

***Happiness & Well Being: “The Science Behind Your Happy”.***



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# Project Data Background

## (World Happiness Report 2021)

**Dataset:** A 2021 study of 150 countries:

- Social Support*
- Freedom to Make Life Choices*
- Logged GDP per Capita*
- Generosity*
- Healthy Life Expectancy*

### Study Appendix:

<https://www.kaggle.com/datasets/ajaypalsinghi/world-happiness-report-2021>

Happiness scores and rankings are based on data from the Gallup World Poll

AJAYPAL SINGH - UPDATED 3 YEARS AGO

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## World Happiness Report 2021

World Happiness Report



Data Card Code (285) Discussion (10) Suggestions (0)

### About Dataset

**Usability** 9.71

**Context**  
The World Happiness Report is a landmark survey of the state of global happiness. The report continues to gain global recognition as governments, organizations and civil society increasingly use happiness indicators to inform their policy-making decisions.

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**Expected update frequency**

# GeoPy

Documentation <https://geopy.readthedocs.io/>

Source Code <https://github.com/geopy/geopy>

Stack Overflow <https://stackoverflow.com/questions/tagged/geopy>

GIS Stack Exchange <https://gis.stackexchange.com/questions/tagged/geopy>

Discussions <https://github.com/geopy/geopy/discussions>

Issue Tracker <https://github.com/geopy/geopy/issues>

Pypi <https://pypi.org/project/geopy/>

world-happiness-report-2021-with-coordinates

Country name	Regional indicator	Ladder score	Logged GDP per capita	Social support	Healthy life expectancy	Freedom to make life choices	Generosity	Latitude	Longitude
Finland	Western Europe	7.842	10.775	0.954	72.0	0.949	-0.098	63.2467777	25.9209164
Denmark	Western Europe	7.62	10.933	0.954	72.7	0.946	0.03	55.670249	10.3333283
Switzerland	Western Europe	7.571	11.117	0.942	74.4	0.919	0.025	46.7985624	8.2319736
Iceland	Western Europe	7.554	10.878	0.983	73.0	0.955	0.16	64.984182	-18.1059013
Netherlands	Western Europe	7.464	10.932	0.942	72.4	0.913	0.175	52.2434579	5.6343227
Norway	Western Europe	7.392	11.053	0.954	73.3	0.96	0.093	64.5751537	11.52803643954820
Sweden	Western Europe	7.363	10.867	0.934	72.7	0.945	0.086	59.6749712	14.5208584
Luxembourg	Western Europe	7.324	11.647	0.908	72.6	0.907	-0.034	49.6112768	6.129799
New Zealand	North America and ANZ	7.277	10.643	0.948	73.4	0.929	0.134	-41.5000831	172.8344077
Austria	Western Europe	7.268	10.906	0.934	73.3	0.908	0.042	47.59397	14.12456
Australia	North America and ANZ	7.183	10.796	0.94	73.9	0.914	0.159	-24.7761086	134.755
Israel	Middle East and North Africa	7.157	10.575	0.939	73.503	0.8	0.031	30.8124247	34.8594762
Germany	Western Europe	7.155	10.372	0.909	73.5	0.975	0.041	51.1638175	10.4478313
Canada	North America and ANZ	7.154	10.627	0.948	73.4	0.929	0.134	61.0666922	-107.991707
Ireland	Western Europe	7.153	10.643	0.948	73.4	0.929	0.134	52.865196	-7.9794599
Costa Rica	Latin America and Caribbean	7.152	10.643	0.948	73.4	0.929	0.134	10.2735633	-84.0739102
United Kingdom	Western Europe	7.151	10.643	0.948	73.4	0.929	0.134	54.7023545	-3.2765753
Czech Republic	Central and Eastern Europe	7.150	10.643	0.948	73.4	0.929	0.134	49.7439047	15.3381061
