My portfolio

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Contents

Chapter 1

Introduction

Welkom to my portfolio!

In my portfolio I try to give an impression of my programming skills. This is mainly in r but I also have some experience with bash.

This portfolio contains a number of chapters with assignments that I have made, it also contains my resume. The last chapter called machine learning is about a tutorial assignment in which I tried to learn more about machine learning.

I hope this portfolio will give you a good idea of my skills.

For further questions you can always email claudiavanderzijden@hotmail.nl

Chapter 2

Reproducible research

C. elegans plate experiment

The data for this exercise was kindly supplied by J. Louter (INT/ILC) and was derived from an experiment in which adult C.elegans nematodes were exposed to varying concentrations of different compounds. The variables RawData (the outcome - number of offspring counted as an integer value, after incubation time), compName (the generic name of the compound/chemical), the compConcentration (the concentration of the compound), and the expType are the most important variables in this dataset.

A typical analysis with this data would be to run a dose-response analysis using a log-logistic model with estimates for the maximal, the minimal, the IC50 concentration and the slope at IC50. We will not go into the details but a good package to run such computations and create graphs in R is the {drc} package. See: and:. In the exercise below we will create some visualizations using {ggplot2}.

Before we start, we will inspect the dataset. We do this by opening it in Excel. When you look at this dataset, a few things stand out. Among other things, there are many tabs with very large tables without an explanation. This makes it difficult for outsiders to use this data.

Then we will load the data into rstudio.

```
library(tidyverse)
```

```
## -- Attaching packages -------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.1.2     v dplyr   1.0.6
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(readxl)
ce_liq_flow_062 <- read_excel("data/CE.LIQ.FLOW.062_Tidydata.xlsx", sheet = 1)
```

Now we can look at the data types. we will do this for the columns rawData, compName and compConcentration.

```
typeof(ce_liq_flow_062$RawData)
```

```
## [1] "double"
```

```
typeof(ce_liq_flow_062$compName)
```

```
## [1] "character"
```

```
typeof(ce_liq_flow_062$compConcentration)
```

```
## [1] "character"
```

You would expect comConcentration to be numeric but as you can see this is character.

Now we are going to make a scatter plot of the data. We put compconcentration on the x-axis and DataRaw on the y-axis. We give a different color to the levels of compname and a different shape to the levels of expType. In addition, we ensure that the numbers below the x-axis are rotated 45 degrees so that we can read those.

```
ggplot(data = ce_liq_flow_062, aes(x = compConcentration, y = RawData)) +
  geom_point(aes(colour = compName, shape = expType)) +
   scale_x_discrete(guide = guide_axis(angle = 45)) +
  labs(title = "compConcentration is double")
```

```
## Warning: Removed 5 rows containing missing values (geom_point).
```
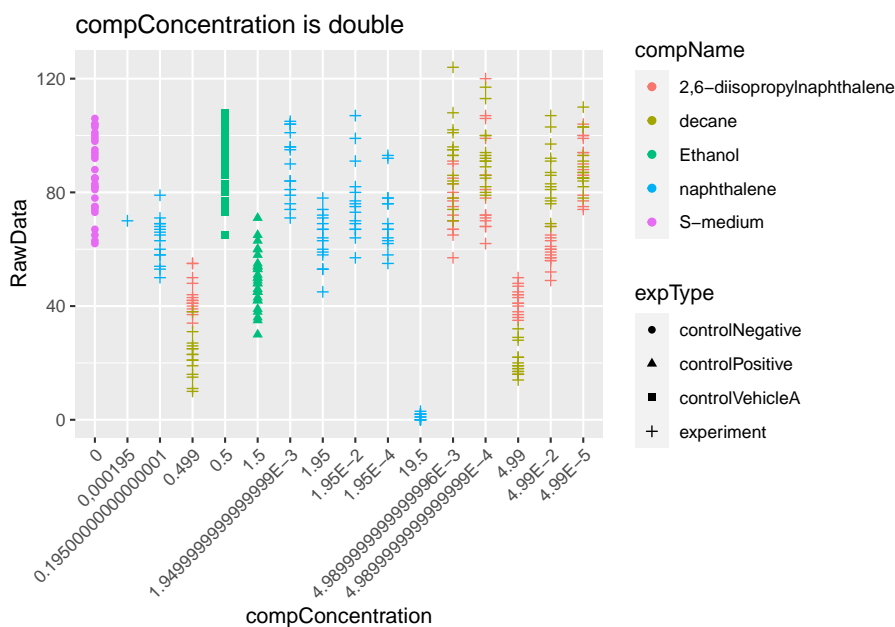
If we now look at this plot, you can see that the scale of the x-axis is not linearly distributed. This is probably due to the data type of comcondition. So we're going to change it to numeric. Then we will plot the data again. We now use a log10 transformation to improve the distribution of the x-axis. We also use jitter to avoid overlapping data points.

```
ce_liq_flow_062$compConcentration <- as.numeric(as.character(ce_liq_flow_062$compConcentration))
```

```
## Warning: NAs introduced by coercion
```

```
typeof(ce_liq_flow_062$compConcentration)
```

```
## [1] "double"
```

```
log10_scatter <-ggplot(data = ce_liq_flow_062, aes(x = compConcentration, y = RawData)) +
  geom_point(position=position_jitter(width=.1,height=0),aes(colour = compName, shape = compName)
    scale_x_discrete(guide = guide_axis(angle = 45))+
    labs(title = "compConcentration is numeric")
```

```
log10_scatter + scale_x_log10()
```

```
## Scale for 'x' is already present. Adding another scale for 'x', which will
## replace the existing scale.
```

```
## Warning: Transformation introduced infinite values in continuous x-axis
```

```
## Warning: Removed 6 rows containing missing values (geom_point).
```
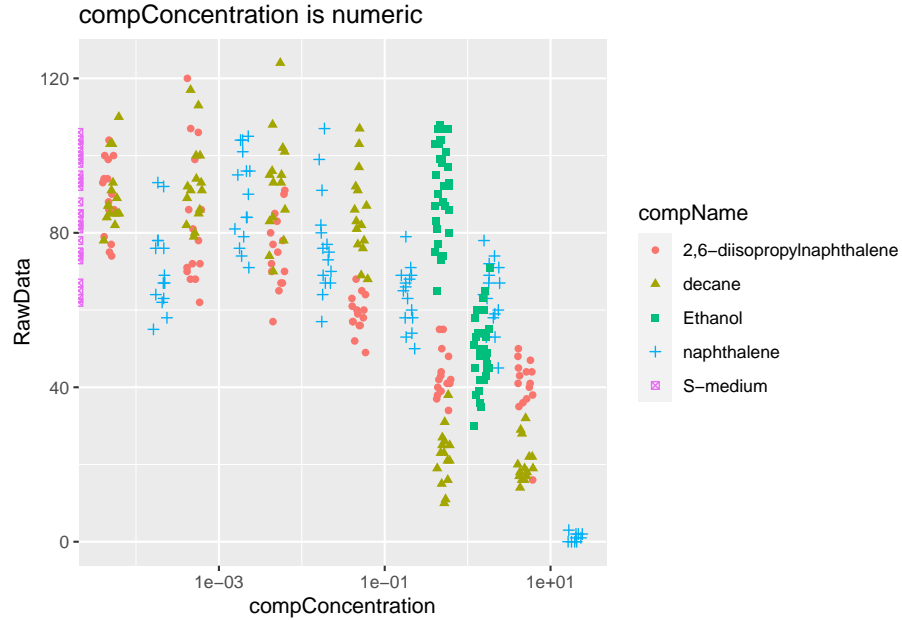

The positive control for this experiments is **naphthale**. The negative control for this experiment is **S-medium**.

After reviewing the data, we could proceed with the analysis of the data to find out whether there is indeed an effect of different concentrations on offspring count and whether the different compounds have a different curve. To find out, first check whether the data is normally distributed. This can be done with the shapio-wilk test. This can be used to determine whether a parametric or non-parametric test can be used to see if there is a statistically significant difference between the different groups.

Finaly we normalize the data for the controlNegative in such a way that the mean value for controlNegative is exactly equal to 1 and all other values are expressed as a fraction thereof. Than we rerun the graph with the normalized data.

#"{r 1.1J} normalize <- function(x) { return ((x - min(x)) / (max(x) - min(x))) }

ce_liq_flow_062$compVehicle$compVehicle == "controlNegative"))

H.Why would you want to take the step under J?

<!--chapter:end:01-Reproducible_Research.Rmd-->

Open Peer Review

In this assisgment w arw goning to find a scientific article ourself, using PubMed or another dat

This is the link to the article I use
https://www.biorxiv.org/content/10.1101/2020.10.02.322917v2.full

The title of this article is: Leveraging high-throughput screening data and conditional generativ
The authors of this article are: Adrian J. Green, Martin J. Mohlenkamp, Jhuma Das, et al.

Peer revieuw part 1

__Study Purpose__ : the summary briefly explains what is more important to conduct this research
__Data Availability Statement__: not present
__Data Location__: it does describe what the data should look like and there are references to ar
__Study Location__: there is no information about where the study was conducted in the material a
__Author Review__: the details of the authors are not easy to obtain, the names of the authors ar
__Ethics Statement__: the introduction briefly mentions ethics
__Funding Statement__: nothing is said about funding
__Code Availability__: no code is shared in the article

Open peer review part 2
Next we are going to try to find a article with R code. We do this on the OSF website.
We are going to try to get the code working in our r studio.

This is the link to the code we will use
https://osf.io/gkcn7/

To make this code work we only have to change the way to load the data, out commend the effect si

You can find the working script in the appendix, chapther 11

It took little effort to get this script working. On a scale of 0 to 5 I would give it a 4

<!--chapter:end:02-Open_peer_review.Rmd-->

Guerrilla analytics

In this assignment I cleaned up my projects according to the Guerrilla analytics.The result can b

Daur2 project

![Claudia](data/Gurilla/Daur2.png){ width=70%}

Portfolio project
![Claudia](data/Gurilla/portfolio.png){ width=70%}

Project project
![Claudia](data/Gurilla/project.png){ width=70%}

<!--chapter:end:03-Guerrilla_analytics.Rmd-->

Curriculum vitae

![Claudia](data/CV/cvfoto.png){ width=100%}

<!--chapter:end:04-Curriculum_vitae.Rmd-->

Mendaly

In practice, many use has been made of RNA sequencing (RNA-seq) methods. With RNA-seq,
In our project we also want to pay attention to a new shiny app. Although the ISEE app
Ultimately, it would be nice if you only had to fill in a dataset and you would then re

<!--chapter:end:05-Mendely.Rmd-->

Relational databases

TIPS

Be aware, the flu and dengue data contains metadata that should be stripped from the da
Think of a way to create valid country names that fit with the gapminder data.
Remember (!) that in the end, this assignment needs to be reported by a .Rmd file for y
Assignment

Load the flu ("./data/flu_data.csv), the dengue (."/data/dengue_data.csv) and the gapmi

Check if they are in the right shape. Is the data in the 'tidy' format? If not change t

Change the country and date variables of the three tables so that they coincide in term

Store the three tables as separate (so six in total) .csv and .rds files.

In Dbeaver create a new PostgreSQL database "workflowsdb"

Using RPostgreSQL, insert the tables into the database.

Inspect the contents of the tables with SQL (in DBeaver) and save the SQL script.

Inspect the contents of the tables with dplyr (in R) and save a RMarkdown showing what you are do

Load the gapminder data in R and change the dataframe in such as way that you could join it to de

Save this clean gapminder data in the "workflowsdb" database

Perform some joins (your choice) with SQL (can be done in DBeaver or with dplyr.

Generate a joined table, and export this from the database to R.

Show some descriptive statistics with this table, and at least 3 visualisations using ggplot2.

show all of your actions in this assignment in a Rmd file, perhaps with pictures and provide text

```r
library(tidyverse)
library(dslabs)
gapminder <- as_tibble(gapminder)
flu_data<- read.csv(url("https://raw.githubusercontent.com/ClaudiavdZ/tlsc-dsfb26v-20_workflows/m
flu_data <- as_tibble(flu_data)
dengue_data<- read.csv(url("https://raw.githubusercontent.com/ClaudiavdZ/tlsc-dsfb26v-20_workflow

write.table(dengue_data , file = "dengu_data.csv")
write.table(dengue_data , file = "dengu_data.RDS")
write.table(flu_data , file = "flu_data.csv")
write.table(flu_data , file = "flu_data.RDS")
write.table(gapminder , file = "gapminder.csv")
write.table(gapminder , file = "gapminder.RDS")

library(DBI)
con <- dbConnect(RPostgres::Postgres(),
                 dbname = "myfirstdb",
                 host="localhost",
                 port="5432",
                 user="postgres",
                 password="Veroni36")
dbListTables(con)

## [1] "test"        "gapminder"   "flu_data"     "dengue_data"
```

```r
#dbWriteTable(con, "dengue_data", dengue_data)
#dbWriteTable(con, "flu_data", flu_data)
#dbWriteTable(con, "gapminder", gapminder)

# library(janitor)
# gapminder_usd <- as.data.frame(t(gapminder))
# gapminder_usd <- gapminder_usd %>% row_to_names(row_number = 1)


flu_usd <- gather(
  flu_data,
  key = "country",
  value = "flu",
  Argentina:Uruguay
)
#seperate year from month and day
flu_usd <- separate(flu_usd, Date, into = c("year", "month", "day"),  sep = "-")
#count sum of flu
flu_usd <- aggregate(flu_usd$flu, by=list(year=flu_usd$year, country=flu_usd$country),
flu_usd <- flu_usd %>% rename(flu = x)
flu_usd$year <- as.integer(flu_usd$year)

dengue_usd <- gather(
  dengue_data,
  key = "country",
  value = "dengue",
  Argentina:Venezuela
)
dengue_usd <- separate(dengue_usd, Date, into = c("year", "month", "day"),  sep = "-")
dengue_usd <- aggregate(dengue_usd$dengue, by=list(year=dengue_usd$year, country=dengue
dengue_usd <- dengue_usd %>% rename(dengue = x)
dengue_usd$year <- as.integer(dengue_usd$year)

alltogether <- left_join(flu_usd, gapminder, by = c("country", "year"))
alltogether <- left_join(alltogether, dengue_usd , by = c("country", "year"))



#infant_mortelity firtelety life expantie door flu and dengue in verschillende jaren i
#en beetje statestiek
flu_plot <- function(dataframe, land){
  dataframe %>% filter(country == land) %>%
    ggplot(aes(x = year, y = flu)) +
  geom_line() +
  geom_point()
```

```
   }

flu_plot(alltogether,"Netherlands")
```

```
## Warning: Removed 2 row(s) containing missing values (geom_path).
```

```
## Warning: Removed 2 rows containing missing values (geom_point).
```
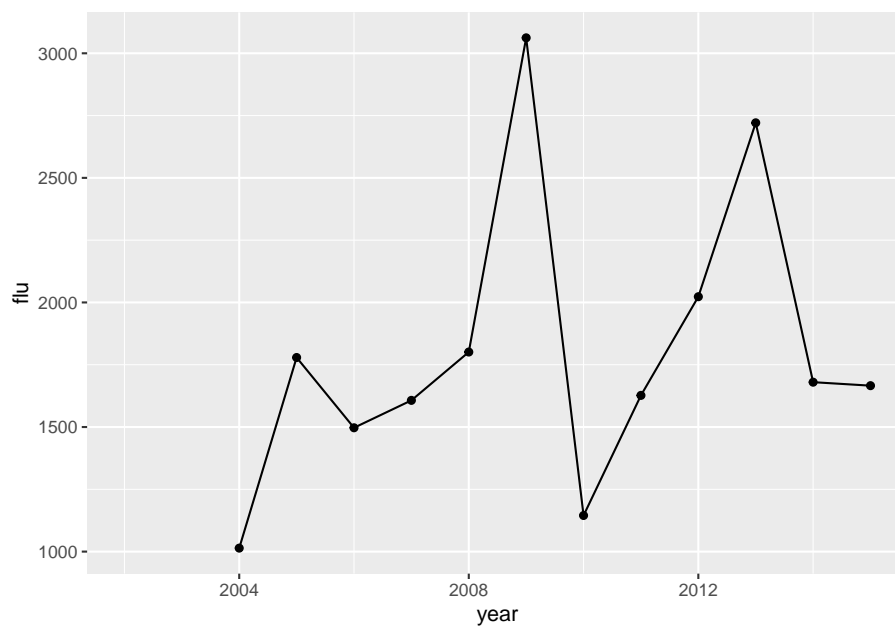


```
alltogether %>% filter(country == "Argentina") %>%
  ggplot() +
  geom_line(aes(y = dengue,x=year, colour = "green"),) +
  geom_line(aes(y = flu,x=year, colour = "red"))
```

```
## Warning: Removed 2 row(s) containing missing values (geom_path).
```

```
## Warning: Removed 2 row(s) containing missing values (geom_path).
```
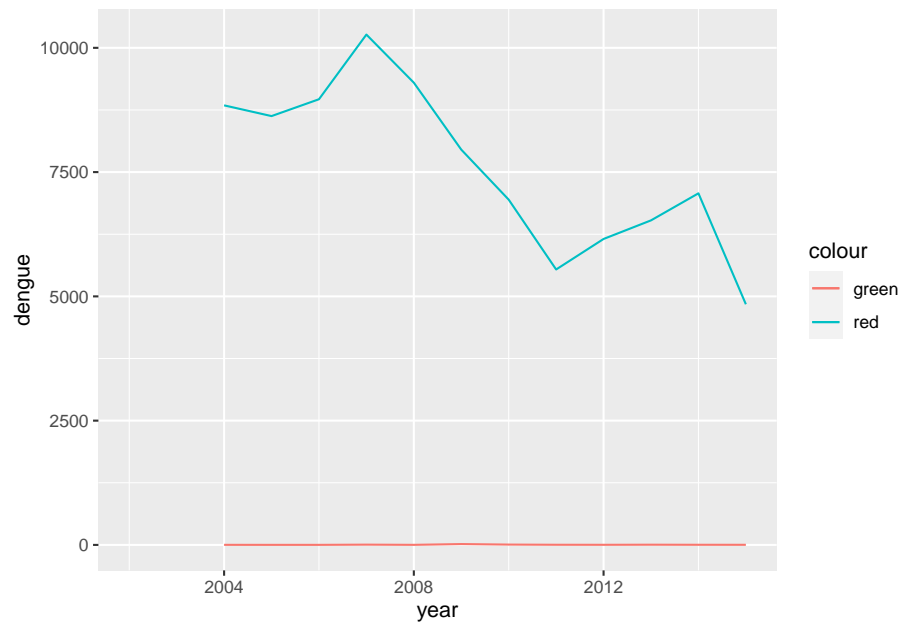
```
ggplot(data = alltogether, aes(x = continent, y = flu)) +
  geom_boxplot(aes(fill = continent))
```

```
## Warning: Removed 72 rows containing non-finite values (stat_boxplot).
```
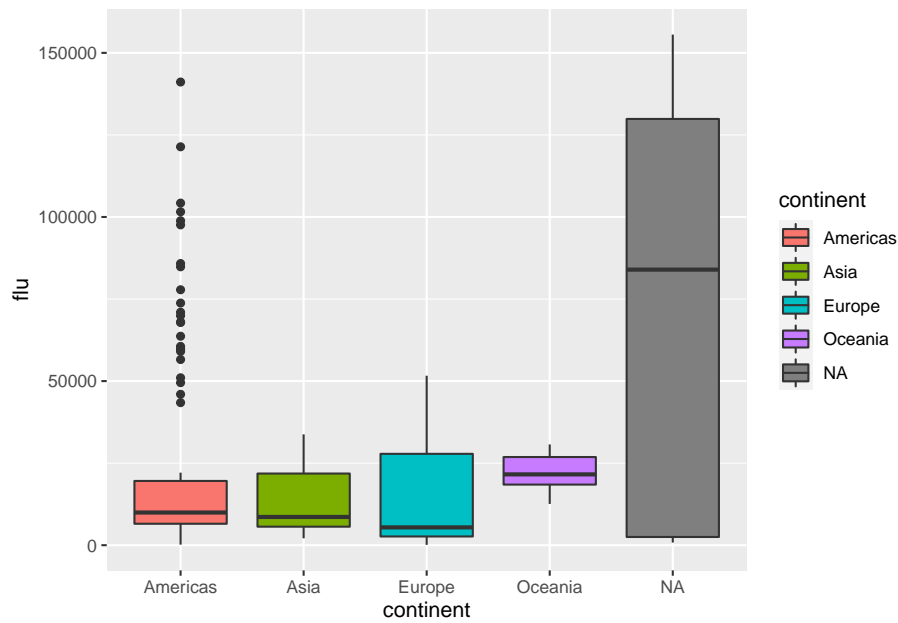
```
shapiro.test(alltogether$fertility)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$fertility
## W = 0.84528, p-value < 2.2e-16
```

```
shapiro.test(alltogether$flu)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$flu
## W = 0.70363, p-value < 2.2e-16
```

```
shapiro.test(alltogether$dengue)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$dengue
## W = 0.91218, p-value = 0.0009743
```

```
shapiro.test(alltogether$infant_mortality)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$infant_mortality
## W = 0.75988, p-value < 2.2e-16
```

```
shapiro.test(alltogether$life_expectancy)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$life_expectancy
## W = 0.93264, p-value = 9.214e-12
```

```
shapiro.test(alltogether$gdp)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$gdp
## W = 0.53327, p-value < 2.2e-16
```

```
shapiro.test(alltogether$population)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  alltogether$population
## W = 0.74646, p-value < 2.2e-16
```

