

Personality and BMI in adolescence

Sara J. Weston
osf.io/tnf39









Distributions based on published CDC norms

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The SAPA Project Personality Test

The SAPA Project

Take the test.

Explore your personality.

Advance the study of individual differences.

Start the test

More info

FAQ about the test

The research behind SAPA

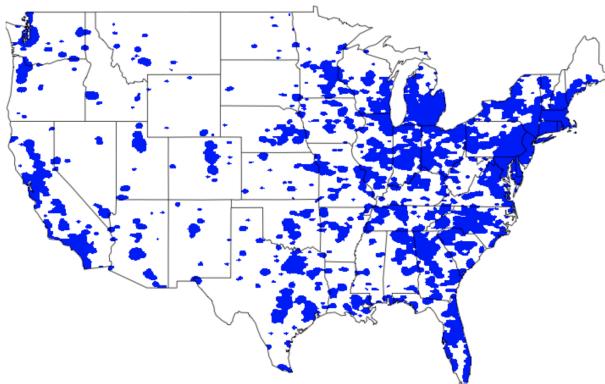
Individual Differences

SPI 27 Factor Trait Scores

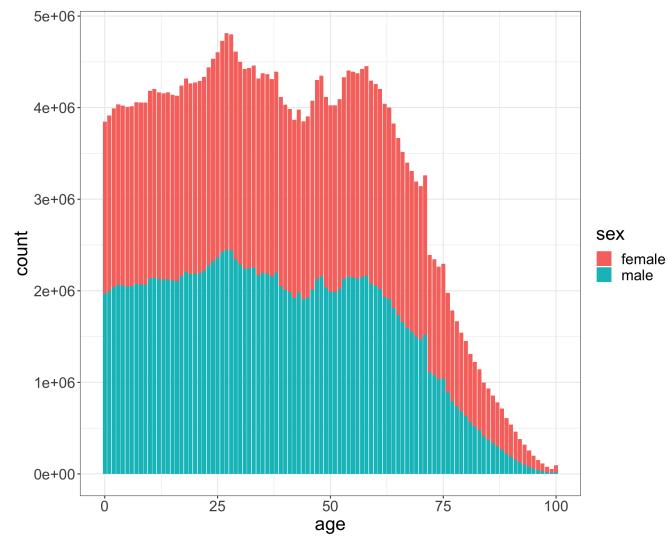
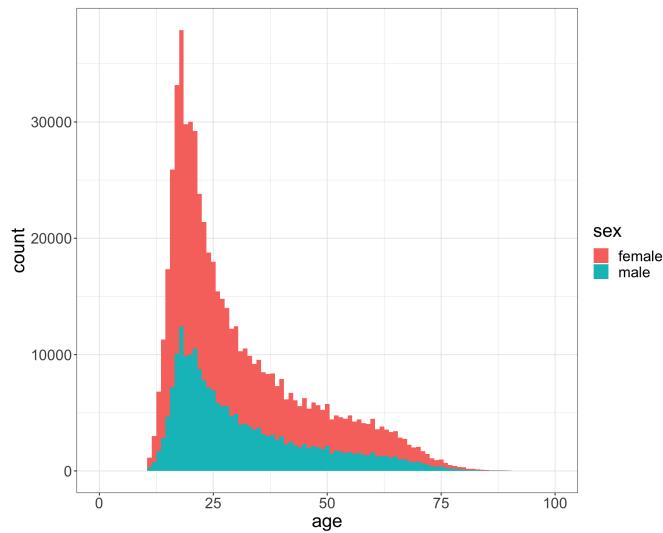
Factor	Trait Scores
Adaptability	Openness
SensationSeeking	Conscientiousness
Sociality	Extraversion
Inspection	Agreeableness
Adherence	Neuroticism
Creativity	Openness
Honesty	Conscientiousness
Perfectionism	Extraversion
Order	Agreeableness
EmotionalExpressiveness	Neuroticism
SelfControl	Openness
Emotionability	Conscientiousness

Fig. 15. Transverse section of the brain showing individual differences in cortical thickness across various regions.

SAPA



US Census (2010)



