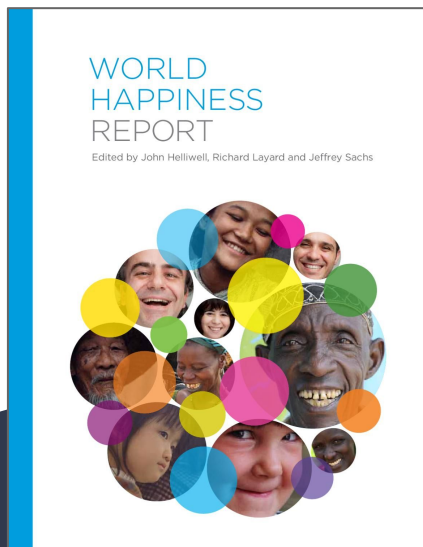


What Makes a Country Happy?

Comparing Western Europe with North America



CodeStone - STA 199

Anna MacFarlane, Edgar Salas,
Jerry Fu & Taalin RaoShah

The Data

Gallup World Poll

Method:

Telephone surveys and face-to-face interviews in 150+ countries

Observations: 312 total -
156 countries for 2 years (2018 & 2019)

Variables: 9

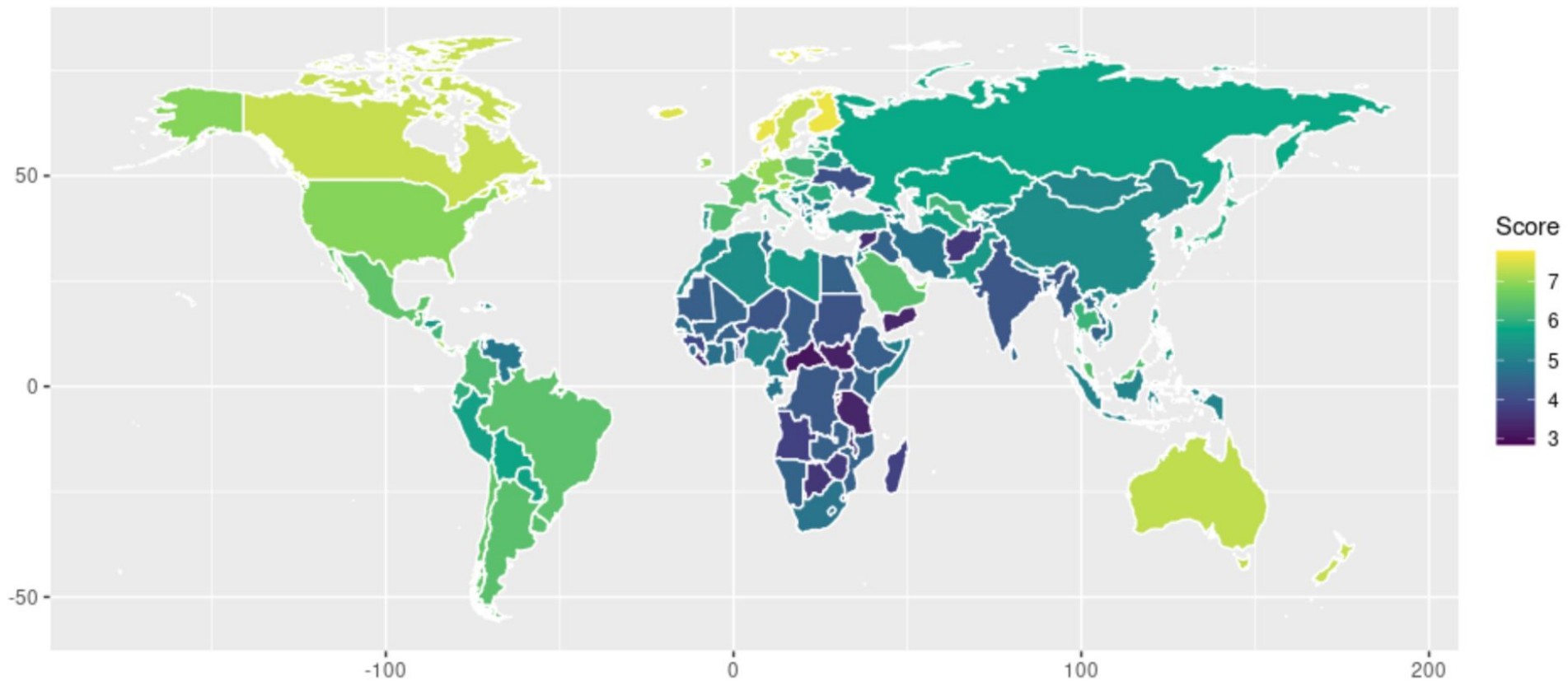
Overall Rank, Year, & Region
+ 6 Happiness Variables

Happiness Variables

- GDP per Capita 
- Social Support 
- Healthy Life Expectancy 
- Generosity 
- Freedom 
- Perceptions of Corruption 