Chapter 3

My own package

Chapter 4

Parameters

Chapter 5

Looking ahead

Chapter 6

Appendix

This code belongs to chapter 3 R code for: L?pez Steinmetz L.C., Dutto Florio M.A., Leyes C.A., Fong S.B., Rigalli A. & Godoy J.C. Levels and predictors of depression, anxiety, and suicidal risk during COVID-19 pandemic in Argentina: The impacts of quarantine extensions on mental health state.

```r
library(tidyverse)
library(readxl)
# Load the dataset:
table<-read_excel("data/Peer/dataset.xlsx")
summary(table)
```

```
##  SUB PERIODS           EDUCATION            PROVINCE              SEX
##  Length:1100          Length:1100          Length:1100          Length:1100
##  Class :character     Class :character     Class :character     Class :character
##  Mode  :character     Mode  :character     Mode  :character     Mode  :character
##
##
##
##       AGE          MENTAL DISORDER HISTORY SUIC ATTEMPT HISTORY
##  Min.   :17.00    Length:1100              Length:1100
##  1st Qu.:23.00    Class :character         Class :character
##  Median :28.00    Mode  :character         Mode  :character
##  Mean   :31.45
##  3rd Qu.:37.00
##  Max.   :76.00
##  LIVING WITH SOMEBODY ECONOMIC INCOME      DEPRESSION      SUIC RISK
##  Length:1100          Length:1100          Min.   : 0.0   Min.   : 0.00
##  Class :character     Class :character     1st Qu.: 8.0   1st Qu.:18.00
##  Mode  :character     Mode  :character     Median :13.0   Median :27.00
```

```
##                                              Mean   :15.7   Mean   :30.32
##                                              3rd Qu.:22.0   3rd Qu.:40.00
##                                              Max.   :60.0   Max.   :89.00
##   ANXIETY STATE    ANXIETY TRAIT
##   Min.   : 1.00    Min.   : 0.0
##   1st Qu.:21.00    1st Qu.:18.0
##   Median :31.00    Median :26.0
##   Mean   :31.78    Mean   :26.9
##   3rd Qu.:42.00    3rd Qu.:36.0
##   Max.   :66.00    Max.   :59.0
```

```
###### SUB-TITLE: METHODS > Sample and procedure
# SAMPLE N = 1100

# Distribution by sex:
table(table$SEX)
```

```
##
##   man woman
##   217   883
```

```
# Absolute frequencies: Men = 217, Women = 883
prop.table(table(table$SEX))*100
```

```
##
##       man     woman
## 19.72727 80.27273
```

```
# Percentages: Men = 19.72727%, Women = 80.27273%

# Central tendency measures by age (entire sample)
# Mean
mean(table$AGE)
```

```
## [1] 31.45273
```

```
# Age: mean = 31.45273

# Standard deviation (sd)
sd(table$AGE)
```

```
## [1] 11.7824
```

```
# Age: sd = 11.7824

# Standard error (sem)
library("plotrix")
std.error(table$AGE)
```

```
## [1] 0.3552526
```

```
# Age: sem = 0.3552526

# median
median(table$AGE)
```

```
## [1] 28
```

```
# Age: median = 28


###### SUB-TITLE: METHODS > Data analysis

# To test Skewness and Kurtosis # Criteria: range of acceptable values or near to -3 and +3 (Brow
# Reference: Brown, T. A. (2006). Confirmatory factor analysis for applied research. New York: Gu

library(moments)

# DEPRESSION
skewness(table$DEPRESSION)
```

```
## [1] 1.014193
```

```
# skewness DEPRESSION = 1.014193
kurtosis(table$DEPRESSION)
```

```
## [1] 3.789272
```

```
# kurtosis DEPRESSION = 3.789272

table <- rename(table,  "ANXIETY_STATE" = "ANXIETY STATE",
                "ANXIETY_TRAIT" = "ANXIETY TRAIT",
                "SUIC_RISK" = "SUIC RISK",
                "SUB_PERIODS" = "SUB PERIODS",
                "MENTAL_DISORDER_HISTORY" = "MENTAL DISORDER HISTORY",
                "SUIC_ATTEMPT_HISTORY" = "SUIC ATTEMPT HISTORY",
```

```
                "LIVING_WITH_SOMEBODY" = "LIVING WITH SOMEBODY",
                "ECONOMIC_INCOME" = "ECONOMIC INCOME")
# ANXIETY STATE
skewness(table$ANXIETY_STATE)
```

```
## [1] 0.2010007
```

```
# skewness ANXIETY STATE = 0.2010007
kurtosis(table$ANXIETY_STATE)
```

```
## [1] 2.341017
```

```
# kurtosis ANXIETY STATE = 2.341017

# ANXIETY TRAIT
skewness(table$ANXIETY_TRAIT)
```

```
## [1] 0.2401163
```

```
# skewness ANXIETY TRAIT = 0.2401163
kurtosis(table$ANXIETY_TRAIT)
```

```
## [1] 2.354038
```

```
# kurtosis ANXIETY TRAIT = 2.354038

# SUICIDAL RISK
skewness(table$SUIC_RISK)
```

```
## [1] 0.8331517
```

```
# skewness SUICIDAL RISK = 0.8331517
kurtosis(table$SUIC_RISK)
```

```
## [1] 3.193105
```

```
# kurtosis SUICIDAL RISK = 3.193105
```

```
# For addresing the first aim, we divided the entire sample into three groups:
table(table$SUB_PERIODS)
```

```
##
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##            362             239            499
```

```
# first quarantine extension (1. EXT POST) = 362
# second and third quarantine extensions (2. EXT POST) = 239
# fourth quarantine extension (3. EXT POST) = 499
```

```
################################################################################
##################################### RESULTS ##################################
################################################################################

################################################################################
###################################### AIM 1 ###################################

# Load this library for computing effect sizes:
library(sjstats)

################################################################################
### Differences in specific mental health state indicators by three sub-periods of quarantine

# 1. EXT POST = first quarantine extension
# 2./3. EXT POST = second/third quarantine extensions
# 4. EXT POST = fourth quarantine extension

# DEPRESSION
anovatempdepr <- aov(table$DEPRESSION~table$SUB_PERIODS)
anovatempdepr
```

```
## Call:
##    aov(formula = table$DEPRESSION ~ table$SUB_PERIODS)
##
## Terms:
##                 table$SUB_PERIODS Residuals
## Sum of Squares           2630.12 132802.86
## Deg. of Freedom                2      1097
##
## Residual standard error: 11.00273
## Estimated effects may be unbalanced
```

```
summary(anovatempdepr)
```

```
##                       Df Sum Sq Mean Sq F value   Pr(>F)
```

```
## table$SUB_PERIODS    2    2630   1315.1    10.86 2.13e-05 ***
## Residuals          1097 132803    121.1
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
plot(anovatempdepr)
```


Residuals vs Fitted

Fitted values
aov(table$DEPRESSION ~ table$SUB_PERIODS)

Normal Q–Q

Standardized residuals

Theoretical Quantiles
aov(table$DEPRESSION ~ table$SUB_PERIODS)

Scale–Location

$\sqrt{|\text{Standardized residuals}|}$

Fitted values
aov(table$DEPRESSION ~ table$SUB_PERIODS)

Residuals vs Leverage

aov(table$DEPRESSION ~ table$SUB_PERIODS)
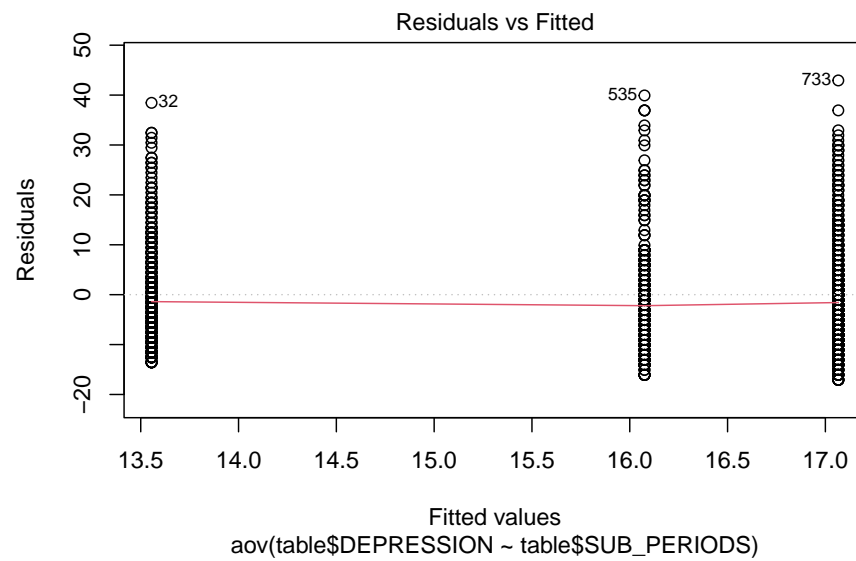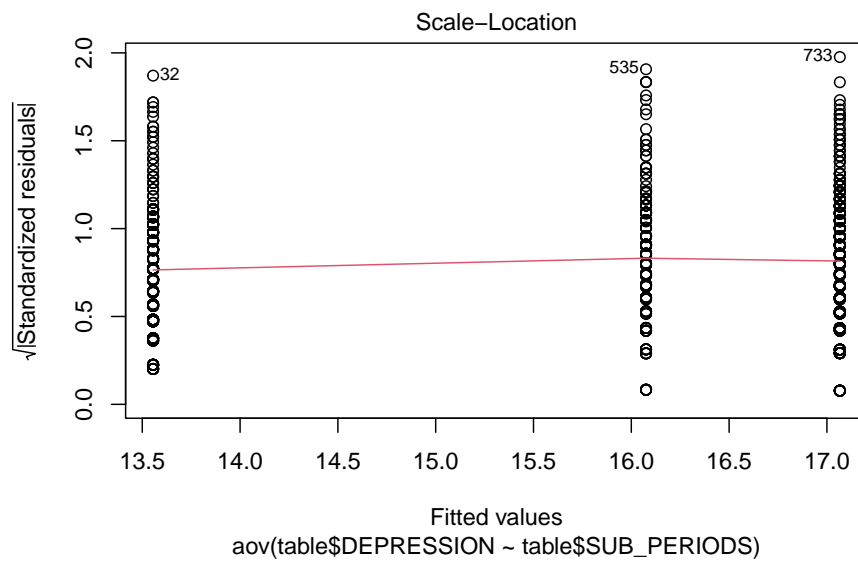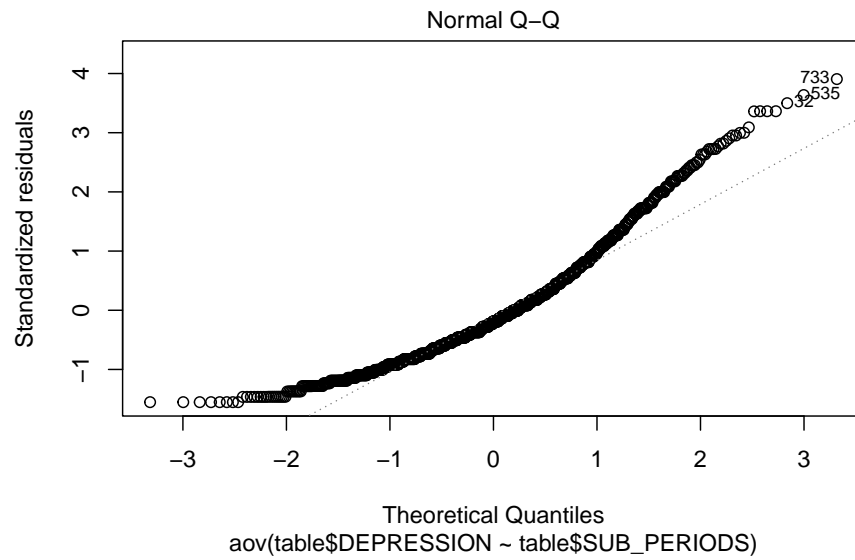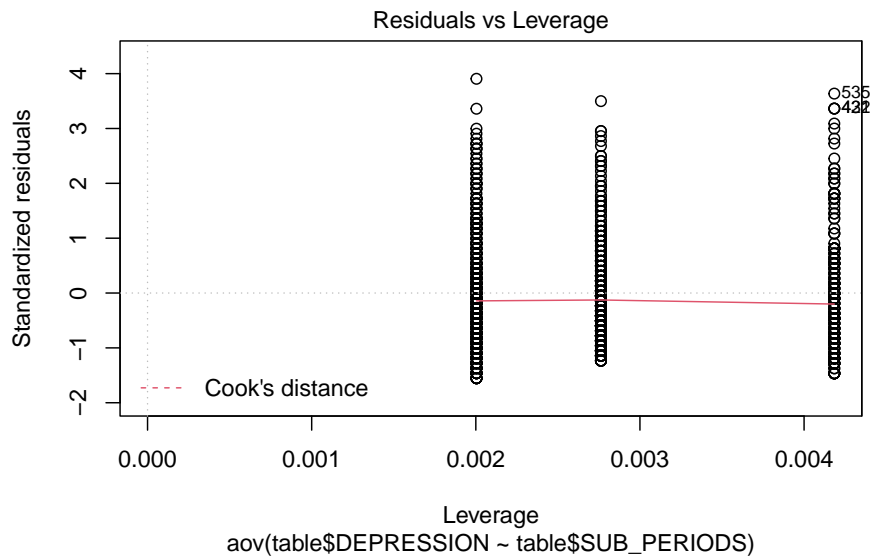
```
pairwise.t.test(x = table$DEPRESSION, g = table$SUB_PERIODS, p.adjust.method = "bonferr
```

```
##
##  Pairwise comparisons using t tests with pooled SD
##
## data:  table$DEPRESSION and table$SUB_PERIODS
##
##               1. EXT POST 2./3. EXT POST
## 2./3. EXT POST 0.018       -
## 4. EXT POST    1.3e-05     0.758
##
## P value adjustment method: bonferroni
```

```
# significant differences
# 2./3. EXT POST-1. EXT POST p adj 0.018
# 4. EXT POST-1. EXT POST p adj 1.3e-05
#effectsize::cohens_f(anovatempdepr, ci = 0.95, partial = TRUE, type = 1)

tapply(table$DEPRESSION,factor(table$SUB_PERIODS),mean)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##       13.55525       16.07531       17.06613
```

```
tapply(table$DEPRESSION,factor(table$SUB_PERIODS),std.error)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##     0.5304822      0.7764039      0.4984415
```

```
library(gplots)
```

```
##
## Attaching package: 'gplots'
```

```
## The following object is masked from 'package:plotrix':
##
##     plotCI
```

```
## The following object is masked from 'package:stats':
##
##     lowess
```

```
# Figure S1 (Supplementary material)
plotmeans(table$DEPRESSION~table$SUB_PERIODS, main="Fig. S1. Depression by quarantine sub-periods
```

Fig. S1. Depression by quarantine sub–periods. Mean plot with 95% Confidence Interval
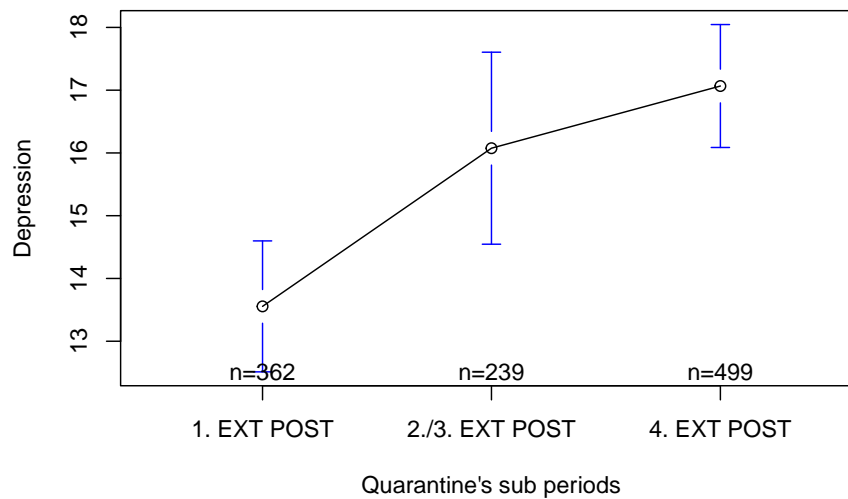
```r
mean(table$DEPRESSION) # mean = 15.69545
```

```
## [1] 15.69545
```

```r
std.error(table$DEPRESSION) # std. error = 0.3347087
```

```
## [1] 0.3347087
```

```r
# Percentage distribution by cutoff score:
# non clinically depressed:
prop.table(table(table$DEPRESSION<20,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE     7.636364      6.727273   15.272727
##   TRUE     25.272727     15.000000   30.090909
```

```r
# clinically depressed:
prop.table(table(table$DEPRESSION>=20,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE    25.272727     15.000000   30.090909
##   TRUE      7.636364      6.727273   15.272727
```

```r
# ANXIETY STATE
anovatempanxstate <- aov(table$ANXIETY_STATE~table$SUB_PERIODS)
anovatempanxstate
```

```
## Call:
##    aov(formula = table$ANXIETY_STATE ~ table$SUB_PERIODS)
##
## Terms:
##                 table$SUB_PERIODS Residuals
## Sum of Squares             2824.4  227397.1
## Deg. of Freedom                 2      1097
##
## Residual standard error: 14.39757
## Estimated effects may be unbalanced
```

```
summary(anovatempanxstate)
```

```
##                      Df Sum Sq Mean Sq F value  Pr(>F)
## table$SUB_PERIODS     2   2824  1412.2   6.813 0.00115 **
## Residuals          1097 227397   207.3
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
plot(anovatempanxstate)
```


Residuals vs Fitted

Fitted values
aov(table$ANXIETY_STATE ~ table$SUB_PERIODS)

Residuals vs Leverage

aov(table$ANXIETY_STATE ~ table$SUB_PERIODS)
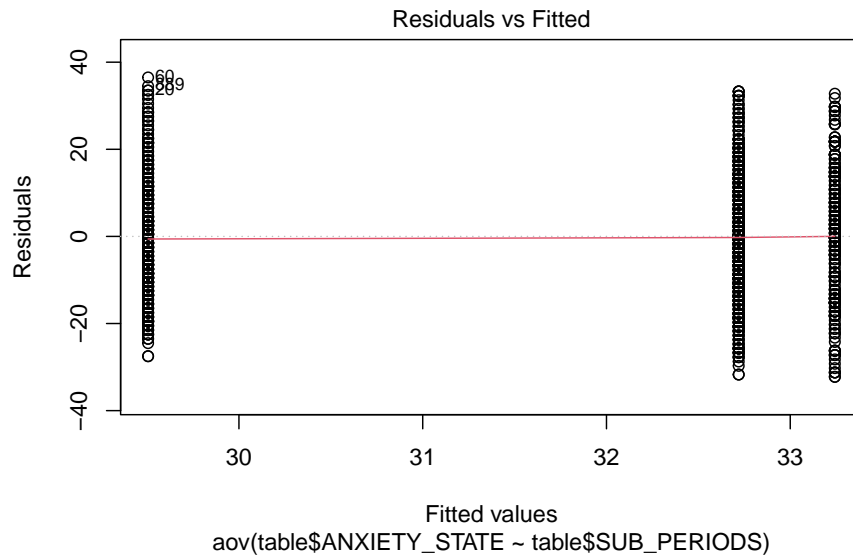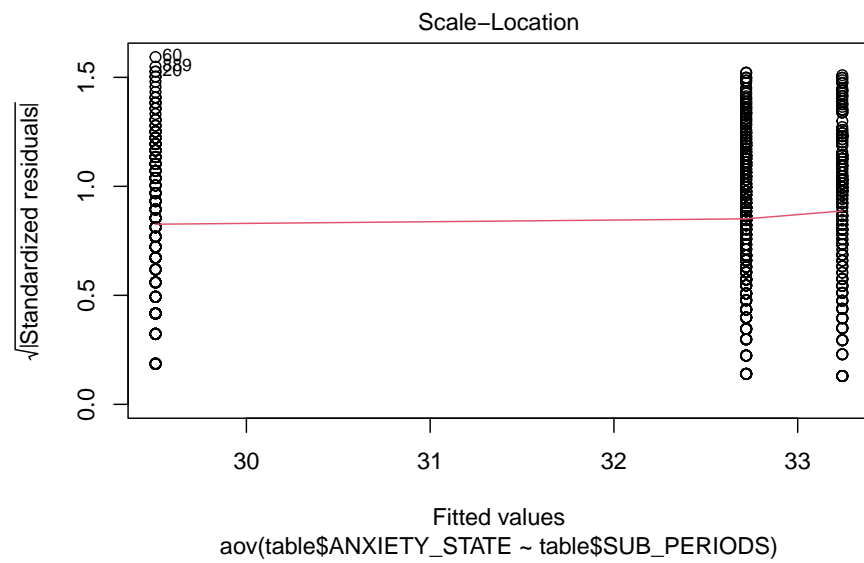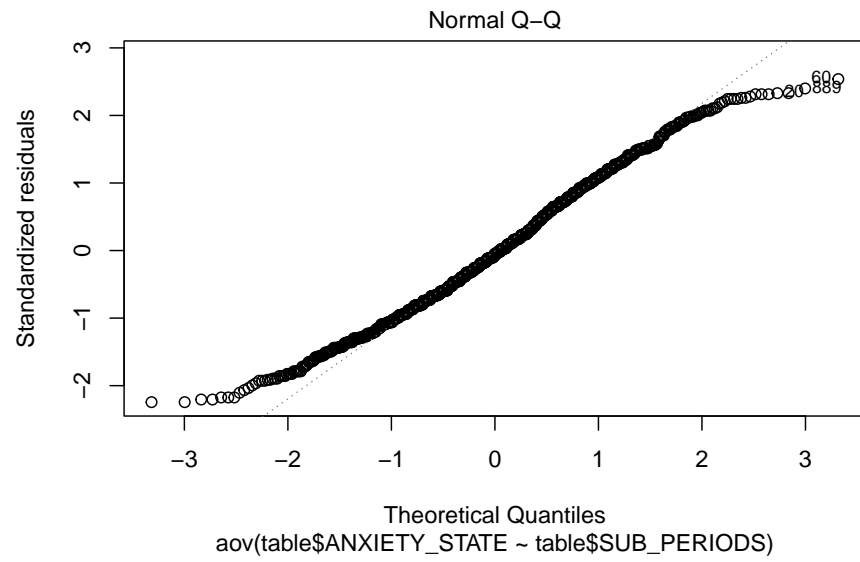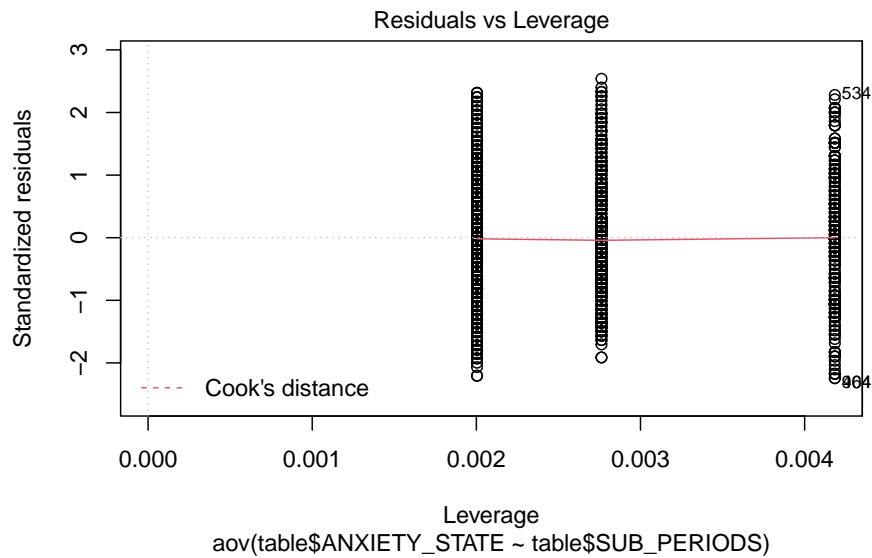
```
pairwise.t.test(x = table$ANXIETY_STATE, g = table$SUB_PERIODS, p.adjust.method = "bonferroni", p
```

```
##
##  Pairwise comparisons using t tests with pooled SD
##
## data:  table$ANXIETY_STATE and table$SUB_PERIODS
##
##              1. EXT POST 2./3. EXT POST
## 2./3. EXT POST 0.0057      -
## 4. EXT POST    0.0038      1.0000
##
## P value adjustment method: bonferroni
```

```
# significant differences
# 2./3. EXT POST-1. EXT POST p adj 0.0057
# 4. EXT POST-1. EXT POST p adj 0.0038
#effectsize::cohens_f(anovatempanxstate, ci = 0.95, partial = TRUE, type = 1)

tapply(table$ANXIETY_STATE,factor(table$SUB_PERIODS),mean)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##       29.50552       33.24268       32.71944
```

```
tapply(table$ANXIETY_STATE,factor(table$SUB_PERIODS),std.error)
```

```
##     1. EXT POST 2./3. EXT POST    4. EXT POST
##      0.7206212      1.0085072      0.6396676
```

```
# Figure S2 (Supplementary material)
plotmeans(table$ANXIETY_STATE~table$SUB_PERIODS, main="Fig. S2. State-Anxiety by quara
```