United States	North America and ANZ	7.149	10.643	0.948	73.4	0.929	0.134	39.7837304	-100.445882
Belgium	Western Europe	7.148	10.643	0.948	73.4	0.929	0.134	50.6402809	4.6667145
France	Western Europe	7.147	10.643	0.948	73.4	0.929	0.134	46.603354	1.8883335
Bahrain	Middle East and North Africa	7.146	10.643	0.948	73.4	0.929	0.134	22770755000000	55.171549227823900
Malta	Western Europe	7.145	10.643	0.948	73.4	0.929	0.134	35.8885993	14.4476911
Taiwan Province of China	East Asia	7.144	10.643	0.948	73.4	0.929	0.134	24.0002488	53.9994829
United Arab Emirates	Middle East and North Africa	7.143	10.643	0.948	73.4	0.929	0.134	25.6242618	42.3528328
Saudi Arabia	Middle East and North Africa	7.142	10.643	0.948	73.4	0.929	0.134	39.3260685	-4.8379791
Spain	Western Europe	7.141	10.643	0.948	73.4	0.929	0.134	42.6384261	12.674297
Italy	Western Europe	7.140	10.643	0.948	73.4	0.929	0.134	46.1199444	14.8153333
Slovenia	Central and Eastern Europe	7.139	10.643	0.948	73.4	0.929	0.134	15.5855545	-90.345759
Guatemala	Latin America and Caribbean	7.138	10.643	0.948	73.4	0.929	0.134	-32.8755548	-56.0201525
Uruguay	Latin America and Caribbean	7.137	10.643	0.948	73.4	0.929	0.134	48.7411522	19.4528646
Singapore	Southeast Asia	7.136	11.488	0.915	76.953	0.927	-0.018	1.357107	103.8194992
Kosovo	Central and Eastern Europe	7.135	9.318	0.821	63.813	0.869	0.257	42.5869578	20.9021231
Slovakia	Central and Eastern Europe	7.134	10.369	0.936	69.201	0.766	-0.124	48.7411522	19.4528646
Brazil	Latin America and Caribbean	7.133	9.577	0.882	66.601	0.804	-0.071	-10.3333333	-53.2

```

import pandas as pd
from geopy.geocoders import Nominatim

# Load the CSV file
df = pd.read_csv('data/world-happiness-report-2021.csv')

# Create an instance of Nominatim geocoder
geolocator = Nominatim(user_agent="my_geocoder")

# Function to get latitude and longitude
def get_lat_lon(country):
    location = geolocator.geocode(country)
    if location:
        return location.latitude, location.longitude
    else:
        return None, None

# Create new 'Latitude' and 'Longitude' columns
df['Latitude'], df['Longitude'] = zip(*df['Country name'].apply(get_lat_lon))

# Save the updated DataFrame back to CSV
df.to_csv('data/world-happiness-report-2021-with-coordinates.csv', index=False)

```



# Postgresql - Coding Snapshot

Query    Query History

```
1 --Setting up tables and schema---
2
3 CREATE TABLE World_Happiness_Report (
4   Country_name VARCHAR(75) PRIMARY KEY NOT NULL,
5   Regional_indicator VARCHAR(75) NOT NULL,
6   Ladder_score FLOAT NOT NULL,
7   Standard_error_of_ladder_score FLOAT NOT NULL,
8   upperwhisker FLOAT NOT NULL,
9   lowerwhisker FLOAT NOT NULL,
10  Logged_GDP_per_capita FLOAT NOT NULL,
11  Social_support FLOAT NOT NULL,
12  Healthy_life_expectancy FLOAT NOT NULL,
13  Freedom_to_make_life_choices FLOAT NOT NULL,
14  Generosity FLOAT NOT NULL,
15  Perceptions_of_corruption FLOAT NOT NULL,
16  Ladder_score_in_Dystopia FLOAT NOT NULL,
17  Explainedby_LogGDPpercapita FLOAT NOT NULL,
18  Explainedby_Socialsupport FLOAT NOT NULL,
19  Explainedby_Healthy_life_expectancy FLOAT NOT NULL,
20  Explainedby_Freedomtomakelifechoices FLOAT NOT NULL,
21  Explainedby_Generosity FLOAT NOT NULL,
22  Explainedby_Perceptionsofcorruption FLOAT NOT NULL,
23  Dystopia_and_residual FLOAT NOT NULL
24 );
25
26
27 SELECT * from world_happiness_report;
```

