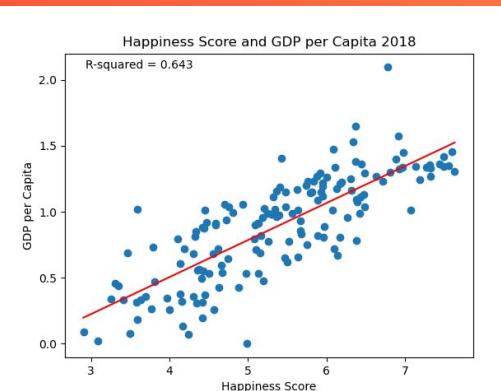
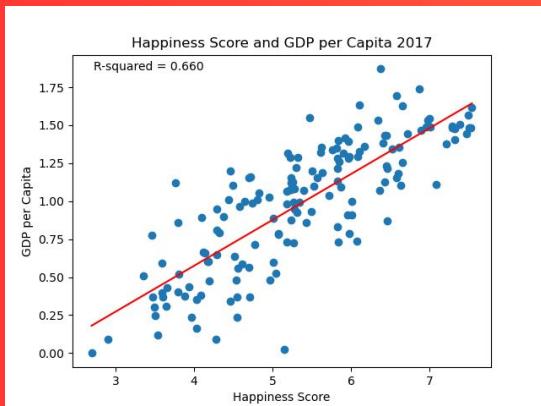
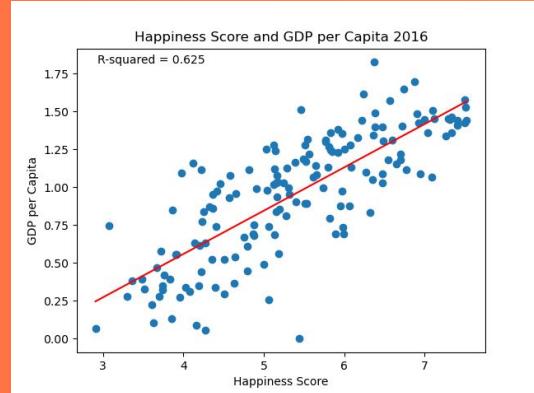
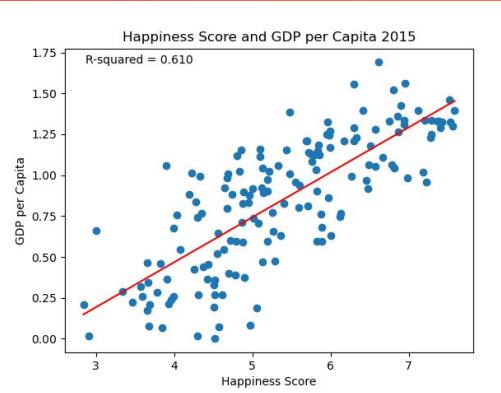


GDP Per Capita

Scatter plots based on GDP



Over time, the R-squared value of this relationship between overall Happiness Score and GDP per Capita has a moderate to strong correlation since R-squared ranges between 0.61 - 0.66.