Current sample

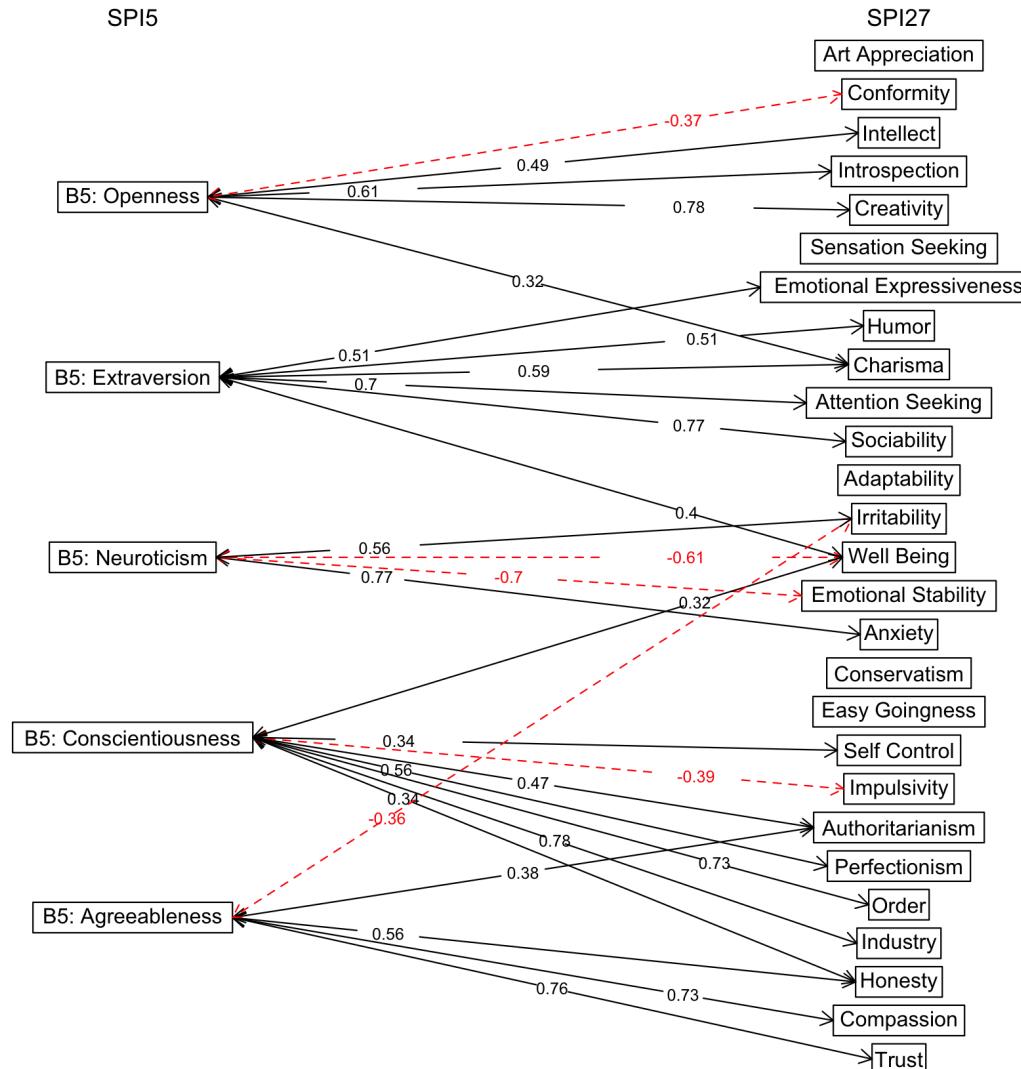
Data collected between February 7, 2017 and July 22, 2019

N = 616,270.

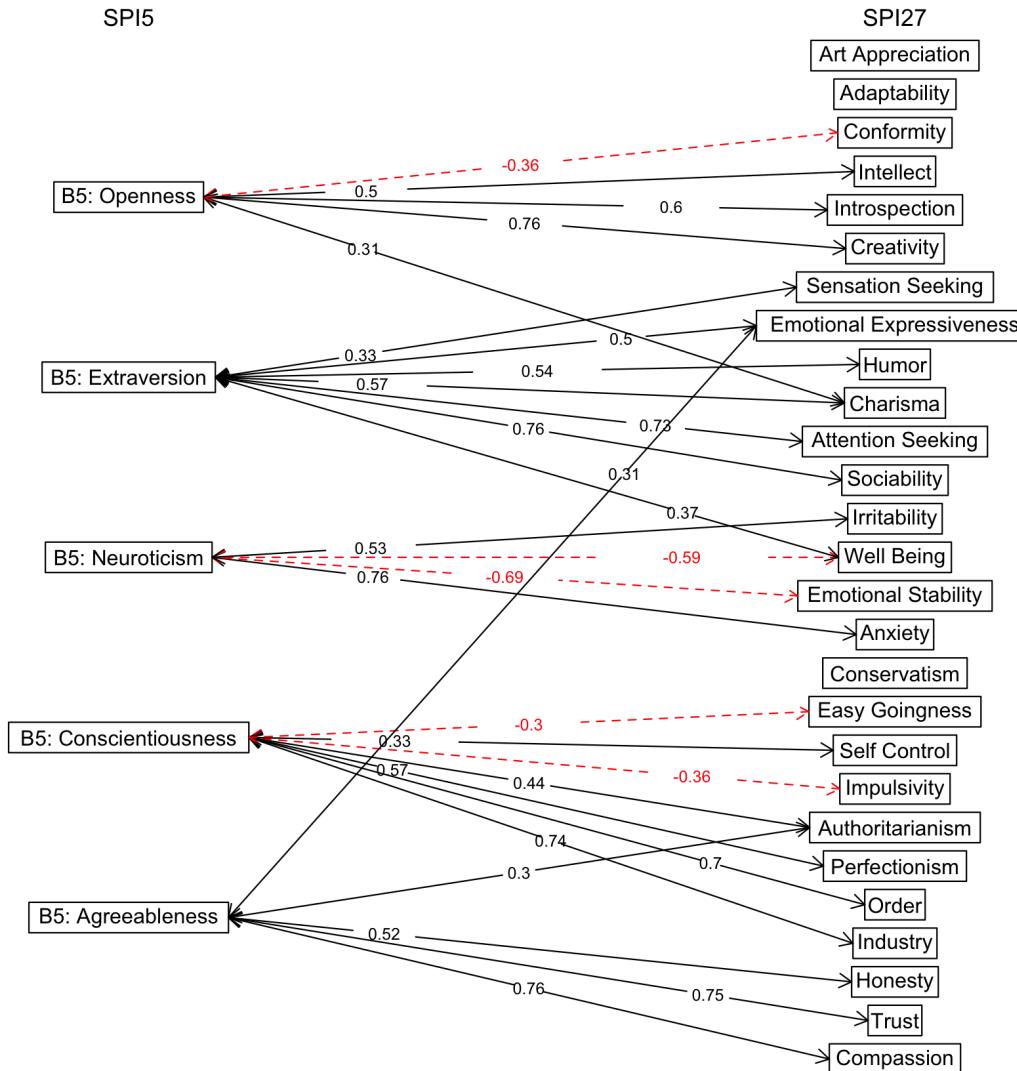
Restricted to US participants younger than 18 years old