**Study Appendix:**

<https://www.kaggle.com/datasets/ajaypalsinghlo/world-happiness-report-2021>

# PgAdmin: Table Overview



pgAdmin 4

File Object Tools Help

Object Explorer Properties SQL Statistics Dependencies Dependents Processes pg... public.world\_happiness\_report.World\_Happiness\_Report@PostgreSQL\_14

Servers (1)

PostgreSQL 14

Databases (9)

- Employee\_DB
- Miscellaneous\_db
- World\_Happiness\_Report
- Casts
- Catalogs
- Event Triggers
- Extensions
- Foreign Data Wrappers
- Languages

Publications

Schemas (1)

public

- Aggregates
- Collations
- Domains
- FTS Configurations
- FTS Dictionaries
- FTS Parsers
- FTS Templates
- Foreign Tables
- Functions
- Materialized Views
- Operators
- Procedures
- Sequences

Tables (2)

- world\_happiness
- world\_happiness.

Trigger Functions

Types

Views

Subscriptions

animals\_db

city\_info

pets\_db

Query Query History

```
1 SELECT * FROM public.world_happiness_report
2 ORDER BY country_name ASC
```

Data Output Messages Notifications

country_name	regional_indicator	ladder_score	standard_error_of_ladder_score	upperwhisker	lowerwhisker	logged_gdp_per_capita	so
Afghanistan	South Asia	2.523	0.038	2.596	2.449	7.695	7.695
Albania	Central and Eastern Europe	5.117	0.059	5.234	5.001	9.52	9.52
Algeria	Middle East and North Africa	4.887	0.053	4.991	4.783	9.342	9.342
Argentina	Latin America and Caribbean	5.929	0.056	6.04	5.819	9.962	9.962
Armenia	Commonwealth of Independent States	5.283	0.058	5.397	5.168	9.487	9.487
Australia	North America and ANZ	7.183	0.041	7.265	7.102	10.796	10.796
Austria	Western Europe	7.268	0.036	7.337	7.198	10.906	10.906
Azerbaijan	Commonwealth of Independent States	5.171	0.04	5.25	5.091	9.569	9.569
Bahrain	Middle East and North Africa	6.647	0.068	6.779	6.514	10.669	10.669
Bangladesh	South Asia	5.025	0.046	5.115	4.934	8.454	8.454
Belarus	Commonwealth of Independent States	5.534	0.047	5.625	5.442	9.853	9.853
Belgium	Western Europe	6.834	0.034	6.901	6.767	10.823	10.823
Benin	Sub-Saharan Africa	5.045	0.073	5.189	4.901	8.087	8.087
Bolivia	Latin America and Caribbean	5.716	0.053	5.819	5.613	9.046	9.046
Bosnia and Herzegovina	Central and Eastern Europe	5.813	0.05	5.911	5.715	9.59	9.59
Botswana	Sub-Saharan Africa	3.467	0.074	3.611	3.322	9.782	9.782
Brazil	Latin America and Caribbean	6.33	0.043	6.415	6.245	9.577	9.577
Bulgaria	Central and Eastern Europe	5.266	0.054	5.371	5.16	10.016	10.016
Burkina Faso	Sub-Saharan Africa	4.834	0.081	4.993	4.675	7.678	7.678
Burundi	Sub-Saharan Africa	3.775	0.107	3.985	3.565	6.635	6.635
Cambodia	Southeast Asia	4.83	0.067	4.963	4.698	8.36	8.36
Cameroon	Sub-Saharan Africa	5.142	0.074	5.288	4.956	8.189	8.189
Canada	North America and ANZ	7.103	0.042	7.185	7.021	10.776	10.776
Chad	Sub-Saharan Africa	4.355	0.094	4.54	4.171	7.364	7.364

