In [1]:
```r
#SOURCE ::
# 1) https://cran.r-project.org/web/packages/GGally/index.html (To make the data po
# 2) https://ggplot2.tidyverse.org/
# 3) https://dplyr.tidyverse.org/
# 4) https://r-graphics.org/recipe-quick-scatter (Chapter 2.1)

# Load necessary libraries
install.packages("GGally")
library(ggplot2)
library(GGally)
library(dplyr)  # Load the dplyr package

# Sample data frame 'data' with columns 'Panas..', 'Panas...1', 'BFI..E.', 'BFI..A.
data <- read.csv("Pilot_modified_data_1.csv")

# Independent variables
independent_variables <- c('BFI..E.', 'BFI..A.', 'BFI..C.', 'BFI..N.', 'BFI..O.', '

# Dependent variables
dependent_variables <- c('Panas..', 'Panas...1', 'CBCL')

# Mediator variables
mediator_variables <- 'PAQ'

print("Scatter plots of independent vs. dependent variables")

# Create scatter plots of independent vs. dependent variables
for (iv in independent_variables) {
  for (dv in dependent_variables) {
    # Create the scatter plot with red dots
    plot(data[[iv]], data[[dv]],
         xlab = iv, ylab = dv,
         main = paste("Scatter Plot of", iv, "vs.", dv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}

print("=========================================================================")
print("Scatter plots of independent vs. mediator variables")

# Create scatter plots of independent vs. mediator variables
for (iv in independent_variables) {
  for (mv in mediator_variables) {
    # Create the scatter plot with red dots
    plot(data[[iv]], data[[mv]],
         xlab = iv, ylab = mv,
         main = paste("Scatter Plot of", iv, "vs.", mv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}

print("=========================================================================")
print("Scatter plots of mediator vs. dependent variables")
```

```r
# Create scatter plots of mediator vs. dependent variables
for (mv in mediator_variables) {
  for (dv in dependent_variables) {
    # Create the scatter plot with red dots
    plot(data[[mv]], data[[dv]],
         xlab = mv, ylab = dv,
         main = paste("Scatter Plot of", mv, "vs.", dv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}
```

Updating HTML index of packages in '.Library'

Making 'packages.html' ...
 done

Registered S3 method overwritten by 'GGally':
  method from
  +.gg   ggplot2

Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union

[1] "Scatter plots of independent vs. dependent variables"
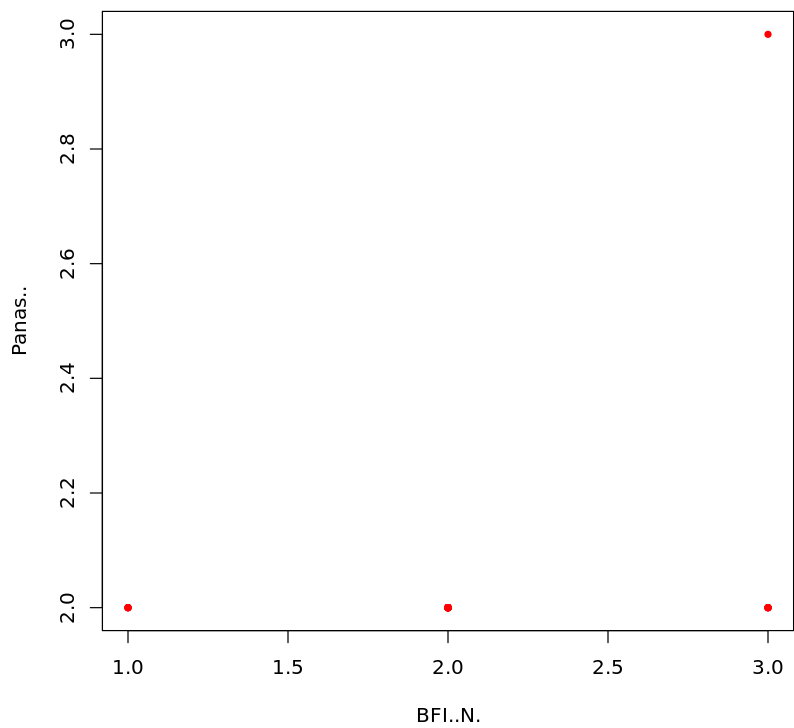
Scatter Plot of BFI..E. vs. Panas..