N = 9,482, 69% female

Heterarchy diagram (girls)



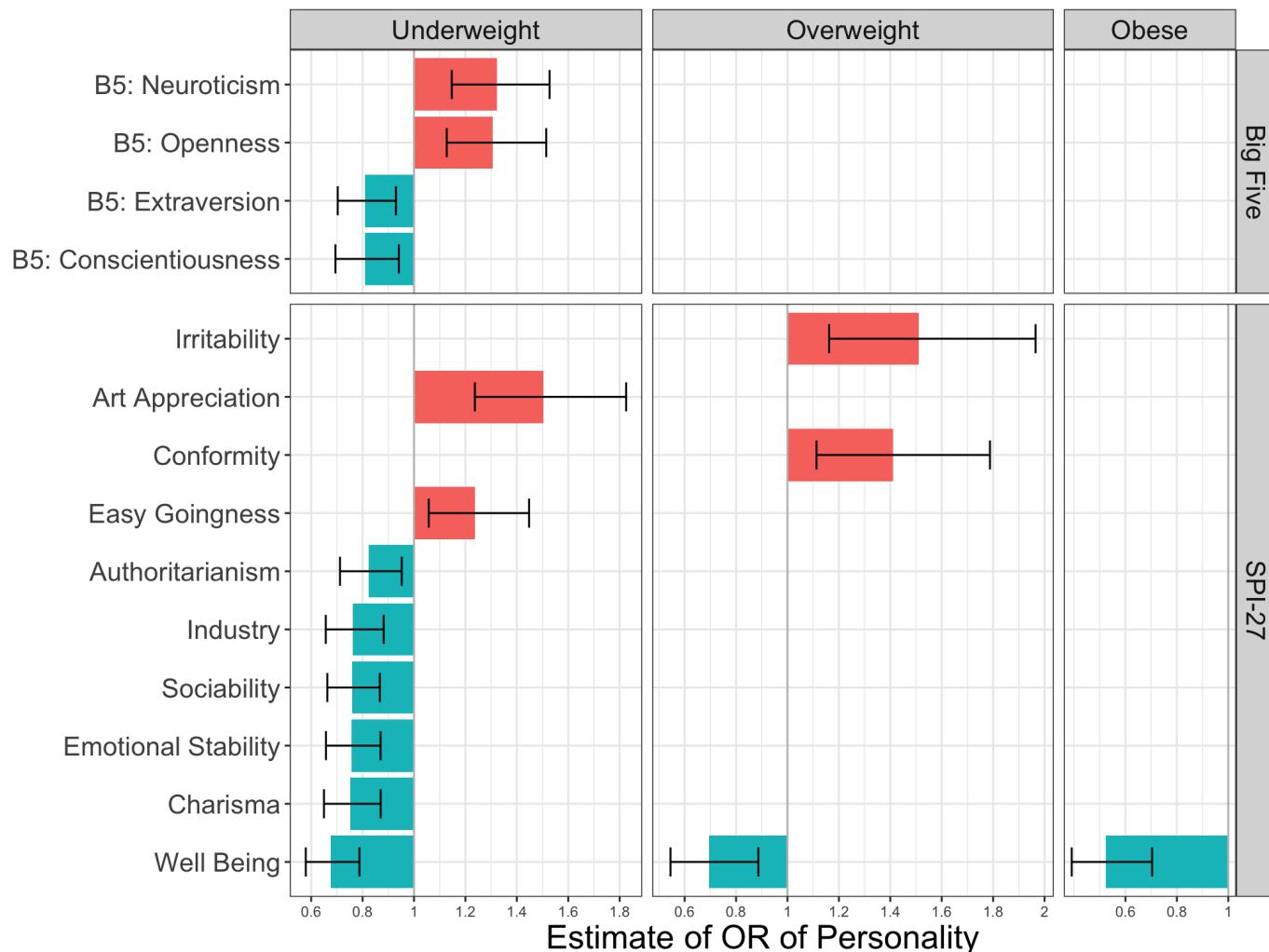
Heterarchy diagram (boys)