Total rows: 149 of 149    Query complete 00:00:00.246    Lo 1, Col 1

**Study Appendix:**  
<https://www.kaggle.com/datasets/ajaypalsinghlo/world-happiness-report-2021>

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Street Map

Satellite

Happiness Score

Country:

United States

Happiness Score:

6.951

Happiness Scores

<3

3-4

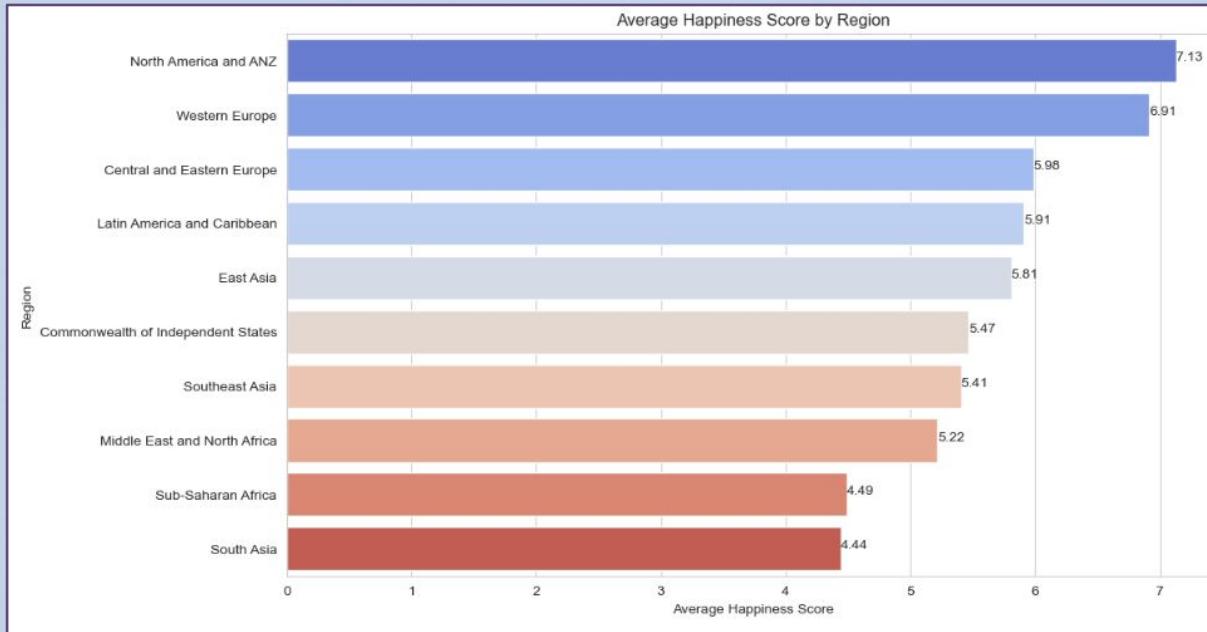
4-5

5-6

6-7

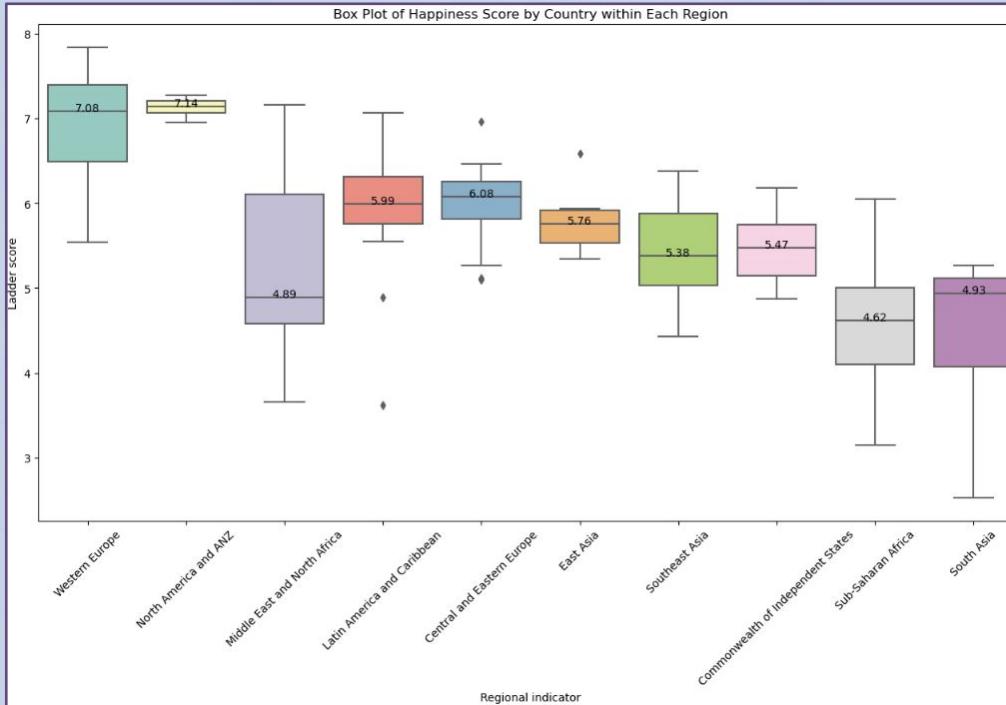
>7

# Average Happiness Score by Region



- **North America and ANZ (Australia and New Zealand)** have the highest average happiness score, sitting just above 7.1.
- **Western Europe** follows closely, with an average score just below 7.
- The **Central and Eastern Europe**, **Latin America and Caribbean**, and **East Asia** regions display moderate average happiness scores, ranging approximately from 5.8 to 5.9.
- **Commonwealth of Independent States**, **Southeast Asia**, and **Middle East and North Africa** regions have average scores between roughly 5.2 and 5.5.
- **Sub-Saharan Africa** and **South Asia** have the lowest average happiness scores, with both just above 4.4.

