



# **Analytics - World happiness Report 2021**

## **Version - 1**

By Wonsuk Seo



# Why?

Recently, I was listening to the podcast talking about the confusion that 2nd generation of immigrants have. The host was a korean guy saying that being ideal life of Korean is to get the best education, jobs and good marriage. In American culture, what being successful is to find true passion on something and go for personal dream or goal. This guy from podcast led me to a question what is being successful life? And which direct I should take in order to be successful. My answer for this question is to be happy and obtain happiness from obstacles that I will be facing.



# What

From the dataset from The World Happiness Report, I generated data analytics on which factors affect people's happiness. It was not easy at first because it can't be simply compared due to different systematically environments( tax rate, government) form and natural environments(weather).

The report uses six variables to measure happiness and generate the score of happiness for each country. Six variables are income, healthy life expectancy, having someone or something to rely on, generosity, freedom and trust in government.

# Dataframe - World happiness report 2021

I used drop function to drop unnecessary columns to gain readability of dataframe.



	Country name	Regional indicator	Ladder score	Standard error of ladder score	upperwhisker	lowerwhisker	Logged GDP per capita	Social support	Healthy life expectancy	Freedom to make life choices	Generosity	Perceptions of corruption	Ladder score in Dystopia
0	Finland	Western Europe	7.842	0.032	7.904	7.780	10.775	0.954	72.000	0.949	-0.098	0.186	2.43
1	Denmark	Western Europe	7.620	0.035	7.687	7.552	10.933	0.954	72.700	0.946	0.030	0.179	2.43
2	Switzerland	Western Europe	7.571	0.036	7.643	7.500	11.117	0.942	74.400	0.919	0.025	0.292	2.43
3	Iceland	Western Europe	7.554	0.059	7.670	7.438	10.878	0.983	73.000	0.955	0.160	0.673	2.43
4	Netherlands	Western Europe	7.464	0.027	7.518	7.410	10.932	0.942	72.400	0.913	0.175	0.338	2.43
...	...	...	...	...	...	...	...	...	...	...	...	...	...
144	Lesotho	Sub-Saharan Africa	3.512	0.120	3.748	3.276	7.926	0.787	48.700	0.715	-0.131	0.915	2.43
145	Botswana	Sub-Saharan Africa	3.467	0.074	3.611	3.322	9.782	0.784	59.269	0.824	-0.246	0.801	2.43
146	Rwanda	Sub-Saharan Africa	3.415	0.068	3.548	3.282	7.676	0.552	61.400	0.897	0.061	0.167	2.43
147	Zimbabwe	Sub-Saharan Africa	3.145	0.058	3.259	3.030	7.943	0.750	56.201	0.677	-0.047	0.821	2.43
148	Afghanistan	South Asia	2.523	0.038	2.596	2.449	7.695	0.463	52.493	0.382	-0.102	0.924	2.43