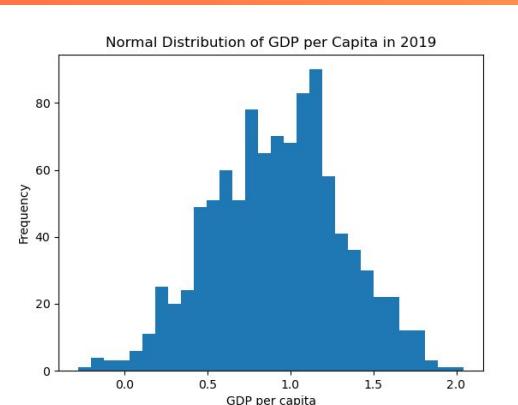
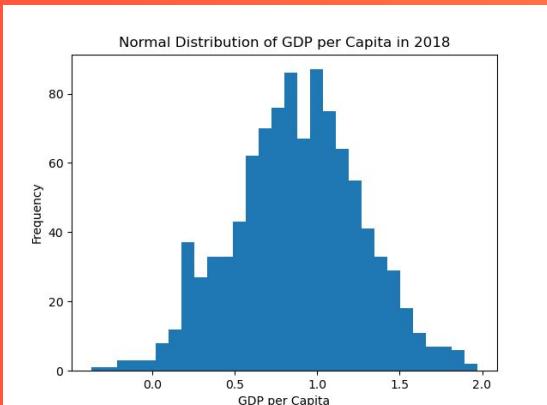
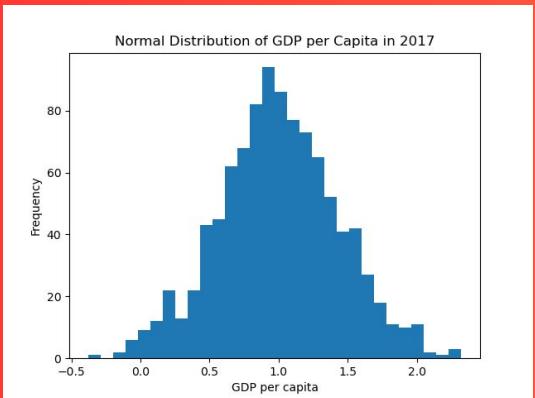
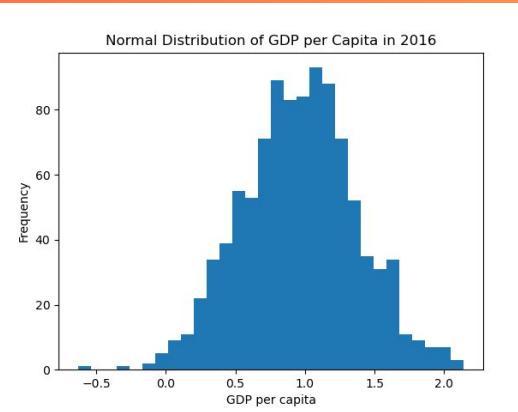
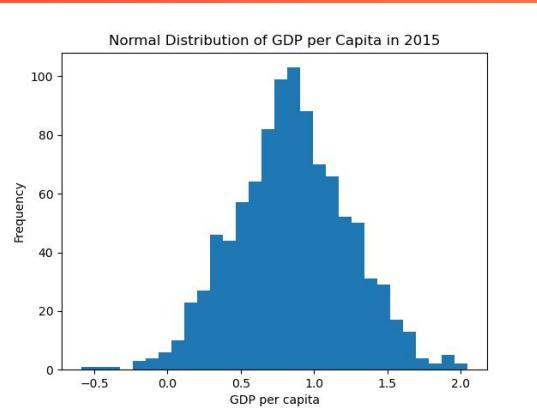


GDP Per Capita



Normal distribution histograms

Most of these show a slight skew to the right which indicates there are more countries with a higher GDP per capita and higher happiness score than there are with lower GDP per capita and lower happiness score



Healthy Life Expectancy

[Average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury, measured with both physical and mental conditions]

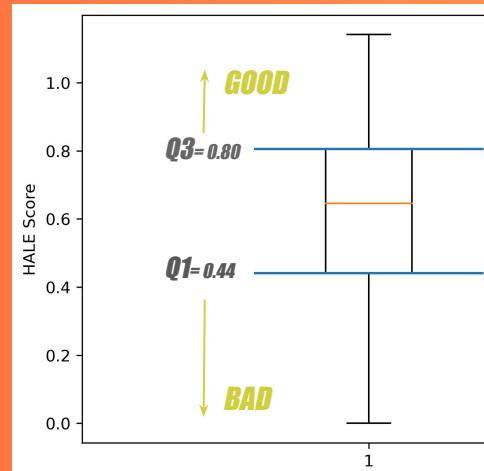


Q: What is the metric of this variable? - From score 0 to 1+, what range should be considered *GOOD*, what range should be considered *BAD*?

Q: What ranges do the Top & Bottom 5 countries (2015-2019) land in? - In this variable, are top happy countries all in the *GOOD* categories, and bottom happy countries all in the *BAD* categories throughout the years?

Solution :

- Collect HALE (Healthy Life Expectancy) scores of all participating countries in all 5 years.
- Get the statistic *UPPER QUARTILE* (Q3,75%) as the critical value for the *GOOD category*.
- Similarly, get the statistic *LOWER QUARTILE* (Q1,25%) as the critical value for the *BAD category*.



