

Big Five Personality Test

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Introduction

The Big5 personality traits is a grouping of traits which aids in explaining a lot about personality based on a persons' answers to various personality related questions. It is based on 5 traits viz Extraversion, Neuroticism, Agreeableness, Conscientiousness and Openness. Dataset BIG5 [1] consists of responses from 19,000 people answering a questionnaire. These questions come from the Big-Five Factor Markers from the International Personality Item Pool, developed by Goldberg (1992) [2] .

The test consisted of 50 questions that are rated on a five point scale where 1=Disagree, 3=Neutral and 5=Agree. These questions are intended in order to obtain the scores of BIG5 qualities (OCEAN) viz Extroversion, Openness, Consciousness, Neuroticism and Agreeableness. Score calculation has been performed using the formulae in [3]. Apart from the responses of aforementioned 50 questions, age, gender, race and country information was also gathered for each participant. Countries having more than 600 participants viz Australia, United Kingdom, Canada, India, US and Philippines have been considered for our study. From the data, every person can be represented as a vector of length 5 which are [Extroversion, Openness, Consciousness, Neuroticism , Agreeableness]

Hypothesis

H1: Females in developed countries are less agreeable than in developing countries.

H2: Research Students have Higher Openness and low extroversion than the general population.

This will be performed using the data collected from 50 research students (MS and Phd) at IIIT Hyderabad. Data of research students will be compared with the other participants'

H3: With age, people tend to get more emotional stability (Low Neuroticism).

Similar work has been performed at NIH [5] and the results showed that emotional stability increases with age. It has been shown in Figure 1.

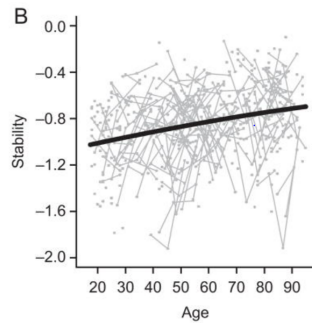


Figure 1: Emotional Stability vs Age [5]

Exploration

- Impact of aging on BIG5 personality traits.
- Personality differences in males and females.
- Differences in impact of aging in male and female personality
- How corporate experience is correlated to extraversion and agreeableness among research students?
- Differences between male and female personalities in developed countries as compared to developing countries. (More the Freedom the differences grows more [4])

Data Collection Strategy

For the aforementioned hypothesis, data of 50 IIITH research students has been collected. Random number generator is used for hostel room selection in order to eliminate the snowballing effect and generate randomness. Students are asked to fill out the questionnaire containing 50 personality based questions. Additionally, their age, gender and corporate work experience is also captured.

The above data will be used to check the Hypothesis Research Students have Higher Openness and low extroversion than the general population.

How will the analysis be performed ?

H1: One way Anova / Kruskal Wallis test because we have single outcome variable, type of outcome is continuous, Single predictor variable, Predictor variable is categorical and uses different participant in each category if ANOVAs assumptions are satisfied we will use ANOVA else Kruskal Wallis test thereafter if F score is significant we will do post hoc test to get the direction of the effect.

H2: MANOVA because we have Multiple outcome variable(Extraversion , Openness), type of outcome is continuous, Single predictor variable, Predictor variable is categorical and uses different participant in each category thereafter if F score is significant we will do post hoc test to get the direction of the effect

H3: Bootstrapping on Spearman Correlation as we want to establish a negative relation between age and neuroticism spearman correlation will capture that relation very well because it can capture all kind of monotonically decreasing relations quite well and to get the significance value we will use bootstrapping on it.

Takeaways:

The analysis will give us some foundation to study the impact of corporate experience on research students' personality.

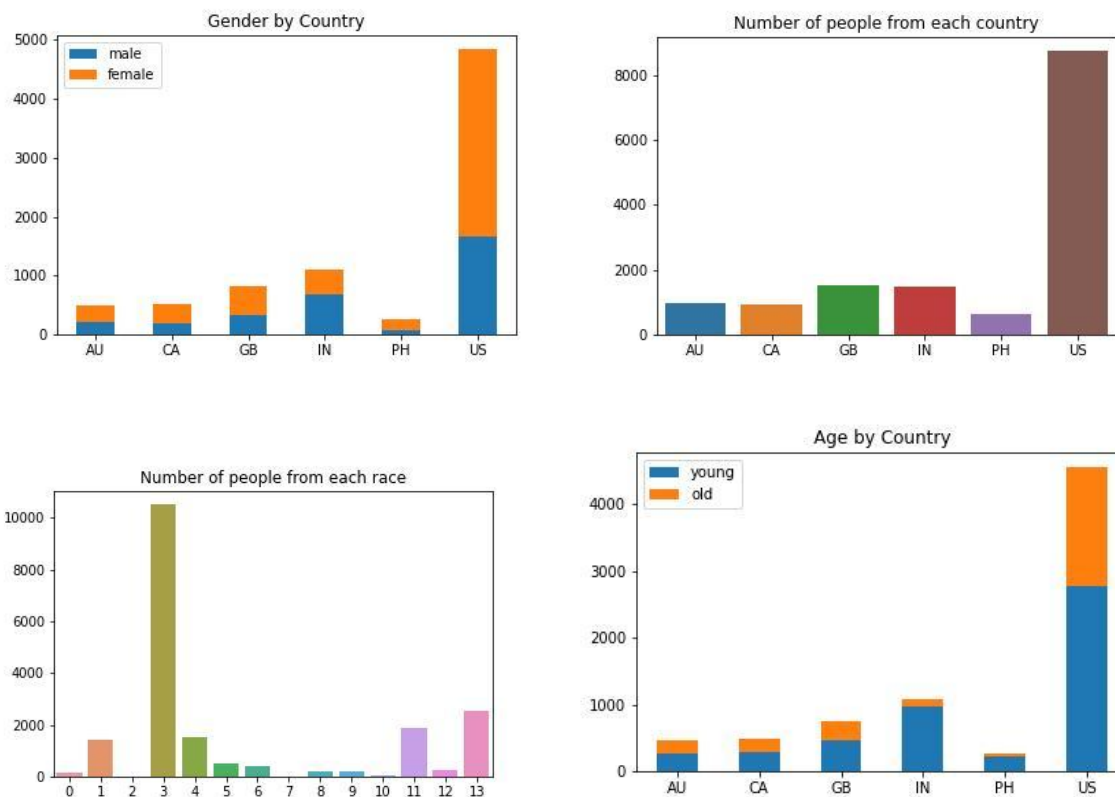
H1: As more women are into workforce in developed countries this affects their personality and hence they have a lower agreeableness

H2: The results obtained from analysis of research students can be a stepping stone in proposing a new psychometric test to be conducted additionally along with the technical exam, during the selection process of research students (just how it's done in corporations).

H3: With age people get better at handling emotions.

Data Visualizations:

The Data is visualized across various factors like gender , country , age , race to get a rough estimate of the distribution people across those factors.



References

- [1] https://openpsychometrics.org/_rawdata/
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<https://doi.org/10.1037/1040-3590.4.1.26>
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- [4] Falk A., Johannes H., Relationship of gender differences in preferences to economic development and gender equality, 307 (2018).
<https://www.science.org/doi/full/10.1126/science.aas9899>
- [5] Carstensen et al, Emotional Experience Improves With Age: Evidence Based on Over 10 Years of Experience Sampling, *Psychology and Aging* 2011. Vol. 26, No. 1.21-33.