# Happiness Score by Country within Each Region

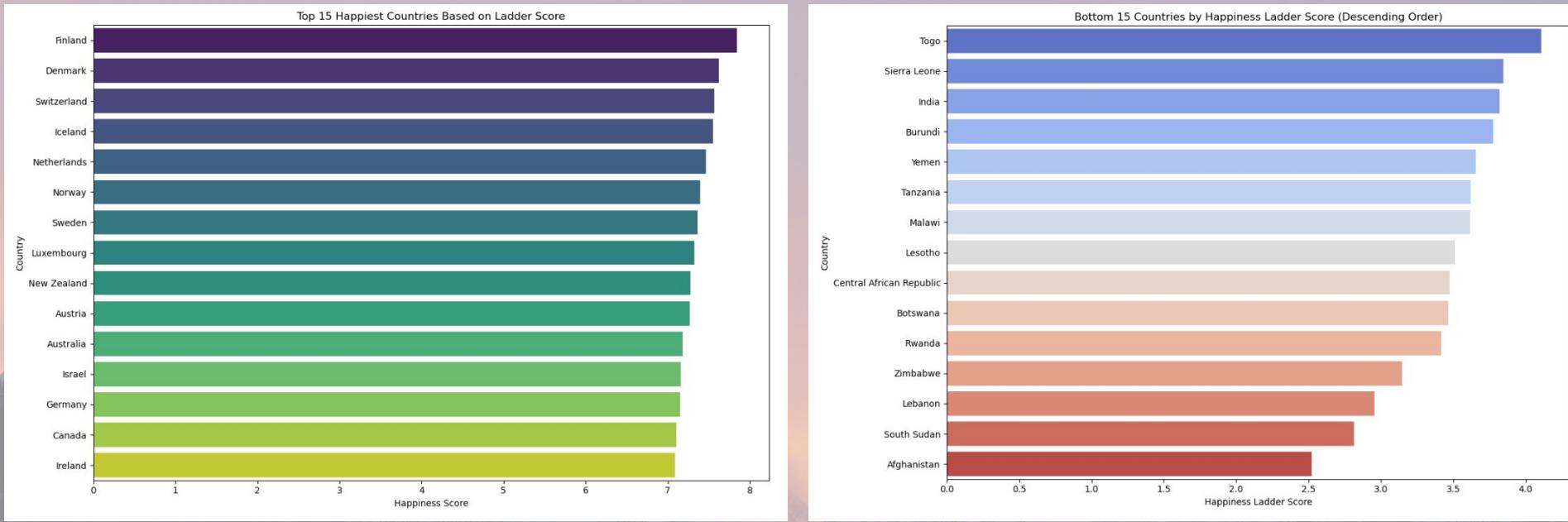


- **North America and ANZ (Australia and New Zealand)** have the highest average happiness score, sitting just above 7.1.
- **Western Europe** follows closely, with an average score of 7.08
- The **Central and Eastern Europe**, **Latin America and Caribbean**, and **East Asia** regions display moderate average happiness scores with a median of **Commonwealth of Independent States**, **Southeast Asia**, and **Middle East and North Africa** regions have average scores between roughly between 5.5 and 5.7.
- **Sub-Saharan Africa** and **South Asia** have the lowest average happiness scores, with both just around average of 4.7