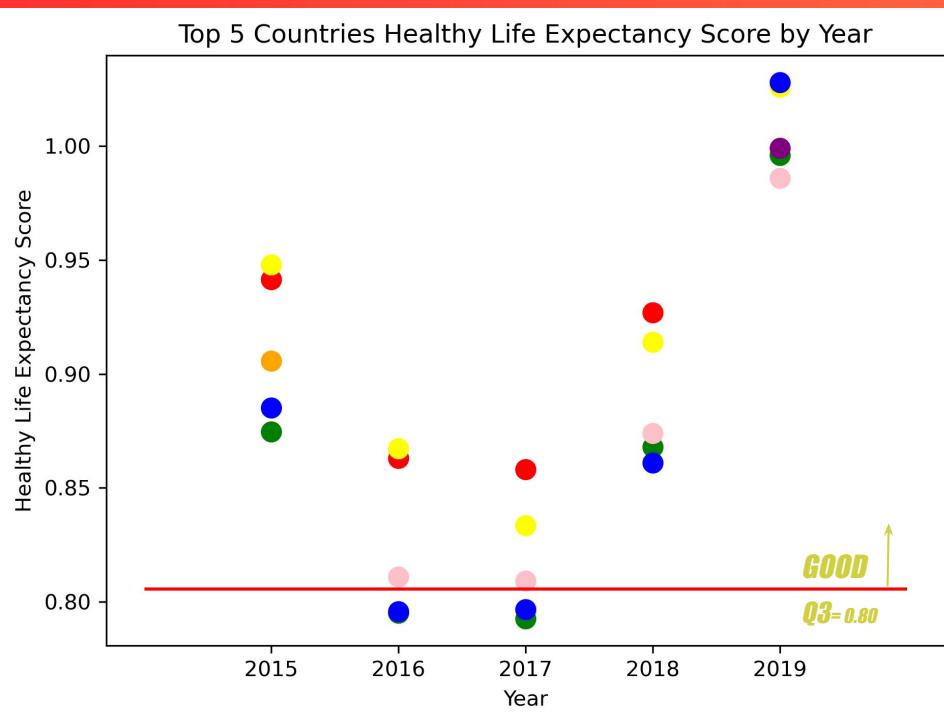
Analysis by: Ning Gao

Data Source:

www.kaggle.com/datasets/mathurinache/world-happiness-report-20152021?select=2015.csv

Healthy Life Expectancy

Evaluation of the Top 5 Countries | 2015-2019



OBSERVATIONS :

- 7 countries have been in the Top 5 from 2015-2019
- Norway and Denmark - ever fall off the GOOD category
- 2016 & 2017 vs. 2019

- *Netherlands*
- *Switzerland*
- *Denmark*
- *Norway*
- *Iceland*
- *Finland*
- *Canada*

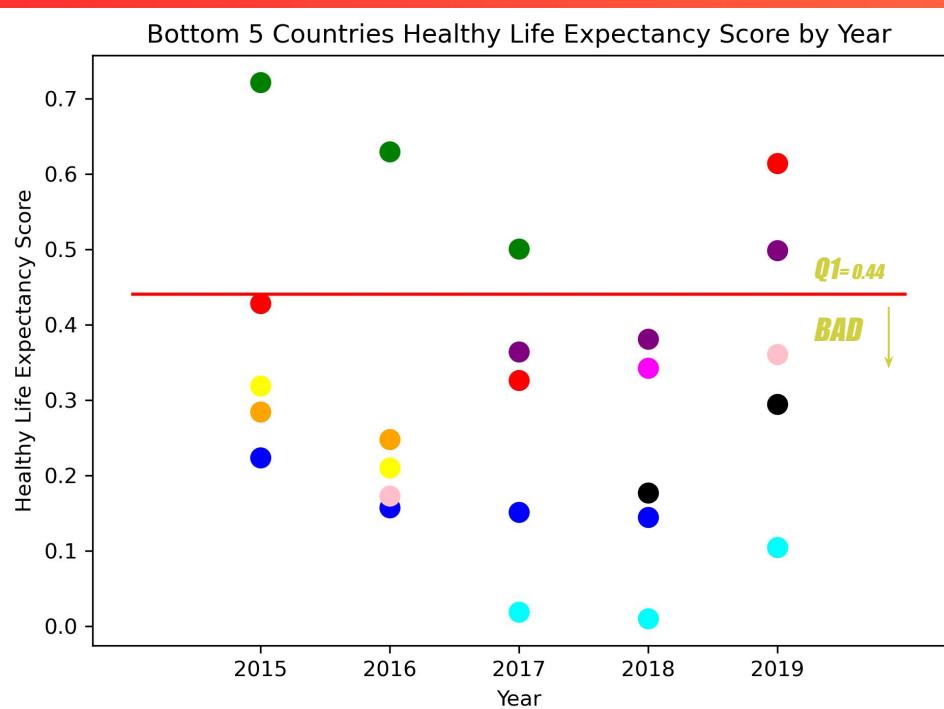
Analysis by: Ning Gao

Data Source:

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Healthy Life Expectancy

Evaluation of the Bottom 5 Countries | 2015-2019



OBSERVATIONS :

- 10 countries have been in the Bottom 5 from 2015-2019
- Syria, Rwanda and Tanzania - ever above the BAD category
- 2018 vs. 2019

Central African Republic	Burundi
South Sudan	Yemen
Afghanistan	Benin
Tanzania	Togo
Rwanda	Syria

Analysis by: Ning Gao

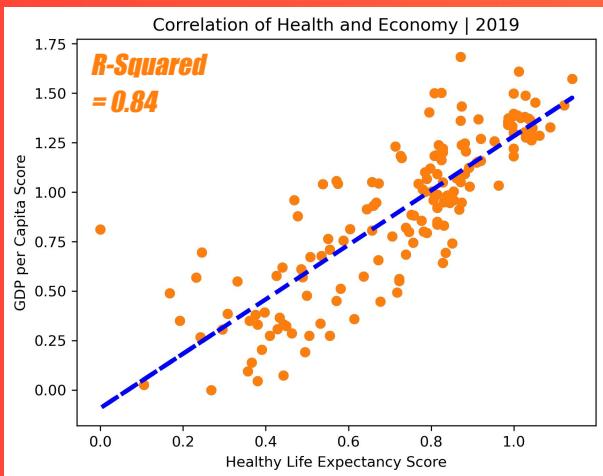
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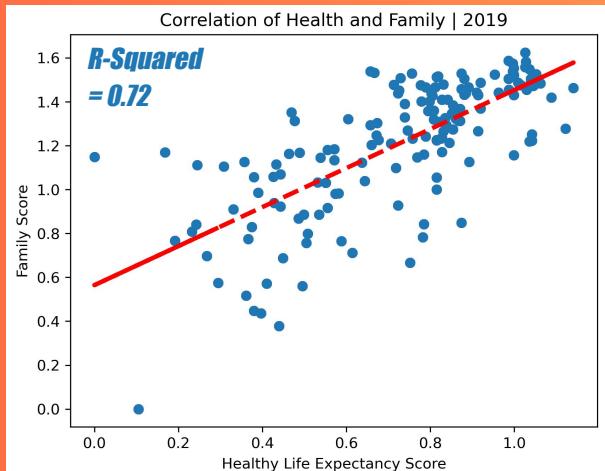
Healthy Life Expectancy

Correlation with the other 2 variables

GDP Per Capita



Family / Social Support



Analysis by: Ning Gao

Data Source:

www.kaggle.com/datasets/mathurnnache/world-happiness-report-20152021?select=2015.csv

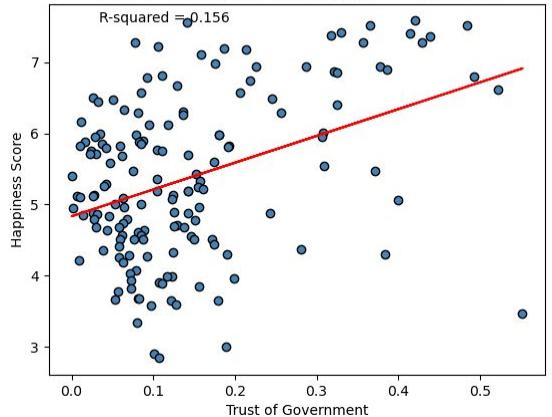
Perceptions of Corruption

“World leaders should take heed. Politics should be directed as the great sages long ago insisted: to the well-being of the people, not the power of the rulers.”

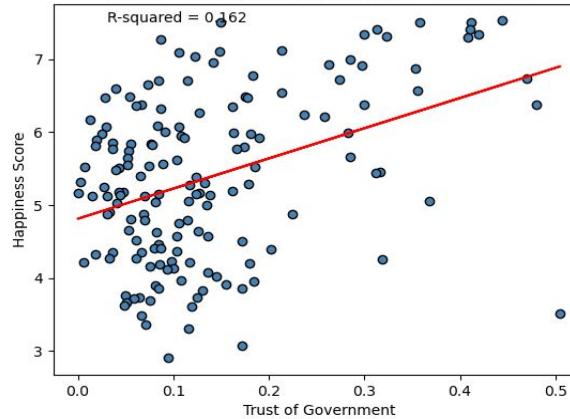
Perceptions of corruption are the average of binary answers to two Gallup World Poll questions:

1. “Is corruption widespread throughout the government or not?”
2. “Is corruption widespread within businesses or not?”

