

Is there a relationship between ocean health and happiness?

Contents

1	Introduction (150 words)	1
2	Objectives (150 words)	1
3	Data (500 words)	1
4	Analysis and Results (1500 words)	2
5	Limitations (300 words)	3
6	Conclusion (180 words)	3

1 Introduction (150 words)

In a recent paper published in the Journal of Environmental Research and Public Health, ([1])

Quick paragraph about how:

- Being by the ocean improves happiness for individuals
- Ocean provides livelihood and sporting opps
- Does this benefit to the individual extend to the country level
- Are more countries connected to the ocean more than others

2 Objectives (150 words)

The objectives of this analysis are to determine whether there is a significant correlation between a countries happiness and the health of the ocean connected to the country. The steps to achieve this are to:

- Obtain data that provides insight into each side of the problem
- Wrangle the data using python and combining to datasets and deciding what the best approach is for missing values
- Descriptive statistics will then be carried out to understand the different datasets in more depth and to begin to identify any relationships that may be apparent
- Then a statistical model will be created to best describe any relationship between the data.
- Final the results will be presented using both visual assets and model outputs and I will discuss the significance of the results within the context of this analysis

3 Data (500 words)

Brief description of data used:

- OHI
 - What years?
 - What variables does it include?

- Who created it?
- What is its significance in wider lit. i.e. is it used by UN world bodies or anything like that?
- WHR
 - What years?
 - Variables of interest?
 - Wider context and uses
- World Map data for making maps

Describe what each dataset looked like (years, variables etc) and how I wrangled, tidied and merged them together

- How I imputed missing values (used KNN with 2 neighbours (justify with literature))

*Insert world maps here and maybe some graphs of imputed data or **DESCRIPTIVE STATS OF DATA***

