Holly Erickson

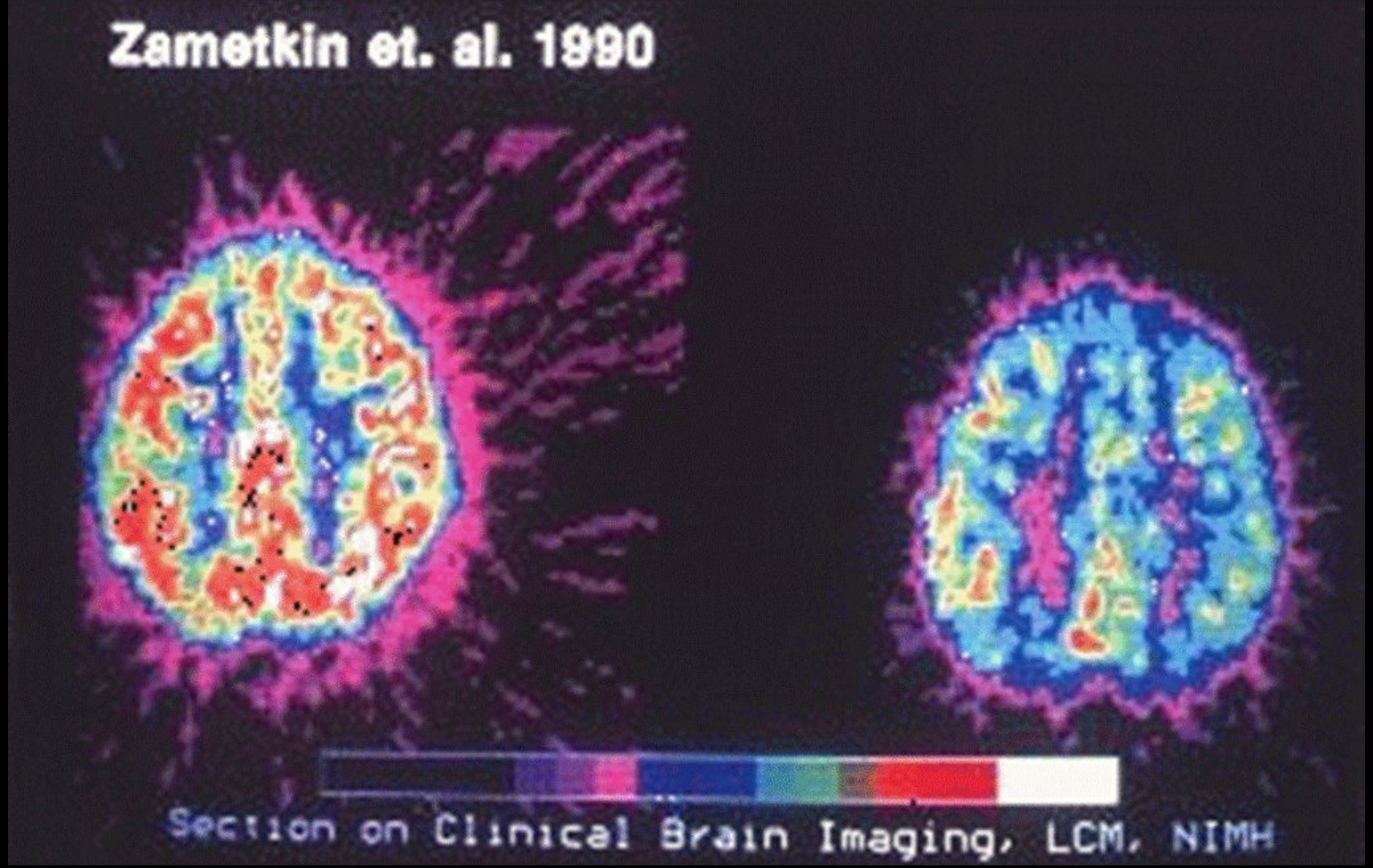
Identifying Underdiagnosed Females with ADHD

Likelihood to be diagnosed with ADHD:

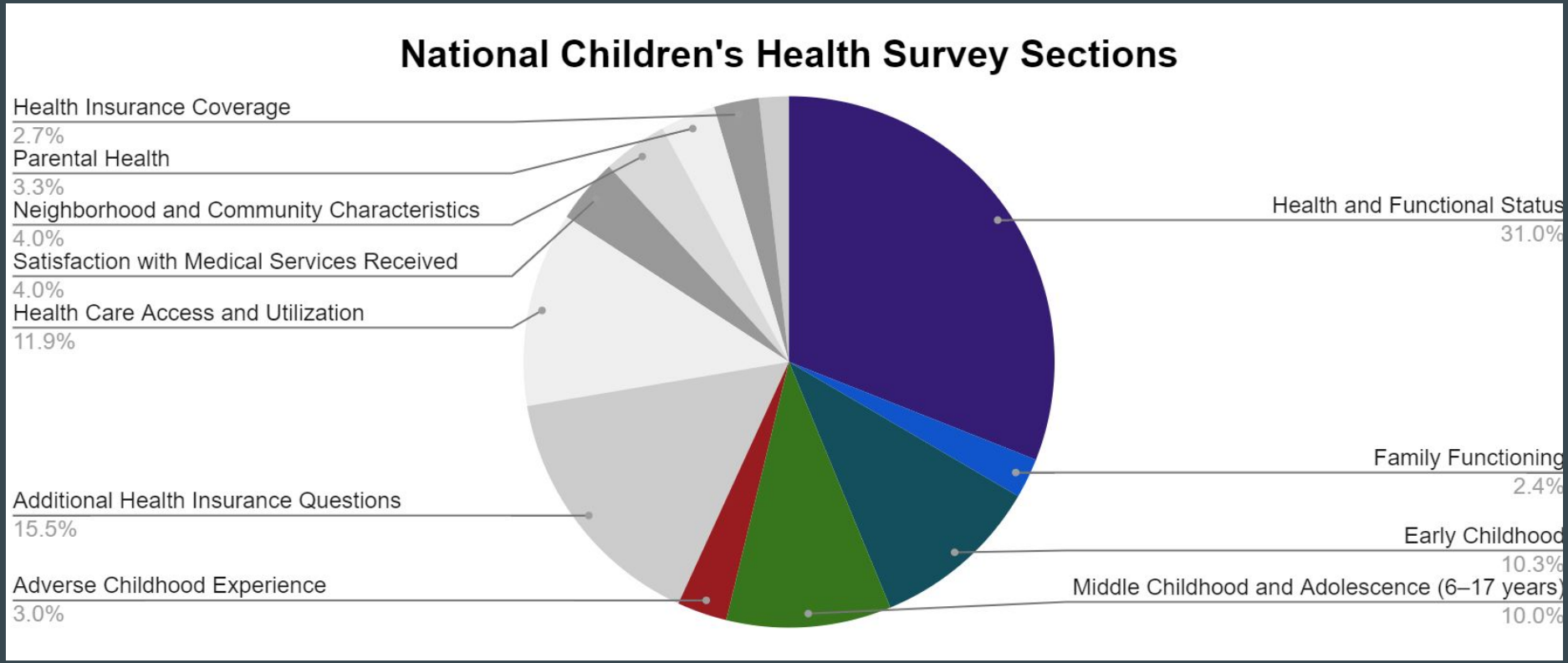
Boys = 12.9%

Girls = 5.6%

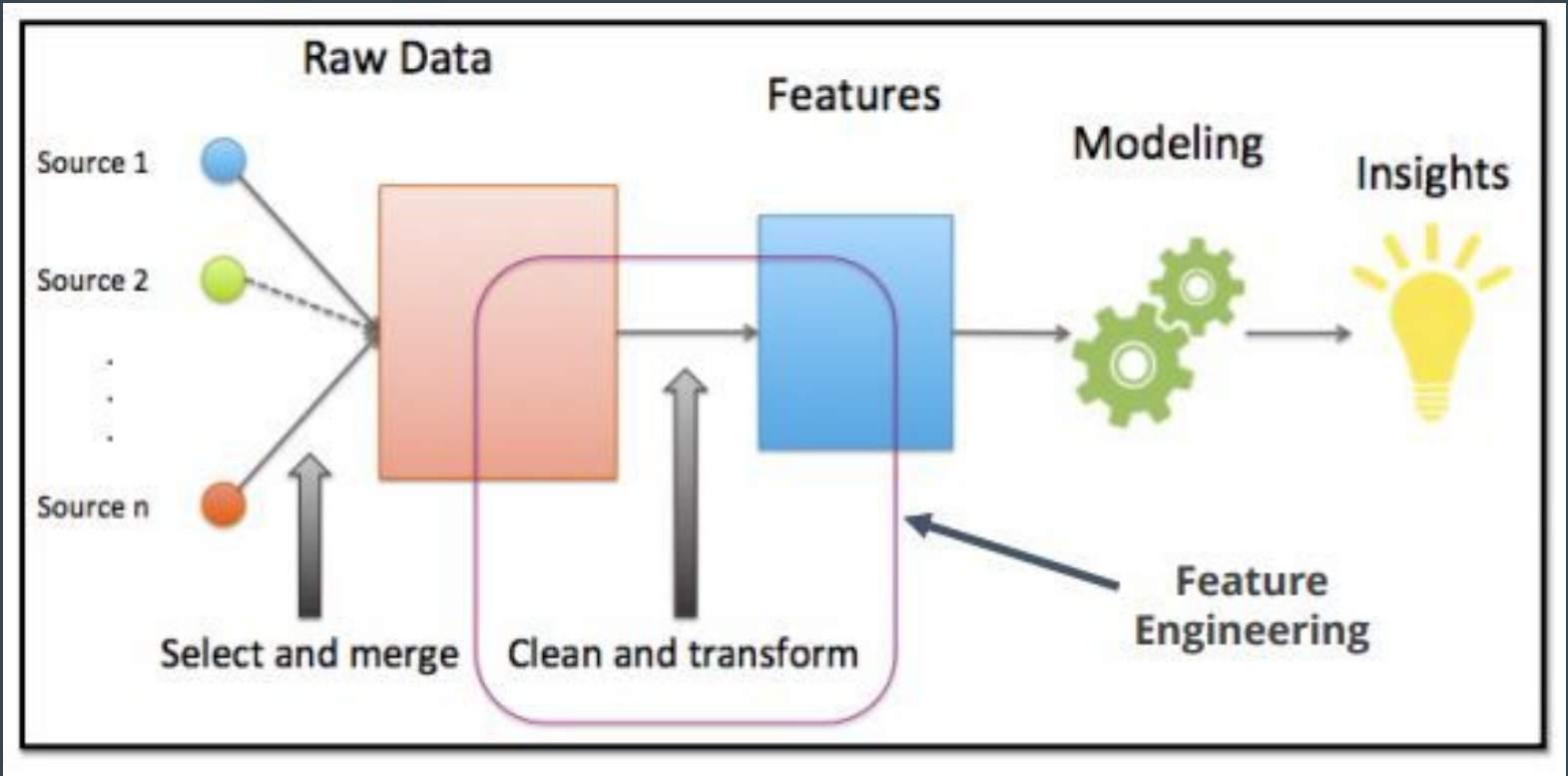
Artist: Lea Leani
https://www.publicdomainpictures.net/en/view-image.php?image=295888&picture=depression