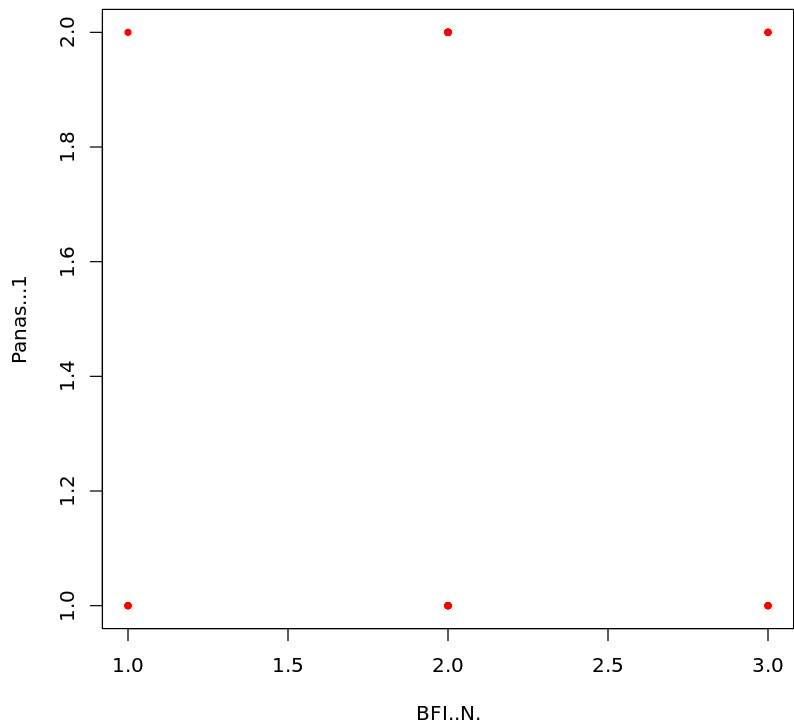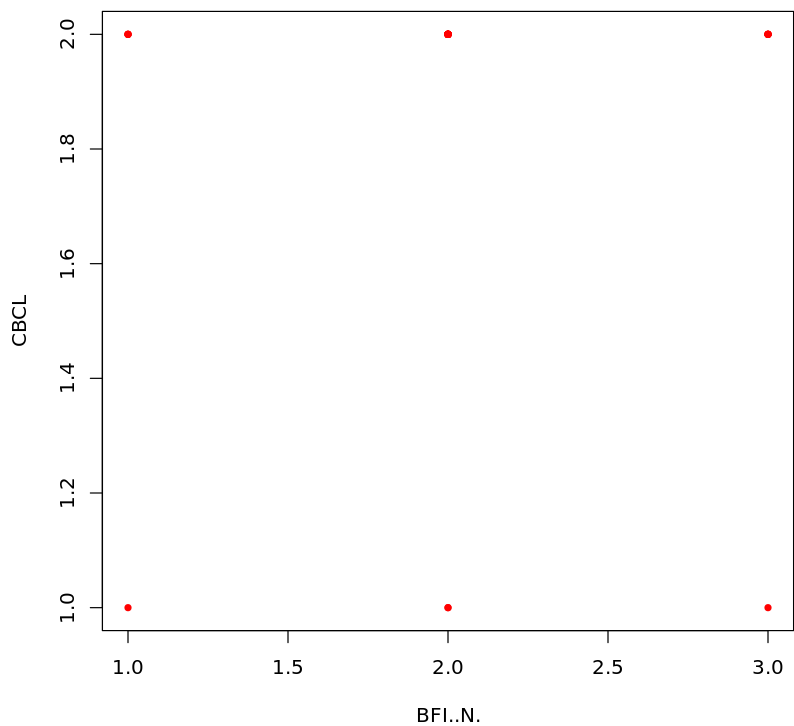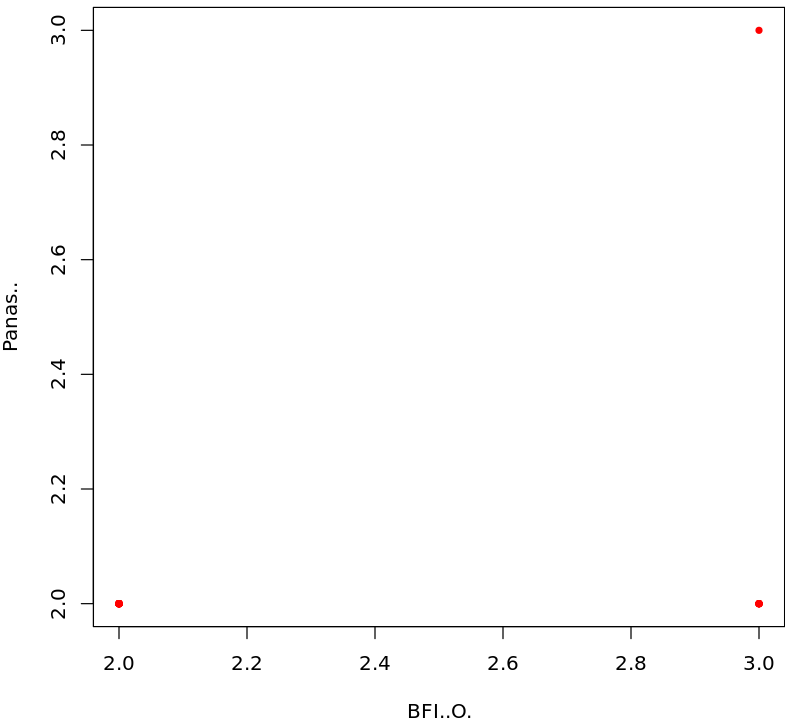