Applying Partial Least Squares Regression (PLSR) To Explore Associations Between Cortical Thickness and Subvolume Using RANN Data

Melissa Nunez

10/15/2018

Descriptive Statistics: Gender and Education

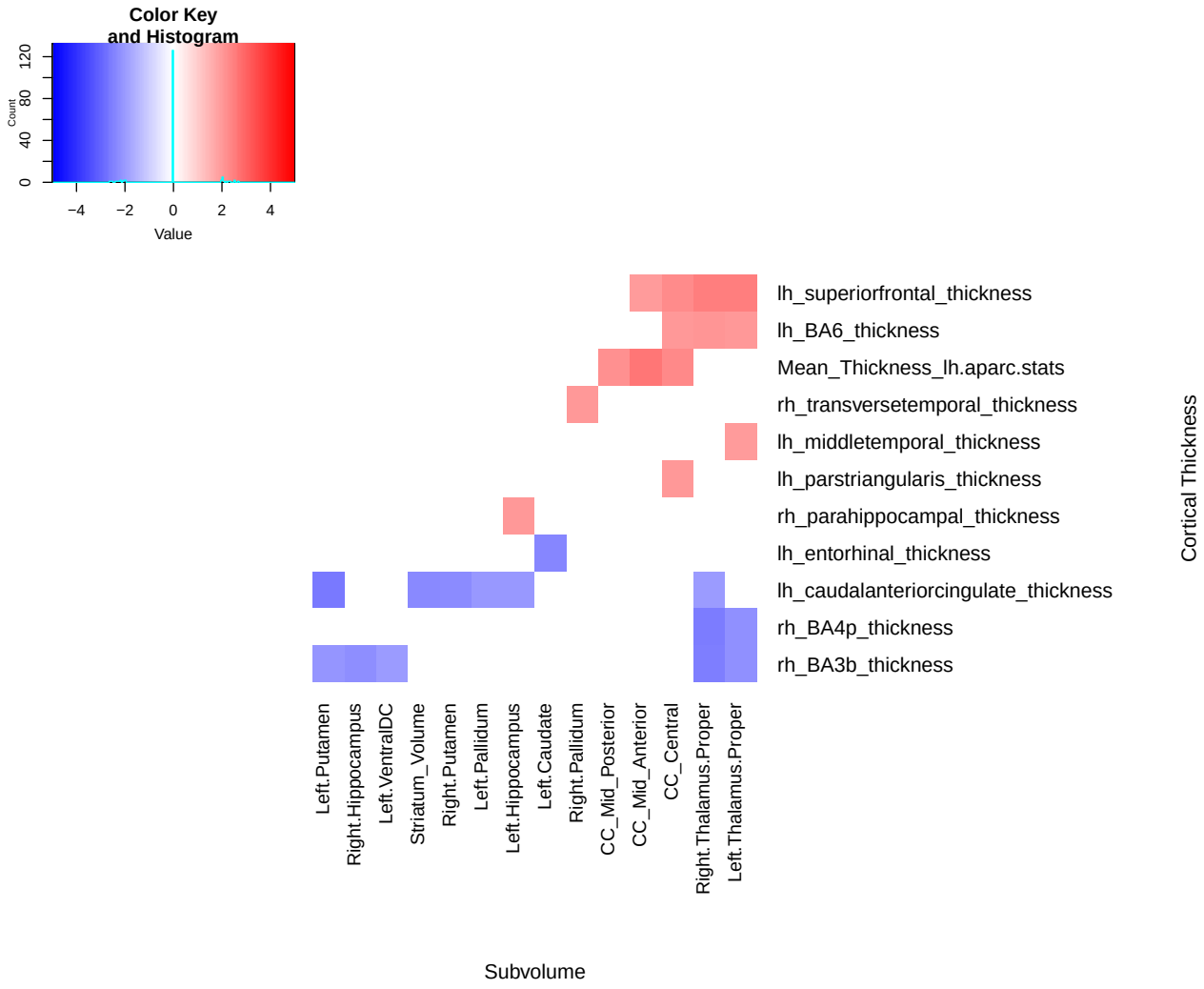
Gender	Count
Female	99
Male	74
Total	173

	Years of Education
Min.	12
1st Qu.	14
Median	16
Mean	16
3rd Qu.	18
Max.	22

Age Summary

	Baseline Age
Min.	20.00
1st Qu.	51.00
Median	64.00
Mean	55.55
3rd Qu.	67.00
Max.	71.00

RANN data was used to explore associations between cortical thickness and subvolume measures. One hundred boostraped sets were generated. On each dataset, partial least squares regression was applied with subvolume measures as the outcomes and cortical thickness measures as the predictors. 5-fold cross validation was used to determine the optimal number of components that should be used for each set of outcomes. Beta coefficients were averaged across all 100 datasets and standardized. The following heat map summarizes the significant associations.


Color Key
and Histogram
Count
0
40
80
120
−4
−2
0
2
4
Value
lh_superiorfrontal_thickness
lh_BA6_thickness
Mean_Thickness_lh.aparc.stats
rh_transversetemporal_thickness
lh_middletemporal_thickness
lh_parstriangularis_thickness
rh_parahippocampal_thickness
lh_entorhinal_thickness
lh_caudalanteriorcingulate_thickness
rh_BA4p_thickness
rh_BA3b_thickness
Cortical Thickness
Left.Putamen
Right.Hippocampus
Left.VentralDC
Striatum_Volume
Right.Putamen
Left.Pallidum
Left.Hippocampus
Left.Caudate
Right.Pallidum
CC_Mid_Posterior
CC_Mid_Anterior
CC_Central
Right.Thalamus.Proper
Left.Thalamus.Proper
Subvolume