Chapter 5 Analyses and Output

RSF

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#######################################################################################  
# Chapter 5 Data Analyses  
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#######################################################################################  
if (!require("pacman")) install.packages("pacman")

## Loading required package: pacman

## Warning: package 'pacman' was built under R version 3.5.3

pacman::p\_load(readxl, psych, Hmisc,pastecs,plyr,dplyr,ggplot2,PerformanceAnalytics)  
setwd("C:/Users/rfalck/Desktop/UBC-PhD/Thesis Material/Thesis defense materials/Theis Data and Analyses")#Directory where you put the spreadsheet  
Monitor <- read\_excel("Chapter 5 Data.xlsx")  
  
  
#Education AS Three component VARIABLE (i.e., College Degree, some college, HS or less)  
  
Monitor$EDU<-NA  
Monitor$EDU[Monitor$Education=="Associates Degree"]<-"Some University"  
Monitor$EDU[Monitor$Education=="Bachelors degree"]<-"University"  
Monitor$EDU[Monitor$Education=="High School Graduate"]<-"HS or Less"  
Monitor$EDU[Monitor$Education=="High Scool Graduate"]<-"HS or Less"  
Monitor$EDU[Monitor$Education=="Masters degree"]<-"University"  
Monitor$EDU[Monitor$Education=="None"]<-"HS or Less"  
Monitor$EDU[Monitor$Education=="Postgraduate degree"]<-"University"  
Monitor$EDU[Monitor$Education=="Primary School"]<-"HS or Less"  
Monitor$EDU[Monitor$Education=="Some College"]<-"Some University"  
  
  
#~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~#  
#DESCRIPTIVE STATITICS  
#~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~#  
  
Monitor.Short <- Monitor[c(1:10,16,17,21,26,33,34,314)]  
  
#Full Sample  
stat.desc(Monitor.Short)

## ID MRI Treatment Group Height.1 Weight.1  
## nbr.val NA 61.00000000 61.00000000 6.100000e+01 61.0000000  
## nbr.null NA 31.00000000 0.00000000 0.000000e+00 0.0000000  
## nbr.na NA 0.00000000 0.00000000 0.000000e+00 0.0000000  
## min NA 0.00000000 1.00000000 1.505000e+02 48.9000000  
## max NA 1.00000000 2.00000000 1.880000e+02 117.6333333  
## range NA 1.00000000 1.00000000 3.750000e+01 68.7333333  
## sum NA 30.00000000 92.00000000 1.007300e+04 4875.6666667  
## median NA 0.00000000 2.00000000 1.635000e+02 80.6000000  
## mean NA 0.49180328 1.50819672 1.651311e+02 79.9289617  
## SE.mean NA 0.06454105 0.06454105 1.297317e+00 2.1831619  
## CI.mean NA 0.12910132 0.12910132 2.595020e+00 4.3669740  
## var NA 0.25409836 0.25409836 1.026649e+02 290.7379435  
## std.dev NA 0.50408170 0.50408170 1.013237e+01 17.0510394  
## coef.var NA 1.02496612 0.33422808 6.135953e-02 0.2133274  
## BMI.1 Age Sex Race Education MoCA  
## nbr.val 61.0000000 61.0000000 NA NA NA 59.0000000  
## nbr.null 0.0000000 0.0000000 NA NA NA 0.0000000  
## nbr.na 0.0000000 0.0000000 NA NA NA 2.0000000  
## min 19.3832036 41.0000000 NA NA NA 14.0000000  
## max 42.0351147 83.0000000 NA NA NA 30.0000000  
## range 22.6519111 42.0000000 NA NA NA 16.0000000  
## sum 1781.4006261 3793.0000000 NA NA NA 1579.0000000  
## median 28.7072615 62.0000000 NA NA NA 27.0000000  
## mean 29.2032890 62.1803279 NA NA NA 26.7627119  
## SE.mean 0.6529968 1.1410158 NA NA NA 0.3547614  
## CI.mean 1.3061882 2.2823714 NA NA NA 0.7101320  
## var 26.0106971 79.4169399 NA NA NA 7.4254822  
## std.dev 5.1000683 8.9116183 NA NA NA 2.7249738  
## coef.var 0.1746402 0.1433189 NA NA NA 0.1018198  
## MMSE SB\_Min.1 MVPA\_Min.1 Champs.Total.PA.Hrs.1  
## nbr.val 5.900000e+01 6.100000e+01 61.0000000 59.0000000  
## nbr.null 0.000000e+00 0.000000e+00 0.0000000 1.0000000  
## nbr.na 2.000000e+00 0.000000e+00 0.0000000 2.0000000  
## min 1.700000e+01 3.555000e+02 1.0000000 0.0000000  
## max 3.000000e+01 1.008167e+03 374.1700000 623.0000000  
## range 1.300000e+01 6.526667e+02 373.1700000 623.0000000  
## sum 1.671000e+03 4.225352e+04 5175.1700000 6332.5625000  
## median 2.900000e+01 6.940000e+02 66.3300000 96.4375000  
## mean 2.832203e+01 6.926806e+02 84.8388525 107.3315678  
## SE.mean 2.729160e-01 1.769972e+01 9.4983906 10.6296967  
## CI.mean 5.463008e-01 3.540471e+01 18.9996099 21.2776498  
## var 4.394506e+00 1.911008e+04 5503.3848137 6666.4367261  
## std.dev 2.096308e+00 1.382392e+02 74.1848018 81.6482500  
## coef.var 7.401685e-02 1.995714e-01 0.8744201 0.7607105  
## Champs.Total.SB.Hrs.1 EDU  
## nbr.val 59.0000000 NA  
## nbr.null 1.0000000 NA  
## nbr.na 2.0000000 NA  
## min 0.0000000 NA  
## max 29.2500000 NA  
## range 29.2500000 NA  
## sum 1079.5060000 NA  
## median 18.2500000 NA  
## mean 18.2967119 NA  
## SE.mean 0.7488005 NA  
## CI.mean 1.4988870 NA  
## var 33.0814276 NA  
## std.dev 5.7516456 NA  
## coef.var 0.3143541 NA