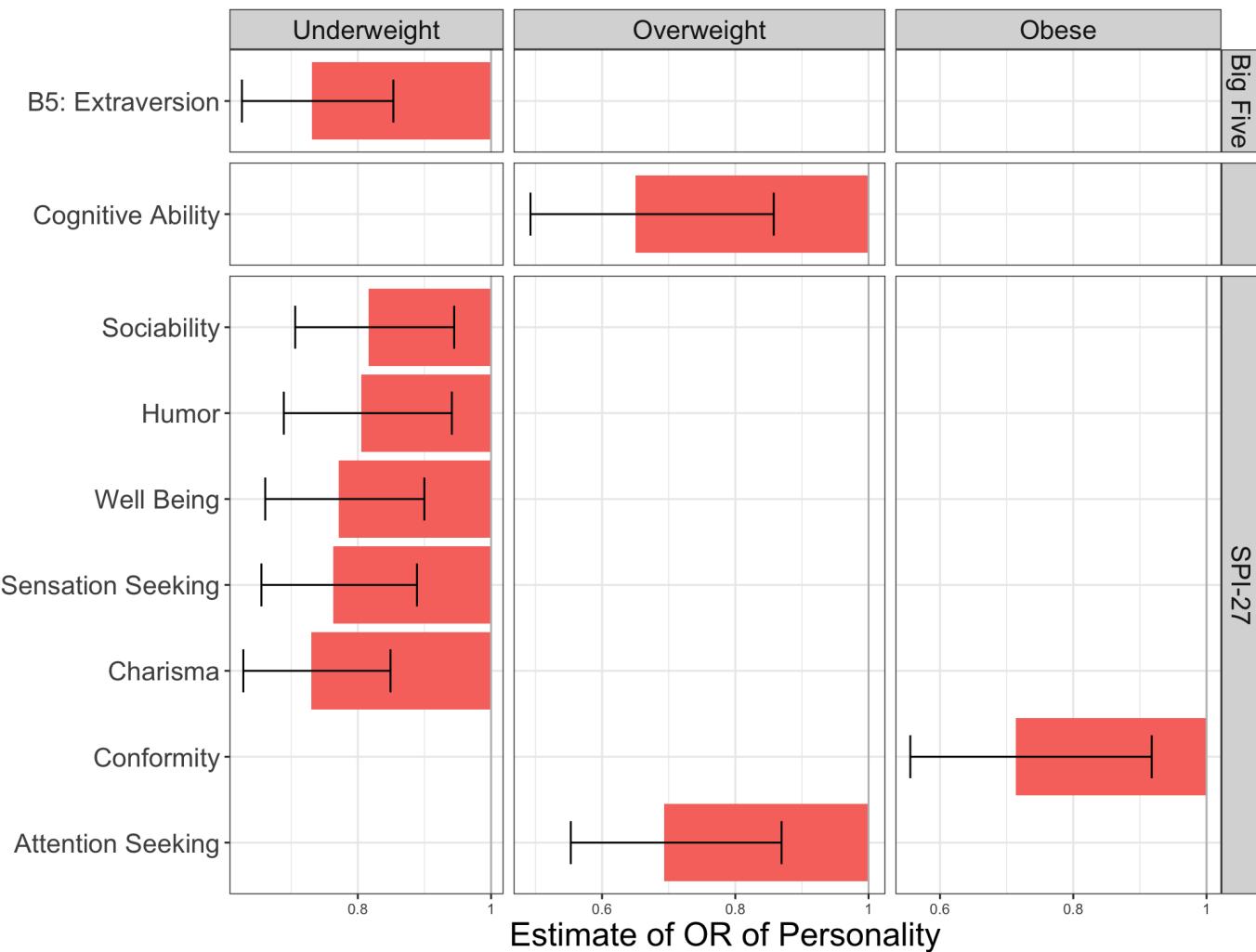
Methods

1. Partition dataset into training (75%) and test (25%) samples.
 - Separate partitioning and analysis by gender
2. 33 multinomial logistic regression models
 - Once for each trait (Big 5, SPI 27, Cognitive ability)
 - $BMI \sim \beta_0 + \beta_1(\text{trait score}) + \beta_2(\text{Socioeconomic status})$
 - 10-fold cross-validation, 10 times
 - Coefficient estimates are from final, averaged model in training set

