Multilevel Modeling Summative

Anonymous Marking Code: Z0195806

2024-03-26

Contents

Part 1 Introduction

1.1 Background of Multisite Trials

Definition of Multisite Trials: Multisite trials are a type of clinical research study where the intervention being tested is administered across multiple sites or locations. These trials are particularly valuable in assessing the effectiveness of an intervention in a broader, more diverse population. By including a variety of settings, such as different hospitals, clinics, or communities, multisite trials can provide more generalizable results, ensuring that the findings are not specific to a single location or population(Youth Endowment Fund 2024).

1.2 Intro to the MST Dataset

```
# ------------------------------------------------------
## clear the environment var area
# rm(list = ls())
## clear all plots
# graphics.off()
## clear the console area
# cat("\014")
# ------------------------------------------------------
# install.packages("gridExtra")
# ------------------------------------------------------
```

```r
require(lme4)
require(lmerTest)
require(ggplot2)
require(sjPlot)
```

Download the dataset "MST" only once from GitHub and save it to csv files.

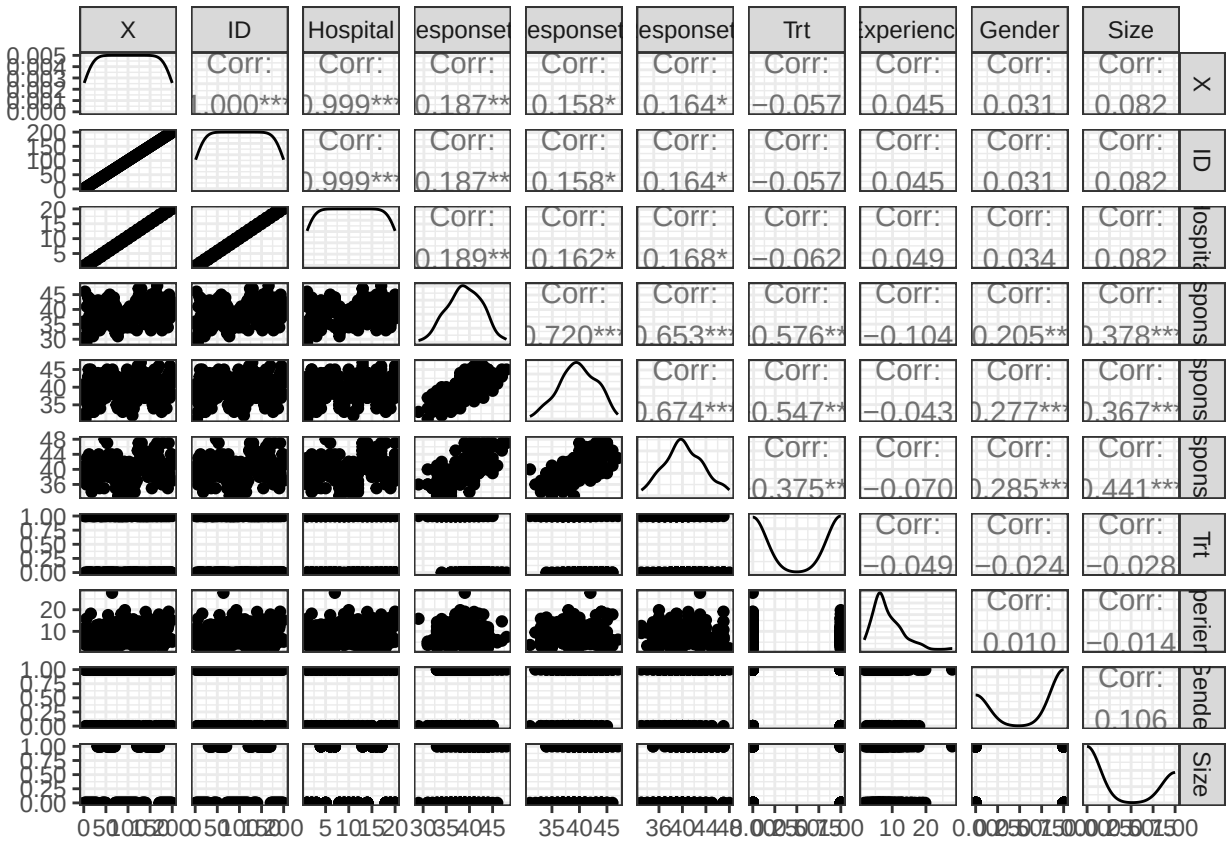
```r
# MST <-
#   read.csv(
#     "https://andygolightly.github.io/teaching/MATH43515/summative/andy.csv",
#     header = TRUE
#   )
# write.csv(MST, "MST.csv")
MST = read.csv("./MST.csv")
head(MST)
```

```
##   X ID Hospital Responset1 Responset2 Responset3 Trt Experience Gender Size
## 1 1  1        1         36         38         38   1        6.8      1    0
## 2 2  2        1         35         39         39   1        9.1      1    0
## 3 3  3        1         46         41         41   0        6.0      1    0
## 4 4  4        1         31         31         40   1        3.7      0    0
## 5 5  5        1         36         36         39   1       12.1      1    0
## 6 6  6        1         29         33         36   1       15.8      0    0
```

```r
# dim(MST)
## Show three line table MST with sjPlot::tab_df
# tab_df(MST[1:5, ])
```

```r
library(ggplot2)
```

```r
# Correlation between two varibales with GGpairs
library("GGally")
ggpairs(MST)+theme_bw()
```



Part 2 Methods

Part 3 Analysis

Part 4 Discussion of results

Youth Endowment Fund. 2024. “Multi-Site Trials.” https://youthendowmentfund.org.uk/multi-site-trials/.