Fig. S2. State–Anxiety by quarantine sub–periods. Mean plot with 95% Confidence Interval
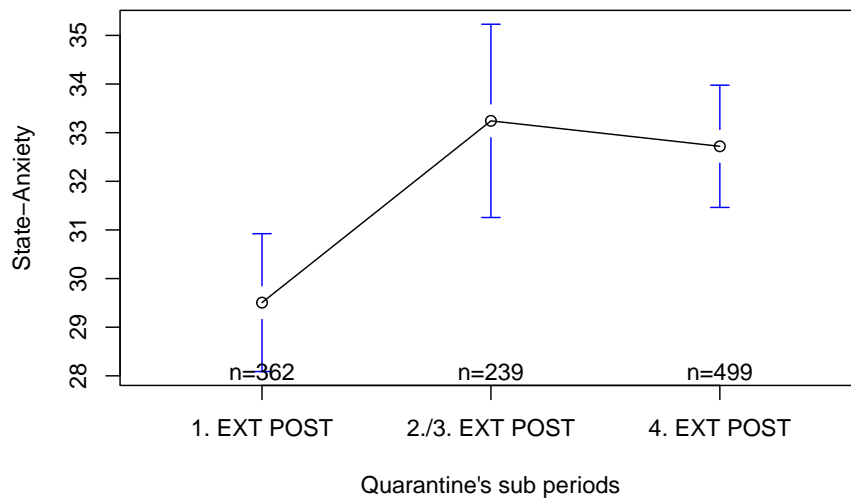

```
mean(table$ANXIETY_STATE) # mean = 31.77545
```

```
## [1] 31.77545
```

```
std.error(table$ANXIETY_STATE) # std. error = 0.436393
```

```
## [1] 0.436393
```

```
# low:
prop.table(table(table$ANXIETY_STATE<32,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE   13.636364      12.181818   22.727273
##   TRUE    19.272727       9.545455   22.636364
```

```r
# high:
prop.table(table(table$ANXIETY_STATE>=32,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE   19.272727       9.545455   22.636364
##   TRUE    13.636364      12.181818   22.727273
```

```r
# ANXIETY TRAIT
anovatempanxtrait <- aov(table$ANXIETY_TRAIT~table$SUB_PERIODS)
anovatempanxtrait
```

```
## Call:
##    aov(formula = table$ANXIETY_TRAIT ~ table$SUB_PERIODS)
##
## Terms:
##                  table$SUB_PERIODS Residuals
## Sum of Squares             1306.59 160872.80
## Deg. of Freedom                  2      1097
##
## Residual standard error: 12.10983
## Estimated effects may be unbalanced
```

```r
summary(anovatempanxtrait)
```

```
##                   Df Sum Sq Mean Sq F value Pr(>F)
## table$SUB_PERIODS    2   1307   653.3   4.455 0.0118 *
## Residuals         1097 160873   146.6
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```r
plot(anovatempanxtrait)
```

Residuals vs Fitted

Residuals

Fitted values
aov(table$ANXIETY_TRAIT ~ table$SUB_PERIODS)

Normal Q–Q

Standardized residuals

Theoretical Quantiles
aov(table$ANXIETY_TRAIT ~ table$SUB_PERIODS)

Scale–Location

√|Standardized residuals|

Fitted values
aov(table$ANXIETY_TRAIT ~ table$SUB_PERIODS)

Residuals vs Leverage

Standardized residuals

--- Cook's distance

Leverage
aov(table$ANXIETY_TRAIT ~ table$SUB_PERIODS)

```
pairwise.t.test(x = table$ANXIETY_TRAIT, g = table$SUB_PERIODS, p.adjust.method = "bonferroni", p
```

```
##
##  Pairwise comparisons using t tests with pooled SD
```

```
##
## data:  table$ANXIETY_TRAIT and table$SUB_PERIODS
##
##             1. EXT POST 2./3. EXT POST
## 2./3. EXT POST 0.046      -
## 4. EXT POST    0.022      1.000
##
## P value adjustment method: bonferroni
```

```
# significant differences
# 2./3. EXT POST-1. EXT POST p adj 0.046
# 4. EXT POST-1. EXT POST p adj 0.022
#effectsize::cohens_f(anovatempanxtrait, ci = 0.95, partial = TRUE, type = 1)

tapply(table$ANXIETY_TRAIT,factor(table$SUB_PERIODS),mean)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##       25.34530       27.79916       27.59118
```

```
tapply(table$ANXIETY_TRAIT,factor(table$SUB_PERIODS),std.error)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##      0.6266152      0.8316542      0.5315708
```

```
# Figure S3 (Supplementary material)
plotmeans(table$ANXIETY_TRAIT~table$SUB_PERIODS, main="Fig. S3. Trait-Anxiety by quara
```

Fig. S3. Trait–Anxiety by quarantine sub–periods. Mean plot with 95% Confidence Interval
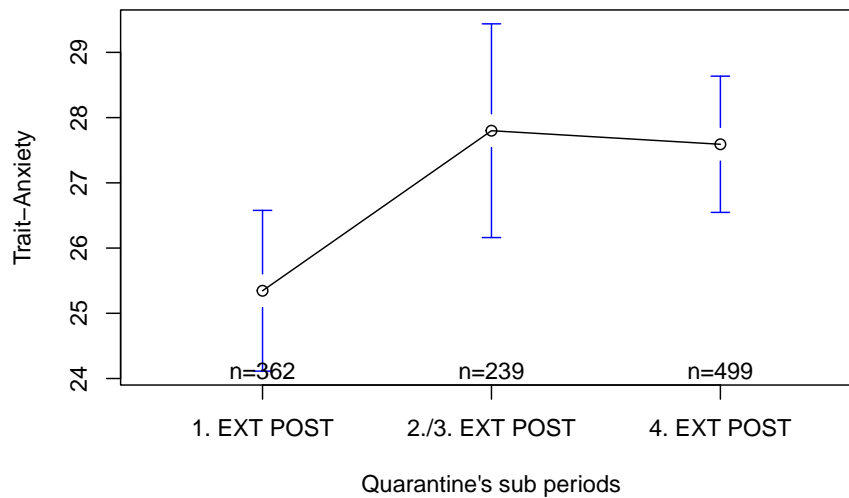

```
mean(table$ANXIETY_TRAIT) # mean = 26.89727
```

```
## [1] 26.89727
```

```
std.error(table$ANXIETY_TRAIT) # std. error = 0.3662711
```

```
## [1] 0.3662711
```

```
# low:
prop.table(table(table$ANXIETY_TRAIT<27,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##    FALSE    14.54545       10.72727    22.63636
##    TRUE     18.36364       11.00000    22.72727
```

```
# high:
prop.table(table(table$ANXIETY_TRAIT>=27,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##    FALSE    18.36364       11.00000    22.72727
##    TRUE     14.54545       10.72727    22.63636
```

```
# SUICIDAL RISK
anovatempsuic <- aov(table$SUIC_RISK~table$SUB_PERIODS)
anovatempsuic
```

```
## Call:
##    aov(formula = table$SUIC_RISK ~ table$SUB_PERIODS)
##
## Terms:
##                   table$SUB_PERIODS Residuals
## Sum of Squares              2143.68 291314.40
## Deg. of Freedom                   2       1097
##
## Residual standard error: 16.29587
## Estimated effects may be unbalanced
```

```
summary(anovatempsuic)
```

```
##                     Df Sum Sq Mean Sq F value Pr(>F)
## table$SUB_PERIODS    2   2144  1071.8   4.036 0.0179 *
## Residuals         1097 291314   265.6
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
plot(anovatempsuic)
```


Residuals vs Fitted

Fitted values
aov(table$SUIC_RISK ~ table$SUB_PERIODS)

Normal Q–Q

Standardized residuals

733
84
1076

Theoretical Quantiles
aov(table$SUIC_RISK ~ table$SUB_PERIODS)

Scale–Location

√|Standardized residuals|

84

733
1076

Fitted values
aov(table$SUIC_RISK ~ table$SUB_PERIODS)

Residuals vs Leverage

aov(table$SUIC_RISK ~ table$SUB_PERIODS)
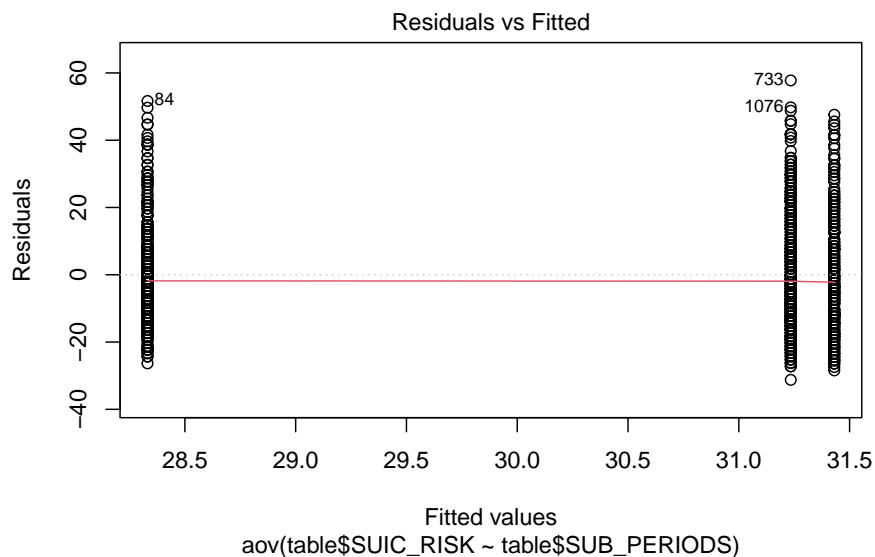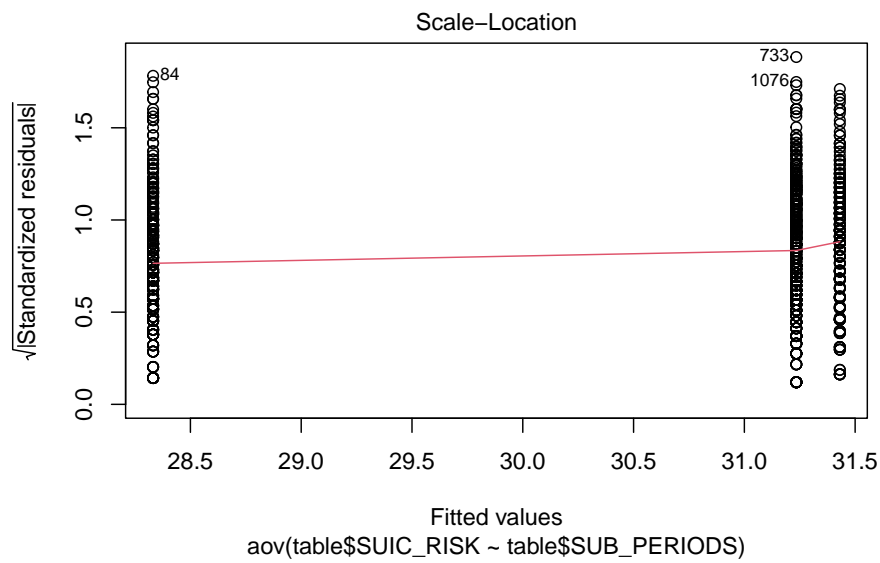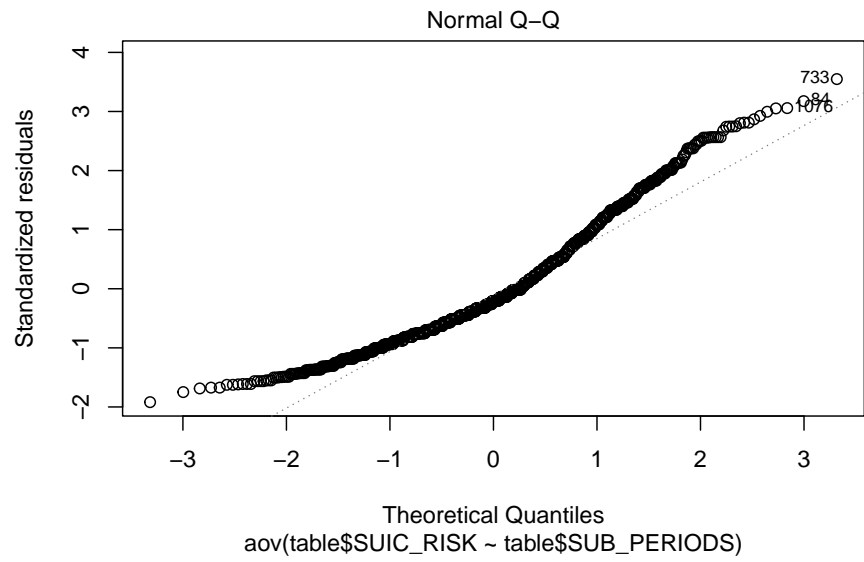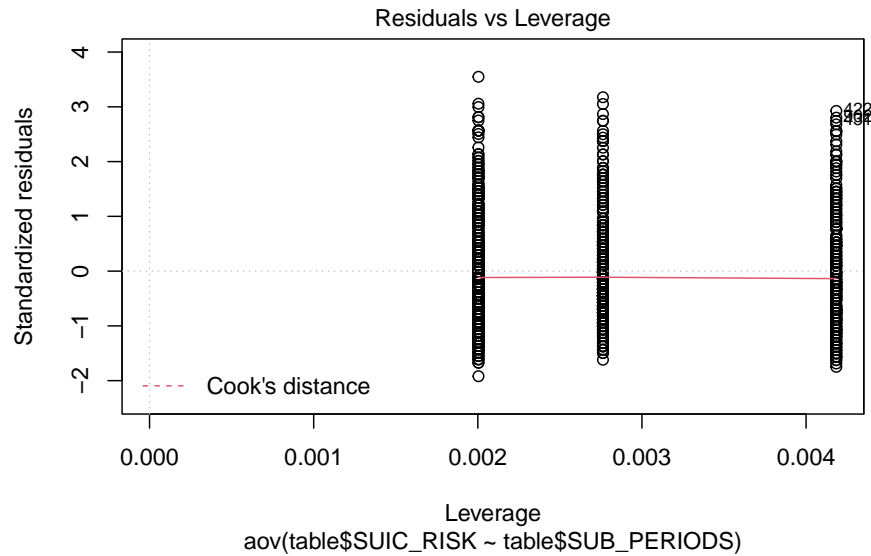
```
pairwise.t.test(x = table$SUIC_RISK, g = table$SUB_PERIODS, p.adjust.method = "bonferro
```

```
##
##  Pairwise comparisons using t tests with pooled SD
##
## data:  table$SUIC_RISK and table$SUB_PERIODS
##
##               1. EXT POST 2./3. EXT POST
## 2./3. EXT POST 0.068       -
## 4. EXT POST    0.030       1.000
##
## P value adjustment method: bonferroni
```

```
# significant differences
# 4. EXT POST-1. EXT POST p adj 0.030
#effectsize::cohens_f(anovatempsuic, ci = 0.95, partial = TRUE, type = 1)

tapply(table$SUIC_RISK,factor(table$SUB_PERIODS),mean)
```

```
##    1. EXT POST 2./3. EXT POST    4. EXT POST
##       28.33149       31.43096       31.23447
```

```
tapply(table$SUIC_RISK,factor(table$SUB_PERIODS),std.error)
```

```
##     1. EXT POST 2./3. EXT POST    4. EXT POST
##      0.7902982      1.1492061      0.7358880
```

```
# Figure S4 (Supplementary material)
plotmeans(table$SUIC_RISK~table$SUB_PERIODS, main="Fig. S4. Suicidal risk by quarantine sub-perio
```

Fig. S4. Suicidal risk by quarantine sub–periods. Mean plot with 95% Confidence Interval