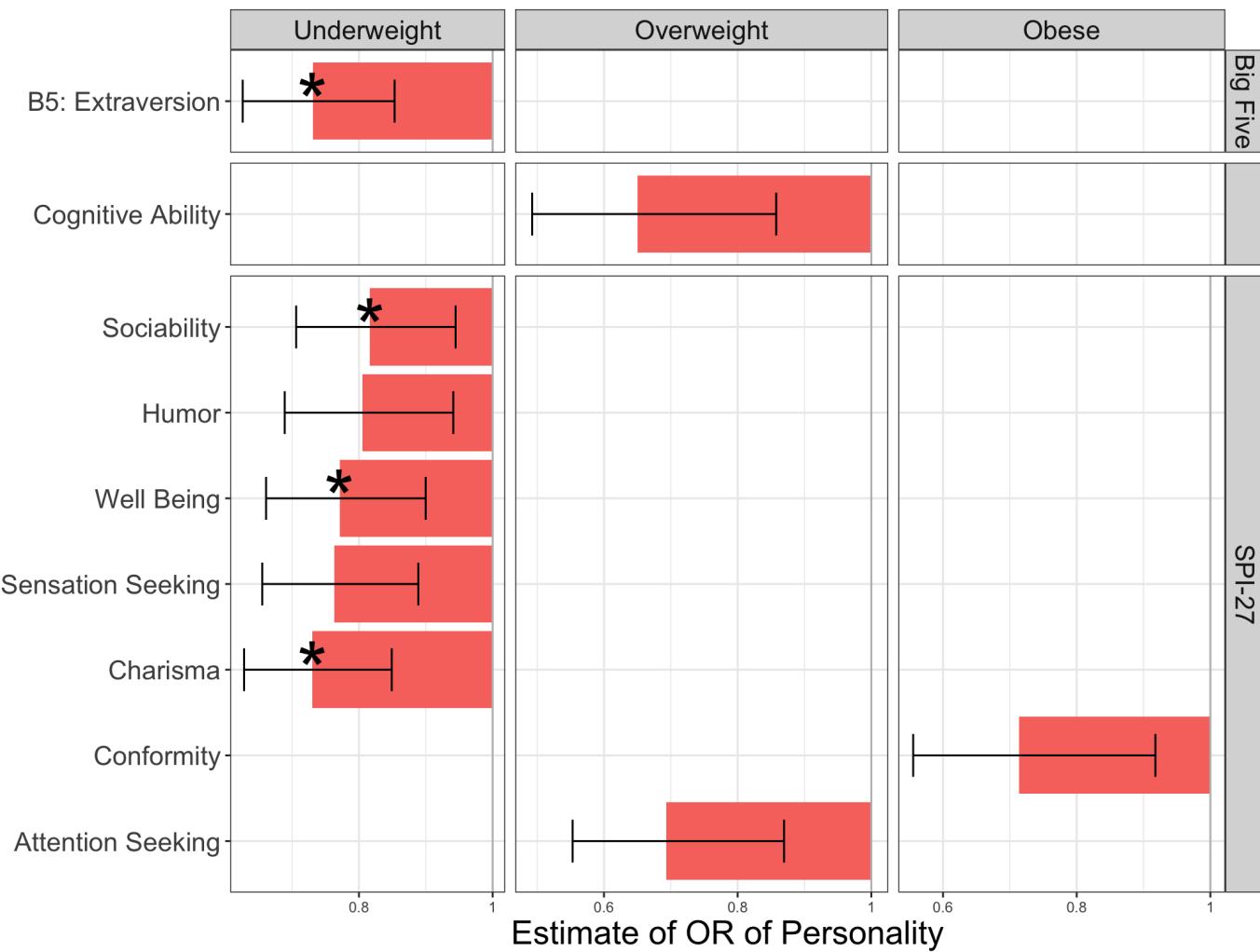
Personality associates of BMI category controlling for SES (girls age 13-17)



Personality associates of BMI category controlling for SES (boys age 13-17)



Personality associates of BMI category controlling for SES (boys age 13-17)



