Sleep Trial Analysis

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A randomised controlled trial was undertaken to compare sleep deprivation (SD) over an eight week period between an intervention group using sleep therapy and a control group (i.e. usual-care). One hundred and thirty four adults were randomly assigned to either an intervention or usual-care group. The primary response variable was the improvement in sleep deprivation (averaged over a week) between baseline and follow-up at eight weeks where high values of SD represent a poorer outcome.

library(infer)  
library(tidyverse)

## ── Attaching packages ─────────────────────────────────────── tidyverse 1.3.2 ──  
## ✔ ggplot2 3.3.6 ✔ purrr 0.3.4   
## ✔ tibble 3.1.8 ✔ dplyr 1.0.10  
## ✔ tidyr 1.2.1 ✔ stringr 1.4.1   
## ✔ readr 2.1.2 ✔ forcats 0.5.2   
## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()

library(tolerance)

sleep.df <- read.csv("Sleep\_trial\_data.csv")  
glimpse(sleep.df)

## Rows: 118  
## Columns: 4  
## $ Group <chr> "Control", "Control", "Treatment", "Control", "Con…  
## $ SDep.at.Baseline <int> 1, 3, 3, 3, 4, 4, 5, 5, 5, 5, 6, 6, 6, 6, 6, 7, 7,…  
## $ SDep.at.Follow.Up <int> 1, 7, 6, 5, 4, 3, 4, 4, 2, 2, 8, 6, 5, 0, 0, 11, 6…  
## $ Improvement.in.Sdep <int> 0, -4, -3, -2, 0, 1, 1, 1, 3, 3, -2, 0, 1, 6, 6, -…

# Summary Statistics

sleep.df %>% group\_by(Group) %>%   
 summarize(Mean=mean(Improvement.in.Sdep),   
 SD= sd(Improvement.in.Sdep))

## # A tibble: 2 × 3  
## Group Mean SD  
## <chr> <dbl> <dbl>  
## 1 Control 1.67 4.06  
## 2 Treatment 4.5 4.37

sleep.df %>% filter(Group %in% 'Treatment') %>%   
 summarize(Treatment.Mean=mean(Improvement.in.Sdep),   
 Treatment.SD= sd(Improvement.in.Sdep))

## Treatment.Mean Treatment.SD  
## 1 4.5 4.369953

sleep.df %>% filter(Group %in% 'Control') %>%   
 summarize(Control.Mean=mean(Improvement.in.Sdep), Control.SD= sd(Improvement.in.Sdep))

## Control.Mean Control.SD  
## 1 1.666667 4.061671

Summarise by group using \_all function

sleep.df %>%  
select(Group, Improvement.in.Sdep) %>%  
group\_by(Group) %>%  
summarise\_all(funs(mean, sd), na.rm = TRUE)

## Warning: `funs()` was deprecated in dplyr 0.8.0.  
## Please use a list of either functions or lambdas:   
##   
## # Simple named list:   
## list(mean = mean, median = median)  
##   
## # Auto named with `tibble::lst()`:   
## tibble::lst(mean, median)  
##   
## # Using lambdas  
## list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))  
## This warning is displayed once every 8 hours.  
## Call `lifecycle::last\_lifecycle\_warnings()` to see where this warning was generated.

## # A tibble: 2 × 3  
## Group mean sd  
## <chr> <dbl> <dbl>  
## 1 Control 1.67 4.06  
## 2 Treatment 4.5 4.37