Quarantine's sub periods
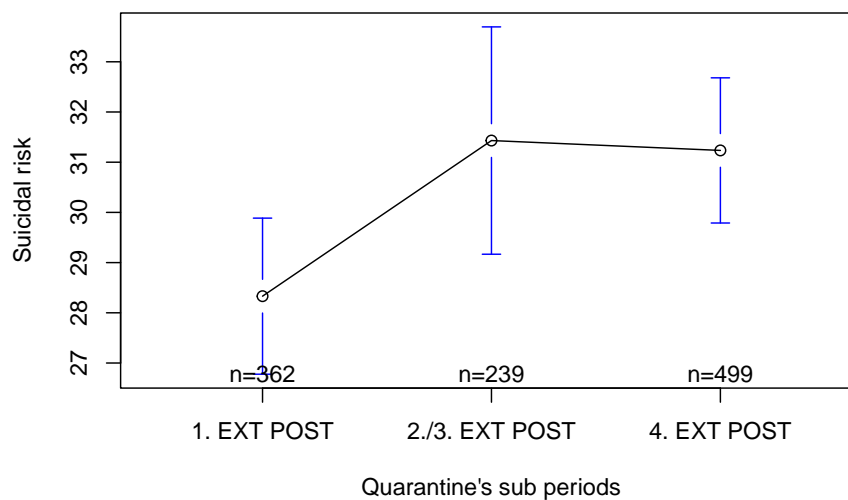
```
mean(table$SUIC_RISK) # mean = 30.32182
```

```
## [1] 30.32182
```

```
std.error(table$SUIC_RISK) # std. error = 0.4926946
```

```
## [1] 0.4926946
```

```
# Percentage distribution by cutoff score:
# low:
prop.table(table(table$SUIC_RISK<30,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE    12.181818      9.909091    20.181818
##   TRUE     20.727273     11.818182    25.181818
```

```
# moderate:
prop.table(table(table$SUIC_RISK>=30&table$SUIC_RISK<=44,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE    25.090909     16.727273    35.272727
##   TRUE      7.818182      5.000000    10.090909
```

```
# high:
prop.table(table(table$SUIC_RISK>=45,table$SUB_PERIODS))*100
```

```
##
##          1. EXT POST 2./3. EXT POST 4. EXT POST
##   FALSE    28.545455     16.818182    35.272727
##   TRUE      4.363636      4.909091    10.090909
```

```
################################################################################
##################################### AIM 2 #####################################

################################################################################
## 2) Multiple linear regressions:

# We performed stepwise selection (direction = both) using the stepAIC() function from
library(MASS)
```

```
##
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':
##
##     select
```

```
# stepAIC() performs stepwise model selection by exact AIC


#### DEPRESSION:
# Stepwise Regression
fitwith<-lm(DEPRESSION~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY~
stepwith <- stepAIC(fitwith, trace=TRUE,direction="both")
```

```
## Start:  AIC=4951.51
## DEPRESSION ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
##                           Df Sum of Sq    RSS    AIC
## - PROVINCE                25    3682.6  95380 4944.8
## - EDUCATION                8    1052.2  92750 4948.1
## - LIVING_WITH_SOMEBODY     1       3.5  91701 4949.5
## <none>                                  91698 4951.5
## - ECONOMIC_INCOME          1     175.8  91874 4951.6
## - SUB_PERIODS              2     735.9  92434 4956.3
## - MENTAL_DISORDER_HISTORY  1    1336.6  93034 4965.4
## - SEX                      1    2274.4  93972 4976.5
## - AGE                      1    4345.7  96044 5000.4
## - SUIC_ATTEMPT_HISTORY     2   11683.5 103381 5079.4
##
## Step:  AIC=4944.82
## DEPRESSION ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                           Df Sum of Sq    RSS    AIC
## - EDUCATION                8    1030.5  96411 4940.6
## - LIVING_WITH_SOMEBODY     1       2.8  95383 4942.9
## <none>                                  95380 4944.8
## - ECONOMIC_INCOME          1     240.6  95621 4945.6
## + PROVINCE                25    3682.6  91698 4951.5
## - SUB_PERIODS              2    1041.4  96422 4952.8
## - MENTAL_DISORDER_HISTORY  1    1350.0  96730 4958.3
## - SEX                      1    2549.9  97930 4971.8
## - AGE                      1    4686.4 100067 4995.6
## - SUIC_ATTEMPT_HISTORY     2   12809.5 108190 5079.4
##
## Step:  AIC=4940.64
## DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                           Df Sum of Sq    RSS    AIC
## - LIVING_WITH_SOMEBODY     1       5.3  96416 4938.7
## <none>                                  96411 4940.6
## - ECONOMIC_INCOME          1     368.1  96779 4942.8
## + EDUCATION                8    1030.5  95380 4944.8
## + PROVINCE                25    3660.8  92750 4948.1
## - SUB_PERIODS              2    1067.3  97478 4948.7
## - MENTAL_DISORDER_HISTORY  1    1246.3  97657 4952.8
## - SEX                      1    2578.1  98989 4967.7
```

```
## - AGE                     1    6060.8 102472 5005.7
## - SUIC_ATTEMPT_HISTORY     2   13690.6 110101 5082.7
##
## Step:  AIC=4938.7
## DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                          Df Sum of Sq    RSS    AIC
## <none>                                  96416 4938.7
## + LIVING_WITH_SOMEBODY     1       5.3  96411 4940.6
## - ECONOMIC_INCOME          1     375.1  96791 4941.0
## + EDUCATION                8    1033.0  95383 4942.9
## + PROVINCE                25    3660.4  92756 4946.1
## - SUB_PERIODS              2    1069.1  97485 4946.8
## - MENTAL_DISORDER_HISTORY  1    1241.0  97657 4950.8
## - SEX                      1    2606.6  99023 4966.0
## - AGE                      1    6225.6 102642 5005.5
## - SUIC_ATTEMPT_HISTORY     2   13688.5 110105 5080.7
```

```
stepwith
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Coefficients:
##            (Intercept)                     SEXwoman
##                22.8913                       3.9272
##                    AGE             ECONOMIC_INCOMEyes
##                -0.2182                      -1.6117
## MENTAL_DISORDER_HISTORYyes     SUIC_ATTEMPT_HISTORYno
##                 2.5083                      -6.7037
##    SUIC_ATTEMPT_HISTORYyes    SUB_PERIODS2./3. EXT POST
##                 4.8715                       1.5511
##     SUB_PERIODS4. EXT POST
##                 2.3125
```

```
stepwith$anova # display results
```

```
## Stepwise Model Path
## Analysis of Deviance Table
##
## Initial Model:
```

```
## DEPRESSION ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
## Final Model:
## DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##
##                          Step Df    Deviance Resid. Df Resid. Dev      AIC
## 1                                                 1057    91697.83 4951.507
## 2              - PROVINCE 25 3682.560562      1082    95380.39 4944.819
## 3             - EDUCATION  8 1030.467448      1090    96410.86 4940.640
## 4 - LIVING_WITH_SOMEBODY  1    5.331578      1091    96416.19 4938.700
```

```
# Stepwise Model Path
# Analysis of Deviance Table
# Initial Model: DEPRESSION ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME + LIVING_WITH_SO
# Start:  AIC = 4951.51
# Final Model: DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_
# Stepwith:  AIC = 4938.7
summary(stepwith)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -25.519  -6.393  -1.064   5.114  34.131
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)               22.8913     1.3652  16.768  < 2e-16 ***
## SEXwoman                   3.9272     0.7231   5.431 6.91e-08 ***
## AGE                       -0.2182     0.0260  -8.393  < 2e-16 ***
## ECONOMIC_INCOMEyes        -1.6117     0.7823  -2.060 0.039627 *
## MENTAL_DISORDER_HISTORYyes 2.5083     0.6694   3.747 0.000188 ***
## SUIC_ATTEMPT_HISTORYno    -6.7037     0.6863  -9.767  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes    4.8715     1.2486   3.901 0.000101 ***
## SUB_PERIODS2./3. EXT POST  1.5511     0.7854   1.975 0.048546 *
## SUB_PERIODS4. EXT POST     2.3125     0.6697   3.453 0.000575 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Residual standard error: 9.401 on 1091 degrees of freedom
## Multiple R-squared:  0.2881, Adjusted R-squared:  0.2829
## F-statistic: 55.19 on 8 and 1091 DF,  p-value: < 2.2e-16
```

```
# 95% Confidence interval of best-fitted model:
confint(stepwith)
```

```
##                                   2.5 %       97.5 %
## (Intercept)                  20.212619617 25.56999549
## SEXwoman                      2.508307273  5.34600026
## AGE                          -0.269236094 -0.16720616
## ECONOMIC_INCOMEyes           -3.146793263 -0.07662992
## MENTAL_DISORDER_HISTORYyes    1.194942661  3.82165836
## SUIC_ATTEMPT_HISTORYno       -8.050428044 -5.35705695
## SUIC_ATTEMPT_HISTORYyes       2.421494846  7.32143786
## SUB_PERIODS2./3. EXT POST     0.009920813  3.09221838
## SUB_PERIODS4. EXT POST        0.998527485  3.62653957
```

```
# ERROR RATE of best-fitted model:
sigma(stepwith)/mean(table$DEPRESSION)
```

```
## [1] 0.5989474
```

```
# 0.5989474
# In our multiple regression example, the Residual Standard Error (RSE) or sigma is 9..

par(mfrow=c(2,2))
# Figure S5 (Supplementary material)
plot(stepwith)
```
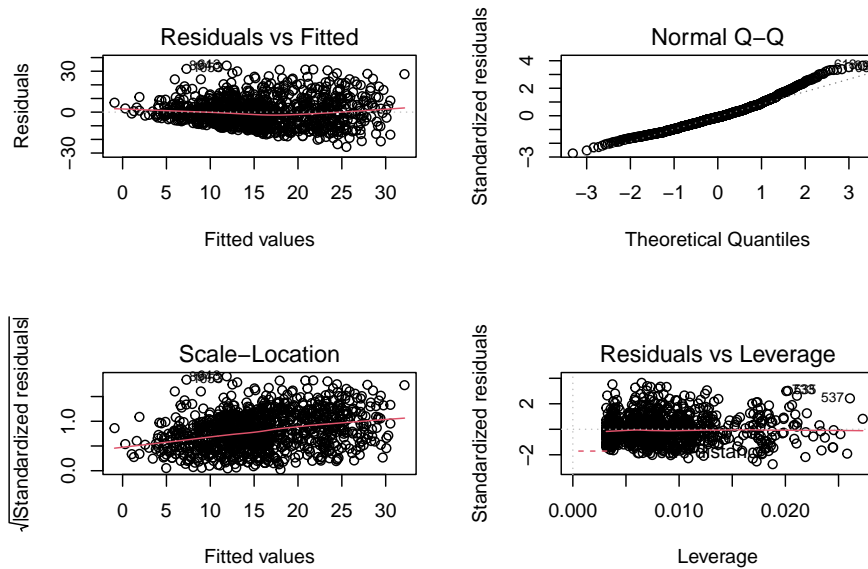
```r
par(mfrow=c(1,1))


# TABLE 1:

# Model 1: INITIAL MODEL:
model1<-lm(DEPRESSION~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISO
summary(model1)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + PROVINCE + EDUCATION +
##     ECONOMIC_INCOME + LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -23.839  -6.235  -0.880   4.810  34.667
##
## Coefficients:
##                                      Estimate Std. Error t value Pr(>|t|)
## (Intercept)                           14.1136     6.8720   2.054 0.040240
## SEXwoman                               3.7600     0.7343   5.120 3.62e-07
## AGE                                   -0.2039     0.0288  -7.078 2.67e-12
```

```
## PROVINCECABA (Buenos Aires capital)           -2.6299     1.1436  -2.300 0.021657
## PROVINCECatamarca                              1.5213      6.7415   0.226 0.821511
## PROVINCEChaco                                  -3.8453     3.6088  -1.066 0.286876
## PROVINCEChubut                                 -1.6699     4.7235  -0.354 0.723763
## PROVINCECórdoba                                -3.0918     0.8848  -3.494 0.000495
## PROVINCECorrientes                             -5.8987     4.2371  -1.392 0.164166
## PROVINCEEntre Ríos                             1.3188      2.5256   0.522 0.601647
## PROVINCEFormosa                                7.0780      5.4450   1.300 0.193917
## PROVINCEJujuy                                  -0.9570     1.7410  -0.550 0.582650
## PROVINCELa Pampa                               -6.2685     3.3805  -1.854 0.063971
## PROVINCELa Rioja                               -9.1692     9.4036  -0.975 0.329747
## PROVINCEMendoza                                -0.2200     2.3827  -0.092 0.926459
## PROVINCEMisiones                               -4.5683     2.5899  -1.764 0.078037
## PROVINCENeuquén                                -6.3639     3.2784  -1.941 0.052503
## PROVINCEother                                  -2.4944     2.3334  -1.069 0.285317
## PROVINCEOtro                                   -0.7964     5.4997  -0.145 0.884893
## PROVINCERío Negro                              2.8514      4.7250   0.603 0.546328
## PROVINCESalta                                  5.1110      2.7891   1.832 0.067160
## PROVINCESan Juan                               0.3405      4.7553   0.072 0.942924
## PROVINCESan Luis                               19.3126     9.3942   2.056 0.040048
## PROVINCESanta Cruz                             3.8887      6.6448   0.585 0.558517
## PROVINCESanta Fe                               -2.7375     0.8800  -3.111 0.001915
## PROVINCESantiago del Estero                    -1.4102     2.5911  -0.544 0.586396
## PROVINCETierra del Fuego                       -2.4344     2.2629  -1.076 0.282261
## PROVINCETucumán                                -1.9335     1.9762  -0.978 0.328093
## EDUCATIONCompleted high school                 10.7046     6.7151   1.594 0.111212
## EDUCATIONCompleted postgraduate                8.5487      6.7144   1.273 0.203229
## EDUCATIONCompleted tertiary or university      9.4013      6.6823   1.407 0.159755
## EDUCATIONIncomplete elementary school          9.1756     11.4762   0.800 0.424159
## EDUCATIONIncomplete high school                14.5440     6.9355   2.097 0.036227
## EDUCATIONIncomplete postgraduate               9.7746      6.7411   1.450 0.147353
## EDUCATIONIncomplete tertiary or university     9.6203      6.6747   1.441 0.149797
## EDUCATIONOtro                                  16.0206     9.5233   1.682 0.092816
## ECONOMIC_INCOMEyes                             -1.1366     0.7984  -1.424 0.154874
## LIVING_WITH_SOMEBODYyes                        0.1651      0.8268   0.200 0.841778
## MENTAL_DISORDER_HISTORYyes                     2.6463      0.6742   3.925 9.23e-05
## SUIC_ATTEMPT_HISTORYno                         -6.2399     0.6963  -8.962  < 2e-16
## SUIC_ATTEMPT_HISTORYyes                        4.9458      1.2525   3.949 8.37e-05
## SUB_PERIODS2./3. EXT POST                      1.1705      0.8316   1.408 0.159570
## SUB_PERIODS4. EXT POST                         2.2370      0.7682   2.912 0.003666
##
## (Intercept)                            *
## SEXwoman                               ***
## AGE                                    ***
## PROVINCECABA (Buenos Aires capital)    *
## PROVINCECatamarca
```

```
## PROVINCEChaco
## PROVINCEChubut
## PROVINCECórdoba                              ***
## PROVINCECorrientes
## PROVINCEEntre Ríos
## PROVINCEFormosa
## PROVINCEJujuy
## PROVINCELa Pampa                            .
## PROVINCELa Rioja
## PROVINCEMendoza
## PROVINCEMisiones                            .
## PROVINCENeuquén                             .
## PROVINCEother
## PROVINCEOtro
## PROVINCERío Negro
## PROVINCESalta                               .
## PROVINCESan Juan
## PROVINCESan Luis                            *
## PROVINCESanta Cruz
## PROVINCESanta Fe                            **
## PROVINCESantiago del Estero
## PROVINCETierra del Fuego
## PROVINCETucumán
## EDUCATIONCompleted high school
## EDUCATIONCompleted postgraduate
## EDUCATIONCompleted tertiary or university
## EDUCATIONIncomplete elementary school
## EDUCATIONIncomplete high school            *
## EDUCATIONIncomplete postgraduate
## EDUCATIONIncomplete tertiary or university
## EDUCATIONOtro                              .
## ECONOMIC_INCOMEyes
## LIVING_WITH_SOMEBODYyes
## MENTAL_DISORDER_HISTORYyes                 ***
## SUIC_ATTEMPT_HISTORYno                     ***
## SUIC_ATTEMPT_HISTORYyes                    ***
## SUB_PERIODS2./3. EXT POST
## SUB_PERIODS4. EXT POST                     **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.314 on 1057 degrees of freedom
## Multiple R-squared:  0.3229, Adjusted R-squared:  0.296
## F-statistic:    12 on 42 and 1057 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 2 eliminates PROVINCE:
model2<-lm(DEPRESSION~SEX+AGE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DIS
summary(model2)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -25.253  -6.379  -0.903   5.058  34.152
##
## Coefficients:
##                                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)                             12.69038    6.90433   1.838 0.066332
## SEXwoman                                 3.91295    0.72755   5.378 9.21e-08
## AGE                                     -0.20626    0.02829  -7.291 5.92e-13
## EDUCATIONCompleted high school          10.30835    6.75688   1.526 0.127400
## EDUCATIONCompleted postgraduate          8.16528    6.74485   1.211 0.226315
## EDUCATIONCompleted tertiary or university 9.22309   6.72364   1.372 0.170428
## EDUCATIONIncomplete elementary school    8.34773   11.55581   0.722 0.470215
## EDUCATIONIncomplete high school         14.35096    6.96606   2.060 0.039625
## EDUCATIONIncomplete postgraduate         9.38760    6.77889   1.385 0.166390
## EDUCATIONIncomplete tertiary or university 9.34286  6.71685   1.391 0.164524
## EDUCATIONOtro                           12.95427    9.42571   1.374 0.169616
## ECONOMIC_INCOMEyes                      -1.31894    0.79836  -1.652 0.098812
## LIVING_WITH_SOMEBODYyes                  0.14523    0.82040   0.177 0.859519
## MENTAL_DISORDER_HISTORYyes               2.63294    0.67282   3.913 9.67e-05
## SUIC_ATTEMPT_HISTORYno                  -6.57257    0.69266  -9.489  < 2e-16
## SUIC_ATTEMPT_HISTORYyes                  4.73502    1.25283   3.779 0.000166
## SUB_PERIODS2./3. EXT POST                1.52079    0.78688   1.933 0.053536
## SUB_PERIODS4. EXT POST                   2.30488    0.67498   3.415 0.000662
##
## (Intercept)                             .
## SEXwoman                                ***
## AGE                                     ***
## EDUCATIONCompleted high school
## EDUCATIONCompleted postgraduate
## EDUCATIONCompleted tertiary or university
## EDUCATIONIncomplete elementary school
## EDUCATIONIncomplete high school          *
```

```
## EDUCATIONIncomplete postgraduate
## EDUCATIONIncomplete tertiary or university
## EDUCATIONOtro
## ECONOMIC_INCOMEyes                             .
## LIVING_WITH_SOMEBODYyes
## MENTAL_DISORDER_HISTORYyes               ***
## SUIC_ATTEMPT_HISTORYno                  ***
## SUIC_ATTEMPT_HISTORYyes                 ***
## SUB_PERIODS2./3. EXT POST                 .
## SUB_PERIODS4. EXT POST                  ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.389 on 1082 degrees of freedom
## Multiple R-squared:  0.2957, Adjusted R-squared:  0.2847
## F-statistic: 26.73 on 17 and 1082 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 3 eliminates EDUCATION:
model3<-lm(DEPRESSION~SEX+AGE+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_HISTORY+SUIC_A
summary(model3)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -25.549  -6.417  -1.101   5.100  34.100
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)              22.69194    1.58894  14.281  < 2e-16 ***
## SEXwoman                  3.91492    0.72514   5.399 8.23e-08 ***
## AGE                      -0.21734    0.02626  -8.278 3.64e-16 ***
## ECONOMIC_INCOMEyes       -1.59973    0.78421  -2.040 0.041598 *
## LIVING_WITH_SOMEBODYyes   0.20024    0.81560   0.246 0.806104
## MENTAL_DISORDER_HISTORYyes  2.51945  0.67118   3.754 0.000183 ***
## SUIC_ATTEMPT_HISTORYno   -6.70486    0.68665  -9.765  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes   4.88468    1.25032   3.907 9.93e-05 ***
## SUB_PERIODS2./3. EXT POST 1.54299    0.78647   1.962 0.050027 .
## SUB_PERIODS4. EXT POST    2.31158    0.66998   3.450 0.000582 ***
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.405 on 1090 degrees of freedom
## Multiple R-squared:  0.2881, Adjusted R-squared:  0.2823
## F-statistic: 49.02 on 9 and 1090 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16
```

```
# Model 4 eliminates LIVING_WITH_SOMEBODY:
model4<-lm(DEPRESSION~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HIST
summary(model4)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -25.519  -6.393  -1.064   5.114  34.131
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 22.8913     1.3652  16.768  < 2e-16 ***
## SEXwoman                     3.9272     0.7231   5.431 6.91e-08 ***
## AGE                         -0.2182     0.0260  -8.393  < 2e-16 ***
## ECONOMIC_INCOMEyes          -1.6117     0.7823  -2.060 0.039627 *
## MENTAL_DISORDER_HISTORYyes   2.5083     0.6694   3.747 0.000188 ***
## SUIC_ATTEMPT_HISTORYno      -6.7037     0.6863  -9.767  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      4.8715     1.2486   3.901 0.000101 ***
## SUB_PERIODS2./3. EXT POST    1.5511     0.7854   1.975 0.048546 *
## SUB_PERIODS4. EXT POST       2.3125     0.6697   3.453 0.000575 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.401 on 1091 degrees of freedom
## Multiple R-squared:  0.2881, Adjusted R-squared:  0.2829
## F-statistic: 55.19 on 8 and 1091 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16
```