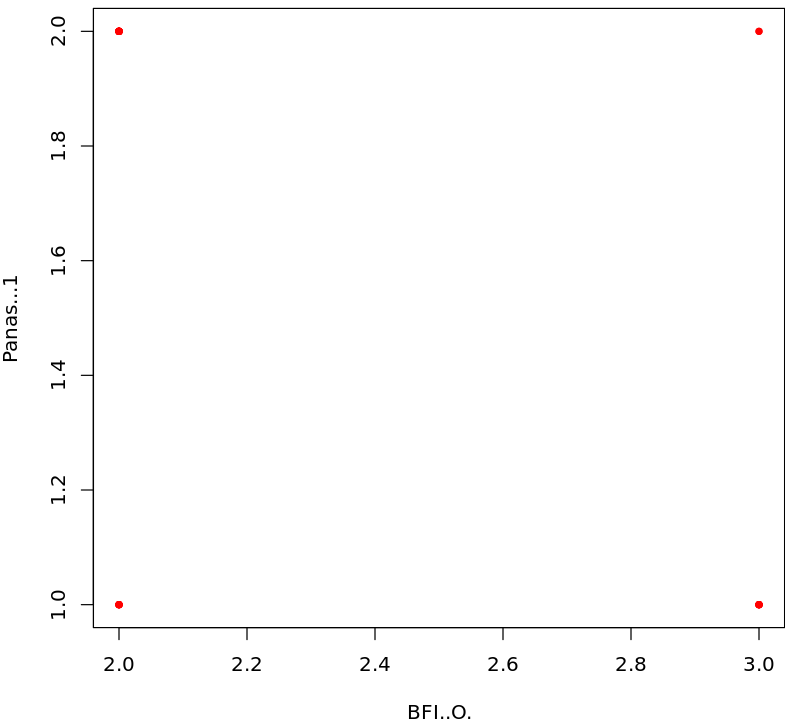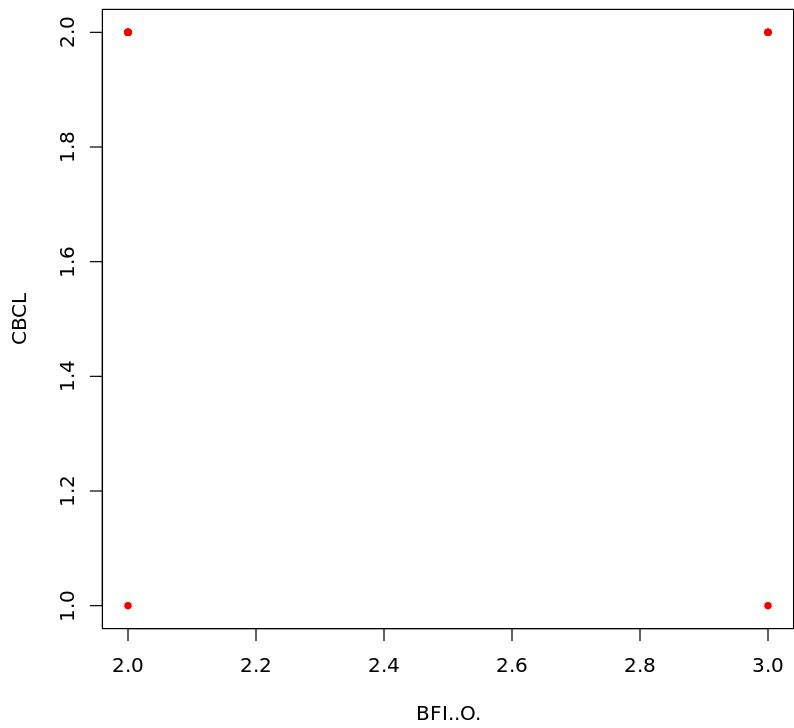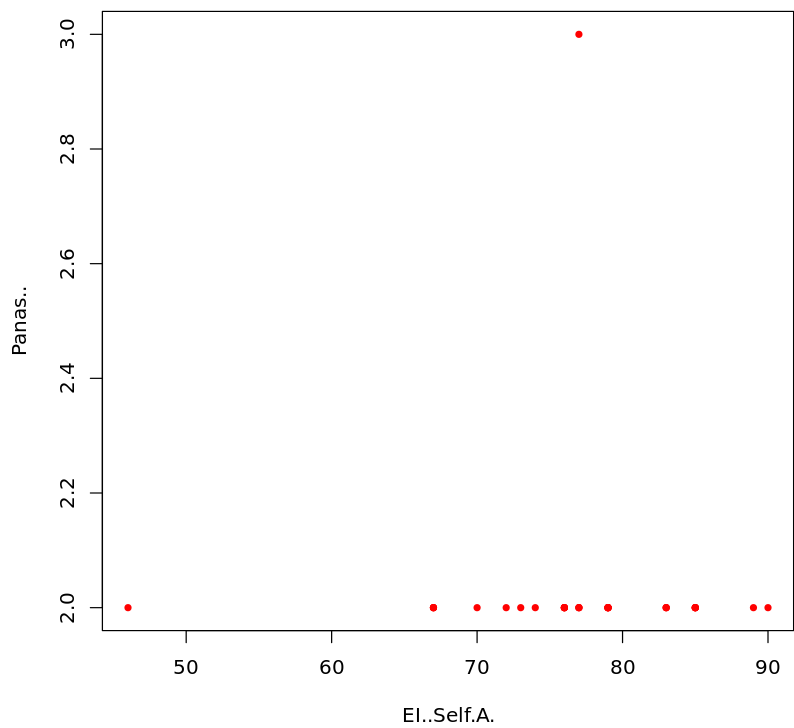