Regression analyses

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Import

```
dta_all<-read.csv("/Volumes/Data/depression/dep_dataset.csv")
```

Defining patients to include for analysis

Only including cases with complete pase_0 and MDI at 1 & 6 months

```
dta<-dta_all[!is.na(dta_all$pase_0),]
# &!is.na(dta$mdi_1)&!is.na(dta$mdi_6)
```

Formatting

```
# Backup
dta_b<-dta
```

Linear regression analysis

```
library(broom)
library(daDoctoR)
library(lubridate)
```

Tests of variables to adjust for

```
# Possible variables to include
adjs<-c("age","sex","smoke_ever","civil","bmi","diabetes", "hypertension", "afli","pad","nihss_0","rep_a
```

```
# Variables with p<10% i bivariable linear regression analysis
print(adjs_10<-rep_lm(meas = "mdi_6",string=c("pase_0_bin","rtreat",adjs),data=dta,cut.p = .1)[[2]])
```

```
## [1] "pase_0_bin"   "sex"          "civil"        "hypertension" "nihss_0"
```

True mean estimations (adjusted)

```
strt<-append(print_pred_stratum(meas = "mdi_6",adj=unique(c("pase_0_bin",adjs_10)),strat="rtreat",data=

for (i in 1:length(strt)){
  write.csv(strt[[i]][[1]],paste0("tbl_md6_",substr(names(strt)[i],1,3),".csv"))
}

c<-c()
for (i in 1:length(strt)){
  c<-c(c,paste("Estimated true mean,",names(strt)[i]),strt[[i]][[5]])
}
mat_true<-matrix(c(c,c("Variables adjusted for:",paste(c("rtreat",adjs_10), collapse=', '))), ncol=2, by
```

MDI outcome 2x2

```
sts<-c("pase_0_bin","rtreat")
# sts<-c("rtreat","pase_0_bin")
adjs_10m<-adjs_10[adjs_10!="pase_0_bin"]
```

One month

Enriched

```
##                   By_PA            Rand_Total N_Active            Mean_Active
## 1            PASE_total             8.3 (7.9)      264             8.6 (8.4)
## 2                 lower             9.5 (8.7)      127              10 (9.2)
## 3               higher              7.1 (6.8)      137             7.4 (7.5)
## a Unadjusted mean diff. -2.36 (-3.67 to -1.06)          -2.62 (-4.64 to -0.59)
## b   Adjusted mean diff. -2.11 (-3.43 to -0.79)           -2.04 (-4.11 to 0.02)
##   N_Placebo           Mean_Placebo  Unadjusted_mean_diff    Adjusted_mean_diff
## 1       290              8 (7.4)  -0.62 (-1.93 to 0.7) -0.59 (-1.86 to 0.68)
## 2       141            9.1 (8.3) -0.88 (-2.98 to 1.22) -0.98 (-3.07 to 1.11)
## 3       149              7 (6.2)   -0.4 (-1.99 to 1.2) -0.38 (-1.89 to 1.13)
## a          -2.14 (-3.82 to -0.45)
## b          -1.79 (-3.45 to -0.14)
```

Raw

```
##                   By_PA            Rand_Total N_Active            Mean_Active
## 1            PASE_total             8.1 (7.8)      261             8.5 (8.4)
## 2                 lower             9.2 (8.6)      124             9.7 (9.1)
## 3               higher              7.1 (6.8)      137             7.4 (7.5)
## a Unadjusted mean diff. -2.06 (-3.36 to -0.76)          -2.35 (-4.38 to -0.32)
## b   Adjusted mean diff. -1.84 (-3.15 to -0.53)           -1.88 (-3.95 to 0.18)
##   N_Placebo           Mean_Placebo  Unadjusted_mean_diff    Adjusted_mean_diff
## 1       284            7.7 (7.2) -0.75 (-2.06 to 0.56) -0.76 (-2.03 to 0.51)
## 2       136            8.7 (8.1) -1.05 (-3.15 to 1.06)   -1.2 (-3.29 to 0.9)
```

```
## 3       148            6.9 (6.1)  -0.49 (-2.08 to 1.1) -0.48 (-1.99 to 1.02)
## a           -1.8 (-3.46 to -0.13)
## b           -1.47 (-3.11 to 0.16)
```

Six months

New Observations - enriched

```
##                   By_PA             Rand_Total N_Active            Mean_Active
## 1            PASE_total                7.4 (8)      247                  7 (8)
## 2                 lower                8.6 (9)      112              8.7 (9.3)
## 3                higher                6.3 (7)      135              5.7 (6.4)
## a Unadjusted mean diff. -2.27 (-3.67 to -0.88)          -3.03 (-5.01 to -1.05)
## b   Adjusted mean diff. -1.69 (-3.15 to -0.24)          -2.41 (-4.53 to -0.29)
##   N_Placebo          Mean_Placebo  Unadjusted_mean_diff    Adjusted_mean_diff
## 1       261             7.6 (8.1)    0.6 (-0.8 to 2.01)  0.65 (-0.76 to 2.06)
## 2       128             8.4 (8.6) -0.27 (-2.56 to 2.01) -0.15 (-2.46 to 2.16)
## 3       133             6.9 (7.5)   1.23 (-0.45 to 2.9)   1.2 (-0.52 to 2.91)
## a           -1.53 (-3.5 to 0.44)
## b          -0.75 (-2.74 to 1.24)
```