```
################
## Considering the predictors included in the best-fitted model (i.e., stepwith) in this group, w
# We performed all-subsets regression using the regsubsets() function from the leaps package.
# We analyzed the three best models for two-predictor subset sizes.

library(leaps)
leapsbestwith<-regsubsets(DEPRESSION~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT
summary(leapsbestwith)
```

```
## Subset selection object
## Call: regsubsets.formula(DEPRESSION ~ SEX + AGE + ECONOMIC_INCOME +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table, nbest = 3)
## 8 Variables  (and intercept)
##                              Forced in Forced out
## SEXwoman                       FALSE      FALSE
## AGE                            FALSE      FALSE
## ECONOMIC_INCOMEyes             FALSE      FALSE
## MENTAL_DISORDER_HISTORYyes     FALSE      FALSE
## SUIC_ATTEMPT_HISTORYno         FALSE      FALSE
## SUIC_ATTEMPT_HISTORYyes        FALSE      FALSE
## SUB_PERIODS2./3. EXT POST      FALSE      FALSE
## SUB_PERIODS4. EXT POST         FALSE      FALSE
## 3 subsets of each size up to 8
## Selection Algorithm: exhaustive
##          SEXwoman AGE ECONOMIC_INCOMEyes MENTAL_DISORDER_HISTORYyes
## 1  ( 1 ) " "      " " " "                " "
## 1  ( 2 ) " "      "*" " "                " "
## 1  ( 3 ) " "      " " " "                " "
## 2  ( 1 ) " "      "*" " "                " "
## 2  ( 2 ) "*"      " " " "                " "
## 2  ( 3 ) " "      " " " "                " "
## 3  ( 1 ) "*"      "*" " "                " "
## 3  ( 2 ) " "      "*" " "                " "
## 3  ( 3 ) " "      "*" " "                "*"
## 4  ( 1 ) "*"      "*" " "                " "
## 4  ( 2 ) "*"      "*" " "                "*"
## 4  ( 3 ) "*"      "*" " "                " "
## 5  ( 1 ) "*"      "*" " "                "*"
## 5  ( 2 ) "*"      "*" " "                " "
## 5  ( 3 ) "*"      "*" " "                "*"
## 6  ( 1 ) "*"      "*" " "                "*"
## 6  ( 2 ) "*"      "*" "*"                "*"
## 6  ( 3 ) "*"      "*" " "                "*"
## 7  ( 1 ) "*"      "*" "*"                "*"
```

```
## 7  ( 2 ) "*"       "*" " "                "*"
## 7  ( 3 ) "*"       "*" "*"                "*"
## 8  ( 1 ) "*"       "*" "*"                "*"
##           SUIC_ATTEMPT_HISTORYno SUIC_ATTEMPT_HISTORYyes
## 1  ( 1 ) "*"                    " "
## 1  ( 2 ) " "                    " "
## 1  ( 3 ) " "                    "*"
## 2  ( 1 ) "*"                    " "
## 2  ( 2 ) "*"                    " "
## 2  ( 3 ) "*"                    " "
## 3  ( 1 ) "*"                    " "
## 3  ( 2 ) "*"                    "*"
## 3  ( 3 ) "*"                    " "
## 4  ( 1 ) "*"                    "*"
## 4  ( 2 ) "*"                    " "
## 4  ( 3 ) "*"                    " "
## 5  ( 1 ) "*"                    "*"
## 5  ( 2 ) "*"                    "*"
## 5  ( 3 ) "*"                    " "
## 6  ( 1 ) "*"                    "*"
## 6  ( 2 ) "*"                    "*"
## 6  ( 3 ) "*"                    "*"
## 7  ( 1 ) "*"                    "*"
## 7  ( 2 ) "*"                    "*"
## 7  ( 3 ) "*"                    "*"
## 8  ( 1 ) "*"                    "*"
##           SUB_PERIODS2./3. EXT POST SUB_PERIODS4. EXT POST
## 1  ( 1 ) " "                      " "
## 1  ( 2 ) " "                      " "
## 1  ( 3 ) " "                      " "
## 2  ( 1 ) " "                      " "
## 2  ( 2 ) " "                      " "
## 2  ( 3 ) " "                      "*"
## 3  ( 1 ) " "                      " "
## 3  ( 2 ) " "                      " "
## 3  ( 3 ) " "                      " "
## 4  ( 1 ) " "                      " "
## 4  ( 2 ) " "                      " "
## 4  ( 3 ) " "                      "*"
## 5  ( 1 ) " "                      " "
## 5  ( 2 ) " "                      "*"
## 5  ( 3 ) " "                      "*"
## 6  ( 1 ) " "                      "*"
## 6  ( 2 ) " "                      " "
## 6  ( 3 ) "*"                      " "
## 7  ( 1 ) " "                      "*"
```

```
## 7  ( 2 ) "*"                        "*"
## 7  ( 3 ) "*"                        " "
## 8  ( 1 ) "*"                        "*"
```

```
# The best two-predictors model was: DEPRESSION ~ AGE + SUIC_ATTEMPT_HISTORY==no
```

```
plot(leapsbestwith,scale="r2")
```



```
plot(leapsbestwith,scale="adjr2")
```
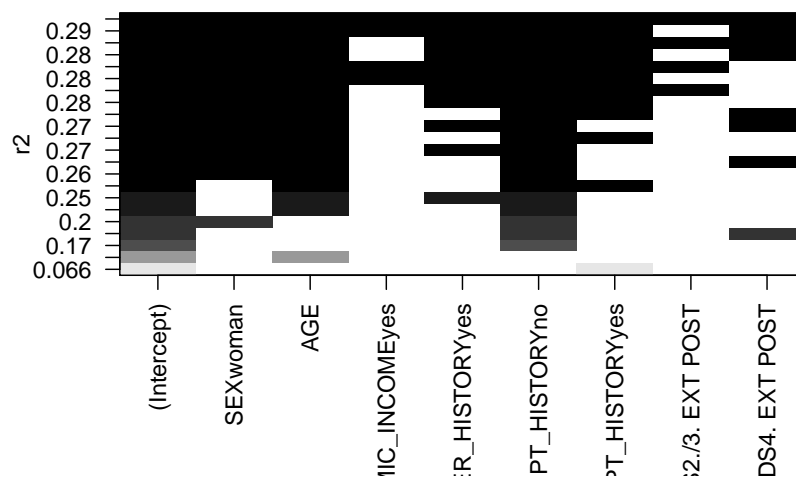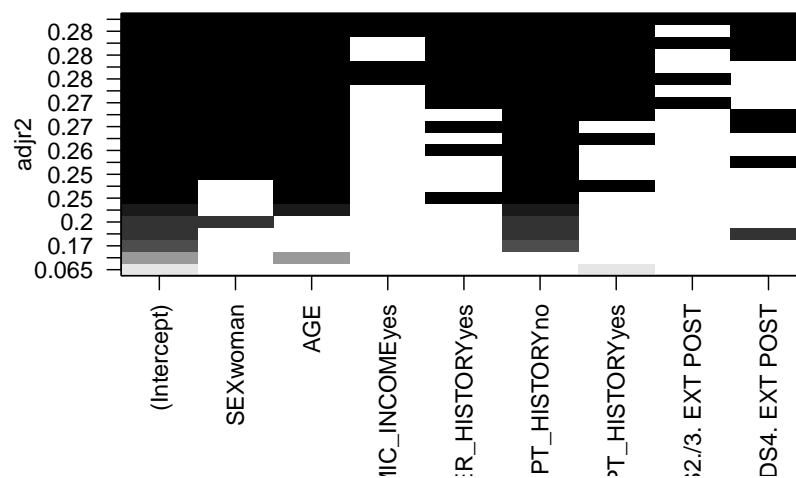
```
# First: AGE + SUIC_ATTEMPT_HISTORY (no):
besttwowithfirst<-lm(DEPRESSION~AGE+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithfirst
```

```
##
## Call:
## lm(formula = DEPRESSION ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##            (Intercept)                         AGE    SUIC_ATTEMPT_HISTORYno
##                28.0141                      -0.2424                    -7.5211
## SUIC_ATTEMPT_HISTORYyes
##                 5.6978
```

```
summary(besttwowithfirst)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -26.924  -6.675  -1.190   4.856  33.901
```

```
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)             28.0141     0.8981  31.191  < 2e-16 ***
## AGE                     -0.2424     0.0252  -9.621  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYno   -7.5211    0.6838 -10.999  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes   5.6978    1.2706   4.484 8.08e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.63 on 1096 degrees of freedom
## Multiple R-squared:  0.2495, Adjusted R-squared:  0.2474
## F-statistic: 121.4 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithfirst)
```

```
##                               2.5 %      97.5 %
## (Intercept)              26.2518465 29.7763661
## AGE                      -0.2918707 -0.1929901
## SUIC_ATTEMPT_HISTORYno   -8.8628433 -6.1793996
## SUIC_ATTEMPT_HISTORYyes   3.2047351  8.1908180
```

```
# Second: SEX (woman) + SUIC_ATTEMPT_HISTORY (no):
besttwowithsecond<-lm(DEPRESSION~SEX+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithsecond
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##           (Intercept)                 SEXwoman    SUIC_ATTEMPT_HISTORYno
##                17.724                    4.235                    -8.531
## SUIC_ATTEMPT_HISTORYyes
##                 4.880
```

```
summary(besttwowithsecond)
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SEX + SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
```

```
## -26.839  -6.959  -1.192    5.573   36.808
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)              17.7235     0.8669  20.444  < 2e-16 ***
## SEXwoman                  4.2351     0.7540   5.617 2.46e-08 ***
## SUIC_ATTEMPT_HISTORYno   -8.5315     0.6899 -12.367  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes   4.8805     1.3042   3.742 0.000192 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.888 on 1096 degrees of freedom
## Multiple R-squared:  0.2088, Adjusted R-squared:  0.2067
## F-statistic: 96.44 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithsecond)
```

```
##                               2.5 %     97.5 %
## (Intercept)               16.022499 19.424514
## SEXwoman                   2.755633  5.714478
## SUIC_ATTEMPT_HISTORYno    -9.885088 -7.177814
## SUIC_ATTEMPT_HISTORYyes    2.321426  7.439514
```

```
# Third: SUIC_ATTEMPT_HISTORY (no) + SUB PERIODS (4. EXT POST):
besttwowiththird<-lm(DEPRESSION~SUIC_ATTEMPT_HISTORY+SUB_PERIODS,data=table)
besttwowiththird
```

```
##
## Call:
## lm(formula = DEPRESSION ~ SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Coefficients:
##             (Intercept)      SUIC_ATTEMPT_HISTORYno
##                  19.326                      -8.785
##   SUIC_ATTEMPT_HISTORYyes  SUB_PERIODS2./3. EXT POST
##                   5.270                       1.888
##    SUB_PERIODS4. EXT POST
##                   3.377
```

```
summary(besttwowiththird)
```

```
##
## Call:
```

```
## lm(formula = DEPRESSION ~ SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -26.484  -6.918  -1.429   5.459  33.459
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 19.3263     0.7323  26.390  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYno      -8.7850     0.6902 -12.728  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      5.2697     1.3096   4.024 6.12e-05 ***
## SUB_PERIODS2./3. EXT POST    1.8879     0.8283   2.279   0.0228 *
## SUB_PERIODS4. EXT POST       3.3771     0.6853   4.928 9.60e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.924 on 1095 degrees of freedom
## Multiple R-squared:  0.2037, Adjusted R-squared:  0.2008
## F-statistic: 70.04 on 4 and 1095 DF,  p-value: < 2.2e-16
```

```
confint(besttwowiththird)
```

```
##                               2.5 %     97.5 %
## (Intercept)               17.8893186 20.763222
## SUIC_ATTEMPT_HISTORYno   -10.1393637 -7.430695
## SUIC_ATTEMPT_HISTORYyes    2.7000714  7.839250
## SUB_PERIODS2./3. EXT POST  0.2627045  3.513014
## SUB_PERIODS4. EXT POST     2.0324452  4.721846
```

```
#### ANXIETY-STATE:
# Stepwise Regression
fitwith<-lm(ANXIETY_STATE~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_
stepwith <- stepAIC(fitwith, trace=TRUE,direction="both")
```

```
## Start:  AIC=5679.05
## ANXIETY_STATE ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
##                      Df Sum of Sq    RSS    AIC
## - PROVINCE           25    6695.3 184360 5669.7
## - EDUCATION           8    1678.0 179343 5673.4
## - ECONOMIC_INCOME     1       4.9 177670 5677.1
```

```
## - LIVING_WITH_SOMEBODY      1       6.9 177671 5677.1
## <none>                                  177665 5679.0
## - SUB_PERIODS               2     961.9 178627 5681.0
## - SEX                       1    2061.3 179726 5689.7
## - MENTAL_DISORDER_HISTORY   1    5918.7 183583 5713.1
## - AGE                       1    7049.9 184715 5719.9
## - SUIC_ATTEMPT_HISTORY      2   10052.6 187717 5735.6
##
## Step:  AIC=5669.74
## ANXIETY_STATE ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                             Df Sum of Sq    RSS    AIC
## - EDUCATION                  8    1743.8 186104 5664.1
## - LIVING_WITH_SOMEBODY       1       2.0 184362 5667.7
## - ECONOMIC_INCOME            1      17.1 184377 5667.8
## <none>                                  184360 5669.7
## - SUB_PERIODS                2    1347.2 185707 5673.7
## + PROVINCE                  25    6695.3 177665 5679.0
## - SEX                        1    2262.3 186622 5681.2
## - MENTAL_DISORDER_HISTORY    1    6257.0 190617 5704.5
## - AGE                        1    7220.3 191580 5710.0
## - SUIC_ATTEMPT_HISTORY       2   11618.0 195978 5733.0
##
## Step:  AIC=5664.09
## ANXIETY_STATE ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                             Df Sum of Sq    RSS    AIC
## - ECONOMIC_INCOME            1       0.6 186104 5662.1
## - LIVING_WITH_SOMEBODY       1      25.7 186129 5662.2
## <none>                                  186104 5664.1
## - SUB_PERIODS                2    1218.8 187322 5667.3
## + EDUCATION                  8    1743.8 184360 5669.7
## + PROVINCE                  25    6761.0 179343 5673.4
## - SEX                        1    2172.9 188277 5674.9
## - MENTAL_DISORDER_HISTORY    1    6046.0 192150 5697.3
## - AGE                        1    7917.7 194021 5707.9
## - SUIC_ATTEMPT_HISTORY       2   11387.2 197491 5725.4
##
## Step:  AIC=5662.1
## ANXIETY_STATE ~ SEX + AGE + LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                             Df Sum of Sq    RSS    AIC
## - LIVING_WITH_SOMEBODY       1      25.3 186130 5660.2
```

```
## <none>                                   186104 5662.1
## + ECONOMIC_INCOME          1       0.6 186104 5664.1
## - SUB_PERIODS               2    1218.3 187323 5665.3
## + EDUCATION                 8    1727.3 184377 5667.8
## + PROVINCE                 25    6761.1 179343 5671.4
## - SEX                       1    2172.4 188277 5672.9
## - MENTAL_DISORDER_HISTORY   1    6066.2 192171 5695.4
## - AGE                       1    8101.4 194206 5707.0
## - SUIC_ATTEMPT_HISTORY      2   11423.5 197528 5723.6
##
## Step:  AIC=5660.25
## ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
##                          Df Sum of Sq    RSS    AIC
## <none>                                  186130 5660.2
## + LIVING_WITH_SOMEBODY     1      25.3 186104 5662.1
## + ECONOMIC_INCOME          1       0.2 186129 5662.2
## - SUB_PERIODS              2    1208.4 187338 5663.4
## + EDUCATION                8    1751.1 184378 5665.8
## + PROVINCE                25    6786.3 179343 5669.4
## - SEX                      1    2150.5 188280 5670.9
## - MENTAL_DISORDER_HISTORY  1    6143.0 192273 5694.0
## - AGE                      1    8144.7 194274 5705.4
## - SUIC_ATTEMPT_HISTORY     2   11470.5 197600 5722.0
```

```
stepwith
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Coefficients:
##             (Intercept)                    SEXwoman
##                 37.5075                      3.5669
##                     AGE   MENTAL_DISORDER_HISTORYyes
##                 -0.2467                      5.5750
##   SUIC_ATTEMPT_HISTORYno     SUIC_ATTEMPT_HISTORYyes
##                 -6.0797                      4.5927
##  SUB_PERIODS2./3. EXT POST     SUB_PERIODS4. EXT POST
##                  2.6670                      1.9260
```

```
stepwith$anova # display results
```

```
## Stepwise Model Path
## Analysis of Deviance Table
##
## Initial Model:
## ANXIETY_STATE ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##      LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##      SUB_PERIODS
##
## Final Model:
## ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##      SUB_PERIODS
##
##
##                    Step Df     Deviance Resid. Df Resid. Dev      AIC
## 1                                           1057    177664.6 5679.046
## 2            - PROVINCE 25 6695.2611138      1082    184359.9 5669.737
## 3           - EDUCATION  8 1743.7974416      1090    186103.7 5664.093
## 4     - ECONOMIC_INCOME  1    0.6131264      1091    186104.3 5662.097
## 5 - LIVING_WITH_SOMEBODY  1   25.3363543      1092    186129.6 5660.246
```

```
# Stepwise Model Path
# Analysis of Deviance Table
# Initial Model: ANXIETY_STATE ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
# Start:  AIC = 5679.05
# Final Model: ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HIST
# Stepwith:  AIC = 5660.25
summary(stepwith)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -42.888  -9.256  -0.957   9.615  39.500
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)              37.50746    1.75346  21.391  < 2e-16 ***
## SEXwoman                  3.56692    1.00420   3.552 0.000399 ***
## AGE                      -0.24668    0.03569  -6.913 8.08e-12 ***
```

```
## MENTAL_DISORDER_HISTORYyes  5.57505    0.92866   6.003 2.63e-09 ***
## SUIC_ATTEMPT_HISTORYno      -6.07967    0.95292  -6.380 2.61e-10 ***
## SUIC_ATTEMPT_HISTORYyes      4.59266    1.73290   2.650 0.008159 **
## SUB_PERIODS2./3. EXT POST    2.66701    1.09080   2.445 0.014642 *
## SUB_PERIODS4. EXT POST       1.92599    0.92985   2.071 0.038566 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.06 on 1092 degrees of freedom
## Multiple R-squared:  0.1915, Adjusted R-squared:  0.1863
## F-statistic: 36.95 on 7 and 1092 DF,  p-value: < 2.2e-16
```

```
# 95% Confidence interval of best-fitted model:
confint(stepwith)
```

```
##                                 2.5 %       97.5 %
## (Intercept)                 34.0669382 40.9479900
## SEXwoman                     1.5965481  5.5373004
## AGE                         -0.3167030 -0.1766614
## MENTAL_DISORDER_HISTORYyes   3.7528959  7.3972016
## SUIC_ATTEMPT_HISTORYno      -7.9494314 -4.2099141
## SUIC_ATTEMPT_HISTORYyes      1.1924686  7.9928562
## SUB_PERIODS2./3. EXT POST    0.5267105  4.8073133
## SUB_PERIODS4. EXT POST       0.1014973  3.7504751
```

```
# ERROR RATE of best-fitted model:
sigma(stepwith)/mean(table$ANXIETY_STATE)
```

```
## [1] 0.4108702
```

```
# 0.4108702
# In our multiple regression example, the Residual Standard Error (RSE) or sigma is 13.06 corresp

par(mfrow=c(2,2))
# Figure S6 (Supplementary material)
plot(stepwith)
```
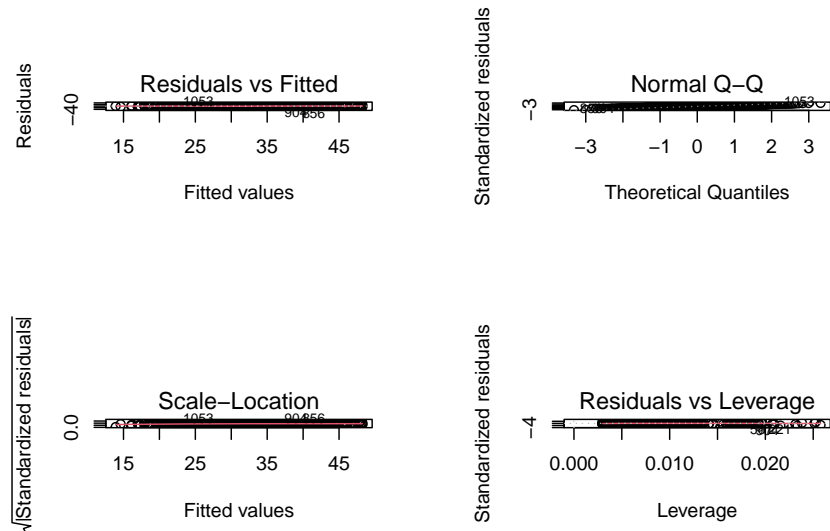
```
par(mfrow=c(1,1))


# TABLE 1:

# Model 1: INITIAL MODEL:
model1<-lm(ANXIETY_STATE~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBO
summary(model1)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + PROVINCE + EDUCATION +
##      ECONOMIC_INCOME + LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##      Min      1Q  Median      3Q      Max
## -41.477  -9.057  -0.506   9.018  39.250
##
## Coefficients:
##                                     Estimate Std. Error t value
## (Intercept)                         19.89283    9.56535   2.080
## SEXwoman                             3.57949    1.02215   3.502
## AGE                                 -0.25965    0.04009  -6.476
```

```