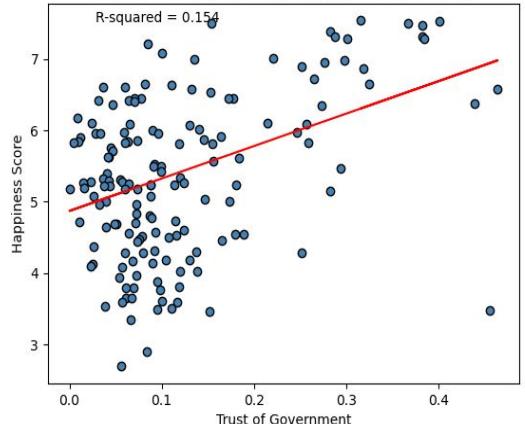
Trust of Government and Happiness Scores 2015



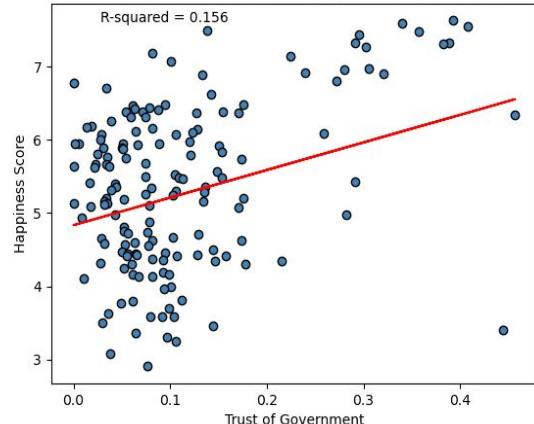
Trust of Government and Happiness Scores 2016



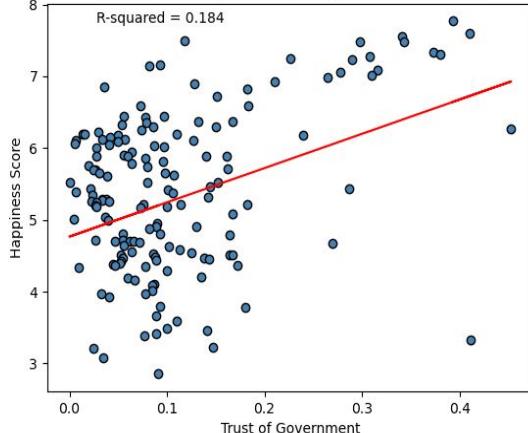
Trust of Government and Happiness Scores 2017