Study Appendix:

<https://www.kaggle.com/datasets/ajaypalsinghlo/world-happiness-report-2021>

# 15 Happiest and UnHappiest Countries



## 15 Happiest Countries

- Regions with higher social support and higher freedom to make life choices were the happiest.
- Western Europe, Northern America & ANZ had countries with highest scores.
- Countries with higher GDP have a higher healthy life expectancy

## 15 Unhappiest Countries

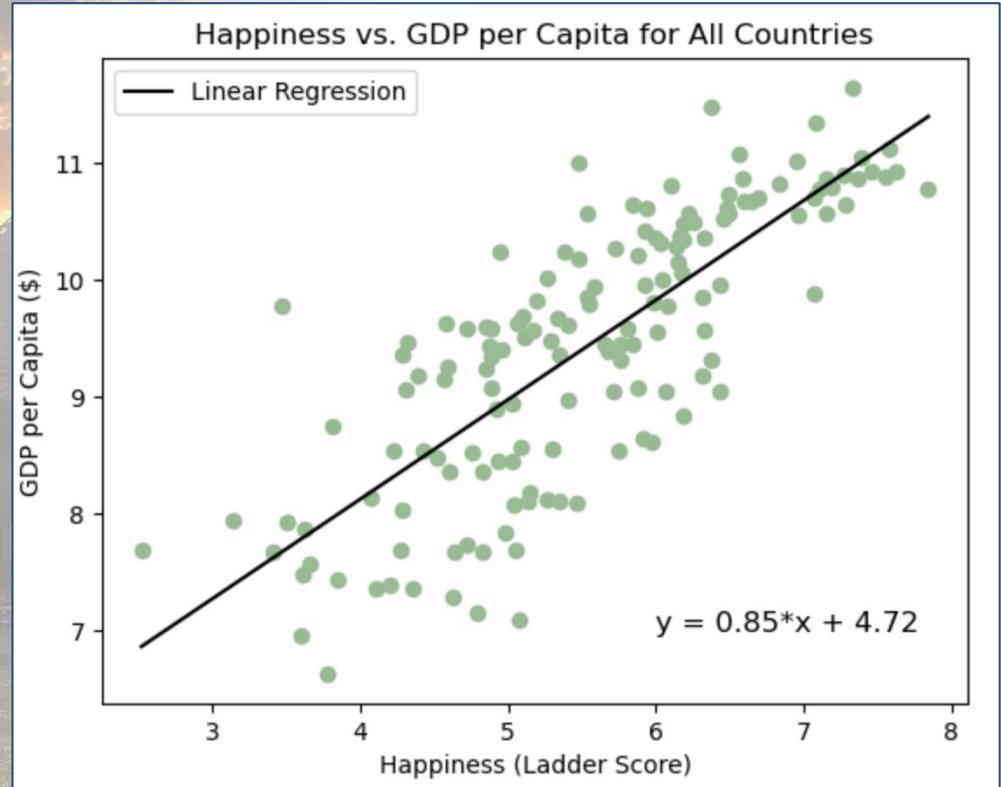
- Regions with lower social support may exhibit less freedom, potentially due to social, economic, or political constraints.
- African and Middle Eastern Countries have lowest healthy life expectancy and GDP
- Healthcare, Nutrition, Living Conditions