## PROVINCECABA (Buenos Aires capital)                0.33719    1.59179    0.212
## PROVINCECatamarca                                  5.10875    9.38377    0.544
## PROVINCEChaco                                      -1.92192    5.02327   -0.383
## PROVINCEChubut                                     -2.35077    6.57489   -0.358
## PROVINCECórdoba                                    -3.45015    1.23164   -2.801
## PROVINCECorrientes                                -12.63421    5.89774   -2.142
## PROVINCEEntre Ríos                                 -3.61585    3.51548   -1.029
## PROVINCEFormosa                                     6.21207    7.57915    0.820
## PROVINCEJujuy                                      -2.56294    2.42337   -1.058
## PROVINCELa Pampa                                  -13.02703    4.70542   -2.769
## PROVINCELa Rioja                                  -23.84734   13.08921   -1.822
## PROVINCEMendoza                                     2.52823    3.31661    0.762
## PROVINCEMisiones                                   -6.85122    3.60500   -1.900
## PROVINCENeuquén                                    -7.07254    4.56333   -1.550
## PROVINCEother                                      -2.98791    3.24800   -0.920
## PROVINCEOtro                                        3.07520    7.65533    0.402
## PROVINCERío Negro                                   3.34309    6.57694    0.508
## PROVINCESalta                                       2.61668    3.88231    0.674
## PROVINCESan Juan                                   -7.81884    6.61909   -1.181
## PROVINCESan Luis                                   21.47288   13.07624    1.642
## PROVINCESanta Cruz                                  2.47300    9.24914    0.267
## PROVINCESanta Fe                                   -3.21944    1.22485   -2.628
## PROVINCESantiago del Estero                        -1.58396    3.60668   -0.439
## PROVINCETierra del Fuego                           -2.29507    3.14980   -0.729
## PROVINCETucumán                                    -2.02395    2.75068   -0.736
## EDUCATIONCompleted high school                     19.28739    9.34707    2.063
## EDUCATIONCompleted postgraduate                    20.16787    9.34601    2.158
## EDUCATIONCompleted tertiary or university          19.70575    9.30144    2.119
## EDUCATIONIncomplete elementary school              26.84940   15.97422    1.681
## EDUCATIONIncomplete high school                    22.14432    9.65382    2.294
## EDUCATIONIncomplete postgraduate                   22.79042    9.38319    2.429
## EDUCATIONIncomplete tertiary or university         19.57363    9.29082    2.107
## EDUCATIONOtro                                      19.71503   13.25588    1.487
## ECONOMIC_INCOMEyes                                 -0.18975    1.11134   -0.171
## LIVING_WITH_SOMEBODYyes                             0.23270    1.15084    0.202
## MENTAL_DISORDER_HISTORYyes                          5.56871    0.93844    5.934
## SUIC_ATTEMPT_HISTORYno                             -5.84712    0.96916   -6.033
## SUIC_ATTEMPT_HISTORYyes                             4.42879    1.74337    2.540
## SUB_PERIODS2./3. EXT POST                           2.29225    1.15756    1.980
## SUB_PERIODS4. EXT POST                              2.25811    1.06930    2.112
##                                               Pr(>|t|)
## (Intercept)                                   0.037796 *
## SEXwoman                                      0.000481 ***
## AGE                                           1.44e-10 ***
## PROVINCECABA (Buenos Aires capital)           0.832281
## PROVINCECatamarca                             0.586264
```

```
## PROVINCEChaco                                   0.702091
## PROVINCEChubut                                  0.720761
## PROVINCECórdoba                                 0.005183 **
## PROVINCECorrientes                              0.032405 *
## PROVINCEEntre Ríos                              0.303926
## PROVINCEFormosa                                 0.412614
## PROVINCEJujuy                                   0.290482
## PROVINCELa Pampa                                0.005730 **
## PROVINCELa Rioja                                0.068751 .
## PROVINCEMendoza                                 0.446055
## PROVINCEMisiones                                0.057643 .
## PROVINCENeuquén                                 0.121473
## PROVINCEother                                   0.357824
## PROVINCEOtro                                    0.687980
## PROVINCERío Negro                               0.611346
## PROVINCESalta                                   0.500459
## PROVINCESan Juan                                0.237767
## PROVINCESan Luis                                0.100861
## PROVINCESanta Cruz                              0.789231
## PROVINCESanta Fe                                0.008702 **
## PROVINCESantiago del Estero                     0.660626
## PROVINCETierra del Fuego                        0.466384
## PROVINCETucumán                                 0.462016
## EDUCATIONCompleted high school                  0.039312 *
## EDUCATIONCompleted postgraduate                 0.031159 *
## EDUCATIONCompleted tertiary or university       0.034360 *
## EDUCATIONIncomplete elementary school           0.093098 .
## EDUCATIONIncomplete high school                 0.021995 *
## EDUCATIONIncomplete postgraduate                0.015312 *
## EDUCATIONIncomplete tertiary or university 0.035373 *
## EDUCATIONOtro                                   0.137243
## ECONOMIC_INCOMEyes                              0.864463
## LIVING_WITH_SOMEBODYyes                         0.839801
## MENTAL_DISORDER_HISTORYyes                      4.00e-09 ***
## SUIC_ATTEMPT_HISTORYno                          2.22e-09 ***
## SUIC_ATTEMPT_HISTORYyes                         0.011216 *
## SUB_PERIODS2./3. EXT POST                       0.047935 *
## SUB_PERIODS4. EXT POST                          0.034940 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 12.96 on 1057 degrees of freedom
## Multiple R-squared:  0.2283, Adjusted R-squared:  0.1976
## F-statistic: 7.445 on 42 and 1057 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 2 eliminates PROVINCE:
model2<-lm(ANXIETY_STATE~SEX+AGE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_H
summary(model2)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME +
##      LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##      SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -42.598  -9.059  -0.913   9.486  38.541
##
## Coefficients:
##                                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)                              18.23288    9.59898   1.899 0.057770
## SEXwoman                                  3.68573    1.01149   3.644 0.000281
## AGE                                      -0.25601    0.03933  -6.510 1.15e-10
## EDUCATIONCompleted high school           19.19709    9.39399   2.044 0.041240
## EDUCATIONCompleted postgraduate          20.04070    9.37726   2.137 0.032809
## EDUCATIONCompleted tertiary or university 19.84627   9.34777   2.123 0.033972
## EDUCATIONIncomplete elementary school    25.91353   16.06586   1.613 0.107046
## EDUCATIONIncomplete high school          21.82096    9.68481   2.253 0.024452
## EDUCATIONIncomplete postgraduate         22.87390    9.42458   2.427 0.015385
## EDUCATIONIncomplete tertiary or university 19.47661  9.33833   2.086 0.037243
## EDUCATIONOtro                            16.67835   13.10442   1.273 0.203388
## ECONOMIC_INCOMEyes                       -0.35179    1.10994  -0.317 0.751346
## LIVING_WITH_SOMEBODYyes                  -0.12254    1.14059  -0.107 0.914461
## MENTAL_DISORDER_HISTORYyes                5.66844    0.93541   6.060 1.88e-09
## SUIC_ATTEMPT_HISTORYno                   -6.29768    0.96299  -6.540 9.49e-11
## SUIC_ATTEMPT_HISTORYyes                   4.40224    1.74179   2.527 0.011632
## SUB_PERIODS2./3. EXT POST                 2.74132    1.09398   2.506 0.012363
## SUB_PERIODS4. EXT POST                    2.15251    0.93841   2.294 0.021994
##
## (Intercept)                              .
## SEXwoman                                 ***
## AGE                                      ***
## EDUCATIONCompleted high school           *
## EDUCATIONCompleted postgraduate          *
## EDUCATIONCompleted tertiary or university *
## EDUCATIONIncomplete elementary school
## EDUCATIONIncomplete high school          *
```

```
## EDUCATIONIncomplete postgraduate            *
## EDUCATIONIncomplete tertiary or university *
## EDUCATIONOtro
## ECONOMIC_INCOMEYes
## LIVING_WITH_SOMEBODYyes
## MENTAL_DISORDER_HISTORYyes                  ***
## SUIC_ATTEMPT_HISTORYno                      ***
## SUIC_ATTEMPT_HISTORYyes                     *
## SUB_PERIODS2./3. EXT POST                   *
## SUB_PERIODS4. EXT POST                      *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.05 on 1082 degrees of freedom
## Multiple R-squared:  0.1992, Adjusted R-squared:  0.1866
## F-statistic: 15.83 on 17 and 1082 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 3 eliminates EDUCATION:
model3<-lm(ANXIETY_STATE~SEX+AGE+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_H
summary(model3)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##      MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##      data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -42.818  -9.321  -0.951   9.687  39.612
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)                37.97130    2.20761  17.200  < 2e-16 ***
## SEXwoman                    3.59413    1.00747   3.567 0.000376 ***
## AGE                        -0.24842    0.03648  -6.810 1.61e-11 ***
## ECONOMIC_INCOMEYes         -0.06529    1.08955  -0.060 0.952226
## LIVING_WITH_SOMEBODYyes    -0.43989    1.13316  -0.388 0.697943
## MENTAL_DISORDER_HISTORYyes  5.54907    0.93250   5.951 3.59e-09 ***
## SUIC_ATTEMPT_HISTORYno     -6.07643    0.95400  -6.369 2.79e-10 ***
## SUIC_ATTEMPT_HISTORYyes     4.56136    1.73714   2.626 0.008766 **
## SUB_PERIODS2./3. EXT POST   2.68491    1.09269   2.457 0.014159 *
## SUB_PERIODS4. EXT POST      1.92875    0.93084   2.072 0.038496 *
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.07 on 1090 degrees of freedom
## Multiple R-squared:  0.1916, Adjusted R-squared:  0.185
## F-statistic: 28.71 on 9 and 1090 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16
```

```
# Model 4 eliminates ECONOMIC_INCOME:
model4<-lm(ANXIETY_STATE~SEX+AGE+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTOR
summary(model4)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -42.835  -9.324  -0.961   9.690  39.606
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)              37.92393    2.06028  18.407  < 2e-16 ***
## SEXwoman                  3.59330    1.00692   3.569 0.000374 ***
## AGE                      -0.24873    0.03609  -6.892 9.32e-12 ***
## LIVING_WITH_SOMEBODYyes  -0.43567    1.13044  -0.385 0.700020
## MENTAL_DISORDER_HISTORYyes  5.55179    0.93098   5.963 3.33e-09 ***
## SUIC_ATTEMPT_HISTORYno   -6.07776    0.95330  -6.375 2.69e-10 ***
## SUIC_ATTEMPT_HISTORYyes   4.56544    1.73502   2.631 0.008625 **
## SUB_PERIODS2./3. EXT POST  2.68450    1.09217   2.458 0.014128 *
## SUB_PERIODS4. EXT POST    1.92760    0.93022   2.072 0.038481 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.06 on 1091 degrees of freedom
## Multiple R-squared:  0.1916, Adjusted R-squared:  0.1857
## F-statistic: 32.33 on 8 and 1091 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16
```

```
# Model 5 eliminates LIVING_WITH_SOMEBODY:
```

```
model5<-lm(ANXIETY_STATE~SEX+AGE+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY+SUB_PERI
summary(model5)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##      Min      1Q  Median      3Q     Max
## -42.888  -9.256  -0.957   9.615  39.500
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 37.50746    1.75346  21.391  < 2e-16 ***
## SEXwoman                     3.56692    1.00420   3.552 0.000399 ***
## AGE                         -0.24668    0.03569  -6.913 8.08e-12 ***
## MENTAL_DISORDER_HISTORYyes   5.57505    0.92866   6.003 2.63e-09 ***
## SUIC_ATTEMPT_HISTORYno      -6.07967    0.95292  -6.380 2.61e-10 ***
## SUIC_ATTEMPT_HISTORYyes      4.59266    1.73290   2.650 0.008159 **
## SUB_PERIODS2./3. EXT POST    2.66701    1.09080   2.445 0.014642 *
## SUB_PERIODS4. EXT POST       1.92599    0.92985   2.071 0.038566 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.06 on 1092 degrees of freedom
## Multiple R-squared:  0.1915, Adjusted R-squared:  0.1863
## F-statistic: 36.95 on 7 and 1092 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16
```

```
################
## Considering the predictors included in the best-fitted model (i.e., stepwith) in th
# We performed all-subsets regression using the regsubsets() function from the leaps p
# We analyzed the three best models for two-predictor subset sizes.
```

```
leapsbestwith<-regsubsets(ANXIETY_STATE~SEX+AGE+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HI
summary(leapsbestwith)
```

```
## Subset selection object
## Call: regsubsets.formula(ANXIETY_STATE ~ SEX + AGE + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table, nbest = 3)
```

```
## 7 Variables  (and intercept)
##                              Forced in Forced out
## SEXwoman                       FALSE      FALSE
## AGE                            FALSE      FALSE
## MENTAL_DISORDER_HISTORYyes     FALSE      FALSE
## SUIC_ATTEMPT_HISTORYno         FALSE      FALSE
## SUIC_ATTEMPT_HISTORYyes        FALSE      FALSE
## SUB_PERIODS2./3. EXT POST      FALSE      FALSE
## SUB_PERIODS4. EXT POST         FALSE      FALSE
## 3 subsets of each size up to 7
## Selection Algorithm: exhaustive
##          SEXwoman AGE MENTAL_DISORDER_HISTORYyes SUIC_ATTEMPT_HISTORYno
## 1 ( 1 ) " "      " " " "                        "*"
## 1 ( 2 ) " "      "*" " "                        " "
## 1 ( 3 ) " "      " " "*"                        " "
## 2 ( 1 ) " "      "*" " "                        "*"
## 2 ( 2 ) " "      " " "*"                        "*"
## 2 ( 3 ) " "      "*" "*"                        " "
## 3 ( 1 ) " "      "*" "*"                        "*"
## 3 ( 2 ) "*"      "*" " "                        "*"
## 3 ( 3 ) " "      "*" " "                        "*"
## 4 ( 1 ) "*"      "*" "*"                        "*"
## 4 ( 2 ) " "      "*" "*"                        "*"
## 4 ( 3 ) " "      "*" "*"                        "*"
## 5 ( 1 ) "*"      "*" "*"                        "*"
## 5 ( 2 ) "*"      "*" "*"                        "*"
## 5 ( 3 ) "*"      "*" "*"                        "*"
## 6 ( 1 ) "*"      "*" "*"                        "*"
## 6 ( 2 ) "*"      "*" "*"                        "*"
## 6 ( 3 ) "*"      "*" "*"                        "*"
## 7 ( 1 ) "*"      "*" "*"                        "*"
##          SUIC_ATTEMPT_HISTORYyes SUB_PERIODS2./3. EXT POST
## 1 ( 1 ) " "                     " "
## 1 ( 2 ) " "                     " "
## 1 ( 3 ) " "                     " "
## 2 ( 1 ) " "                     " "
## 2 ( 2 ) " "                     " "
## 2 ( 3 ) " "                     " "
## 3 ( 1 ) " "                     " "
## 3 ( 2 ) " "                     " "
## 3 ( 3 ) "*"                     " "
## 4 ( 1 ) " "                     " "
## 4 ( 2 ) "*"                     " "
## 4 ( 3 ) " "                     "*"
## 5 ( 1 ) "*"                     " "
## 5 ( 2 ) " "                     "*"
```

```
## 5  ( 3 ) " "                              " "
## 6  ( 1 ) "*"                              "*"
## 6  ( 2 ) "*"                              " "
## 6  ( 3 ) " "                              "*"
## 7  ( 1 ) "*"                              "*"
##            SUB_PERIODS4. EXT POST
## 1  ( 1 ) " "
## 1  ( 2 ) " "
## 1  ( 3 ) " "
## 2  ( 1 ) " "
## 2  ( 2 ) " "
## 2  ( 3 ) " "
## 3  ( 1 ) " "
## 3  ( 2 ) " "
## 3  ( 3 ) " "
## 4  ( 1 ) " "
## 4  ( 2 ) " "
## 4  ( 3 ) " "
## 5  ( 1 ) " "
## 5  ( 2 ) " "
## 5  ( 3 ) "*"
## 6  ( 1 ) " "
## 6  ( 2 ) "*"
## 6  ( 3 ) "*"
## 7  ( 1 ) "*"
```

```r
# The best two-predictors model was: ANXIETY_STATE ~ AGE + SUIC_ATTEMPT_HISTORY==no

plot(leapsbestwith,scale="r2")
```

```
plot(leapsbestwith,scale="adjr2")
```
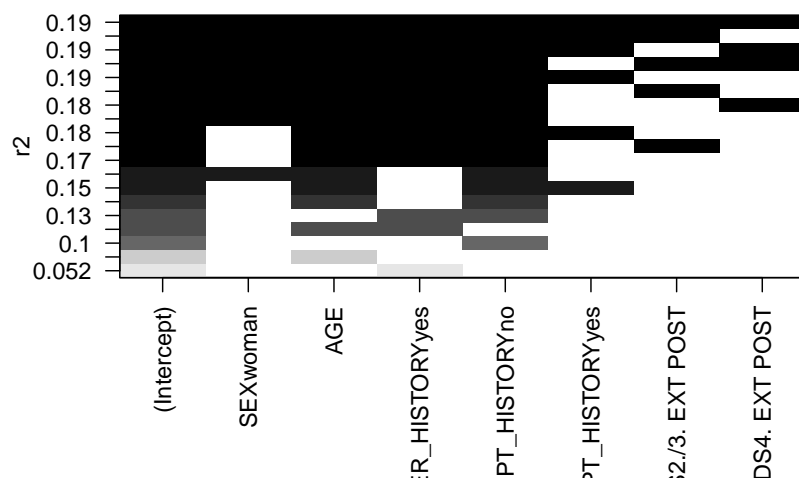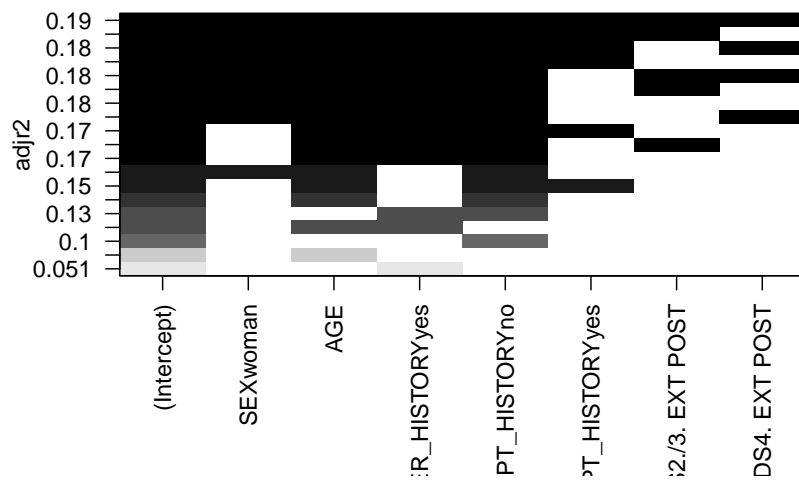
```r
# First: AGE + SUIC_ATTEMPT_HISTORY (no):
besttwowithfirst<-lm(ANXIETY_STATE~AGE+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithfirst
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##            (Intercept)                       AGE    SUIC_ATTEMPT_HISTORYno
##                44.0587                   -0.2405                   -7.5820
## SUIC_ATTEMPT_HISTORYyes
##                 5.9432
```

```r
summary(besttwowithfirst)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -42.268  -9.771  -0.901   9.696  37.106
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)             44.05869    1.24696  35.333  < 2e-16 ***
## AGE                     -0.24051    0.03498  -6.875 1.04e-11 ***
## SUIC_ATTEMPT_HISTORYno  -7.58203    0.94939  -7.986 3.50e-15 ***
## SUIC_ATTEMPT_HISTORYyes  5.94320    1.76405   3.369  0.00078 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.37 on 1096 degrees of freedom
## Multiple R-squared:  0.1489, Adjusted R-squared:  0.1466
## F-statistic: 63.92 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```r
confint(besttwowithfirst)
```

```
##                              2.5 %      97.5 %
## (Intercept)             41.6119969 46.5053777
## AGE                     -0.3091526 -0.1718685
## SUIC_ATTEMPT_HISTORYno  -9.4448518 -5.7192060
## SUIC_ATTEMPT_HISTORYyes  2.4819007  9.4044902
```

```
# Second: MENTAL DISORDER (yes) + SUIC_ATTEMPT_HISTORY (no):
besttwowithsecond<-lm(ANXIETY_STATE~MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithsecond
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Coefficients:
##              (Intercept)  MENTAL_DISORDER_HISTORYyes
##                   35.507                       4.862
##     SUIC_ATTEMPT_HISTORYno     SUIC_ATTEMPT_HISTORYyes
##                   -7.925                       4.490
```

```
summary(besttwowithsecond)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -39.370  -9.582  -0.407   9.630  37.418
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)               35.5072     0.8805  40.325  < 2e-16 ***
## MENTAL_DISORDER_HISTORYyes  4.8624     0.9524   5.105 3.90e-07 ***
## SUIC_ATTEMPT_HISTORYno     -7.9248     0.9579  -8.273 3.75e-16 ***
## SUIC_ATTEMPT_HISTORYyes     4.4898     1.7881   2.511   0.0122 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.5 on 1096 degrees of freedom
## Multiple R-squared:  0.1328, Adjusted R-squared:  0.1305
## F-statistic: 55.96 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithsecond)
```

```
##                               2.5 %     97.5 %
## (Intercept)              33.7794670 37.234841
```

```
## MENTAL_DISORDER_HISTORYyes  2.9935400  6.731182
## SUIC_ATTEMPT_HISTORYno       -9.8042751 -6.045270
## SUIC_ATTEMPT_HISTORYyes       0.9813743  7.998230
```

```r
# Third: AGE + MENTAL DISORDER (yes):
besttwowiththird<-lm(ANXIETY_STATE~AGE+MENTAL_DISORDER_HISTORY,data=table)
besttwowiththird
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ AGE + MENTAL_DISORDER_HISTORY, data = table)
##
## Coefficients:
##             (Intercept)                          AGE
##                 39.8532                      -0.3256
## MENTAL_DISORDER_HISTORYyes
##                  8.0116
```

```r
summary(besttwowiththird)
```

```
##
## Call:
## lm(formula = ANXIETY_STATE ~ AGE + MENTAL_DISORDER_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -40.678 -10.088  -0.981  10.220  36.543
##
## Coefficients:
##                           Estimate Std. Error t value Pr(>|t|)
## (Intercept)               39.85323    1.18056  33.758   <2e-16 ***
## AGE                       -0.32560    0.03482  -9.351   <2e-16 ***
## MENTAL_DISORDER_HISTORYyes  8.01157    0.92369   8.673   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.57 on 1097 degrees of freedom
## Multiple R-squared:  0.1223, Adjusted R-squared:  0.1207
## F-statistic:  76.4 on 2 and 1097 DF,  p-value: < 2.2e-16
```

```r
confint(besttwowiththird)
```

```
##                                 2.5 %      97.5 %
## (Intercept)                 37.5368184 42.1696497
```

```
## AGE                          -0.3939187 -0.2572746
## MENTAL_DISORDER_HISTORYyes   6.1991683  9.8239651
```