Trust of Government and Happiness Scores 2018



Trust of Government and Happiness Scores 2019

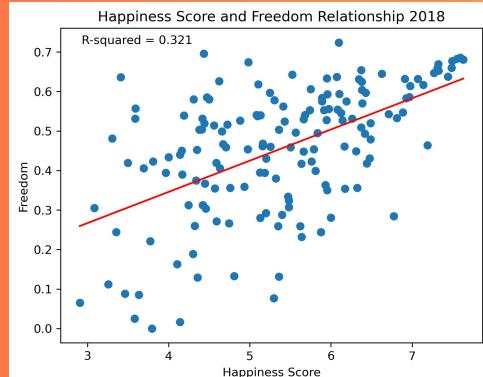
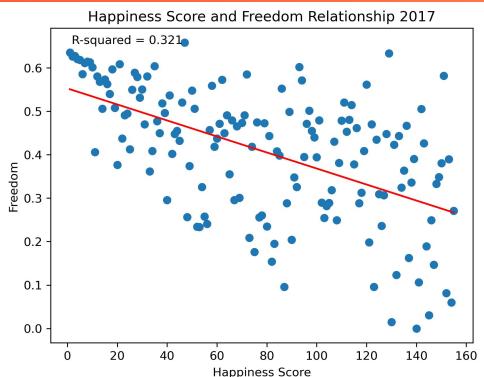
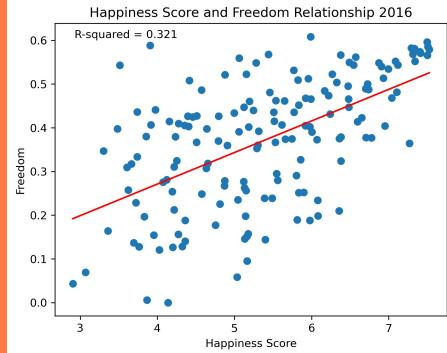
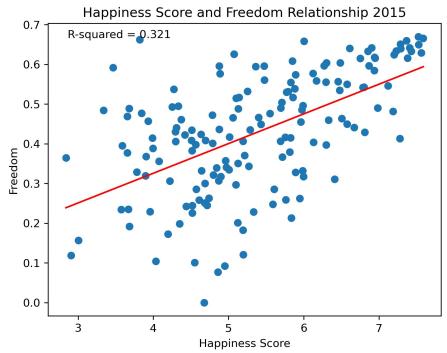
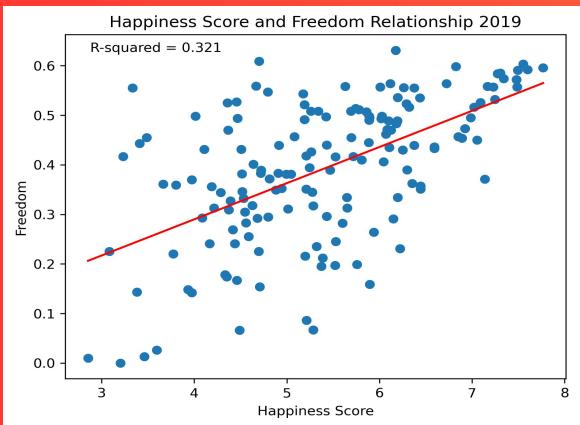


Freedom

(Scatter Plot & line regression on Happiness score)



The average r-squared value amongst the 5 years is .31 which suggests that the data is weak to compare it to happiness score



Analysis by: Eduardo Aleman

Data Source:

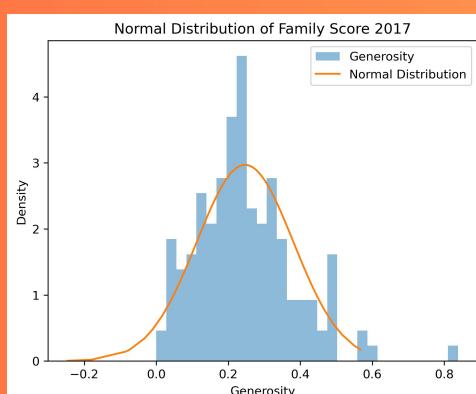
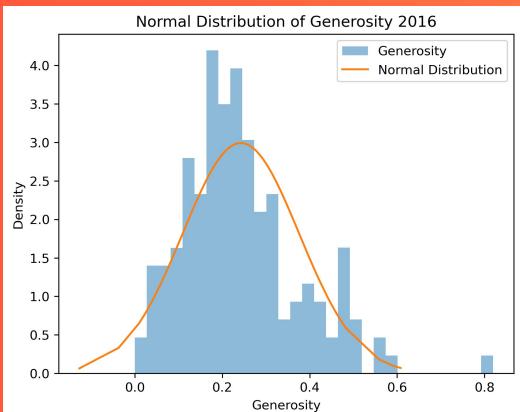
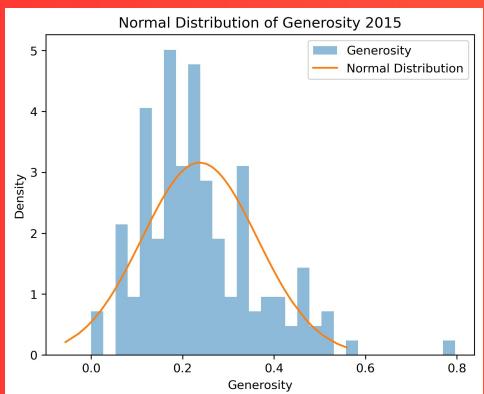
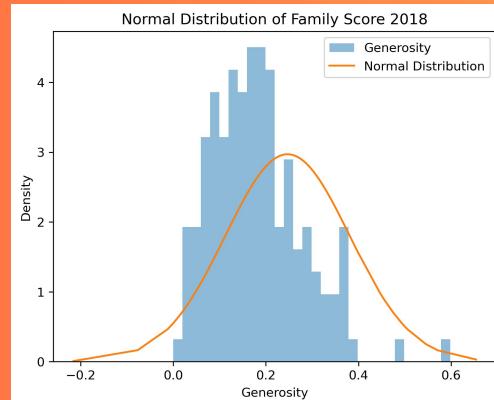
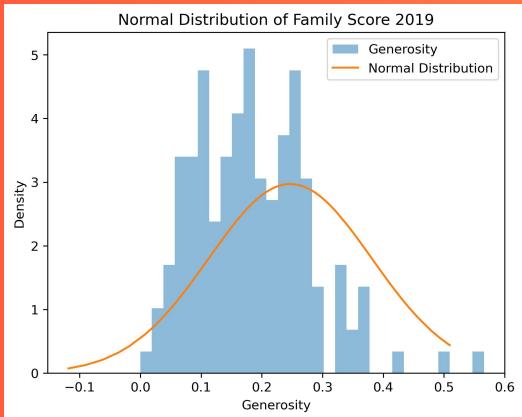
www.kaggle.com/datasets/mathurinache/world-happiness-report-20152021?select=2015.csv