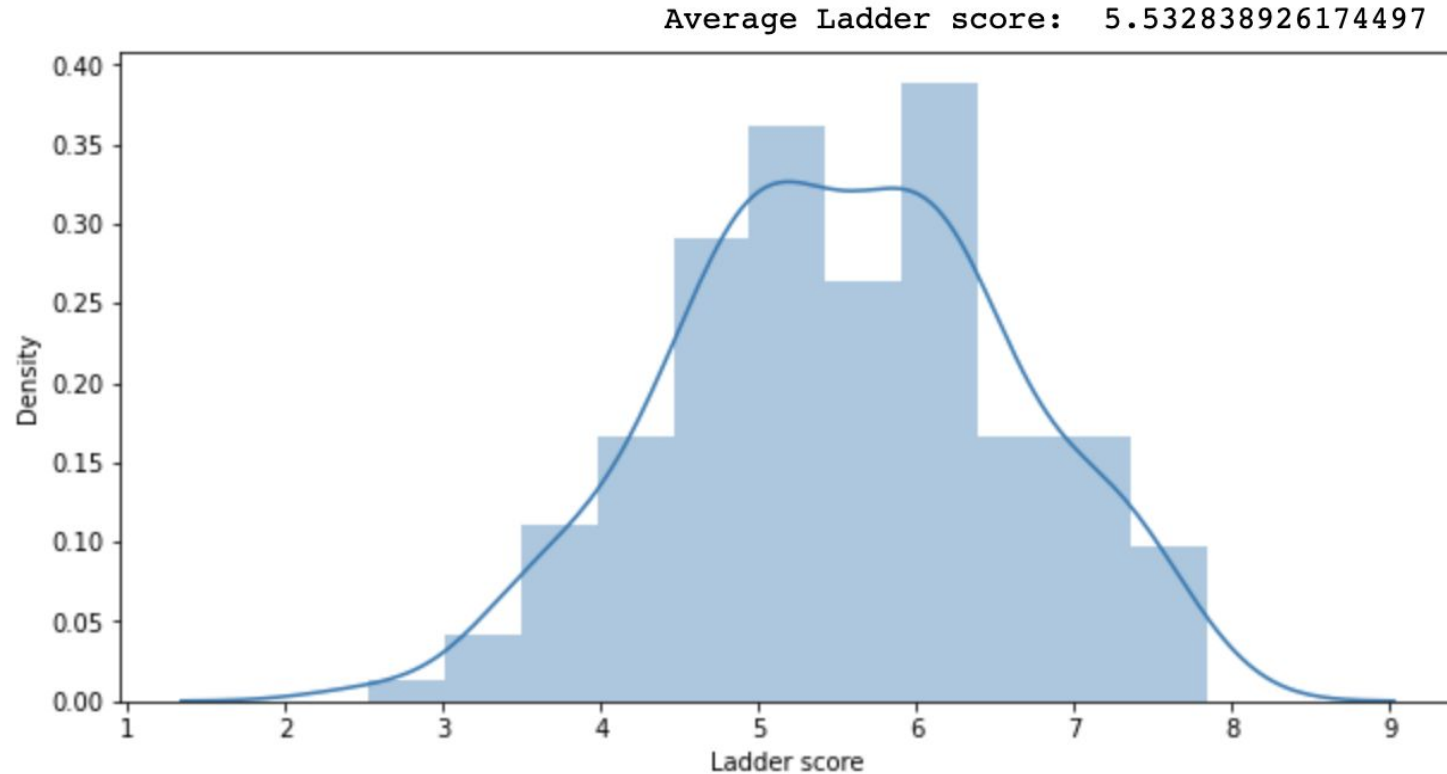
14 rows x 20 columns



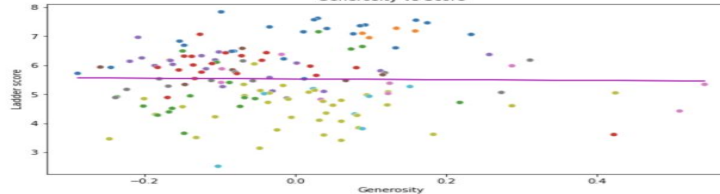
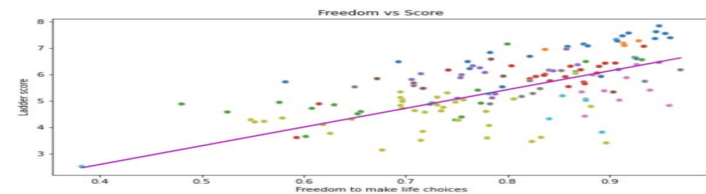
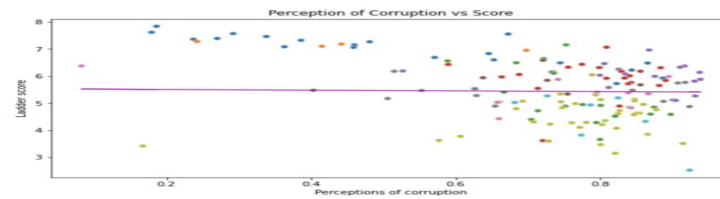
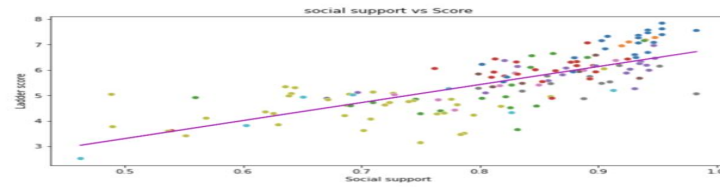
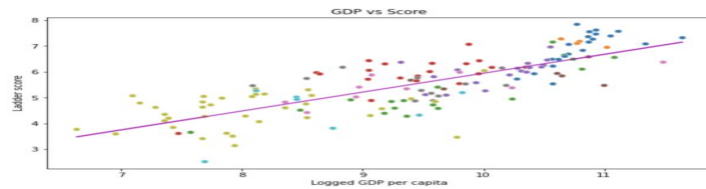
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14 rows x 9 columns