#Groped by MRI  
Monitor.MRI<- subset(Monitor.Short, MRI==1)#MRI (N= 30)  
Monitor.NoMRI<- subset(Monitor.Short, MRI==0)#NO MRI (N= 31)  
  
stat.desc(Monitor.MRI)

## ID MRI Treatment Group Height.1 Weight.1 BMI.1  
## nbr.val NA 30 30.00000000 3.000000e+01 30.0000000 30.0000000  
## nbr.null NA 0 0.00000000 0.000000e+00 0.0000000 0.0000000  
## nbr.na NA 0 0.00000000 0.000000e+00 0.0000000 0.0000000  
## min NA 1 1.00000000 1.505000e+02 53.2000000 20.5238995  
## max NA 1 2.00000000 1.880000e+02 115.5666667 37.8018663  
## range NA 0 1.00000000 3.750000e+01 62.3666667 17.2779668  
## sum NA 30 45.00000000 5.006167e+03 2501.9000000 894.6393328  
## median NA 1 1.50000000 1.645000e+02 83.6000000 28.6828513  
## mean NA 1 1.50000000 1.668722e+02 83.3966667 29.8213111  
## SE.mean NA 0 0.09284767 1.992125e+00 3.1932273 0.8856398  
## CI.mean NA 0 0.18989481 4.074353e+00 6.5308832 1.8113367  
## var NA 0 0.25862069 1.190569e+02 305.9010231 23.5307346  
## std.dev NA 0 0.50854763 1.091132e+01 17.4900264 4.8508488  
## coef.var NA 0 0.33903175 6.538726e-02 0.2097209 0.1626638  
## Age Sex Race Education MoCA MMSE  
## nbr.val 30.0000000 NA NA NA 28.00000000 28.00000000  
## nbr.null 0.0000000 NA NA NA 0.00000000 0.00000000  
## nbr.na 0.0000000 NA NA NA 2.00000000 2.00000000  
## min 41.0000000 NA NA NA 24.00000000 17.00000000  
## max 83.0000000 NA NA NA 30.00000000 30.00000000  
## range 42.0000000 NA NA NA 6.00000000 13.00000000  
## sum 1833.0000000 NA NA NA 763.00000000 790.00000000  
## median 60.0000000 NA NA NA 27.50000000 29.00000000  
## mean 61.1000000 NA NA NA 27.25000000 28.21428571  
## SE.mean 1.7062091 NA NA NA 0.34359214 0.48073231  
## CI.mean 3.4895894 NA NA NA 0.70499283 0.98638122  
## var 87.3344828 NA NA NA 3.30555556 6.47089947  
## std.dev 9.3452920 NA NA NA 1.81811869 2.54379627  
## coef.var 0.1529508 NA NA NA 0.06671995 0.09015987  
## SB\_Min.1 MVPA\_Min.1 Champs.Total.PA.Hrs.1  
## nbr.val 3.000000e+01 30.0000000 28.0000000  
## nbr.null 0.000000e+00 0.0000000 1.0000000  
## nbr.na 0.000000e+00 0.0000000 2.0000000  
## min 4.695000e+02 1.0000000 0.0000000  
## max 1.008167e+03 197.6700000 218.1250000  
## range 5.386667e+02 196.6700000 218.1250000  
## sum 2.093970e+04 2099.1000000 2502.3750000  
## median 7.098333e+02 57.3300000 91.2500000  
## mean 6.979900e+02 69.9700000 89.3705357  
## SE.mean 2.159893e+01 8.8229482 7.7482783  
## CI.mean 4.417478e+01 18.0449552 15.8981539  
## var 1.399542e+04 2335.3324483 1681.0028729  
## std.dev 1.183022e+02 48.3252775 41.0000350  
## coef.var 1.694899e-01 0.6906571 0.4587646  
## Champs.Total.SB.Hrs.1 EDU  
## nbr.val 28.0000000 NA  
## nbr.null 1.0000000 NA  
## nbr.na 2.0000000 NA  
## min 0.0000000 NA  
## max 29.2500000 NA  
## range 29.2500000 NA  
## sum 496.0000000 NA  
## median 17.6250000 NA  
## mean 17.7142857 NA  
## SE.mean 1.2102622 NA  
## CI.mean 2.4832528 NA  
## var 41.0125661 NA  
## std.dev 6.4041054 NA  
## coef.var 0.3615221 NA

stat.desc(Monitor.NoMRI)