World Map

colored by Happiness Score

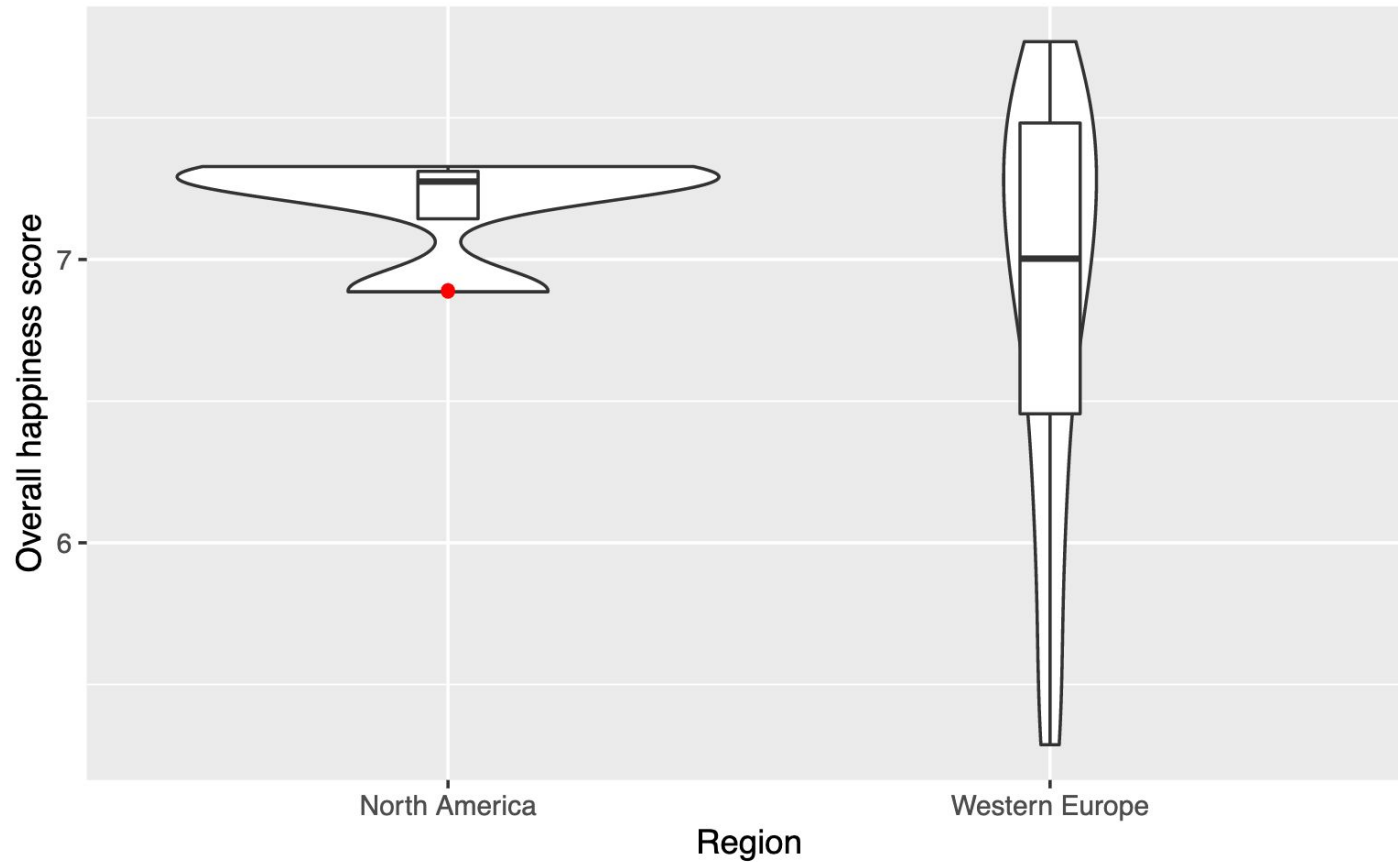


Mean Scores for WHR Categories

	Happiness Score	GDP	Social Support	Healthy Life Expectancy	Generosity	Corruption	Freedom
Western Europe	6.863750	1.343850	1.486825	0.954825	0.22245	0.2176750	0.52105
North America	6.911167	1.272333	1.423333	0.875000	0.22000	0.1713333	0.52500

Distributions of overall happiness scores by region

Red points denoting outliers



Statistical tests

Chi-Square test

Evaluating independence of
region and happiness

Simulation-based hypothesis tests

Evaluating the difference in
mean score between North
America and Western Europe for
a particular happiness variable

Results

Pearson's Chi-squared test with simulated p-value (based on 2000 replicates)

```
data: chisq$happiness and chisq$Region  
X-squared = 273.46, df = NA, p-value = 0.0004998
```

GDP	Social Support	Freedom	Generosity	Healthy Life Expectancy	Corruption
0.145	0.083	0.556	0.468	0.007	0.142

P-value less than $\alpha=0.05$ for chi-squared test for Region and happiness level, and Healthy Life Expectancy difference in means test

Can reject H_0

1. Life expectancy

Failure to reject H_0

1. GDP per capita
2. Social support
3. Freedom to make life choices
4. Generosity
5. Perceptions of corruption

$$H_0: \mu_{WE} = \mu_{NA}$$

$$H_A: \mu_{WE} \neq \mu_{NA}$$

Discussion



- **Thinking about differences in political structures between regions (e.g. Nordic Model)**
- **Heterogeneity of countries represented in both regions**
- **Happiness independent of region**
- **Limitations**
 - **Lack of access to raw dataset**
 - **Small number of countries in North America**



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