Generosity

(Normal Distribution of Generosity)



Generosity looks to be normally distributed between 2015-2017 and drops off in 2018-2019.



Analysis by: Eduardo Aleman

Data Source:

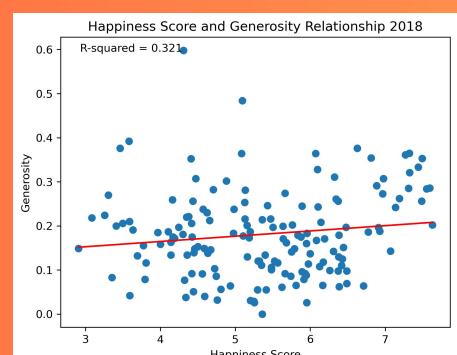
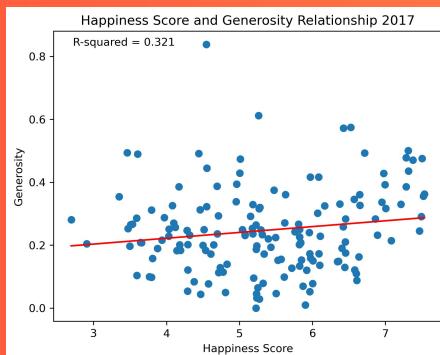
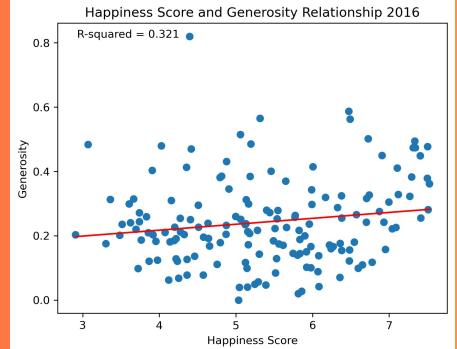
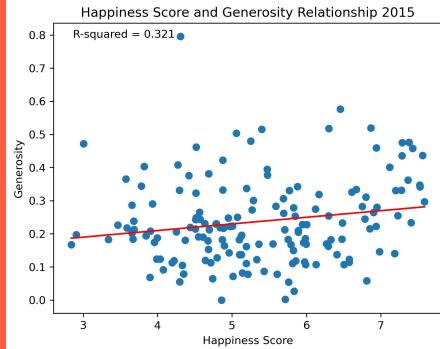
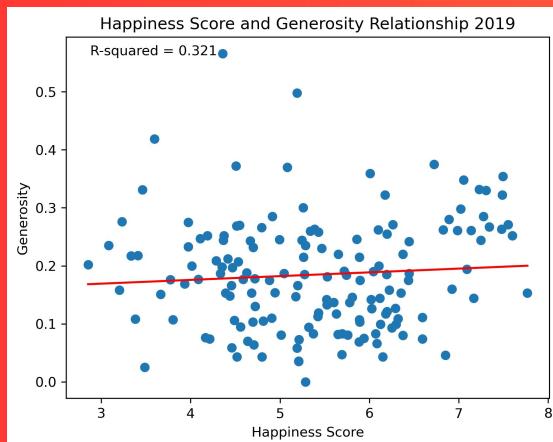
www.kaggle.com/datasets/mathurinache/world-happiness-report-20152021?select=2015.csv

Generosity

(Scatter Plot & line regression on Happiness score)



The average r-squared is .321 suggesting that even if the normal distribution is normal the variability is very high and makes it difficult to draw any conclusions.



Which of the 6 variables most affect a country's "happiness"?