## ID MRI Treatment Group Height.1 Weight.1 BMI.1  
## nbr.val NA 31 31.00000000 3.100000e+01 31.0000000 31.0000000  
## nbr.null NA 31 0.00000000 0.000000e+00 0.0000000 0.0000000  
## nbr.na NA 0 0.00000000 0.000000e+00 0.0000000 0.0000000  
## min NA 0 1.00000000 1.505000e+02 48.9000000 19.3832036  
## max NA 0 2.00000000 1.840000e+02 117.6333333 42.0351147  
## range NA 0 1.00000000 3.350000e+01 68.7333333 22.6519111  
## sum NA 0 47.00000000 5.066833e+03 2373.7666666 886.7612933  
## median NA 0 2.00000000 1.610000e+02 76.0000000 28.7072615  
## mean NA 0 1.51612903 1.634462e+02 76.5731183 28.6052030  
## SE.mean NA 0 0.09123958 1.648818e+00 2.9077733 0.9592241  
## CI.mean NA 0 0.18633609 3.367336e+00 5.9384653 1.9589969  
## var NA 0 0.25806452 8.427664e+01 262.1095125 28.5234357  
## std.dev NA 0 0.50800051 9.180231e+00 16.1897966 5.3407336  
## coef.var NA NaN 0.33506416 5.616667e-02 0.2114292 0.1867050  
## Age Sex Race Education MoCA MMSE  
## nbr.val 31.0000000 NA NA NA 31.000000 31.00000000  
## nbr.null 0.0000000 NA NA NA 0.000000 0.00000000  
## nbr.na 0.0000000 NA NA NA 0.000000 0.00000000  
## min 46.0000000 NA NA NA 14.000000 24.00000000  
## max 82.0000000 NA NA NA 30.000000 30.00000000  
## range 36.0000000 NA NA NA 16.000000 6.00000000  
## sum 1960.0000000 NA NA NA 816.000000 881.00000000  
## median 64.0000000 NA NA NA 27.000000 29.00000000  
## mean 63.2258065 NA NA NA 26.322581 28.41935484  
## SE.mean 1.5252073 NA NA NA 0.594576 0.29246521  
## CI.mean 3.1148889 NA NA NA 1.214286 0.59729365  
## var 72.1139785 NA NA NA 10.959140 2.65161290  
## std.dev 8.4919950 NA NA NA 3.310459 1.62837738  
## coef.var 0.1343122 NA NA NA 0.125765 0.05729818  
## SB\_Min.1 MVPA\_Min.1 Champs.Total.PA.Hrs.1  
## nbr.val 3.100000e+01 31.0000000 3.100000e+01  
## nbr.null 0.000000e+00 0.0000000 0.000000e+00  
## nbr.na 0.000000e+00 0.0000000 0.000000e+00  
## min 3.555000e+02 6.3300000 3.662500e+01  
## max 9.553333e+02 374.1700000 6.230000e+02  
## range 5.998333e+02 367.8400000 5.863750e+02  
## sum 2.131382e+04 3076.0700000 3.830188e+03  
## median 6.940000e+02 68.5000000 1.076250e+02  
## mean 6.875425e+02 99.2280645 1.235544e+02  
## SE.mean 2.819047e+01 16.3768599 1.866729e+01  
## CI.mean 5.757262e+01 33.4460099 3.812369e+01  
## var 2.463578e+04 8314.2477495 1.080250e+04  
## std.dev 1.569579e+02 91.1824969 1.039351e+02  
## coef.var 2.282883e-01 0.9189184 8.412086e-01  
## Champs.Total.SB.Hrs.1 EDU  
## nbr.val 31.0000000 NA  
## nbr.null 0.0000000 NA  
## nbr.na 0.0000000 NA  
## min 3.5000000 NA  
## max 29.2500000 NA  
## range 25.7500000 NA  
## sum 583.5060000 NA  
## median 18.5000000 NA  
## mean 18.8227742 NA  
## SE.mean 0.9235895 NA  
## CI.mean 1.8862214 NA  
## var 26.4435452 NA  
## std.dev 5.1423288 NA  
## coef.var 0.2731972 NA

table(Monitor.Short$Sex, Monitor.Short$MRI)

##   
## 0 1  
## Female 26 24  
## Male 5 6

table(Monitor.Short$EDU, Monitor.Short$MRI)

##   
## 0 1  
## HS or Less 5 6  
## Some University 13 6  
## University 13 18