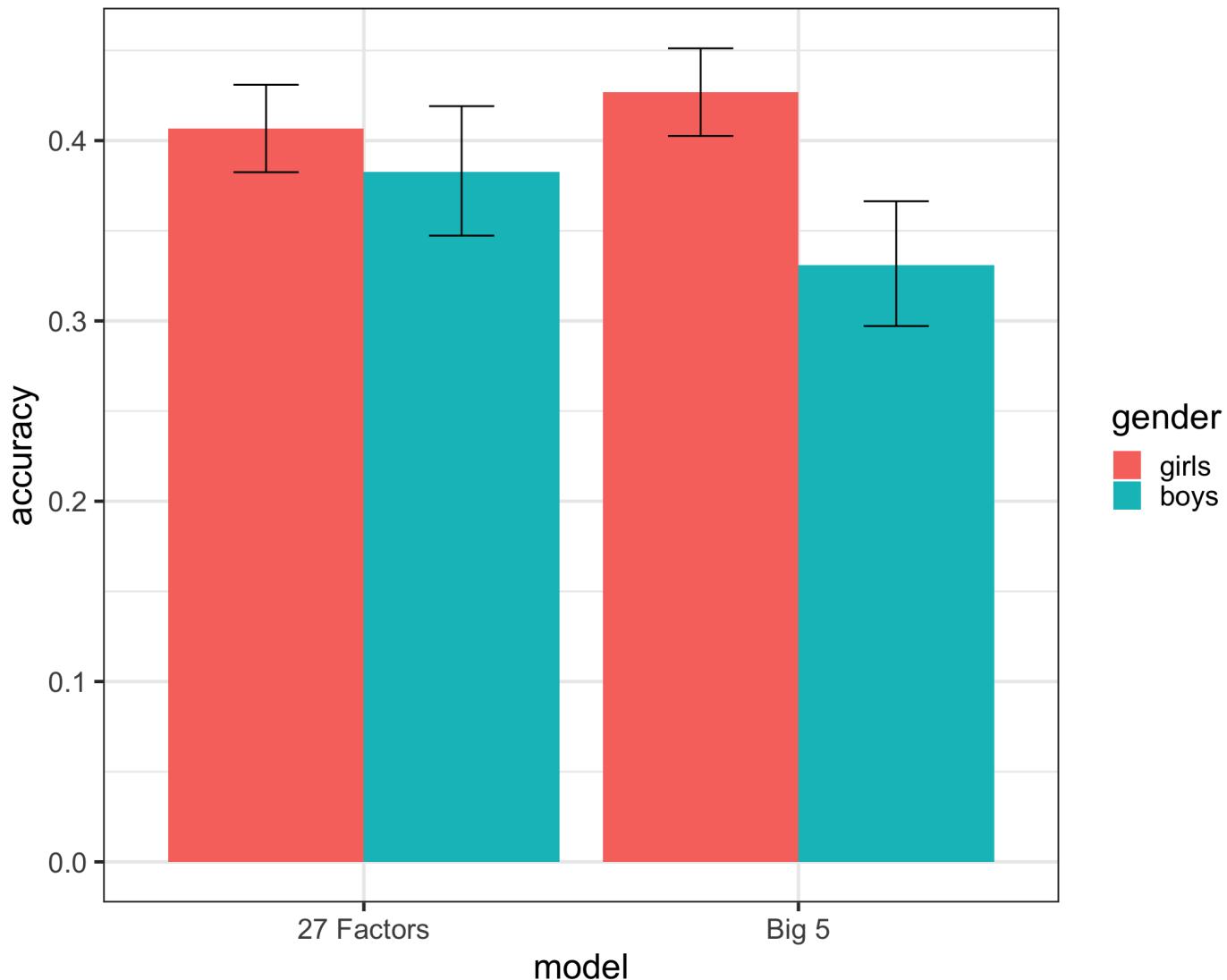
*Same direction and level as girls

Methods

1. Multinomial logistic regression 2 times

- $BMI \sim$ All Big 5 Traits
- $BMI \sim$ All SPI 27 Traits

Compare accuracy of prediction in test set (remaining 25%).



Wrap-up

Personality traits are associated with weight category above and beyond socio-economic status.

- Some personality traits are more strongly associated with weight than SES.

As a group, narrow traits (SPI 27) have a stronger association with weight category than broad traits (Big 5).

Cautionary note: these are association, and causal relationships are most likely bidirectional, even within a trait.