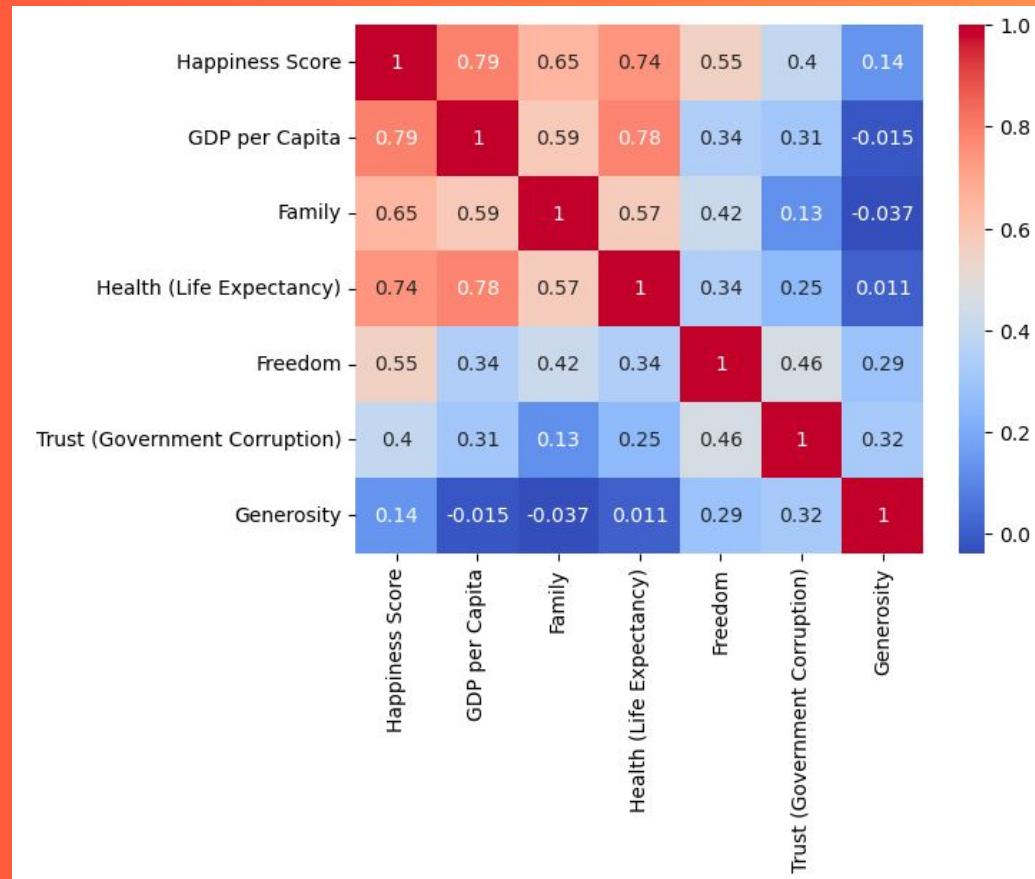
Average Correlation scores between Happiness Scores & all variables

GDP Per Capita	0.796
Family	0.564
Healthy Life Expectancy	0.766
Freedom	0.313
Generosity	0.321
Corruption	0.200

Do the six variables affect each other?

Correlation

- The highest correlation values are based on the GDP per Capita, Family, and Health/Life Expectancy



Can we further investigate this data?



- A potential case study: Venezuela. In 2015, ranked 23 and by 2019 they ranked 108. How did other variables fluctuate during this time? What events led to these sudden and severe differences?
- Potential case study 2 : Israel ranked No. 4 as a new/emerging Happy Country in 2023. What events led to this?
- Cross examine or compare to other relevant data. For example, Human Development Index (HDI) of the United Nations also releases a report to measure overall welfare based on three indicators: lifespan, educational attainment, and adjusted real income.
- COVID hit in 2020 - How did it change the world's happiness level in the six variables holistically and separately?

List of Resources:

<https://worldhappiness.report/news/amid-war-and-disease-world-happiness-report-shows-bright-spot/>

<https://news.gallup.com/poll/122453/understanding-gallup-uses-cantril-scale.aspx>

<http://www.koeblergerhard.de/Fontes/BenthamJeremyMoralsandLegislation1789.pdf#page=43>

<https://worldhappiness.report/ed/2023/world-happiness-trust-and-social-connections-in-times-of-crisis/#trust-and-benevolence-in-times-of-crisis>