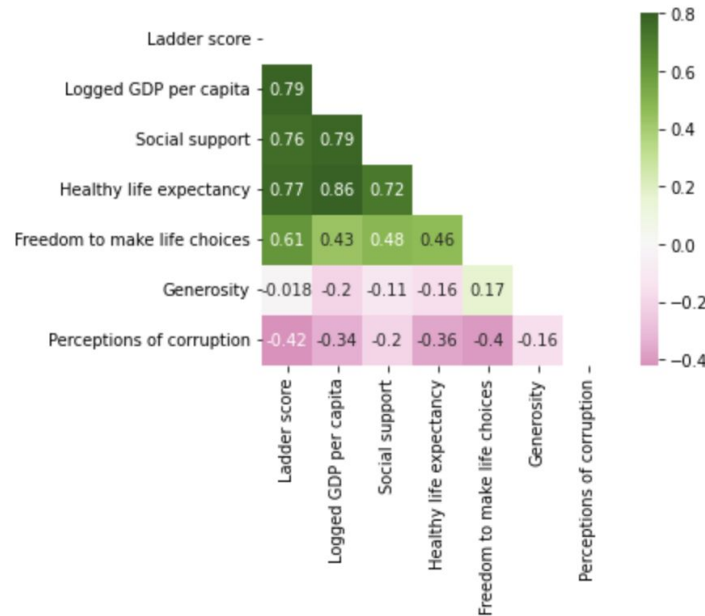
# Distribution of ladder scores



# Scatter plot- Laddar Score vs variables



# Correlation between variables



Number on each square is correlation coefficient

Relation ranking:

1. GDP(0.79)
2. Health(0.77)
3. Social Support(0.76)
4. Freedom(0.61)
5. Perception of Corruption(-0.42)
6. Generosity(-0.018)

As you can see, some variables appear to be highly correlated with happiness, such as GDP and life expectancy.

Economy is the most determining factor, and government corruptions is far lowest.

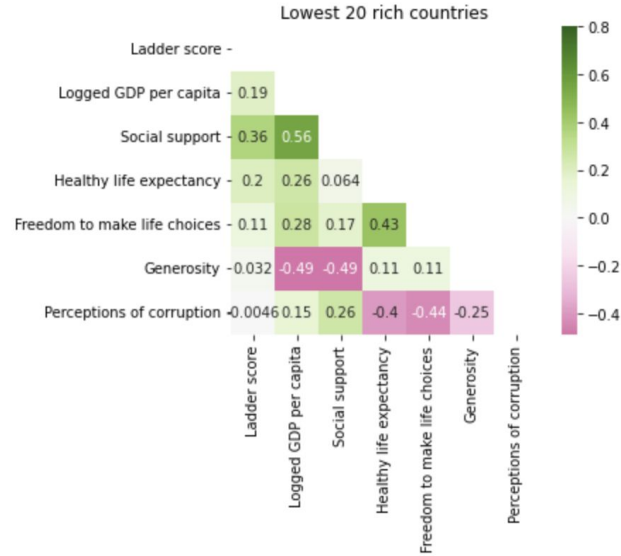
Like I said earlier, it is hard to say that all generated results represent each countries. Therefore, I'd like to break down by regions, rich and poor countries to figure out any differences and why.

# Top 20 Wealthiest VS Poorest



Relation ranking:

1. Freedom(0.73)
2. Perceptions of corruption(-0.65)
3. Social Support(0.58)
4. Health(0.37)
5. GDP(0.23)
6. Generosity(0.17)



Relation ranking:

1. Social(0.36)
2. Health(0.2)
3. GDP(0.19)
4. Freedom(0.11)
5. Generosity(0.032)
6. Perceptions of corruption(0.0046)

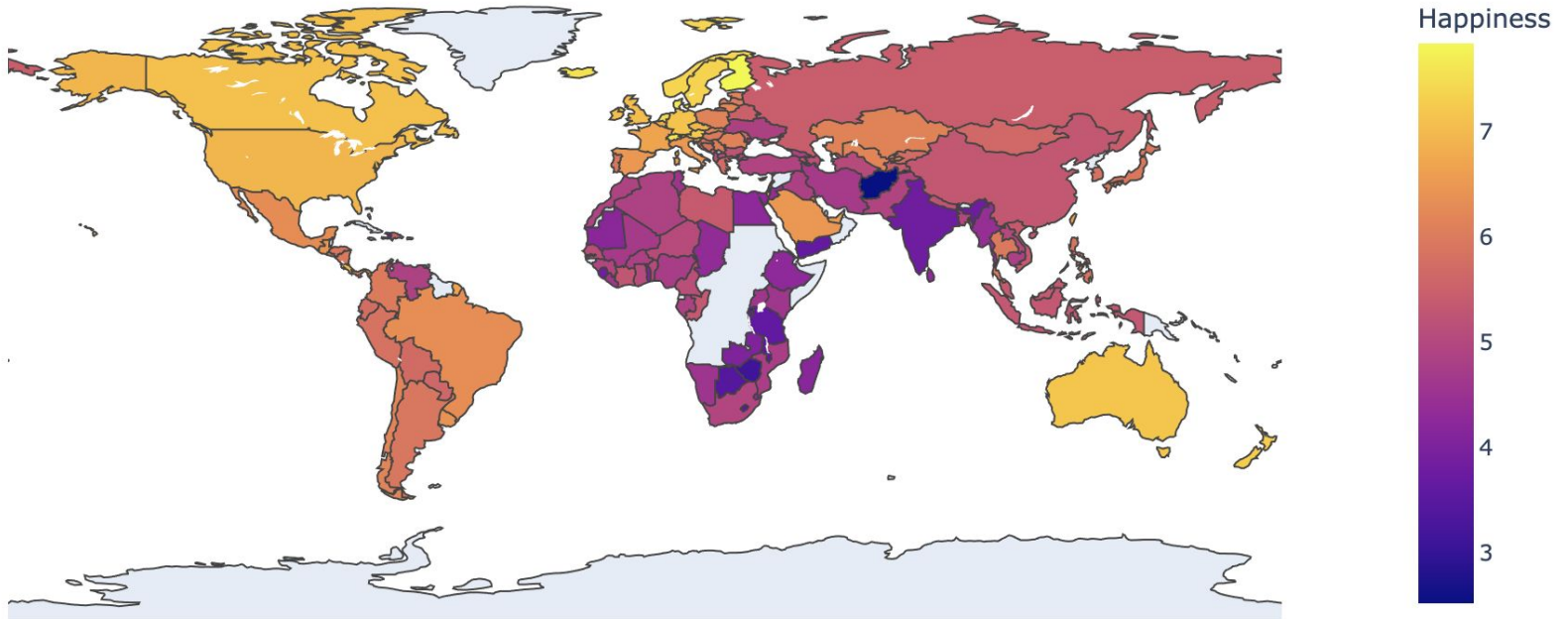
- Richer countries tend to have high value on Freedom than Poorer countries.
- I thought GDP might be the strong correlated factor, but in this case It is somehow related however not significant relationship does not appear.
- Poorer countries appear to be less care about Perceptions of corruption.