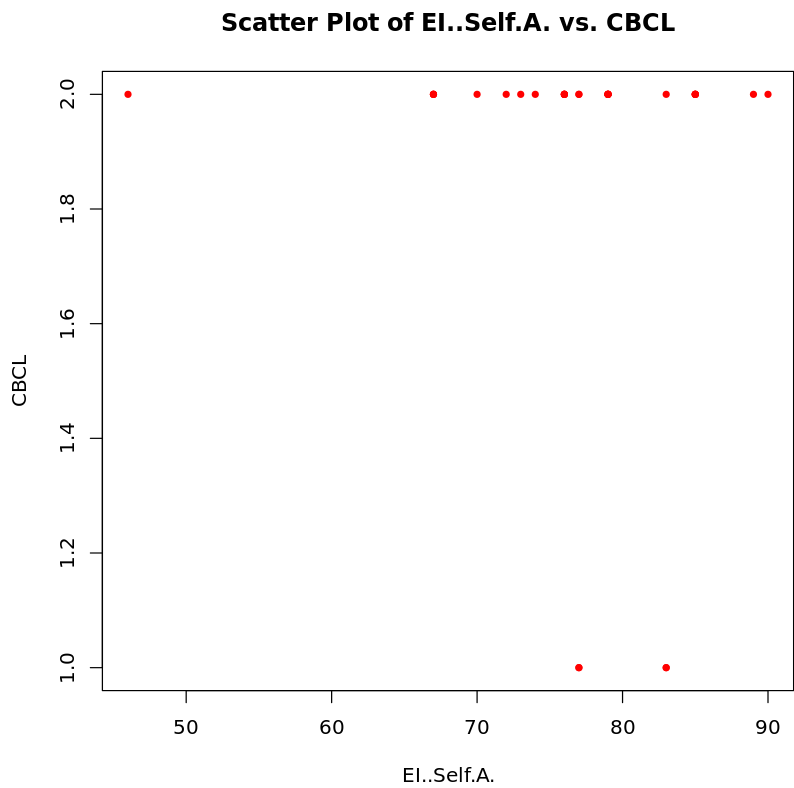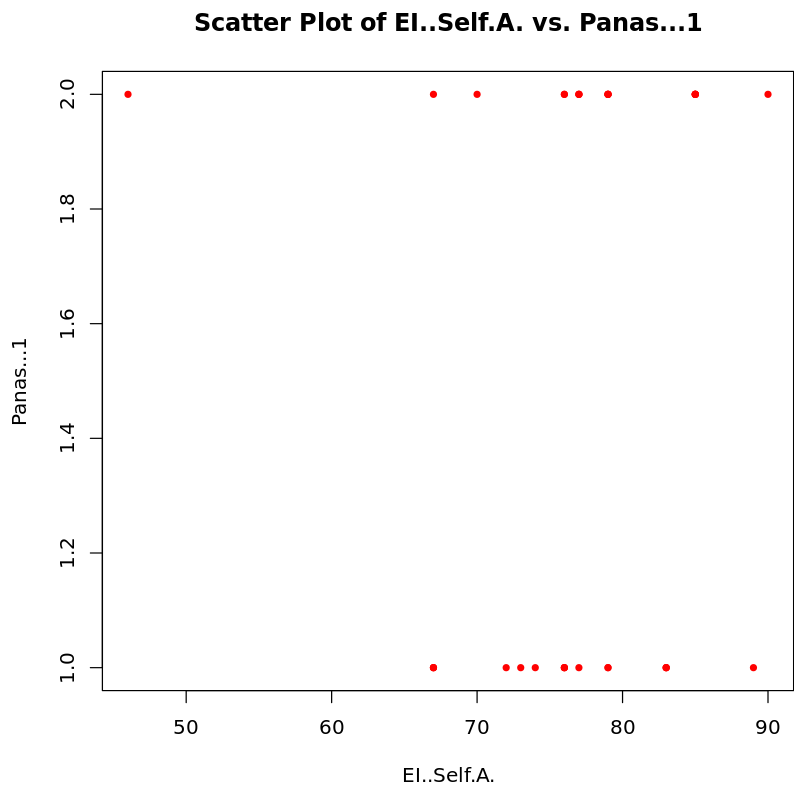