Thank you



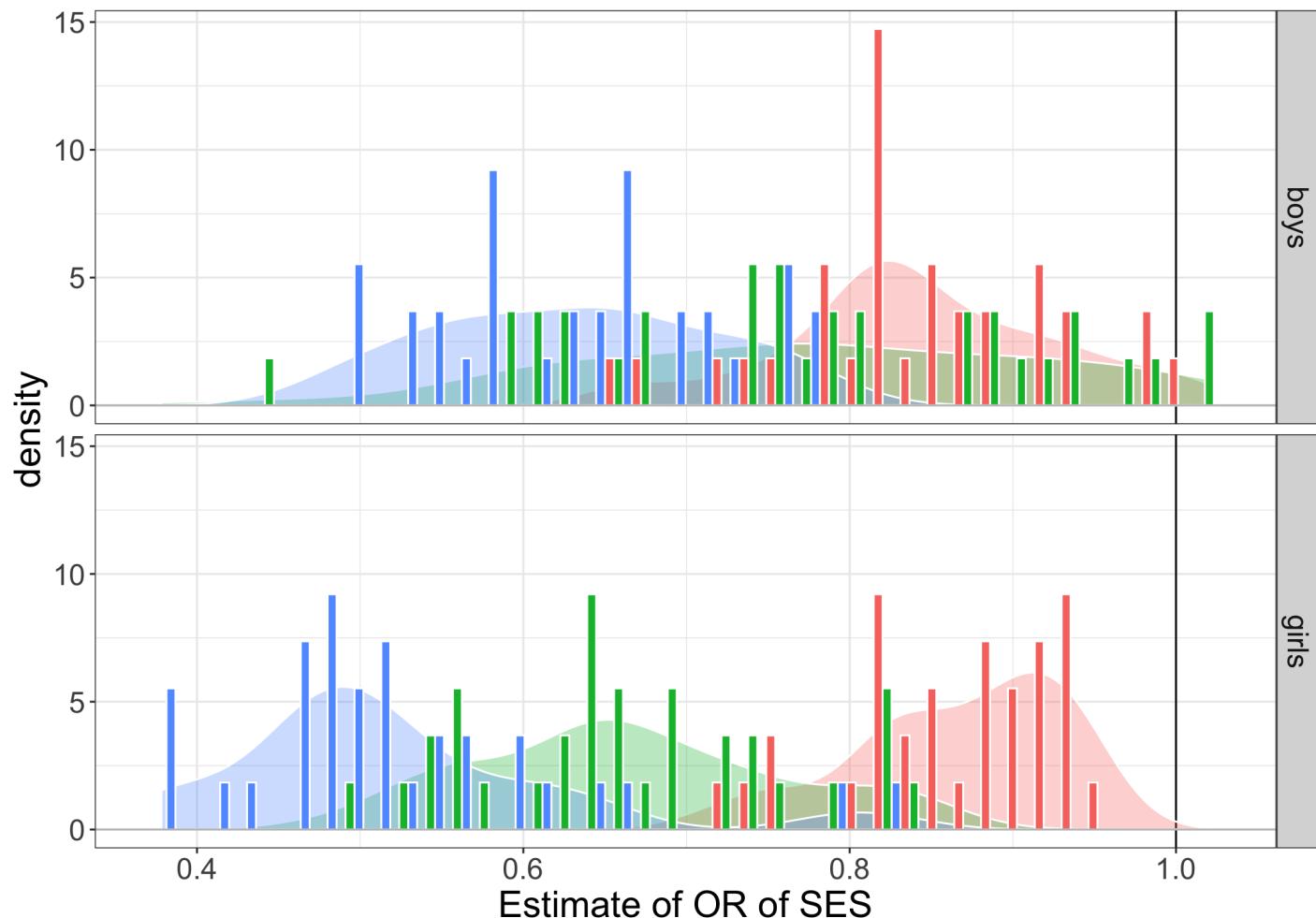
David Condon



Magdalena Leszko

Effect of SES on BMI (controlling for personality or cognition)

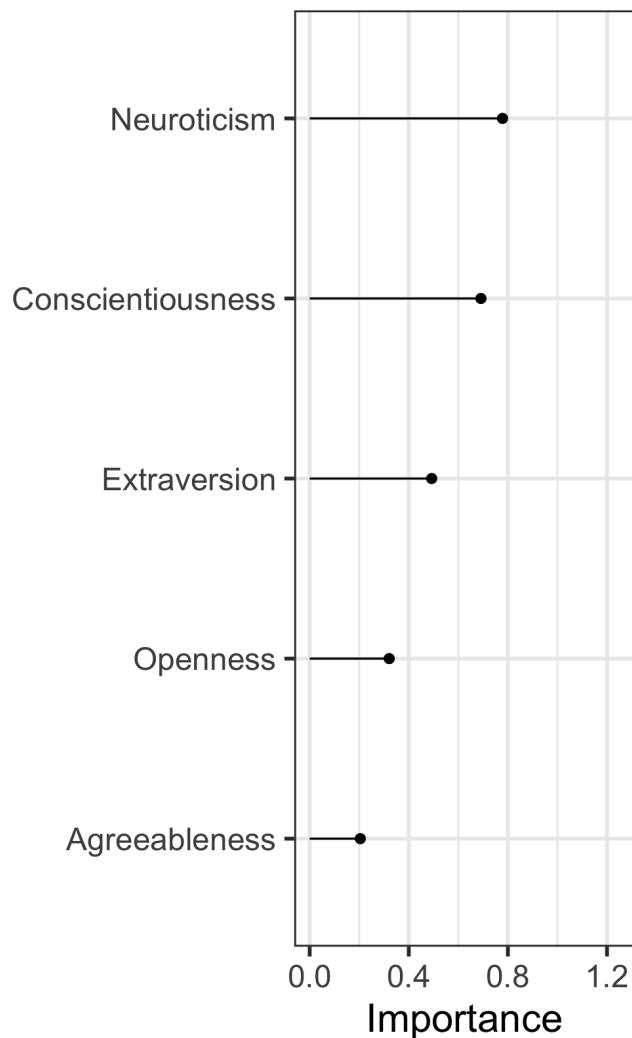
Odds of X compared to Normal █ Underweight █ Overweight █ Obese