Study Appendix:

<https://www.kaggle.com/datasets/ajaypalsinghlo/world-happiness-report-2021>

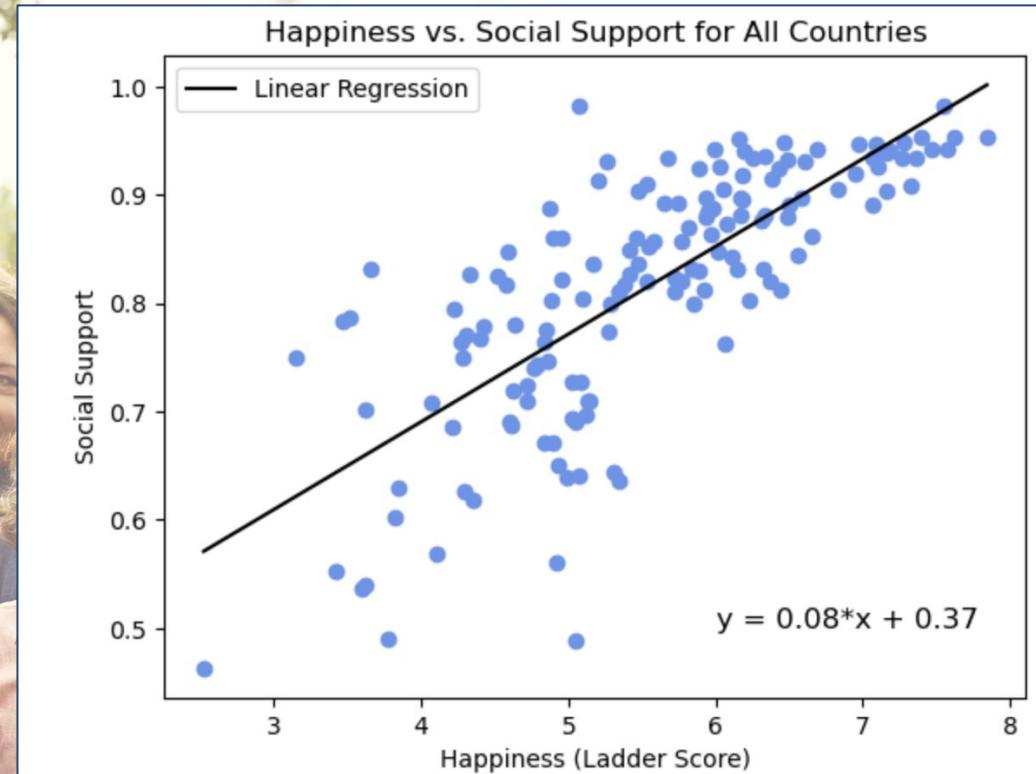
# GDP per Capita

- This was the variable with the strongest correlation to happiness
- The r-value was .79
- How GDP influences happiness:
  - Basic needs satisfaction
  - Standard of Living
  - Stability
- Limitations
  - Diminishing returns
  - Wealth inequality