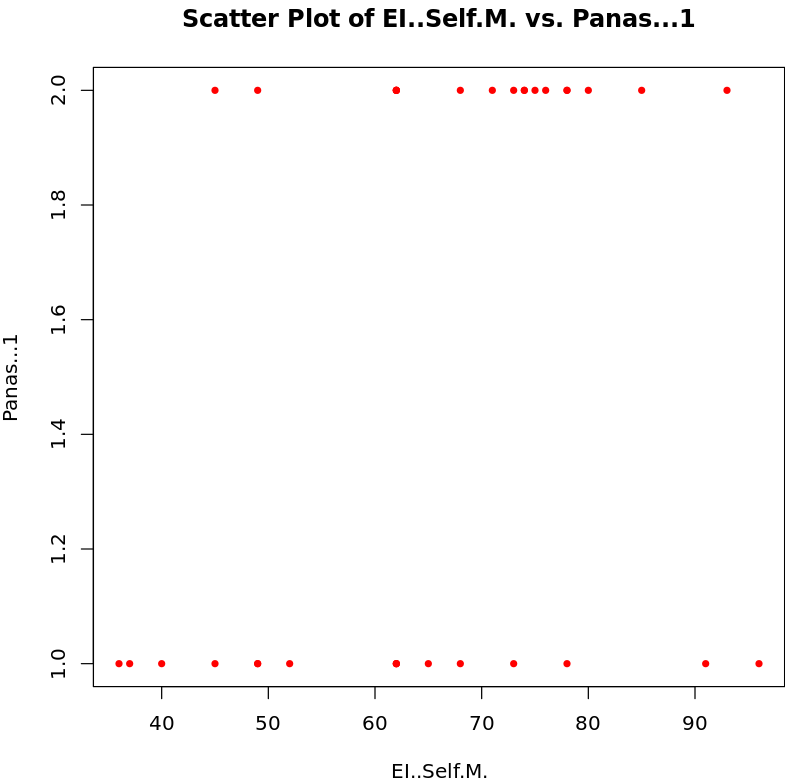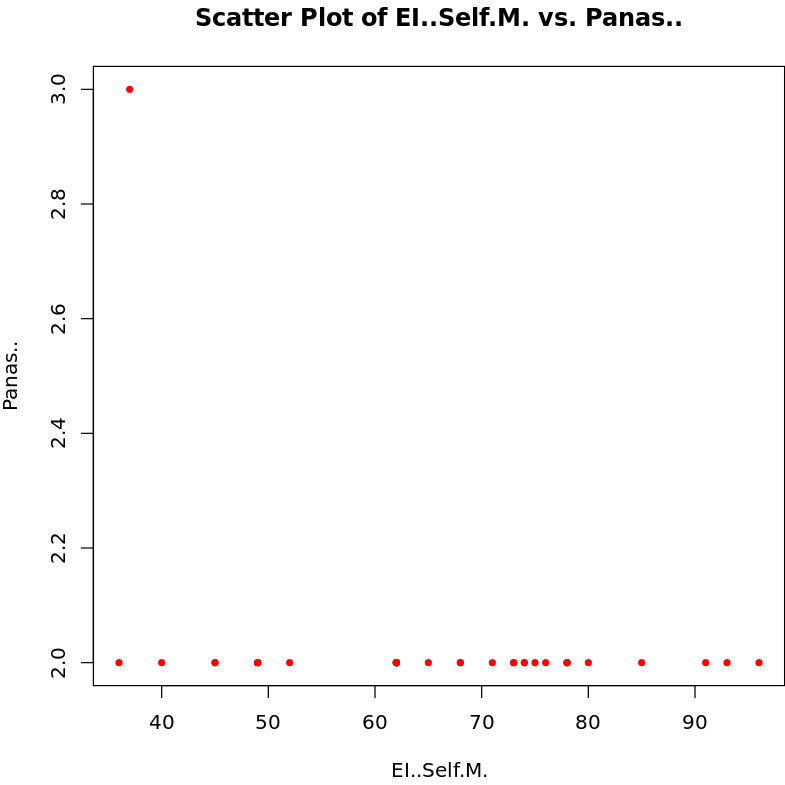## Scatter Plot of BFI..E. vs. Panas...1