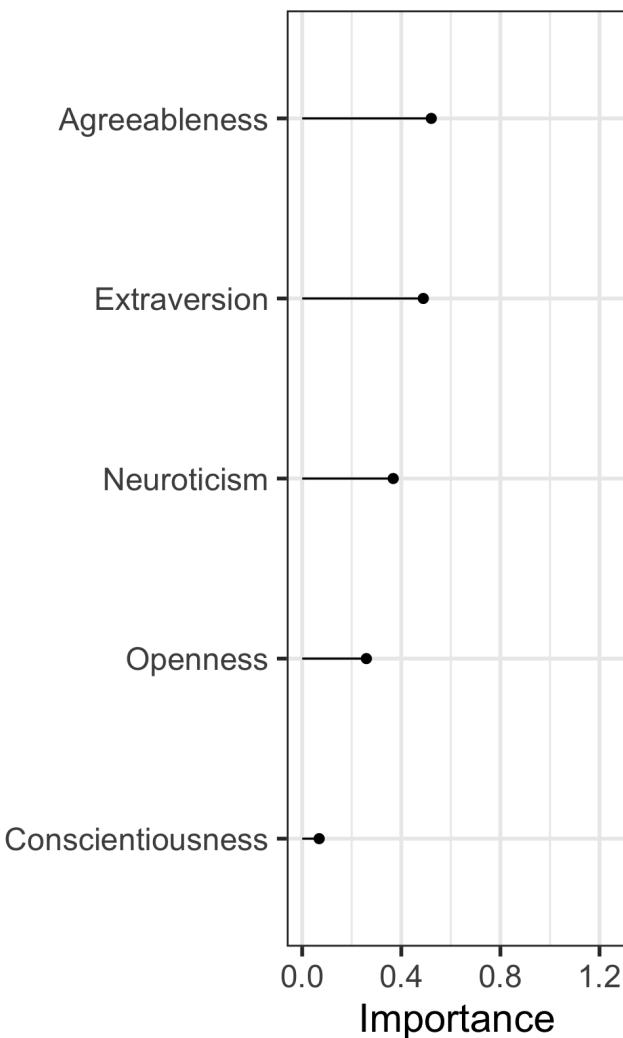
Current sample

	Normal Weight	Obese	Overweight	Underweight
female	4561	786	1018	165
male	1967	440	392	153

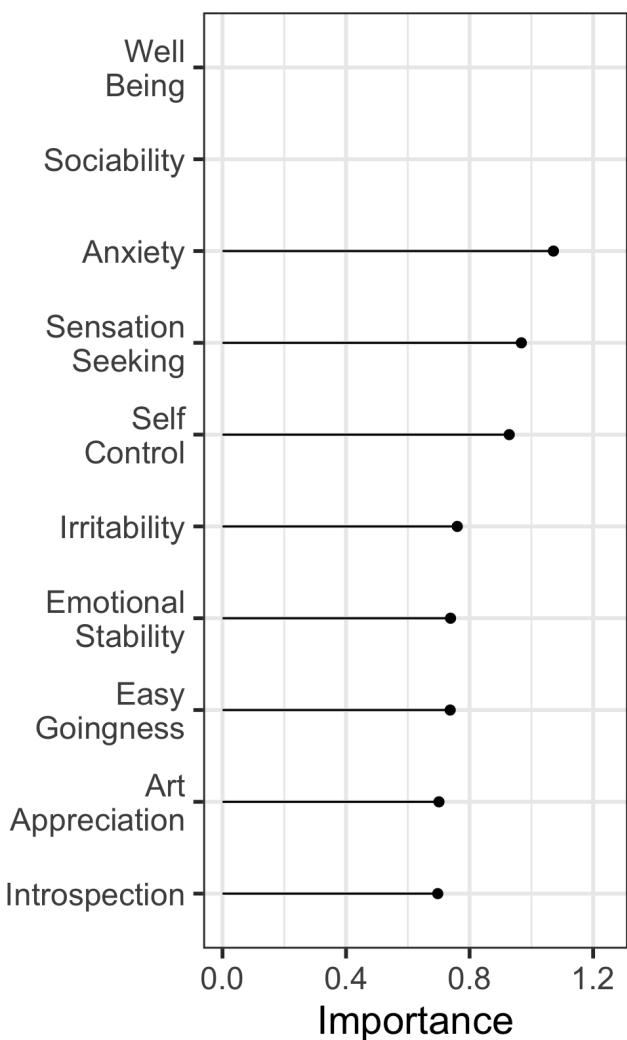
Girls



Boys



Girls



Boys

