Objective:

In this work I will visually explore the magnitude and type of association between FEV and body size approximated by height (centimeters) and how they change when considering other variables such as, smoking behavior and birth assigned gender. This work will interactively (using scrolly telling) to display the mean and fitted FEV values comparing across gender and smoking habits.

Background:

This data is from a cohort study conducted among adults aged 65 years and older to observe their risk of cardiovascular disease and other risk factors, of which one is forced expiratory volume (FEV). FEV is a measure (in liters per second) of forced expiratory volume in the participant at the time of MRI. Normal FEV measurements depend upon the size of the lungs, which in turn is usually proportional to body size. In addition, FEV is highly impacted by behavioral characteristics such as smoking.

Findings:

For individuals with the same sex smoking behavior explains more the relationship between FEV and height making it a precision variable. Looking at the entire dataset gender is associated with both FEV and height, making it potential confounder. However, for gender to be a true confounder we need to find evidence for causal relationship between gender and FEV.

More description and deployed page here: https://csss569-3.shinyapps.io/shiny-scrollytell-master/