https://en.wikipedia.org/wiki/File:NewADHDpic.gif

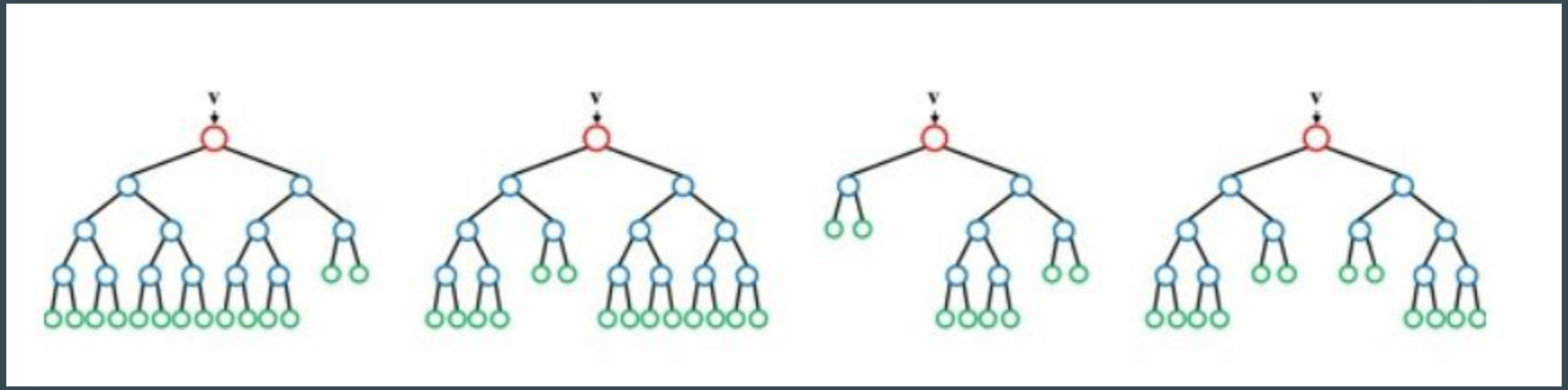

National Children's Health Survey Sections
Health Insurance Coverage
2.7%
Parental Health
3.3%
Neighborhood and Community Characteristics
4.0%
Satisfaction with Medical Services Received
4.0%
Health Care Access and Utilization
11.9%
Additional Health Insurance Questions
15.5%
Adverse Childhood Experience
3.0%
Health and Functional Status
31.0%
Family Functioning
2.4%
Early Childhood
10.3%
Middle Childhood and Adolescence (6–17 years)
10.0%

