Statistics in R Workshop #3
March 22, 2022

Workshop 3: Hypothesis testing with continuous data and general linear model (GLM)

Goal: Learn and implement hypothesis testing with continuous variables. This includes examining data for normality, skewness, and kurtosis, forming hypotheses based in theory and the current literature, carrying out statistical testing, and interpreting results.

Relationship between two continuous variables

- Correlation
    - Strength and direction of relationship
    - Check for linear relationship between variables
        - Scatterplots
- Regression
    - Defining a linear model between variables to make predictions
    - Check normality of model
        - Plot residuals on qqplot, skew, and kurtosis
- Visualize corr. and regression

General linear modeling

- Test the effects of both numeric and categorical predictors
- Check model assumptions
- Main effects with controls and interactions
- Visualize models and continuous relationships

Homework before workshop #4
Find a dataset you want to work with (either from the lab or on osf.io or any other open science dataset). Time permitting, we can explore osf.io and determine possible datasets that would work for you. Ideally, your dataset should have **at least** one categorical variable and two continuous variables. This will give you the opportunity to run multiple types of analyses and practice using R.