New Observations

```
##                   By_PA             Rand_Total N_Active           Mean_Active
## 1            PASE_total               7.1 (7.9)      243             6.8 (7.9)
## 2                 lower               8.2 (8.8)      110             8.5 (9.3)
## 3                higher               6.2 (6.9)      133             5.4 (6.2)
## a Unadjusted mean diff. -2.01 (-3.39 to -0.63)           -3.04 (-5 to -1.07)
## b   Adjusted mean diff.  -1.38 (-2.83 to 0.07)          -2.41 (-4.51 to -0.3)
##   N_Placebo          Mean_Placebo  Unadjusted_mean_diff    Adjusted_mean_diff
## 1       256               7.4 (8)  0.57 (-0.82 to 1.96)  0.62 (-0.78 to 2.02)
## 2       123             7.9 (8.4) -0.56 (-2.85 to 1.72) -0.42 (-2.72 to 1.88)
## 3       133             6.9 (7.5)   1.46 (-0.2 to 3.12)  1.37 (-0.33 to 3.08)
## a          -1.02 (-2.98 to 0.94)
## b          -0.16 (-2.13 to 1.82)
```

New observations - adjusted for 6 months PASE

```
##                   By_PA             Rand_Total N_Active          Mean_Active
## 1            PASE_total               7.1 (7.9)      243            6.8 (7.9)
## 2                 lower               8.2 (8.8)      110            8.5 (9.3)
## 3                higher               6.2 (6.9)      133            5.4 (6.2)
## a Unadjusted mean diff. -2.01 (-3.39 to -0.63)           -3.04 (-5 to -1.07)
## b   Adjusted mean diff.   0.58 (-0.95 to 2.11)          -0.48 (-2.8 to 1.84)
##   N_Placebo          Mean_Placebo  Unadjusted_mean_diff   Adjusted_mean_diff
## 1       256               7.4 (8)  0.57 (-0.82 to 1.96) 0.61 (-0.76 to 1.97)
## 2       123             7.9 (8.4) -0.56 (-2.85 to 1.72) -0.35 (-2.61 to 1.9)
## 3       133             6.9 (7.5)   1.46 (-0.2 to 3.12) 1.35 (-0.31 to 3.02)
## a          -1.02 (-2.98 to 0.94)
## b           1.72 (-0.29 to 3.74)
```

Dichotomized sensitivity analysis

```
dta$composite_out<-case_when(dta$open_treat=="yes"|(dta$mdi_6_newobs-dta$mdi_1)>5~"yes",
          is.na(dta$mdi_6_newobs)~"NA",
          is.na(dta$mdi_1)~"NA",
          TRUE~"no")
dta$composite_out[dta$composite_out=="NA"]<-NA
summary(dta$composite_out<-factor(dta$composite_out))
```

```
##   no  yes NA's
##  403  116  106
```

Enriching and cleaning variables

```
# Enriching
dta$pad[is.na(dta$pad)]<-"no"
dta$hypertension[is.na(dta$hypertension)]<-"no"

# Cleaning
dta$civil<-factor(ifelse(dta$civil=="unknown",NA,dta$civil))
```

```
table(dta$rtreat,dta$pase_0_bin)
```

```
##
##           lower higher
##   Active    153    156
##   Placebo   160    156
```

```
outs<-"composite_out"
sts<-c("pase_0_bin","rtreat")
# sts<-c("rtreat","pase_0_bin")
adjs_10m<-adjs_10[adjs_10!="pase_0_bin"]
dta_frm<-dta[!is.na(dta$composite_out),c(outs,sts,adjs_10m)]

summary(dta_frm)
```

```
##  composite_out  pase_0_bin      rtreat        sex       civil     hypertension
##  no :403       lower :251   Active :249   female:182   1   :169   no :258
##  yes:116       higher:268   Placebo:270   male  :337   2   :344   yes:261
##                                                        NA's:  6
##
##
##
##
##     nihss_0
##  Min.   : 0.000
##  1st Qu.: 2.000
##  Median : 3.000
##  Mean   : 4.629
```

```
##  3rd Qu.: 6.000
##  Max.   :24.000
##  NA's   :10
```

```
# colnames(dta_frm)[1]<-"outs"

# print_log(meas="composite_out",var=sts[2],adj=c(sts[1],adjs_10m),data=dta_frm)

# print_pred(meas="composite_out",adj=c(sts[2],adjs_10m),data=dta_frm[dta_frm$pase_0_bin=="lower",],n.by

composite_out_lst<-list(print_pred_stratum(meas="composite_out",strat = sts[1],adj=c(sts[2],adjs_10m),
                                           data=dta_frm,n.by.adj = T),
                        print_pred_stratum(meas="composite_out",strat = sts[2],adj=c(sts[1],adjs_10m),
                                           data=dta_frm,n.by.adj = T))

# show(composite_out_lst)
capture.output(show(composite_out_lst),
               file = paste0("composite_out_lst",today(),".txt"))
```