Preprocessing and Feature Selection



https://www.simplilearn.com/data-preprocessing-tutorial

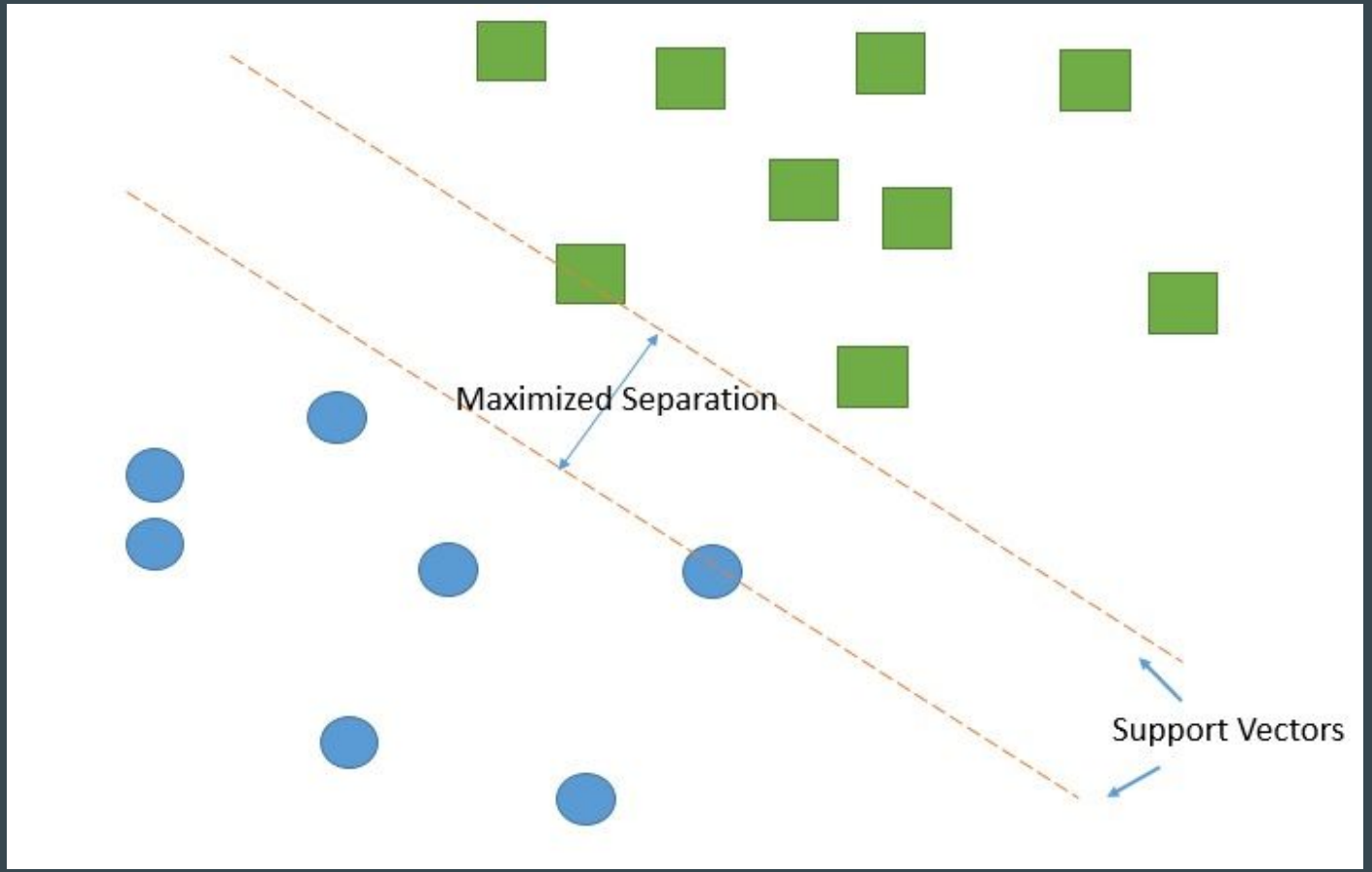
Random Forest



Each tree gets a vote on label, majority rules!

https://commons.wikimedia.org/wiki/File:Randomforests_ensemble.gif

Support Vectors



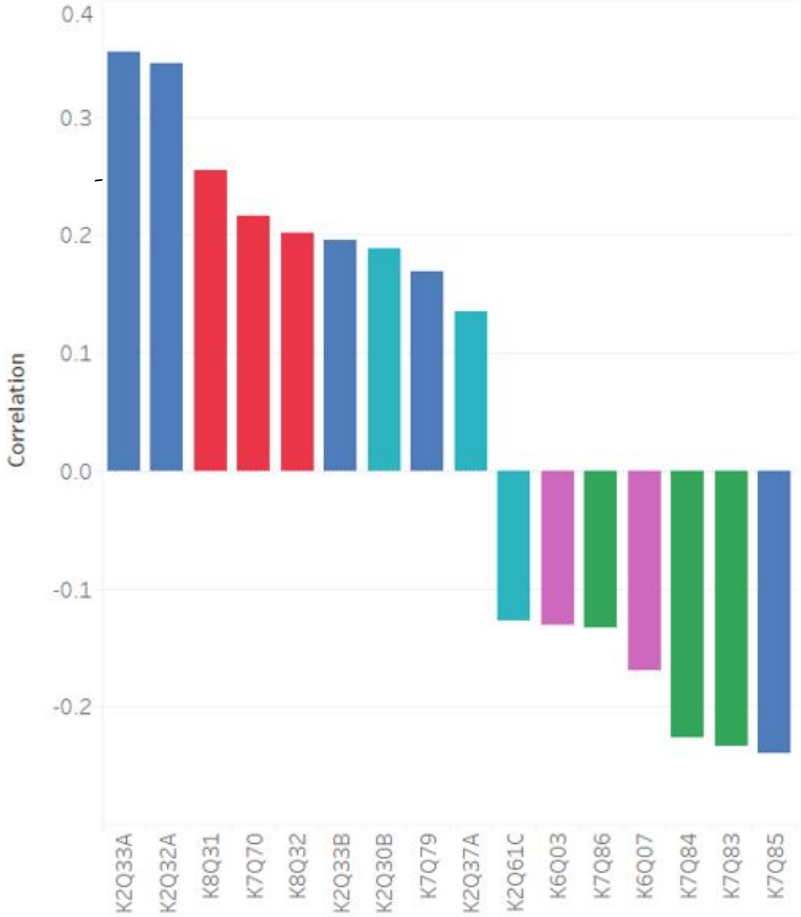
https://en.wikipedia.org/wiki/File:Support_vector_machine.jpg