Scatter Plot of BFI..E. vs. CBCL

Scatter Plot of BFI..A. vs. Panas..

Scatter Plot of BFI..A. vs. Panas...1

Scatter Plot of BFI..A. vs. CBCL

Scatter Plot of BFI..C. vs. Panas..

Scatter Plot of BFI..C. vs. Panas...1

Scatter Plot of BFI..C. vs. CBCL

Scatter Plot of BFI..N. vs. Panas..

Scatter Plot of BFI..N. vs. Panas...1

Scatter Plot of BFI..N. vs. CBCL

Scatter Plot of BFI..O. vs. Panas..

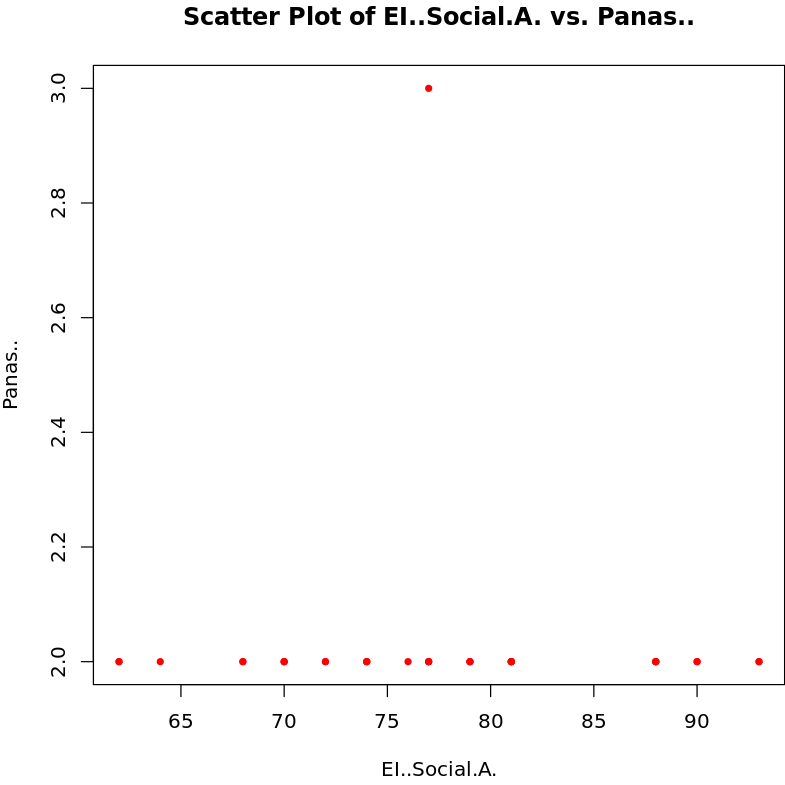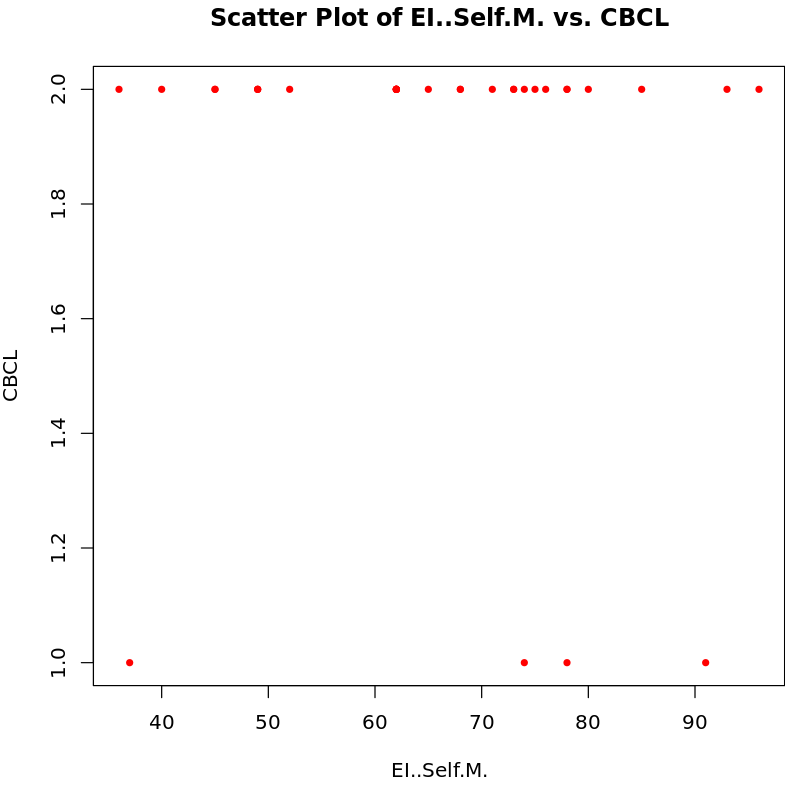## Scatter Plot of BFI..O. vs. Panas...1