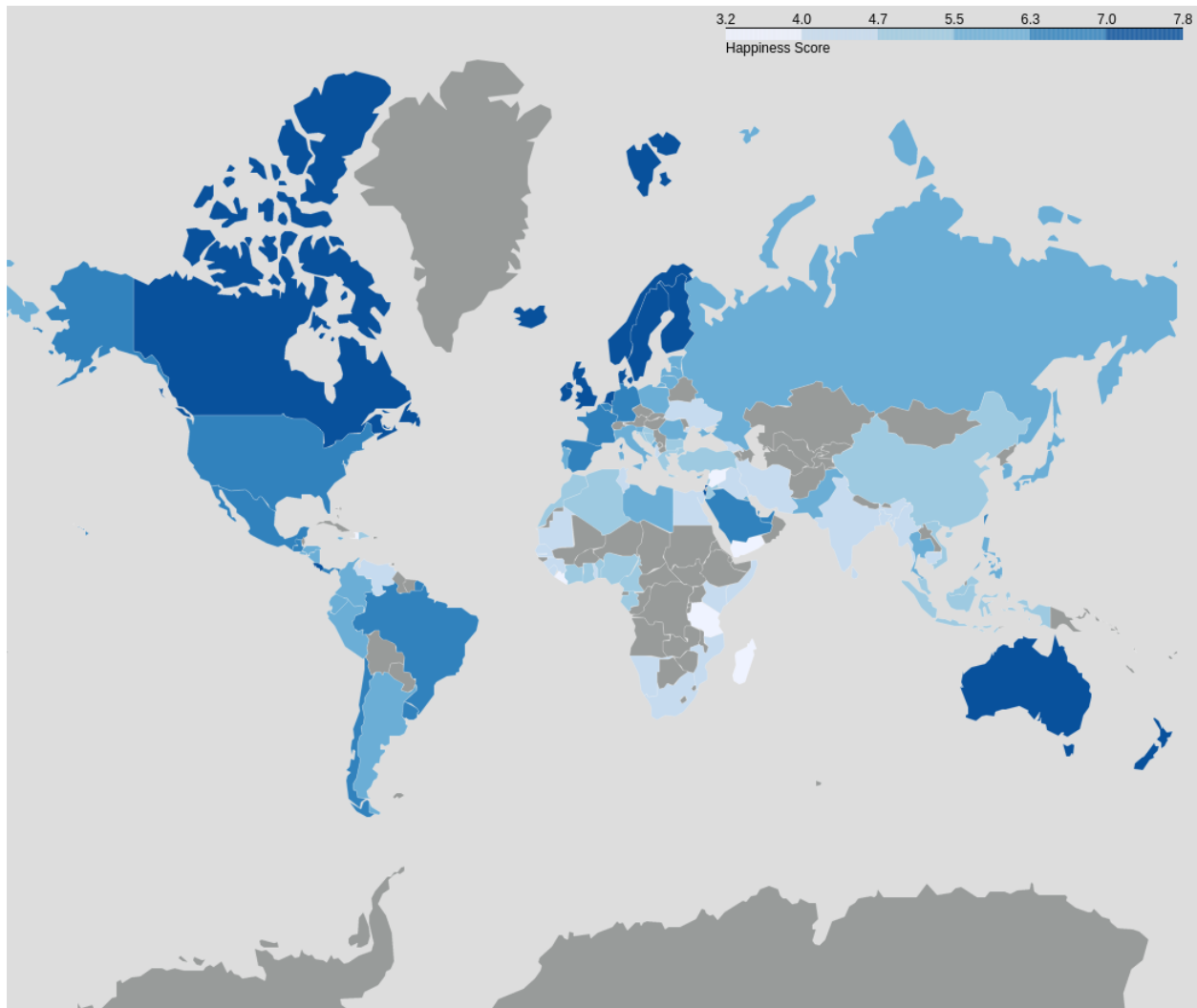


Figure 1: Map of happiness scores

4 Analysis and Results (1500 words)

Include some basic descriptive stats like average OHI for each region and WHR for each region

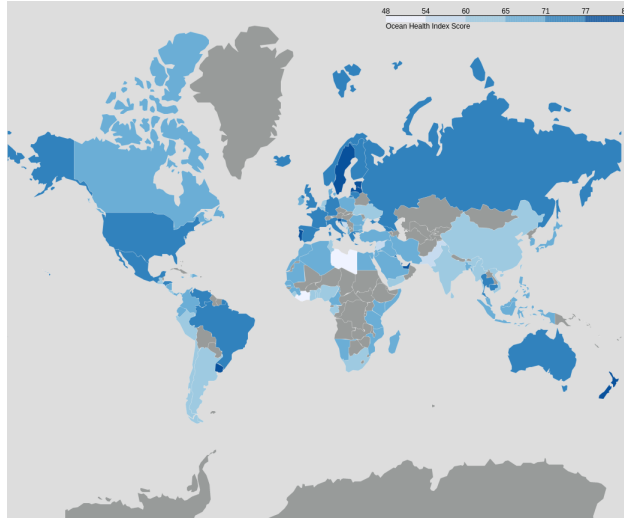


Figure 2: Map of ocean health index scores

Start with the relationship between sense of place (OR JUST OHI INDEX) and world happiness as this is what I was initially interested in

- Scatter plot of graph with model fitted
- Talk about R value and why it is low
- Maybe include plot split by region and state how this changes the relationship. Say that I will first create a model by including other variables and then perform the heirarchical modelling to investigate the effect of region
- Initially used OHI index and happiness score but since OHI index is a composite index it was not included in the models which used the other features

Then describe the final basic model used and present some daignostic charts

- Compare it to the initial model

Go into hierarchical modelling and fixed effects modelling

- Fixed effects graph
- random effects graph
- Regression table of mixed effect model

5 Limitations (300 words)

- Didn't compare the happiness difference between coastal and land locked countries (if I don't end up doing it)
- Some of the variables in the OHI data are heavy assumptions (sense of place in particular but check others)
- Talk about how there may be crossed random effects of the years due to repeated observations of each country

6 Conclusion (180 words)

- Restate aims of the analysis
- Data used
- Steps taken and what they showed

- Why a simple linear model/fixed effects model overstates relationship
- How accounting for region changed this relationship

IF I HAVE TIME I COULD LOOK AT THE DIFFERENCE BETWEEN HAPPINESS OF COUNTRIES CONNECTED TO THE OCEAN AND NOT CONNECTED TO THE OCEAN

References

- [1] B. Wheaton, J. T. A. Waiti, R. Olive, and R. Kearns, “Coastal Communities, Leisure and Wellbeing: Advancing a Trans-Disciplinary Agenda for Understanding Ocean-Human Relationships in Aotearoa New Zealand,” *International Journal of Environmental Research and Public Health*, vol. 18, no. 2, p. 450, Jan. 2021, number: 2 Publisher: Multidisciplinary Digital Publishing Institute. [Online]. Available: <https://www.mdpi.com/1660-4601/18/2/450>