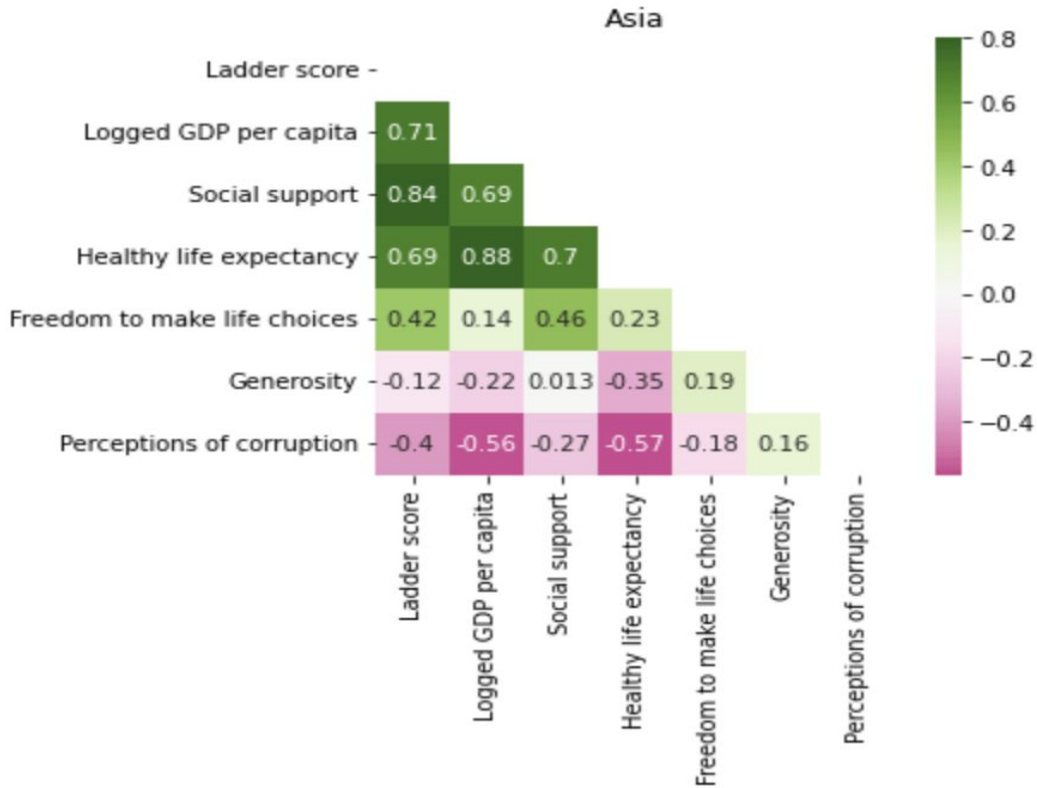
# Happiness map



Global Happiness 2021

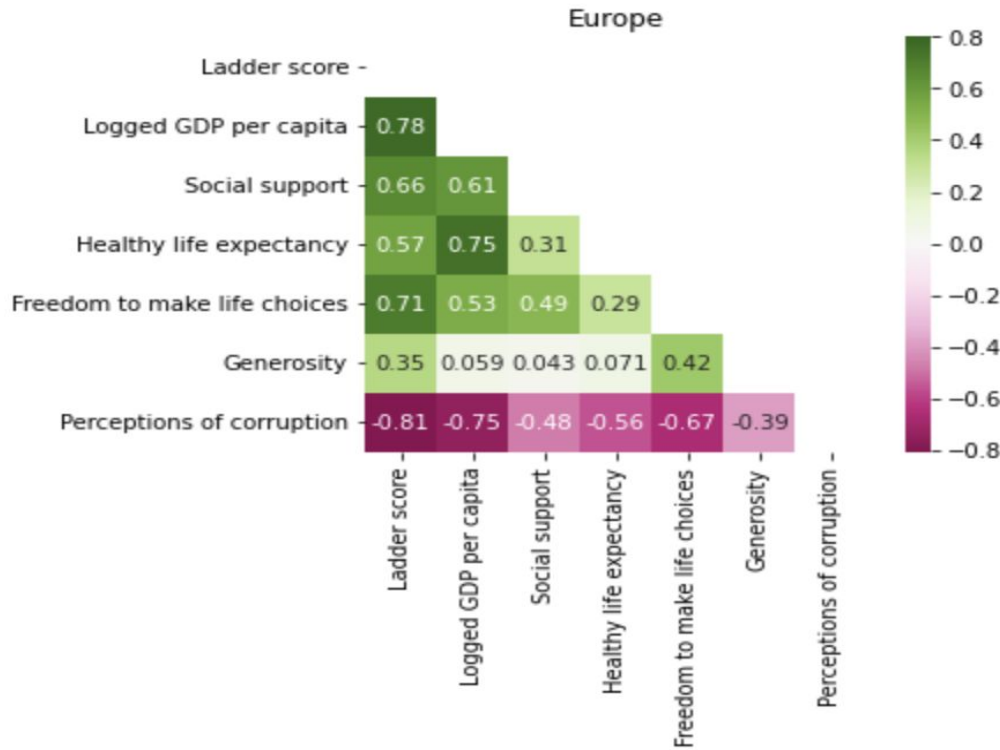


# Asia



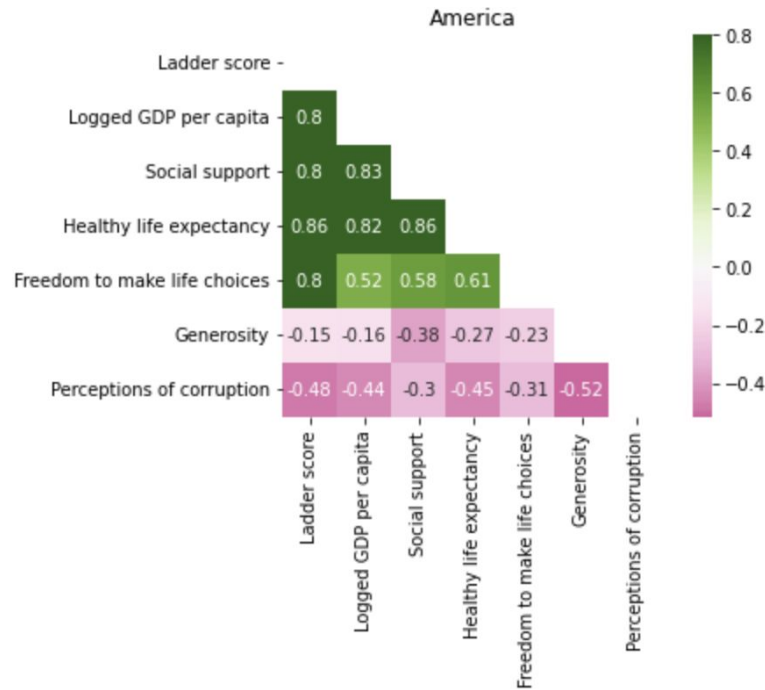
- Compare to other region, Social support is the most important factor in Asia region.
- Economy is also highly correlated to happiness.
- Generosity is shown as the least correlated factor

# Europe



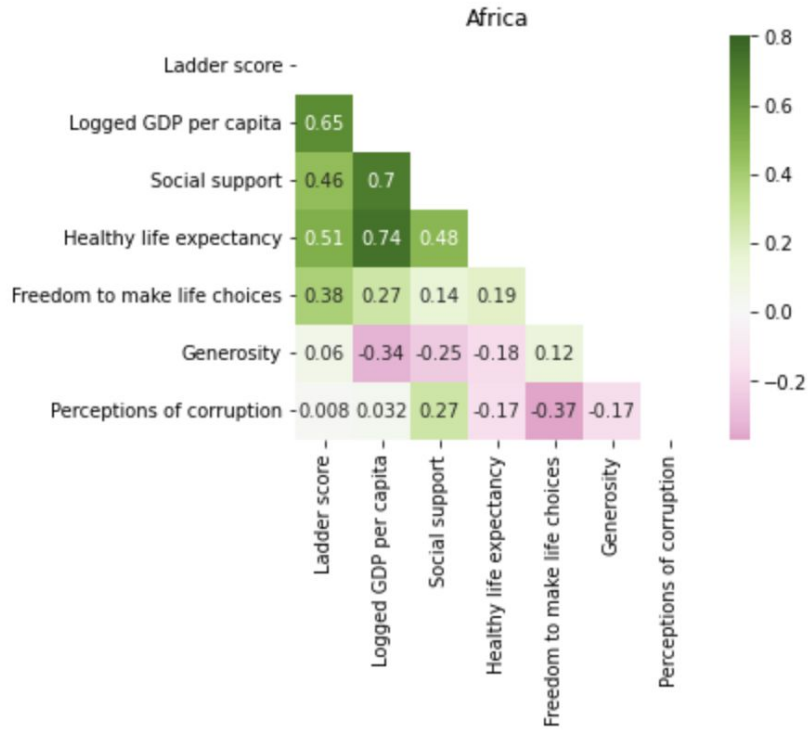
- Compare to other region, Generosity is surprisingly more important factor.
- Economy is also highly correlated to happiness.
- PCI(perceptions of corruption index) is very important factor in Europe region, it shows that corruptions in businesses and governments affect happiness in Europe.

# America



- Compare to other region, Healthy life is the most significant factor in America region
- Economy is also highly correlated to happiness.
- Correlation of freedom is higher than other regions as well.

# Africa



- Economy is the most important factor.
- Compare to other regions, Africa appear to be less mindful about corruption and it is not related to happiness.
- Generosity is also not correlated as well.

# Conclusion

- From this exploratory data analysis in happiness report 2021, I found that GDP(economy) is the most important factor as I expected before.
- PCI(perception of corruption index) is shown very high correlation to happiness in well economical status countries, but conversely it is very weak or no correlations in poor countries. This leads me to a question that is GDP a bigger factor than it's shown? Or what are relations between GDP and education in poor countries? It is because money or more funds for government allows to offer resources to their citizens. My next personal project would be GDP of Countries and Education.

## Tools



matplotlib



NumPy