ANXIETY-TRAIT:
```
# Stepwise Regression
fitwith<-lm(ANXIETY_TRAIT~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_
stepwith <- stepAIC(fitwith, trace=TRUE,direction="both")
```

```
## Start:  AIC=5137.82
## ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
##                             Df Sum of Sq    RSS    AIC
## - EDUCATION                  8     935.0 109557 5131.2
## - PROVINCE                  25    4675.0 113297 5134.2
## - SUB_PERIODS                2     137.9 108760 5135.2
## - LIVING_WITH_SOMEBODY       1      13.3 108635 5136.0
## <none>                                   108622 5137.8
## - ECONOMIC_INCOME            1     264.8 108887 5138.5
## - SEX                        1    2816.4 111438 5164.0
## - AGE                        1    4944.6 113567 5184.8
## - MENTAL_DISORDER_HISTORY    1    5600.0 114222 5191.1
## - SUIC_ATTEMPT_HISTORY       2   12682.4 121304 5255.3
##
## Step:  AIC=5131.25
## ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                             Df Sum of Sq    RSS    AIC
## - PROVINCE                  25    4557.7 114115 5126.1
## - SUB_PERIODS                2     189.0 109746 5129.1
## - LIVING_WITH_SOMEBODY       1      16.3 109573 5129.4
## <none>                                   109557 5131.2
## - ECONOMIC_INCOME            1     329.8 109887 5132.6
## + EDUCATION                  8     935.0 108622 5137.8
## - SEX                        1    2861.4 112418 5157.6
## - MENTAL_DISORDER_HISTORY    1    5490.9 115048 5183.0
## - AGE                        1    6186.4 115743 5189.7
## - SUIC_ATTEMPT_HISTORY       2   13466.8 123024 5254.8
##
## Step:  AIC=5126.08
## ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
```

```
##                              Df Sum of Sq    RSS    AIC
## - LIVING_WITH_SOMEBODY       1      65.3 114180 5124.7
## - SUB_PERIODS                2     341.7 114456 5125.4
## <none>                                    114115 5126.1
## - ECONOMIC_INCOME            1     377.4 114492 5127.7
## + PROVINCE                  25    4557.7 109557 5131.2
## + EDUCATION                  8     817.7 113297 5134.2
## - SEX                        1    2828.0 116943 5151.0
## - MENTAL_DISORDER_HISTORY    1    5899.9 120015 5179.5
## - AGE                        1    6523.8 120638 5185.2
## - SUIC_ATTEMPT_HISTORY       2   14577.2 128692 5254.3
##
## Step:  AIC=5124.71
## ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                              Df Sum of Sq    RSS    AIC
## - SUB_PERIODS                2     333.1 114513 5123.9
## <none>                                    114180 5124.7
## + LIVING_WITH_SOMEBODY       1      65.3 114115 5126.1
## - ECONOMIC_INCOME            1     359.5 114540 5126.2
## + PROVINCE                  25    4606.7 109573 5129.4
## + EDUCATION                  8     828.7 113351 5132.7
## - SEX                        1    2782.3 116962 5149.2
## - MENTAL_DISORDER_HISTORY    1    6011.6 120192 5179.2
## - AGE                        1    6467.2 120647 5183.3
## - SUIC_ATTEMPT_HISTORY       2   14651.3 128831 5253.5
##
## Step:  AIC=5123.92
## ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY
##
##                              Df Sum of Sq    RSS    AIC
## <none>                                    114513 5123.9
## + SUB_PERIODS                2     333.1 114180 5124.7
## - ECONOMIC_INCOME            1     350.5 114864 5125.3
## + LIVING_WITH_SOMEBODY       1      56.8 114456 5125.4
## + PROVINCE                  25    4752.4 109761 5127.3
## + EDUCATION                  8     844.3 113669 5131.8
## - SEX                        1    2775.3 117289 5148.3
## - MENTAL_DISORDER_HISTORY    1    6068.6 120582 5178.7
## - AGE                        1    7369.5 121883 5190.5
## - SUIC_ATTEMPT_HISTORY       2   14718.2 129231 5252.9
```

```
stepwith
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##               (Intercept)                    SEXwoman
##                   35.5481                      4.0265
##                       AGE              ECONOMIC_INCOMEyes
##                   -0.2293                      -1.5578
## MENTAL_DISORDER_HISTORYyes     SUIC_ATTEMPT_HISTORYno
##                    5.5442                      -7.5304
##     SUIC_ATTEMPT_HISTORYyes
##                    3.2393
```

```
stepwith$anova # display results
```

```
## Stepwise Model Path
## Analysis of Deviance Table
##
## Initial Model:
## ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
## Final Model:
## ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY
##
##
##                       Step Df   Deviance Resid. Df Resid. Dev      AIC
## 1                                             1057    108622.1 5137.821
## 2            - EDUCATION  8  934.97893      1065    109557.0 5131.249
## 3             - PROVINCE 25 4557.68671      1090    114114.7 5126.084
## 4 - LIVING_WITH_SOMEBODY  1   65.30652      1091    114180.0 5124.713
## 5           - SUB_PERIODS  2  333.13652      1093    114513.2 5123.918
```

```
# Stepwise Model Path
# Analysis of Deviance Table
# Initial Model: ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME + LIVING_WIT
# Start:  AIC = 5137.82
# Final Model: ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY + SUIC_ATTEN
```

```
# Stepwith:  AIC = 5123.92
summary(stepwith)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.532  -6.984  -0.446   7.335  30.631
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 35.54809    1.33510  26.626  < 2e-16 ***
## SEXwoman                     4.02646    0.78232   5.147 3.14e-07 ***
## AGE                         -0.22934    0.02735  -8.387  < 2e-16 ***
## ECONOMIC_INCOMEyes          -1.55779    0.85164  -1.829   0.0676 .
## MENTAL_DISORDER_HISTORYyes   5.54423    0.72847   7.611 5.87e-14 ***
## SUIC_ATTEMPT_HISTORYno      -7.53035    0.74687 -10.083  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      3.23926    1.35869   2.384   0.0173 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.24 on 1093 degrees of freedom
## Multiple R-squared:  0.2939, Adjusted R-squared:   0.29
## F-statistic: 75.83 on 6 and 1093 DF,  p-value: < 2.2e-16
```

```
# 95% Confidence interval of best-fitted model:
confint(stepwith)
```

```
##                                  2.5 %      97.5 %
## (Intercept)                 32.9284370 38.1677508
## SEXwoman                     2.4914440  5.5614758
## AGE                         -0.2830004 -0.1756886
## ECONOMIC_INCOMEyes          -3.2288274  0.1132542
## MENTAL_DISORDER_HISTORYyes   4.1148672  6.9735910
## SUIC_ATTEMPT_HISTORYno      -8.9958149 -6.0648884
## SUIC_ATTEMPT_HISTORYyes      0.5733268  5.9052013
```

```
# ERROR RATE of best-fitted model:
sigma(stepwith)/mean(table$ANXIETY_TRAIT)
```

```
## [1] 0.380548
```

```
# 0.380548
# In our multiple regression example, the Residual Standard Error (RSE) or sigma is 10.24 corresp

par(mfrow=c(2,2))
# Figure S7 (Supplementary material)
plot(stepwith)
```
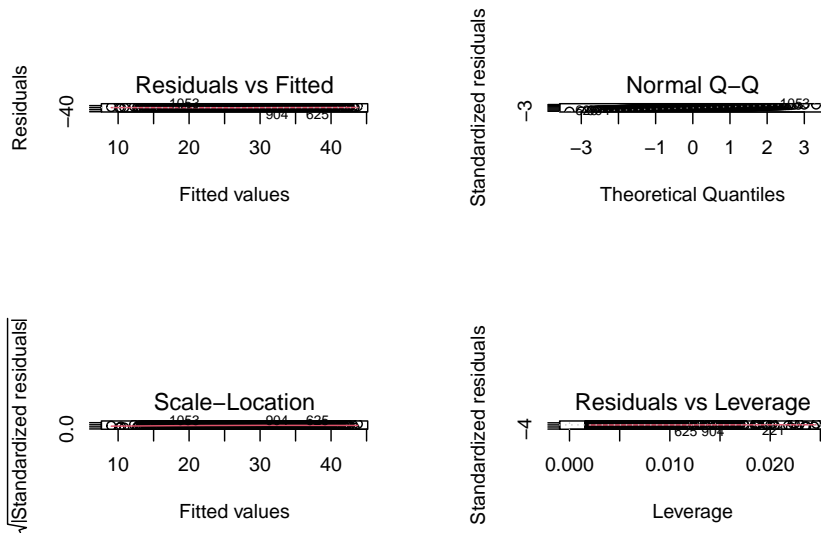


```
par(mfrow=c(1,1))


# TABLE 1:

# Model 1: INITIAL MODEL:
model1<-lm(ANXIETY_TRAIT~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_D
summary(model1)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + EDUCATION +
##      ECONOMIC_INCOME + LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
```

```
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.310  -6.814  -0.099   6.682  30.083
##
## Coefficients:
##                                         Estimate Std. Error t value
## (Intercept)                             24.57072    7.47927   3.285
## SEXwoman                                 4.18407    0.79923   5.235
## AGE                                     -0.21745    0.03135  -6.937
## PROVINCECABA (Buenos Aires capital)     -0.01606    1.24464  -0.013
## PROVINCECatamarca                        9.13782    7.33729   1.245
## PROVINCEChaco                           -5.05123    3.92776  -1.286
## PROVINCEChubut                          -0.27607    5.14099  -0.054
## PROVINCECórdoba                         -3.06623    0.96304  -3.184
## PROVINCECorrientes                     -10.23225    4.61152  -2.219
## PROVINCEEntre Ríos                      -1.37982    2.74880  -0.502
## PROVINCEFormosa                         -0.34612    5.92624  -0.058
## PROVINCEJujuy                           -0.14799    1.89486  -0.078
## PROVINCELa Pampa                        -7.54914    3.67923  -2.052
## PROVINCELa Rioja                       -10.75603   10.23462  -1.051
## PROVINCEMendoza                          4.39400    2.59330   1.694
## PROVINCEMisiones                        -7.38321    2.81880  -2.619
## PROVINCENeuquén                         -6.76139    3.56813  -1.895
## PROVINCEother                          -2.03408    2.53966  -0.801
## PROVINCEOtro                            7.55244    5.98580   1.262
## PROVINCERío Negro                       -0.37854    5.14259  -0.074
## PROVINCESalta                            2.70002    3.03563   0.889
## PROVINCESan Juan                        -3.55480    5.17556  -0.687
## PROVINCESan Luis                        14.85952   10.22449   1.453
## PROVINCESanta Cruz                       3.74716    7.23202   0.518
## PROVINCESanta Fe                        -2.33938    0.95773  -2.443
## PROVINCESantiago del Estero             -1.31744    2.82011  -0.467
## PROVINCETierra del Fuego                -0.99563    2.46287  -0.404
## PROVINCETucumán                         -1.53539    2.15079  -0.714
## EDUCATIONCompleted high school          12.19140    7.30860   1.668
## EDUCATIONCompleted postgraduate         11.24984    7.30777   1.539
## EDUCATIONCompleted tertiary or university 10.66463   7.27292   1.466
## EDUCATIONIncomplete elementary school   12.33674   12.49045   0.988
## EDUCATIONIncomplete high school         15.16058    7.54845   2.008
## EDUCATIONIncomplete postgraduate        12.20045    7.33684   1.663
## EDUCATIONIncomplete tertiary or university 11.59027   7.26461   1.595
## EDUCATIONOtro                           18.91489   10.36495   1.825
## ECONOMIC_INCOMEyes                      -1.39494    0.86897  -1.605
## LIVING_WITH_SOMEBODYyes                 -0.32343    0.89986  -0.359
## MENTAL_DISORDER_HISTORYyes               5.41671    0.73378   7.382
## SUIC_ATTEMPT_HISTORYno                  -7.18724    0.75780  -9.484
```

```
## SUIC_ATTEMPT_HISTORYyes                              3.10419   1.36316   2.277
## SUB_PERIODS2./3. EXT POST                            0.61700   0.90511   0.682
## SUB_PERIODS4. EXT POST                               0.95866   0.83610   1.147
##                                                 Pr(>|t|)
## (Intercept)                                      0.00105 **
## SEXwoman                                         1.99e-07 ***
## AGE                                              6.99e-12 ***
## PROVINCECABA (Buenos Aires capital)              0.98971
## PROVINCECatamarca                                0.21326
## PROVINCEChaco                                    0.19871
## PROVINCEChubut                                   0.95718
## PROVINCECórdoba                                  0.00150 **
## PROVINCECorrientes                               0.02671 *
## PROVINCEEntre Ríos                               0.61579
## PROVINCEFormosa                                  0.95344
## PROVINCEJujuy                                    0.93776
## PROVINCELa Pampa                                 0.04043 *
## PROVINCELa Rioja                                 0.29352
## PROVINCEMendoza                                  0.09049 .
## PROVINCEMisiones                                 0.00894 **
## PROVINCENeuquén                                  0.05837 .
## PROVINCEother                                    0.42335
## PROVINCEOtro                                     0.20733
## PROVINCERío Negro                                0.94134
## PROVINCESalta                                    0.37397
## PROVINCESan Juan                                 0.49233
## PROVINCESan Luis                                 0.14643
## PROVINCESanta Cruz                               0.60447
## PROVINCESanta Fe                                 0.01474 *
## PROVINCESantiago del Estero                      0.64048
## PROVINCETierra del Fuego                         0.68611
## PROVINCETucumán                                  0.47547
## EDUCATIONCompleted high school                   0.09559 .
## EDUCATIONCompleted postgraduate                  0.12400
## EDUCATIONCompleted tertiary or university        0.14285
## EDUCATIONIncomplete elementary school            0.32353
## EDUCATIONIncomplete high school                  0.04485 *
## EDUCATIONIncomplete postgraduate                 0.09663 .
## EDUCATIONIncomplete tertiary or university       0.11091
## EDUCATIONOtro                                    0.06830 .
## ECONOMIC_INCOMEyes                               0.10873
## LIVING_WITH_SOMEBODYyes                          0.71935
## MENTAL_DISORDER_HISTORYyes                       3.15e-13 ***
## SUIC_ATTEMPT_HISTORYno                           < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes                          0.02297 *
## SUB_PERIODS2./3. EXT POST                        0.49559
```

```
## SUB_PERIODS4. EXT POST                        0.25181
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.14 on 1057 degrees of freedom
## Multiple R-squared:  0.3302, Adjusted R-squared:  0.3036
## F-statistic: 12.41 on 42 and 1057 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 2 eliminates EDUCATION:
model2<-lm(ANXIETY_TRAIT~SEX+AGE+PROVINCE+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_
summary(model2)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + PROVINCE + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -33.795  -6.986  -0.155   6.766  31.020
##
## Coefficients:
##                                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)                       36.47419    1.82396  19.997  < 2e-16 ***
## SEXwoman                           4.20073    0.79649   5.274 1.62e-07 ***
## AGE                               -0.22752    0.02934  -7.755 2.06e-14 ***
## PROVINCECABA (Buenos Aires capital) -0.03075  1.24000  -0.025  0.98022
## PROVINCECatamarca                 10.90091    7.25566   1.502  0.13329
## PROVINCEChaco                     -5.24591    3.92072  -1.338  0.18118
## PROVINCEChubut                    -0.54530    5.13491  -0.106  0.91545
## PROVINCECórdoba                   -2.89134    0.95339  -3.033  0.00248 **
## PROVINCECorrientes               -10.25121    4.60943  -2.224  0.02636 *
## PROVINCEEntre Ríos                -1.44658    2.74765  -0.526  0.59867
## PROVINCEFormosa                   -0.21821    5.92407  -0.037  0.97062
## PROVINCEJujuy                     -0.27622    1.89239  -0.146  0.88398
## PROVINCELa Pampa                  -7.41166    3.67328  -2.018  0.04387 *
## PROVINCELa Rioja                 -10.69663   10.20897  -1.048  0.29498
## PROVINCEMendoza                    4.35817    2.57106   1.695  0.09035 .
## PROVINCEMisiones                  -7.10783    2.80529  -2.534  0.01143 *
## PROVINCENeuquén                   -6.17122    3.45840  -1.784  0.07464 .
## PROVINCEother                     -2.00309    2.52024  -0.795  0.42691
## PROVINCEOtro                       7.62988    5.95824   1.281  0.20063
```

```
## PROVINCERío Negro                  -0.87342    5.13610  -0.170  0.86500
## PROVINCESalta                       2.57174    3.03283   0.848  0.39665
## PROVINCESan Juan                    -2.85902    5.13175  -0.557  0.57756
## PROVINCESan Luis                    14.77687   10.18479   1.451  0.14711
## PROVINCESanta Cruz                   3.66598    7.22865   0.507  0.61216
## PROVINCESanta Fe                    -2.42314    0.95358  -2.541  0.01119 *
## PROVINCESantiago del Estero         -1.48657    2.81723  -0.528  0.59784
## PROVINCETierra del Fuego            -0.76220    2.45012  -0.311  0.75579
## PROVINCETucumán                     -1.57539    2.14744  -0.734  0.46335
## ECONOMIC_INCOMEyes                  -1.52761    0.85314  -1.791  0.07365 .
## LIVING_WITH_SOMEBODYyes             -0.35577    0.89508  -0.397  0.69110
## MENTAL_DISORDER_HISTORYyes           5.33893    0.73076   7.306 5.39e-13 ***
## SUIC_ATTEMPT_HISTORYno              -7.28778    0.75005  -9.716  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes              3.24151    1.35760   2.388  0.01713 *
## SUB_PERIODS2./3. EXT POST            0.70645    0.90176   0.783  0.43356
## SUB_PERIODS4. EXT POST               1.11055    0.82663   1.343  0.17941
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.14 on 1065 degrees of freedom
## Multiple R-squared:  0.3245, Adjusted R-squared:  0.3029
## F-statistic: 15.05 on 34 and 1065 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 3 eliminates PROVINCE:
model3<-lm(ANXIETY_TRAIT~SEX+AGE+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_HISTORY+SU
summary(model3)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.704  -7.046  -0.393   7.281  30.440
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)            35.25064    1.72869  20.392  < 2e-16 ***
## SEXwoman                4.10021    0.78891   5.197 2.41e-07 ***
## AGE                    -0.22549    0.02857  -7.894 7.10e-15 ***
## ECONOMIC_INCOMEyes     -1.61984    0.85318  -1.899   0.0579 .
```

```
## LIVING_WITH_SOMEBODYyes     -0.70082    0.88733  -0.790   0.4298
## MENTAL_DISORDER_HISTORYyes   5.48159    0.73020   7.507 1.25e-13 ***
## SUIC_ATTEMPT_HISTORYno       -7.53069    0.74703 -10.081  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      3.15244    1.36028   2.317   0.0207 *
## SUB_PERIODS2./3. EXT POST    1.37016    0.85564   1.601   0.1096
## SUB_PERIODS4. EXT POST       1.08260    0.72890   1.485   0.1378
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.23 on 1090 degrees of freedom
## Multiple R-squared:  0.2964, Adjusted R-squared:  0.2906
## F-statistic: 51.01 on 9 and 1090 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 4 eliminates LIVING_WITH_SOMEBODY:
model4<-lm(ANXIETY_TRAIT~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_
summary(model4)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY
##      SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.762  -7.075  -0.441   7.219  30.267
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 34.55288    1.48563  23.258  < 2e-16 ***
## SEXwoman                     4.05741    0.78691   5.156 2.99e-07 ***
## AGE                         -0.22241    0.02829  -7.861 9.11e-15 ***
## ECONOMIC_INCOMEyes          -1.57790    0.85138  -1.853   0.0641 .
## MENTAL_DISORDER_HISTORYyes   5.52061    0.72841   7.579 7.41e-14 ***
## SUIC_ATTEMPT_HISTORYno      -7.53460    0.74689 -10.088  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      3.19868    1.35879   2.354   0.0187 *
## SUB_PERIODS2./3. EXT POST    1.34187    0.85474   1.570   0.1167
## SUB_PERIODS4. EXT POST       1.07928    0.72876   1.481   0.1389
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.23 on 1091 degrees of freedom
## Multiple R-squared:  0.296,  Adjusted R-squared:  0.2908
## F-statistic: 57.33 on 8 and 1091 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 5 eliminates SUB PERIODS:
model4<-lm(ANXIETY_TRAIT~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY,dat
summary(model4)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.532  -6.984  -0.446   7.335  30.631
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 35.54809    1.33510  26.626  < 2e-16 ***
## SEXwoman                     4.02646    0.78232   5.147 3.14e-07 ***
## AGE                         -0.22934    0.02735  -8.387  < 2e-16 ***
## ECONOMIC_INCOMEyes          -1.55779    0.85164  -1.829   0.0676 .
## MENTAL_DISORDER_HISTORYyes   5.54423    0.72847   7.611 5.87e-14 ***
## SUIC_ATTEMPT_HISTORYno      -7.53035    0.74687 -10.083  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      3.23926    1.35869   2.384   0.0173 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.24 on 1093 degrees of freedom
## Multiple R-squared:  0.2939, Adjusted R-squared:   0.29
## F-statistic: 75.83 on 6 and 1093 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16




################
## Considering the predictors included in the best-fitted model (i.e., stepwith) in this group, w
# We performed all-subsets regression using the regsubsets() function from the leaps package.
# We analyzed the three best models for two-predictor subset sizes.

leapsbestwith<-regsubsets(ANXIETY_TRAIT~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTE
summary(leapsbestwith)
```

```
## Subset selection object
```

```
## Call: regsubsets.formula(ANXIETY_TRAIT ~ SEX + AGE + ECONOMIC_INCOME +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY, data = table,
##     nbest = 3)
## 6 Variables  (and intercept)
##                               Forced in Forced out
## SEXwoman                        FALSE       FALSE
## AGE                             FALSE       FALSE
## ECONOMIC_INCOMEyes              FALSE       FALSE
## MENTAL_DISORDER_HISTORYyes      FALSE       FALSE
## SUIC_ATTEMPT_HISTORYno          FALSE       FALSE
## SUIC_ATTEMPT_HISTORYyes         FALSE       FALSE
## 3 subsets of each size up to 6
## Selection Algorithm: exhaustive
##          SEXwoman AGE ECONOMIC_INCOMEyes MENTAL_DISORDER_HISTORYyes
## 1  ( 1 ) " "      " " " "                " "
## 1  ( 2 ) " "      "*" " "                " "
## 1  ( 3 ) " "      " " " "                "*"
## 2  ( 1 ) " "      "*" " "                " "
## 2  ( 2 ) " "      " " " "                "*"
## 2  ( 3 ) "*"      " " " "                " "
## 3  ( 1 ) " "      "*" " "                "*"
## 3  ( 2 ) "*"      "*" " "                " "
## 3  ( 3 ) "*"      " " " "                "*"
## 4  ( 1 ) "*"      "*" " "                "*"
## 4  ( 2 ) " "      "*" " "                "*"
## 4  ( 3 ) " "      "*" "*"                "*"
## 5  ( 1 ) "*"      "*" " "                "*"
## 5  ( 2 ) "*"      "*" "*"                "*"
## 5  ( 3 ) " "      "*" "*"                "*"
## 6  ( 1 ) "*"      "*" "*"                "*"
##          SUIC_ATTEMPT_HISTORYno SUIC_ATTEMPT_HISTORYyes
## 1  ( 1 ) "*"                    " "
## 1  ( 2 ) " "                    " "
## 1  ( 3 ) " "                    " "
## 2  ( 1 ) "*"                    " "
## 2  ( 2 ) "*"                    " "
## 2  ( 3 ) "*"                    " "
## 3  ( 1 ) "*"                    " "
## 3  ( 2 ) "*"                    " "
## 3  ( 3 ) "*"                    " "
## 4  ( 1 ) "*"                    " "
## 4  ( 2 ) "*"                    "*"
## 4  ( 3 ) "*"                    " "
## 5  ( 1 ) "*"                    "*"
## 5  ( 2 ) "*"                    " "
## 5  ( 3 ) "*"                    "*"
```

```
## 6 ( 1 ) "*"                    "*"
```

```
# The best two-predictors model was: ANXIETY_STATE ~ AGE + SUIC_ATTEMPT_HISTORY==no

plot(leapsbestwith,scale="r2")
```



```
plot(leapsbestwith,scale="adjr2")
```

```
# First: AGE + SUIC_ATTEMPT_HISTORY (no):
besttwowithfirst<-lm(ANXIETY_TRAIT~AGE+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithfirst
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##            (Intercept)                      AGE    SUIC_ATTEMPT_HISTORYno
##                39.6634                  -0.2208                   -9.0931
## SUIC_ATTEMPT_HISTORYyes
##                 4.6247
```

```
summary(besttwowithfirst)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -35.107  -7.727  -0.506   7.370  31.805
```

```
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)            39.66339    0.99225  39.973  < 2e-16 ***
## AGE                    -0.22076    0.02784  -7.930 5.37e-15 ***
## SUIC_ATTEMPT_HISTORYno  -9.09308    0.75546 -12.036  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes  4.62472    1.40372   3.295  0.00102 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.64 on 1096 degrees of freedom
## Multiple R-squared:  0.235,  Adjusted R-squared:  0.2329
## F-statistic: 112.2 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithfirst)
```

```
##                              2.5 %      97.5 %
## (Intercept)             37.7164658 41.6103191
## AGE                     -0.2753779 -0.1661356
## SUIC_ATTEMPT_HISTORYno  -10.5753957 -7.6107545
## SUIC_ATTEMPT_HISTORYyes   1.8704323  7.3790059
```

```
# Second: MENTAL DISORDER (yes) + SUIC_ATTEMPT_HISTORY (no):
besttwowithsecond<-lm(ANXIETY_TRAIT~MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithsecond
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Coefficients:
##              (Intercept)  MENTAL_DISORDER_HISTORYyes
##                   31.635                       4.918
##     SUIC_ATTEMPT_HISTORYno      SUIC_ATTEMPT_HISTORYyes
##                   -9.316                       3.204
```

```
summary(besttwowithsecond)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
```

```
## Residuals:
##     Min      1Q  Median      3Q     Max
## -31.840  -7.319  -0.319   7.681  32.681
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 31.6351     0.7004  45.165  < 2e-16 ***
## MENTAL_DISORDER_HISTORYyes   4.9179     0.7577   6.491 1.29e-10 ***
## SUIC_ATTEMPT_HISTORYno      -9.3157     0.7620 -12.226  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      3.2044     1.4224   2.253   0.0245 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.74 on 1096 degrees of freedom
## Multiple R-squared:  0.221,  Adjusted R-squared:  0.2189
## F-statistic: 103.7 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithsecond)
```

```
##                                 2.5 %     97.5 %
## (Intercept)                 30.2607651 33.009448
## MENTAL_DISORDER_HISTORYyes   3.4313040  6.404526
## SUIC_ATTEMPT_HISTORYno     -10.8108407 -7.820625
## SUIC_ATTEMPT_HISTORYyes      0.4135566  5.995329
```

```
# Third: SEX (woman) + SUIC_ATTEMPT_HISTORY (no):
besttwowiththird<-lm(ANXIETY_TRAIT~SEX+SUIC_ATTEMPT_HISTORY,data=table)
besttwowiththird
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##            (Intercept)               SEXwoman   SUIC_ATTEMPT_HISTORYno
##                 29.696                  4.558                   -9.959
## SUIC_ATTEMPT_HISTORYyes
##                  3.834
```

```
summary(besttwowiththird)
```

```
##
## Call:
## lm(formula = ANXIETY_TRAIT ~ SEX + SUIC_ATTEMPT_HISTORY, data = table)
```

```
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -35.088  -8.088  -0.295   7.705  32.263
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)             29.6965     0.9461  31.389  < 2e-16 ***
## SEXwoman                 4.5578     0.8228   5.539 3.81e-08 ***
## SUIC_ATTEMPT_HISTORYno  -9.9591     0.7529 -13.228  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes  3.8338     1.4233   2.694  0.00718 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.79 on 1096 degrees of freedom
## Multiple R-squared:  0.2131, Adjusted R-squared:  0.211
## F-statistic: 98.95 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowiththird)
```

```
##                            2.5 %     97.5 %
## (Intercept)             27.840111 31.552823
## SEXwoman                 2.943309  6.172378
## SUIC_ATTEMPT_HISTORYno  -11.436407 -8.481884
## SUIC_ATTEMPT_HISTORYyes   1.041088  6.626597
```

```
#### SUICIDAL RISK:
# Stepwise Regression
fitwith<-lm(SUIC_RISK~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISO
stepwith <- stepAIC(fitwith, trace=TRUE,direction="both")
```

```
## Start:  AIC=5732.18
## SUIC_RISK ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
##                         Df Sum of Sq    RSS    AIC
## - PROVINCE              25      7021 193478 5722.8
## - EDUCATION              8      1777 188234 5726.6
## - SUB_PERIODS            2       324 186781 5730.1
## - LIVING_WITH_SOMEBODY   1        24 186481 5730.3
## <none>                              186457 5732.2
## - ECONOMIC_INCOME        1       677 187134 5734.2
## - SEX                    1      1110 187567 5736.7
```

