Big 5 (OCEAN) and Divorce Rates in different ages

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Overview:

Throughout the past decade, Big 5 has been notorious for personality assessments and self-discovery. We wanted to look further into this topic, and the connection between Divorce Rates and the Big 5. Big 5 is hypothesized to have traits that are more correlated with higher/lower Divorce rates. That is what we will look further into. Although Big 5 is misinformed to be known as a pseudoscience, this form of self-acknowledgement are great for human growth and development.

Research Question:

When it comes to Big 5 and Divorce Rates, is there any possible connection between Big 5 traits (such as Neuroticism, Openness, etc) and the tendency or possibility of Divorce? Focusing more specifically on Neuroticism, Extraversion/Introversion, and Openness in a person in a couple/relationship. The other two: Agreeableness and Conscientiousness can go either way in regards to marital success.

Background and Prior Work

Big 5 and OCEAN

Big 5, a well known and well established form of personality assessments, has 5 major traits that look into the overall identity of the person taking the assessment. The five traits are as follows: Neuroticism, Openness to Experience, Agreeableness, Extraversion, and Conscientiousness. The 5 traits get scored in either: Below Average, Average, or Above Average in scale. Depending on one's personality, they may score higher or lower in different regions. Alongside Big 5 is several other terminology.

This includes but is not limited to: OCEAN/CANOE and Global 5-SLOAN. The prior being a way to remember the overall format, and the latter being a more modern way of calculating and scoring the data provided. SLOAN formats the 5 original names into 10 other names: Social/Reserved, Limbic/Calm, Organized/Unstructured, Accommodating/Egocentric, and Non-Curious/Inquisitive. SLOAN is helpful in better subjecting the many personalities into 32 possible types.

IPIP and NEO

The current and most valid measurement to decipher one's Big 5 measurements would be the IPIP-300 (International Personality Item Pool) which is the unofficial public domain copy of the NEO PI-R that many

researchers use. Several studies have looked into the connection between IPIP and NEO and found that they are interchangeable copies of one another.

The original assessment had about 300 questions with a shorter and abbreviated version form being about 120 questions with the overall test calculating the high or low value in regards to the calculated spectrum of the 5 traits. The results then show the 5 base values and the 25 overall scores (5 scores for 5 categories). These scores are calculated based off a 5 point Likert Scale of 1-5 (ranging from Strongly Disagree to Strongly Agree).

Divorce Rates around the World

There have been studies that looked into the connection, causation and correlation between several of the Big 5 traits and marriage satisfaction between a couple. One study that looked into this relationship was done by Sayehmiri et al. They looked into the connection and their main conclusion was that couples high in Neuroticism experience lower levels of marital satisfaction, and couples high in Conscientiousness are more satisfied with their marital life

However, a study done in 2008 by Holland & Roisman suggests otherwise. They indicated that although previous literature has looked into personaltiy traits and self-reported relationship quality, they did not find the same conclusion with their research. They did, however, find a positive relationship between conscientiousness and self-reported relationship quality

Hypothesis

Our hypothesis is that Relationship Divorce/Marital Rates and Typology have some slight connection or correlation with one another. Specifically, Big 5's OCEAN Model measured by the IPIP300. We hypothesize that there will be the highest correlation between Divorce rates and higher Neuroticism counts, lower Extraversion counts and lower Openness counts

Dataset(s) Used

Main Datasets

1. Personality Prediction System

Name: test.csv

Shape/Size of the Dataset:

Link to the Dataset

Description: Dataset based on the Big 5 Personality Test

2. Big 5 OCEAN Model for Personality Detection

Name: Big-5-OCEAN-model.csv

Shape/Size of the Dataset:

Link to the Dataset

Description: Dataset based on the OCEAN Model

3. Big 5 Data

Name: big-5-scores.csv

Shape/Size of the Dataset:

Link to the Dataset

Description: Dataset grabbed from the IPIP-NEO-300

4. Marriage and Divorce Dataset

Name: Marriage_Divorce_DB.csv

Shape/Size of the Dataset:

Link to the Dataset

Description: Marriage and Divorce around the world

Setup:

Data Cleaning:

Combining Data: The datasets we have chosen will be combined and subsequently analyzed to give a measure of the overall relationship between Marital Satisfaction and Big 5 traits/subsets.

Big 5 and other Countries/Maps Personality Databases

Let's first look at the overall data from each country, we will first combine all the data together, and illustrate a graph showcasing this

```
% Read in data as a table
big_5_data = readtable("divorce_and_big5\datasets\BIG5-
Typology\big_five_scores.csv");

% Find missing values
missingValues = ismissing(big_5_data);

% Find rows that have missing values
missingRows = any(missingValues, 2);

% Remove rows with missing values from table
big_5_data(missingRows,:) = [];

% Show the Table
head(big_5_data,5);
```

case_id	country	age	sex	agreeable_score	extraversion_score	openness_score	conscienti
1	{'South Afri'}	24	1	0.75333	0.49667	0.80333	0
3	{'UK' }	24	2	0.73333	0.68	0.78667	0
4	{'USA' }	36	2	0.88	0.77	0.86	0
5	{'UK' }	19	1	0.69	0.61667	0.71667	0
6	{'UK' }	17	1	0.6	0.71333	0.64667	0

```
% Let's grab the Countries from our Data
```

```
countries = transpose(big_5_data.country);
head(countries);
```

```
Columns 1 through 2765

  {'South Afri'}    {'UK'}    {'USA'}    {'UK'}    {'UK'}    {'USA'}    {'USA'}    {'Denmark'}    {'USA'}    {'Sir

Columns 2766 through 5516

  {'Netherland'}    {'Andorra'}    {'UK'}    {'Ireland'}    {'USA'}    {'USA'}    {'France'}    {'USA'}    {'India

Columns 5517 through 8275

  {'USA'}    {'Australia'}    {'USA'}    {'Finland'}    {'USA'}    {'Canada'}    {'UK'}    {'New Zealan'}    {'USA

Columns 8276 through 11041

  {'USA'}    {'USA'}    {'USA'}    {'Canada'}    {'USA'}    {'USA'}    {'USA'}    {'USA'}    {'USA'}    {'Canada'
```

```
% Let's use the GroupCounts Functions to count the number of times a country appears
GC = groupcounts(big_5_data, "country");
head(GC);
```

country	GroupCount	Percent
{'Afghanista'}	624	0.20316
{'Albania' }	527	0.17158
{'Algeria' }	360	0.11721
{'Andorra' }	167	0.054372
{'Angola' }	97	0.031582
{'Anguilla' }	83	0.027023
{'Antarctica'}	74	0.024093
{'Antigua' }	36	0.011721

```
% Next, let's use Geobasemaps to map out our density of the area and counts of each
country
```