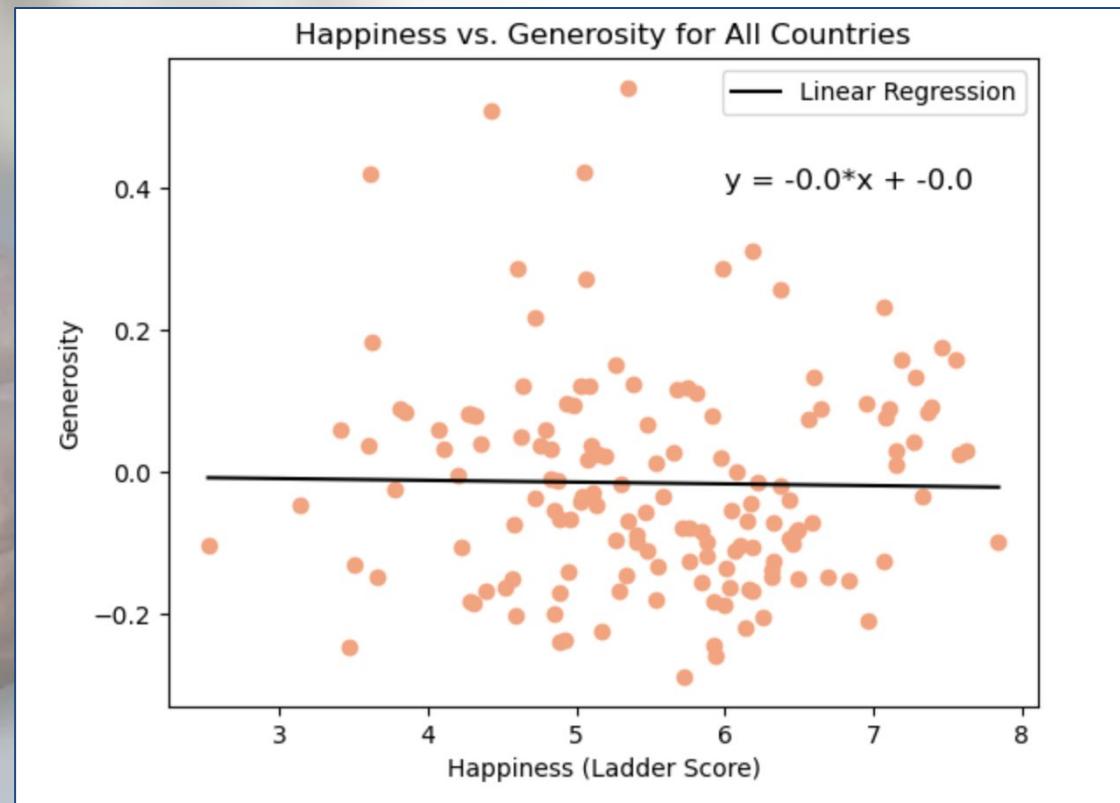
## Social Support:

- This variable also had a very strong correlation with happiness
- The r-value was .76
- This does have more outliers than the GDP per capita scatterplot
- Social support can influence happiness on both individual and societal levels (mental health, resilience, etc)
- The dataset does have limitations, such as the way that the question is framed



# Generosity:

- Interestingly, this variable had a very slight negative correlation with happiness
- The r-value was -0.02
- This could be explained by the way the data was collected, according to the appendix, “Generosity is the residual of regressing national average of response to the GWP question ‘Have you donated money to a charity in the past month?’ on GDP per capita”
- This is a limited representation of generosity



A photograph showing two young boys from behind, walking away on a paved road. They are holding hands. The boy on the left wears a dark blue polo shirt and light-colored shorts. The boy on the right wears a white polo shirt and patterned shorts. The sky above them is filled with warm, orange and yellow hues of a setting sun, casting long shadows on the road.

# *Findings*

- Happiness is complex and subjective
- Weigh differently for different people and societies.
- The ultimate path to happiness often involves a balance of these various elements tailored to individual and cultural contexts.

A close-up photograph of two young children. On the left, a girl with blonde hair tied back with a dark blue bow is laughing heartily, her head tilted back. She is wearing a white, textured, cable-knit sweater. Her right hand is extended towards a boy in the center. The boy, also with blonde hair, is looking directly at the camera with a wide, joyful smile. He is wearing a brown corduroy jacket over a light-colored collared shirt. A purple wristband is visible on his right wrist. The background is blurred, showing hints of yellow foliage, suggesting an outdoor setting like a park or garden.

**Questions?**