```
## - AGE                          1       5207 191664 5760.5
## - MENTAL_DISORDER_HISTORY  1       7305 193763 5772.5
## - SUIC_ATTEMPT_HISTORY      2      41838 228295 5950.9
##
## Step:  AIC=5722.84
## SUIC_RISK ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                          Df Sum of Sq    RSS    AIC
## - EDUCATION               8       2070 195548 5718.5
## - LIVING_WITH_SOMEBODY    1          0 193478 5720.8
## - SUB_PERIODS             2        515 193993 5721.8
## <none>                                 193478 5722.8
## - ECONOMIC_INCOME         1        771 194249 5725.2
## - SEX                     1       1153 194631 5727.4
## + PROVINCE               25       7021 186457 5732.2
## - AGE                     1       5886 199364 5753.8
## - MENTAL_DISORDER_HISTORY  1       7806 201284 5764.3
## - SUIC_ATTEMPT_HISTORY      2      44207 237685 5945.2
##
## Step:  AIC=5718.55
## SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                          Df Sum of Sq    RSS    AIC
## - LIVING_WITH_SOMEBODY    1          2 195550 5716.6
## - SUB_PERIODS             2        530 196078 5717.5
## <none>                                 195548 5718.5
## - ECONOMIC_INCOME         1       1043 196592 5722.4
## - SEX                     1       1103 196652 5722.7
## + EDUCATION               8       2070 193478 5722.8
## + PROVINCE               25       7314 188234 5726.6
## - MENTAL_DISORDER_HISTORY  1       7408 202957 5757.4
## - AGE                     1       7667 203216 5758.9
## - SUIC_ATTEMPT_HISTORY      2      46445 241993 5949.0
##
## Step:  AIC=5716.56
## SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY + SUB_PERIODS
##
##                          Df Sum of Sq    RSS    AIC
## - SUB_PERIODS             2        528 196078 5715.5
## <none>                                 195550 5716.6
## + LIVING_WITH_SOMEBODY    1          2 195548 5718.5
## - ECONOMIC_INCOME         1       1042 196592 5720.4
## - SEX                     1       1103 196653 5720.7
```

```
## + EDUCATION                   8      2072 193478 5720.8
## + PROVINCE                    25      7297 188253 5724.7
## - MENTAL_DISORDER_HISTORY   1      7457 203007 5755.7
## - AGE                         1      7782 203332 5757.5
## - SUIC_ATTEMPT_HISTORY       2     46505 242055 5947.2
##
## Step:  AIC=5715.52
## SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY
##
##                           Df Sum of Sq    RSS    AIC
## <none>                                  196078 5715.5
## + SUB_PERIODS               2       528 195550 5716.6
## + LIVING_WITH_SOMEBODY      1         0 196078 5717.5
## - ECONOMIC_INCOME           1      1021 197100 5719.2
## - SEX                       1      1070 197149 5719.5
## + EDUCATION                 8      2085 193993 5719.8
## + PROVINCE                 25      7434 188645 5723.0
## - MENTAL_DISORDER_HISTORY   1      7529 203607 5755.0
## - AGE                       1      9021 205099 5763.0
## - SUIC_ATTEMPT_HISTORY      2     46651 242729 5946.3
```

```
stepwith
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##      SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##             (Intercept)                    SEXwoman
##                 45.5713                      2.5006
##                     AGE             ECONOMIC_INCOMEyes
##                 -0.2537                     -2.6592
## MENTAL_DISORDER_HISTORYyes      SUIC_ATTEMPT_HISTORYno
##                  6.1753                    -13.4742
##     SUIC_ATTEMPT_HISTORYyes
##                  5.5360
```

```
stepwith$anova # display results
```

```
## Stepwise Model Path
## Analysis of Deviance Table
##
```

```
## Initial Model:
## SUIC_RISK ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS
##
## Final Model:
## SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY
##
##
##                     Step Df   Deviance Resid. Df Resid. Dev      AIC
## 1                                           1057   186457.3 5732.181
## 2             - PROVINCE 25 7020.735999      1082   193478.0 5722.839
## 3            - EDUCATION  8 2070.324734      1090   195548.3 5718.547
## 4 - LIVING_WITH_SOMEBODY  1    1.605952      1091   195550.0 5716.556
## 5          - SUB_PERIODS  2  528.402505      1093   196078.4 5715.525
```

```
# Stepwise Model Path
# Analysis of Deviance Table
# Initial Model: SUIC_RISK ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME + LIVI
# Start:  AIC = 5732.18
# Final Model: SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY + SUI
# Stepwith:  AIC = 5715.52
summary(stepwith)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##    Min     1Q  Median     3Q     Max
## -38.172  -9.329  -1.317   7.985  49.689
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)              45.57130    1.74704  26.085  < 2e-16 ***
## SEXwoman                  2.50060    1.02370   2.443   0.0147 *
## AGE                      -0.25374    0.03578  -7.091 2.38e-12 ***
## ECONOMIC_INCOMEyes       -2.65920    1.11441  -2.386   0.0172 *
## MENTAL_DISORDER_HISTORYyes 6.17526   0.95324   6.478 1.40e-10 ***
## SUIC_ATTEMPT_HISTORYno   -13.47415    0.97731 -13.787  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes   5.53602    1.77790   3.114   0.0019 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Residual standard error: 13.39 on 1093 degrees of freedom
## Multiple R-squared:  0.3318, Adjusted R-squared:  0.3282
## F-statistic: 90.47 on 6 and 1093 DF,  p-value: < 2.2e-16
```

```
# 95% Confidence interval of best-fitted model:
confint(stepwith)
```

```
##                                   2.5 %       97.5 %
## (Intercept)                   42.1433757   48.9992288
## SEXwoman                       0.4919696    4.5092300
## AGE                           -0.3239532   -0.1835313
## ECONOMIC_INCOMEyes            -4.8458277   -0.4725793
## MENTAL_DISORDER_HISTORYyes     4.3048833    8.0456385
## SUIC_ATTEMPT_HISTORYno       -15.3917720  -11.5565366
## SUIC_ATTEMPT_HISTORYyes        2.0475350    9.0245077
```

```
# ERROR RATE of best-fitted model:
sigma(stepwith)/mean(table$SUIC_RISK)
```

```
## [1] 0.4417225
```

```
# 0.4417225
# In our multiple regression example, the Residual Standard Error (RSE) or sigma is 13.39 corresp

par(mfrow=c(2,2))
# Figure S8 (Supplementary material)
plot(stepwith)
```
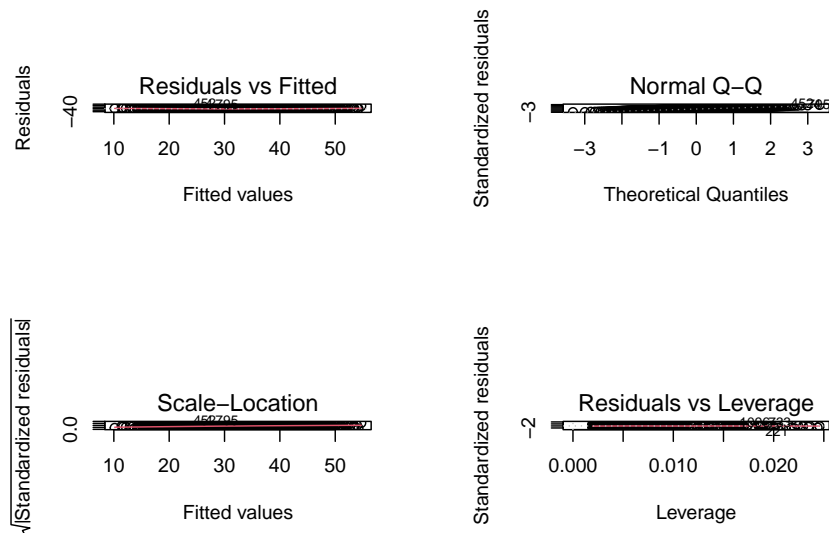
```
par(mfrow=c(1,1))


# TABLE 1:

# Model 1: INITIAL MODEL:
model1<-lm(SUIC_RISK~SEX+AGE+PROVINCE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+M
summary(model1)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + PROVINCE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -37.524  -8.719  -1.462   7.951  48.935
##
## Coefficients:
##                                      Estimate Std. Error t value
## (Intercept)                          27.69881    9.79918   2.827
## SEXwoman                              2.62687    1.04714   2.509
## AGE                                  -0.22315    0.04107  -5.433
```

```
## PROVINCECABA (Buenos Aires capital)                -1.01982   1.63071  -0.625
## PROVINCECatamarca                                  18.56827   9.61317   1.932
## PROVINCEChaco                                       -8.60127   5.14607  -1.671
## PROVINCEChubut                                      -5.92589   6.73562  -0.880
## PROVINCECórdoba                                     -4.59394   1.26175  -3.641
## PROVINCECorrientes                                  -4.93970   6.04192  -0.818
## PROVINCEEntre Ríos                                  -0.87557   3.60142  -0.243
## PROVINCEFormosa                                     -2.80126   7.76443  -0.361
## PROVINCEJujuy                                       -1.74883   2.48261  -0.704
## PROVINCELa Pampa                                    -7.55391   4.82045  -1.567
## PROVINCELa Rioja                                   -15.75108  13.40919  -1.175
## PROVINCEMendoza                                     -1.75830   3.39769  -0.517
## PROVINCEMisiones                                    -8.59913   3.69313  -2.328
## PROVINCENeuquén                                     -9.98776   4.67488  -2.136
## PROVINCEother                                       -3.63925   3.32741  -1.094
## PROVINCEOtro                                         2.94492   7.84247   0.376
## PROVINCERío Negro                                   -1.65830   6.73772  -0.246
## PROVINCESalta                                        3.92532   3.97722   0.987
## PROVINCESan Juan                                    -1.99197   6.78091  -0.294
## PROVINCESan Luis                                    14.21141  13.39591   1.061
## PROVINCESanta Cruz                                   6.53366   9.47525   0.690
## PROVINCESanta Fe                                    -3.70252   1.25480  -2.951
## PROVINCESantiago del Estero                         -7.20920   3.69485  -1.951
## PROVINCETierra del Fuego                            -1.45036   3.22680  -0.449
## PROVINCETucumán                                     -2.88133   2.81793  -1.022
## EDUCATIONCompleted high school                      18.31089   9.57557   1.912
## EDUCATIONCompleted postgraduate                     17.51758   9.57449   1.830
## EDUCATIONCompleted tertiary or university           16.75244   9.52883   1.758
## EDUCATIONIncomplete elementary school               16.58362  16.36473   1.013
## EDUCATIONIncomplete high school                     23.92673   9.88982   2.419
## EDUCATIONIncomplete postgraduate                    17.76509   9.61258   1.848
## EDUCATIONIncomplete tertiary or university          18.02646   9.51795   1.894
## EDUCATIONOtro                                       13.60416  13.57994   1.002
## ECONOMIC_INCOMEyes                                  -2.23014   1.13851  -1.959
## LIVING_WITH_SOMEBODYyes                              0.43347   1.17898   0.368
## MENTAL_DISORDER_HISTORYyes                           6.18680   0.96138   6.435
## SUIC_ATTEMPT_HISTORYno                             -13.11713   0.99285 -13.212
## SUIC_ATTEMPT_HISTORYyes                              5.42338   1.78599   3.037
## SUB_PERIODS2./3. EXT POST                            1.09499   1.18586   0.923
## SUB_PERIODS4. EXT POST                               1.43317   1.09544   1.308
##                                                  Pr(>|t|)
## (Intercept)                                      0.004793 **
## SEXwoman                                         0.012269 *
## AGE                                              6.87e-08 ***
## PROVINCECABA (Buenos Aires capital)              0.531854
## PROVINCECatamarca                                0.053683 .
```

```
## PROVINCEChaco                                   0.094934 .
## PROVINCEChubut                                  0.379176
## PROVINCECórdoba                                 0.000285 ***
## PROVINCECorrientes                              0.413786
## PROVINCEEntre Ríos                              0.807961
## PROVINCEFormosa                                 0.718335
## PROVINCEJujuy                                   0.481320
## PROVINCELa Pampa                                0.117401
## PROVINCELa Rioja                                0.240400
## PROVINCEMendoza                                 0.604917
## PROVINCEMisiones                                0.020078 *
## PROVINCENeuquén                                 0.032870 *
## PROVINCEother                                   0.274327
## PROVINCEOtro                                    0.707357
## PROVINCERío Negro                               0.805635
## PROVINCESalta                                   0.323893
## PROVINCESan Juan                                0.768998
## PROVINCESan Luis                                0.288988
## PROVINCESanta Cruz                              0.490628
## PROVINCESanta Fe                                0.003241 **
## PROVINCESantiago del Estero                     0.051304 .
## PROVINCETierra del Fuego                        0.653183
## PROVINCETucumán                                 0.306779
## EDUCATIONCompleted high school                  0.056114 .
## EDUCATIONCompleted postgraduate                 0.067590 .
## EDUCATIONCompleted tertiary or university       0.079023 .
## EDUCATIONIncomplete elementary school           0.311113
## EDUCATIONIncomplete high school                 0.015717 *
## EDUCATIONIncomplete postgraduate                0.064866 .
## EDUCATIONIncomplete tertiary or university      0.058505 .
## EDUCATIONOtro                                   0.316677
## ECONOMIC_INCOMEyes                              0.050395 .
## LIVING_WITH_SOMEBODYyes                         0.713195
## MENTAL_DISORDER_HISTORYyes                      1.86e-10 ***
## SUIC_ATTEMPT_HISTORYno                           < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes                         0.002451 **
## SUB_PERIODS2./3. EXT POST                       0.356022
## SUB_PERIODS4. EXT POST                          0.191054
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.28 on 1057 degrees of freedom
## Multiple R-squared:  0.3646, Adjusted R-squared:  0.3394
## F-statistic: 14.44 on 42 and 1057 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 2 eliminates PROVINCE:
model2<-lm(SUIC_RISK~SEX+AGE+EDUCATION+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_HISTO
summary(model2)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + EDUCATION + ECONOMIC_INCOME +
##     LIVING_WITH_SOMEBODY + MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY +
##     SUB_PERIODS, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -38.662  -9.189  -1.186   8.118  48.703
##
## Coefficients:
##                                         Estimate Std. Error t value
## (Intercept)                             26.36871    9.83349   2.682
## SEXwoman                                 2.63105    1.03621   2.539
## AGE                                     -0.23116    0.04029  -5.737
## EDUCATIONCompleted high school          17.56089    9.62349   1.825
## EDUCATIONCompleted postgraduate         16.67919    9.60635   1.736
## EDUCATIONCompleted tertiary or university 16.26577  9.57614   1.699
## EDUCATIONIncomplete elementary school   15.26265   16.45836   0.927
## EDUCATIONIncomplete high school         24.09927    9.92141   2.429
## EDUCATIONIncomplete postgraduate        17.21498    9.65483   1.783
## EDUCATIONIncomplete tertiary or university 17.40333 9.56648   1.819
## EDUCATIONOtro                            8.59065   13.42457   0.640
## ECONOMIC_INCOMEyes                      -2.36151    1.13706  -2.077
## LIVING_WITH_SOMEBODYyes                 -0.05339    1.16846  -0.046
## MENTAL_DISORDER_HISTORYyes               6.33147    0.95826   6.607
## SUIC_ATTEMPT_HISTORYno                 -13.39501    0.98652 -13.578
## SUIC_ATTEMPT_HISTORYyes                  5.10064    1.78434   2.859
## SUB_PERIODS2./3. EXT POST                1.56311    1.12071   1.395
## SUB_PERIODS4. EXT POST                   1.44676    0.96134   1.505
##                                         Pr(>|t|)
## (Intercept)                              0.00744 **
## SEXwoman                                 0.01125 *
## AGE                                     1.25e-08 ***
## EDUCATIONCompleted high school           0.06831 .
## EDUCATIONCompleted postgraduate          0.08280 .
## EDUCATIONCompleted tertiary or university 0.08969 .
## EDUCATIONIncomplete elementary school    0.35395
## EDUCATIONIncomplete high school          0.01530 *
```

```
## EDUCATIONIncomplete postgraduate          0.07486 .
## EDUCATIONIncomplete tertiary or university  0.06916 .
## EDUCATIONOtro                              0.52236
## ECONOMIC_INCOMEyes                         0.03805 *
## LIVING_WITH_SOMEBODYyes                     0.96356
## MENTAL_DISORDER_HISTORYyes                 6.13e-11 ***
## SUIC_ATTEMPT_HISTORYno                      < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes                     0.00434 **
## SUB_PERIODS2./3. EXT POST                   0.16338
## SUB_PERIODS4. EXT POST                      0.13263
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.37 on 1082 degrees of freedom
## Multiple R-squared:  0.3407, Adjusted R-squared:  0.3303
## F-statistic: 32.89 on 17 and 1082 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 3 eliminates EDUCATION:
model3<-lm(SUIC_RISK~SEX+AGE+ECONOMIC_INCOME+LIVING_WITH_SOMEBODY+MENTAL_DISORDER_HIST(
summary(model3)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + LIVING_WITH_SOMEBODY +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY + SUB_PERIODS,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -38.503  -9.177  -1.378   7.997  49.044
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 44.37273    2.26294  19.608  < 2e-16 ***
## SEXwoman                     2.56109    1.03272   2.480  0.01329 *
## AGE                         -0.24446    0.03739  -6.538 9.59e-11 ***
## ECONOMIC_INCOMEyes          -2.69348    1.11685  -2.412  0.01604 *
## LIVING_WITH_SOMEBODYyes     -0.10990    1.16155  -0.095  0.92464
## MENTAL_DISORDER_HISTORYyes   6.14246    0.95587   6.426 1.95e-10 ***
## SUIC_ATTEMPT_HISTORYno     -13.48316    0.97791 -13.788  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes      5.48495    1.78068   3.080  0.00212 **
## SUB_PERIODS2./3. EXT POST    1.61984    1.12007   1.446  0.14841
## SUB_PERIODS4. EXT POST       1.42552    0.95417   1.494  0.13547
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.39 on 1090 degrees of freedom
## Multiple R-squared:  0.3336, Adjusted R-squared:  0.3281
## F-statistic: 60.64 on 9 and 1090 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 4 eliminates LIVING_WITH_SOMEBODY:
model4<-lm(SUIC_RISK~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY+SUB_PEF
summary(model4)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##       SUIC_ATTEMPT_HISTORY + SUB_PERIODS, data = table)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -38.512   -9.188   -1.389    7.984   49.033
##
## Coefficients:
##                               Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   44.26331    1.94422  22.767  < 2e-16 ***
## SEXwoman                       2.55438    1.02981   2.480  0.01327 *
## AGE                           -0.24398    0.03703  -6.589 6.87e-11 ***
## ECONOMIC_INCOMEyes            -2.68690    1.11418  -2.412  0.01605 *
## MENTAL_DISORDER_HISTORYyes     6.14858    0.95325   6.450 1.68e-10 ***
## SUIC_ATTEMPT_HISTORYno       -13.48378    0.97744 -13.795  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes        5.49220    1.77822   3.089  0.00206 **
## SUB_PERIODS2./3. EXT POST      1.61540    1.11858   1.444  0.14898
## SUB_PERIODS4. EXT POST         1.42500    0.95372   1.494  0.13543
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.39 on 1091 degrees of freedom
## Multiple R-squared:  0.3336, Adjusted R-squared:  0.3287
## F-statistic: 68.28 on 8 and 1091 DF,  p-value: < 2.2e-16
```

```
# YES significative p-value < 2.2e-16

# Model 5 eliminates SUB PERIODS:
model5<-lm(SUIC_RISK~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY,data=ta
summary(model5)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME + MENTAL_DISORDER_HISTORY +
##     SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -38.172  -9.329  -1.317   7.985  49.689
##
## Coefficients:
##                             Estimate Std. Error t value Pr(>|t|)
## (Intercept)                  45.57130    1.74704  26.085  < 2e-16 ***
## SEXwoman                      2.50060    1.02370   2.443   0.0147 *
## AGE                          -0.25374    0.03578  -7.091 2.38e-12 ***
## ECONOMIC_INCOMEyes           -2.65920    1.11441  -2.386   0.0172 *
## MENTAL_DISORDER_HISTORYyes    6.17526    0.95324   6.478 1.40e-10 ***
## SUIC_ATTEMPT_HISTORYno      -13.47415    0.97731 -13.787  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes       5.53602    1.77790   3.114   0.0019 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.39 on 1093 degrees of freedom
## Multiple R-squared:  0.3318, Adjusted R-squared:  0.3282
## F-statistic: 90.47 on 6 and 1093 DF,  p-value: < 2.2e-16


# YES significative p-value < 2.2e-16



###############
## Considering the predictors included in the best-fitted model (i.e., stepwith) in th
# We performed all-subsets regression using the regsubsets() function from the leaps p
# We analyzed the three best models for two-predictor subset sizes.

leapsbestwith<-regsubsets(SUIC_RISK~SEX+AGE+ECONOMIC_INCOME+MENTAL_DISORDER_HISTORY+SU
summary(leapsbestwith)


## Subset selection object
## Call: regsubsets.formula(SUIC_RISK ~ SEX + AGE + ECONOMIC_INCOME +
##     MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY, data = table,
##     nbest = 3)
## 6 Variables  (and intercept)
##                         Forced in Forced out
## SEXwoman                     FALSE      FALSE
## AGE                          FALSE      FALSE
## ECONOMIC_INCOMEyes           FALSE      FALSE
```
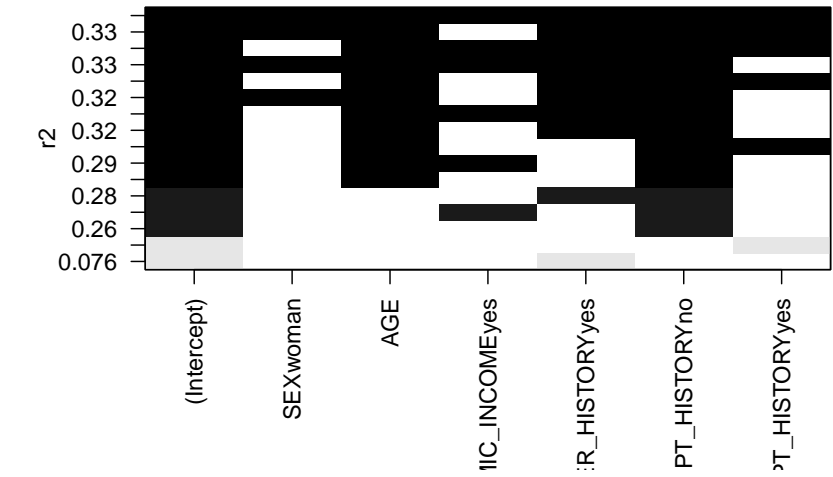
```
## MENTAL_DISORDER_HISTORYyes       FALSE       FALSE
## SUIC_ATTEMPT_HISTORYno            FALSE       FALSE
## SUIC_ATTEMPT_HISTORYyes           FALSE       FALSE
## 3 subsets of each size up to 6
## Selection Algorithm: exhaustive
##          SEXwoman AGE ECONOMIC_INCOMEyes MENTAL_DISORDER_HISTORYyes
## 1  ( 1 ) " "      " " " "               " "
## 1  ( 2 ) " "      " " " "               " "
## 1  ( 3 ) " "      " " " "               "*"
## 2  ( 1 ) " "      "*" " "               " "
## 2  ( 2 ) " "      " " " "               "*"
## 2  ( 3 ) " "      " " "*"               " "
## 3  ( 1 ) " "      "*" " "               "*"
## 3  ( 2 ) " "      "*" " "               " "
## 3  ( 3 ) " "      "*" "*"               " "
## 4  ( 1 ) " "      "*" " "               "*"
## 4  ( 2 ) "*"      "*" " "               "*"
## 4  ( 3 ) " "      "*" "*"               "*"
## 5  ( 1 ) "*"      "*" " "               "*"
## 5  ( 2 ) " "      "*" "*"               "*"
## 5  ( 3 ) "*"      "*" "*"               "*"
## 6  ( 1 ) "*"      "*" "*"               "*"
##          SUIC_ATTEMPT_HISTORYno SUIC_ATTEMPT_HISTORYyes
## 1  ( 1 ) "*"                    " "
## 1  ( 2 ) " "                    "*"
## 1  ( 3 ) " "                    " "
## 2  ( 1 ) "*"                    " "
## 2  ( 2 ) "*"                    " "
## 2  ( 3 ) "*"                    " "
## 3  ( 1 ) "*"                    " "
## 3  ( 2 ) "*"                    "*"
## 3  ( 3 ) "*"                    " "
## 4  ( 1 ) "*"                    "*"
## 4  ( 2 ) "*"                    " "
## 4  ( 3 ) "*"                    " "
## 5  ( 1 ) "*"                    "*"
## 5  ( 2 ) "*"                    "*"
## 5  ( 3 ) "*"                    " "
## 6  ( 1 ) "*"                    "*"
```
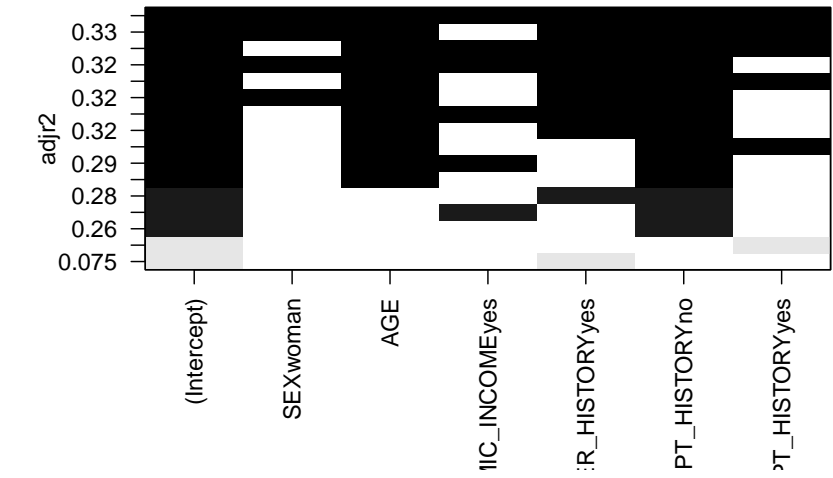
```
# The best two-predictors model was: ANXIETY_STATE ~ AGE + SUIC_ATTEMPT_HISTORY==no

plot(leapsbestwith,scale="r2")
```

```
plot(leapsbestwith,scale="adjr2")
```

```
# First: AGE + SUIC_ATTEMPT_HISTORY (no):
besttwowithfirst<-lm(SUIC_RISK~AGE+SUIC_ATTEMPT_HISTORY,data=table)
besttwowithfirst
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Coefficients:
##           (Intercept)                    AGE    SUIC_ATTEMPT_HISTORYno
##               47.7289                -0.2443                  -15.1119
## SUIC_ATTEMPT_HISTORYyes
##                6.9983
```

```
summary(besttwowithfirst)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ AGE + SUIC_ATTEMPT_HISTORY, data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -34.555  -9.596  -1.588   8.025  48.781
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)              47.72894    1.27892  37.320  < 2e-16 ***
## AGE                      -0.24434    0.03588  -6.810 1.61e-11 ***
## SUIC_ATTEMPT_HISTORYno  -15.11187    0.97372 -15.520  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes   6.99832    1.80927   3.868 0.000116 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.71 on 1096 degrees of freedom
## Multiple R-squared:  0.2976, Adjusted R-squared:  0.2957
## F-statistic: 154.8 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithfirst)
```

```
##                              2.5 %      97.5 %
## (Intercept)             45.2195375  50.2383518
## AGE                     -0.3147459  -0.1739428
## SUIC_ATTEMPT_HISTORYno -17.0224394 -13.2012929
## SUIC_ATTEMPT_HISTORYyes  3.4482992  10.5483376
```

```
# Second: MENTAL DISORDER (yes) + SUIC_ATTEMPT_HISTORY (no):
besttwowithsecond<-lm(SUIC_RISK~MENTAL_DISORDER_HISTORY+SUIC_ATTEMPT_HISTORY,data=table
besttwowithsecond
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Coefficients:
##             (Intercept)   MENTAL_DISORDER_HISTORYyes
##                  38.833                        5.468
##     SUIC_ATTEMPT_HISTORYno      SUIC_ATTEMPT_HISTORYyes
##                 -15.353                        5.422
```

```
summary(besttwowithsecond)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ MENTAL_DISORDER_HISTORY + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Residuals:
##     Min     1Q Median    3Q    Max
## -40.30  -9.48  -1.48   7.52  49.52
##
## Coefficients:
##                           Estimate Std. Error t value Pr(>|t|)
## (Intercept)                38.8331     0.9006  43.121  < 2e-16 ***
## MENTAL_DISORDER_HISTORYyes  5.4681     0.9741   5.613 2.51e-08 ***
## SUIC_ATTEMPT_HISTORYno    -15.3533     0.9797 -15.672  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes     5.4216     1.8288   2.965   0.0031 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.8 on 1096 degrees of freedom
## Multiple R-squared:  0.2884, Adjusted R-squared:  0.2864
## F-statistic: 148.1 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowithsecond)
```

```
##                                   2.5 %      97.5 %
## (Intercept)                   37.066113  40.600112
```

```
## MENTAL_DISORDER_HISTORYyes    3.556768    7.379458
## SUIC_ATTEMPT_HISTORYno       -17.275587 -13.431048
## SUIC_ATTEMPT_HISTORYyes       1.833339    9.009860
```

```
# Third: ECONOMIC_INCOME (yes) + SUIC_ATTEMPT_HISTORY (no):
besttwowiththird<-lm(SUIC_RISK~ECONOMIC_INCOME+SUIC_ATTEMPT_HISTORY,data=table)
besttwowiththird
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ ECONOMIC_INCOME + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Coefficients:
##            (Intercept)        ECONOMIC_INCOMEyes    SUIC_ATTEMPT_HISTORYno
##                 44.233                   -4.034                    -16.237
## SUIC_ATTEMPT_HISTORYyes
##                  6.237
```

```
summary(besttwowiththird)
```

```
##
## Call:
## lm(formula = SUIC_RISK ~ ECONOMIC_INCOME + SUIC_ATTEMPT_HISTORY,
##     data = table)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -40.436  -9.962  -1.962   7.801  53.038
##
## Coefficients:
##                         Estimate Std. Error t value Pr(>|t|)
## (Intercept)               44.233      1.234  35.832  < 2e-16 ***
## ECONOMIC_INCOMEyes        -4.034      1.145  -3.525 0.000442 ***
## SUIC_ATTEMPT_HISTORYno   -16.238      0.970 -16.740  < 2e-16 ***
## SUIC_ATTEMPT_HISTORYyes    6.237      1.836   3.397 0.000706 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 13.92 on 1096 degrees of freedom
## Multiple R-squared:  0.2761, Adjusted R-squared:  0.2742
## F-statistic: 139.4 on 3 and 1096 DF,  p-value: < 2.2e-16
```

```
confint(besttwowiththird)
```

```
##                              2.5 %      97.5 %
## (Intercept)              41.810619  46.654886
## ECONOMIC_INCOMEyes        -6.279346  -1.788186
## SUIC_ATTEMPT_HISTORYno  -18.140646 -14.334281
## SUIC_ATTEMPT_HISTORYyes    2.634389   9.839644
```

```
```