Scatter Plot of BFI..O. vs. CBCL
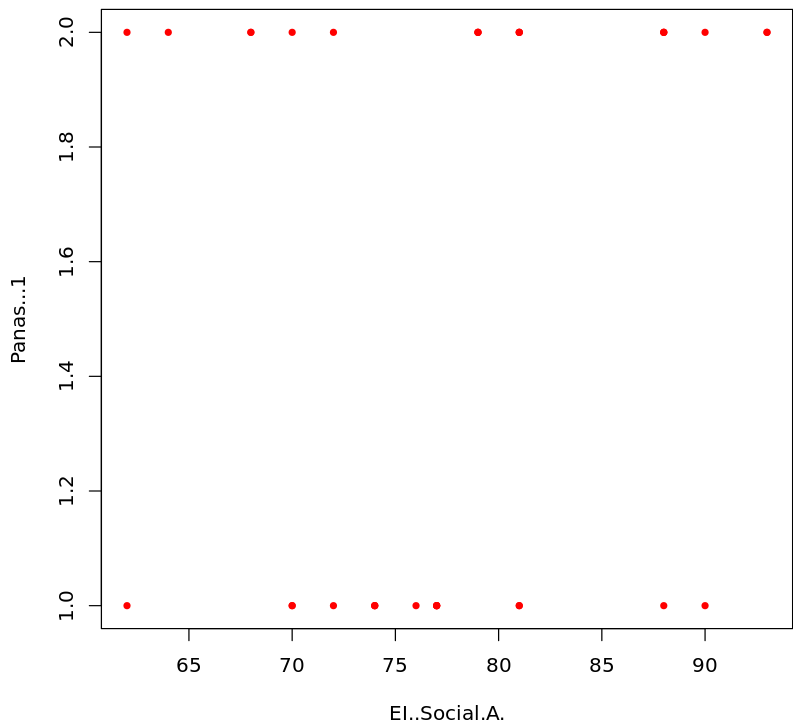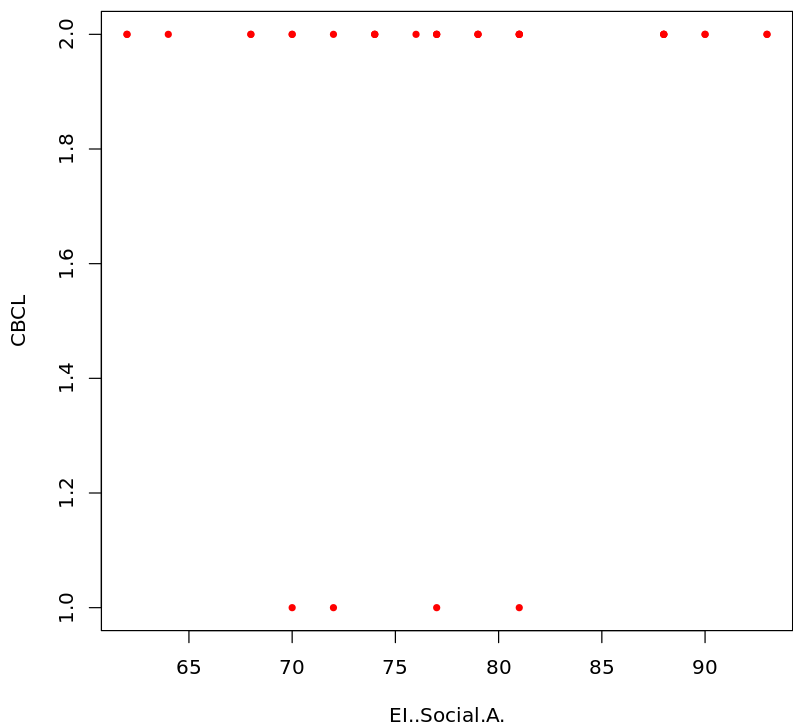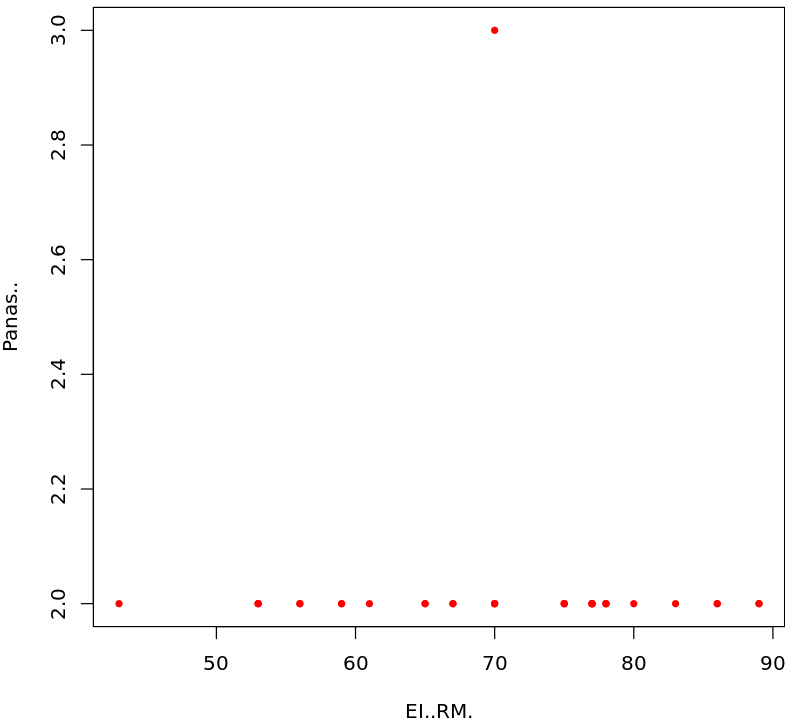