Model Evaluation

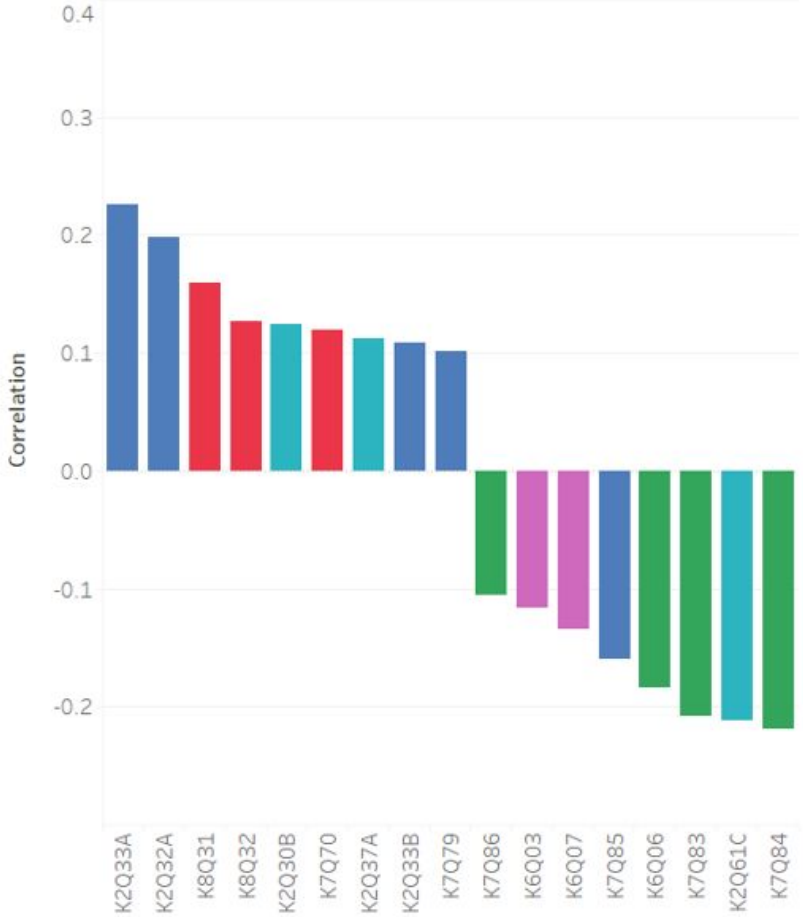
Female only model numbers:

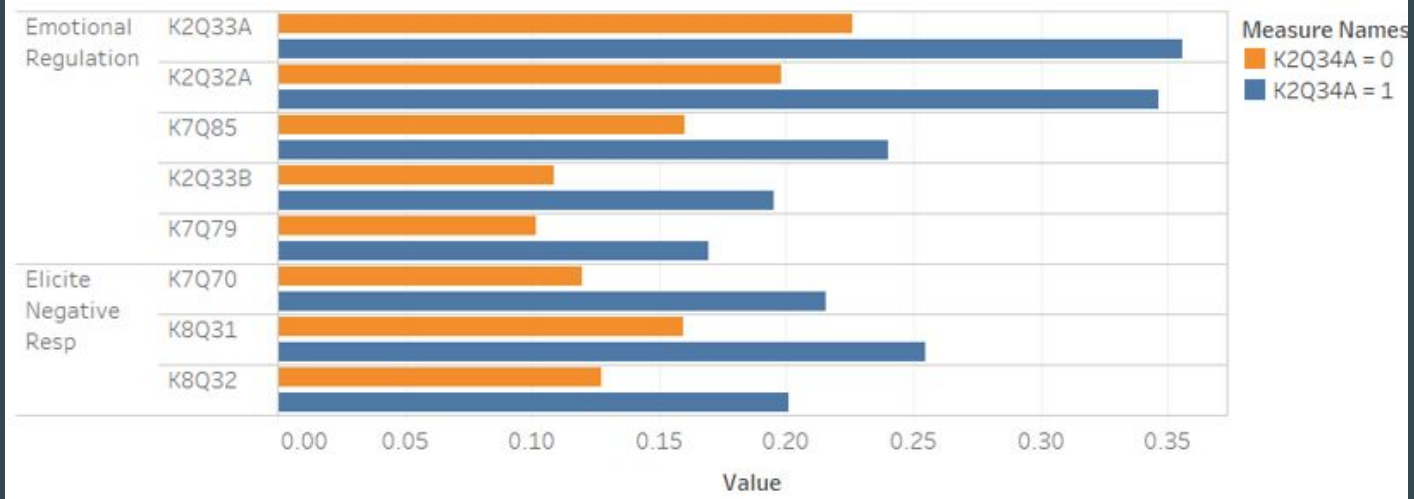
- 41314 rows
- 56 Features
- Random Forest: 0.935 ROC
- 0.955 accuracy
- Examine subset of False Positives (3.39% females)

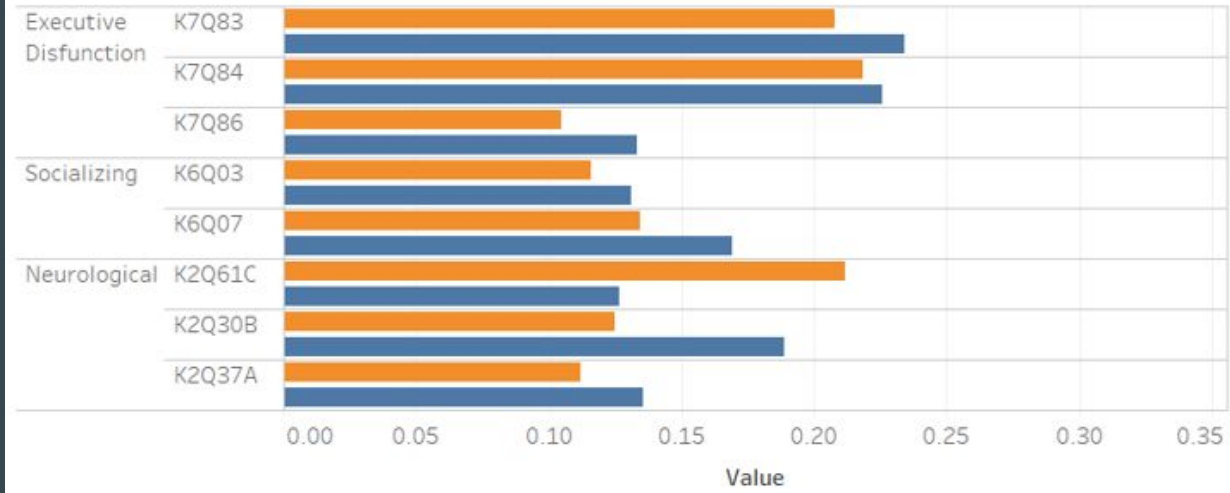
Correlation with ADHD Diagnosis: K2Q34A = 1



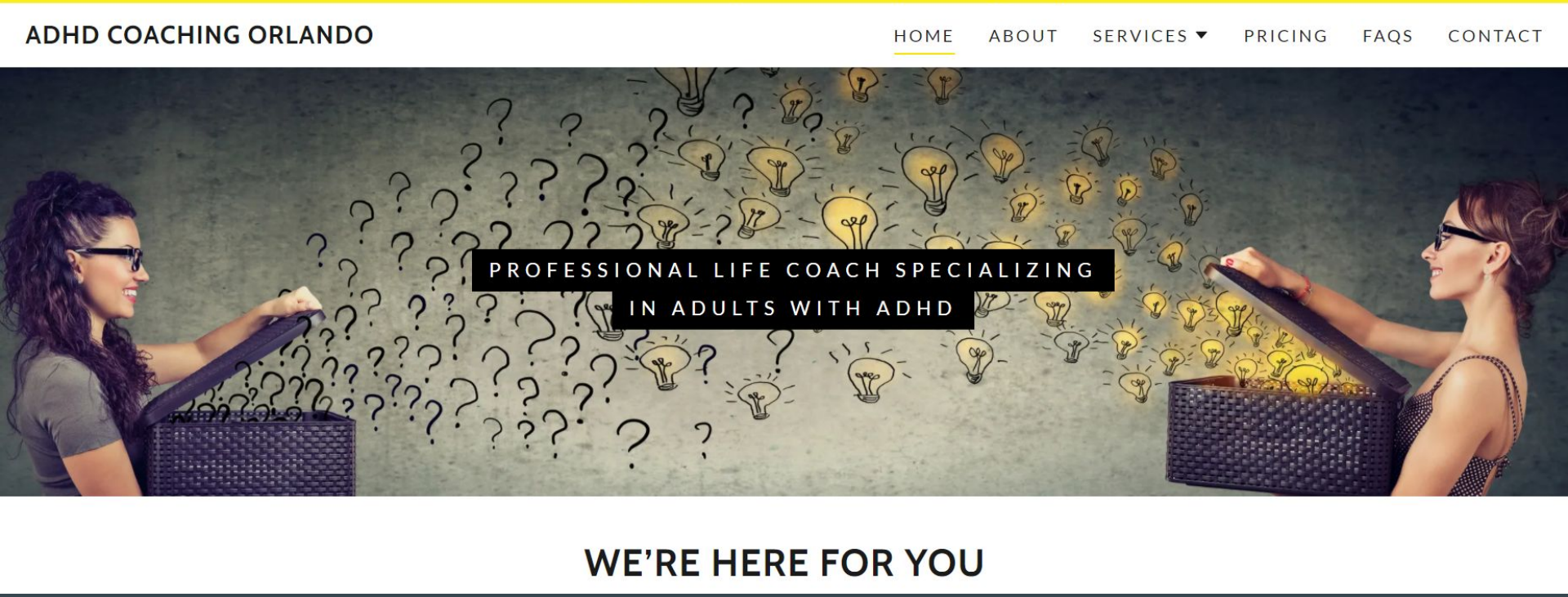
Correlation with ADHD Diagnosis: K2Q34A = 0




Emotional Regulation
K2Q33A
K2Q32A
K7Q85
K2Q33B
K7Q79
Elicite Negative Resp
K7Q70
K8Q31
K8Q32
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
Value
Measure Names
K2Q34A = 0
K2Q34A = 1


Executive Disfunction
K7Q83
K7Q84
K7Q86
Socializing
K6Q03
K6Q07
Neurological
K2Q61C
K2Q30B
K2Q37A
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
Value

Signs to Look For



Why?

DEFORMED
RETARDED
BAD
UNLOVABLE
WORTHLESS
UGLY
STUPID
WRONG
LOST
EVIL
BROKEN
USELESS
UNFIT
THOUGHTLESS
BORING
INADEQUATE
RECKLESS
INCONSIDERATE
PATHETIC
INCAPABLE
UNFAIR
DIRTY
LOUSY
WEAK
LAZY
CLUELESS
SICKENING
UNFAIR
IRRELEVANT
INFERIOR
DEFICIENT
LOSER
SHAMEFUL
HOPELESS
UNIMPORTANT
NO-GOOD
SELFISH
LAME
ROTTEN
STUPID
RETARDED
DISAPPOINTMENT
DISGRACEFUL
CARELESS
UGLY
CLUELESS
LAZY
NO-GOOD
SICKENING
HOPELESS
UNIMPORTANT
SELFISH
BAD
LAME