Scatter Plot of EI..Self.A. vs. Panas..
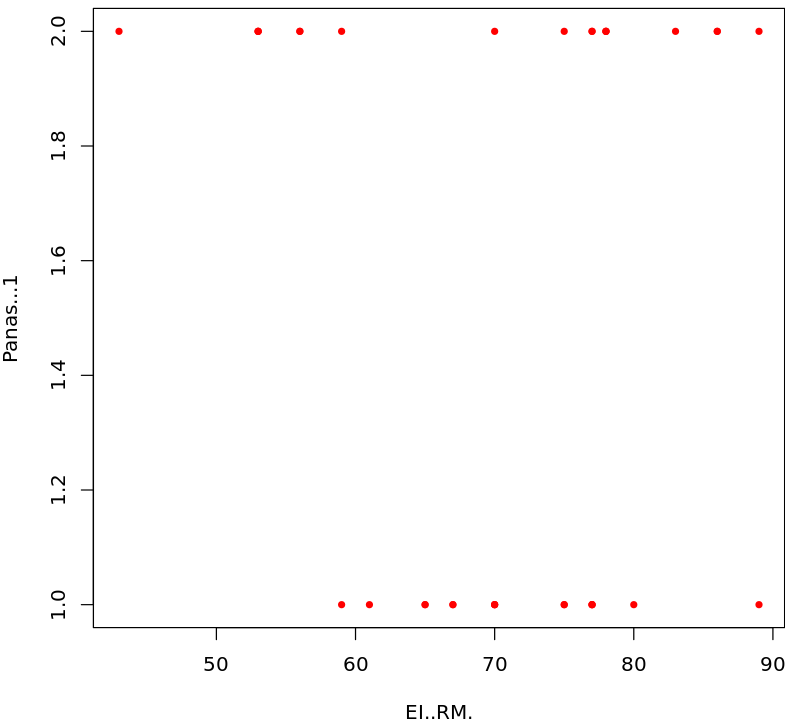
Scatter Plot of EI..Self.A. vs. Panas...1

Scatter Plot of EI..Self.A. vs. CBCL

Scatter Plot of EI..Self.M. vs. Panas..

Scatter Plot of EI..Self.M. vs. Panas...1

Scatter Plot of EI..Self.M. vs. CBCL

Scatter Plot of EI..Social.A. vs. Panas..

Scatter Plot of EI..Social.A. vs. Panas...1

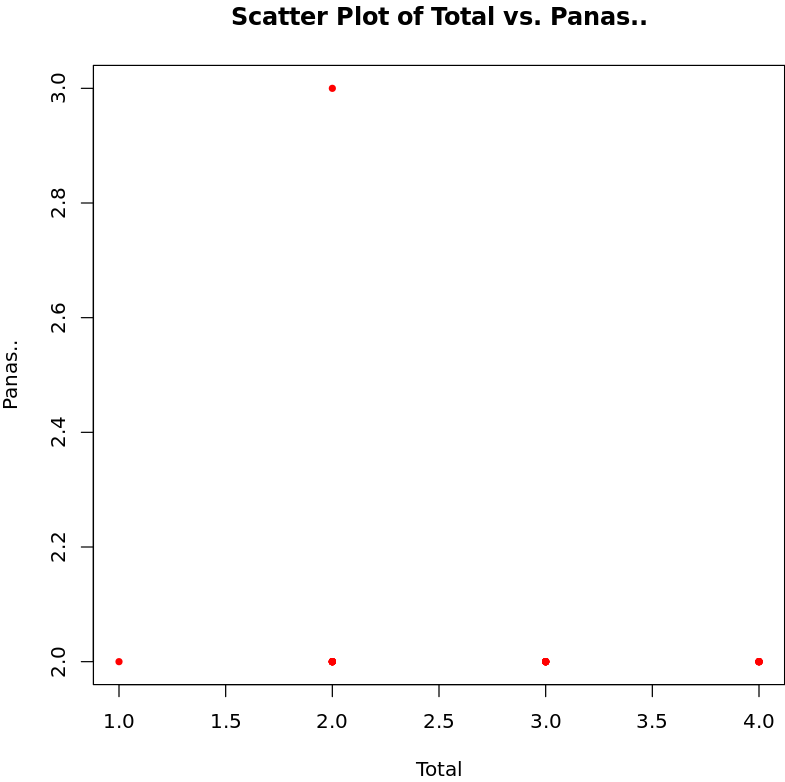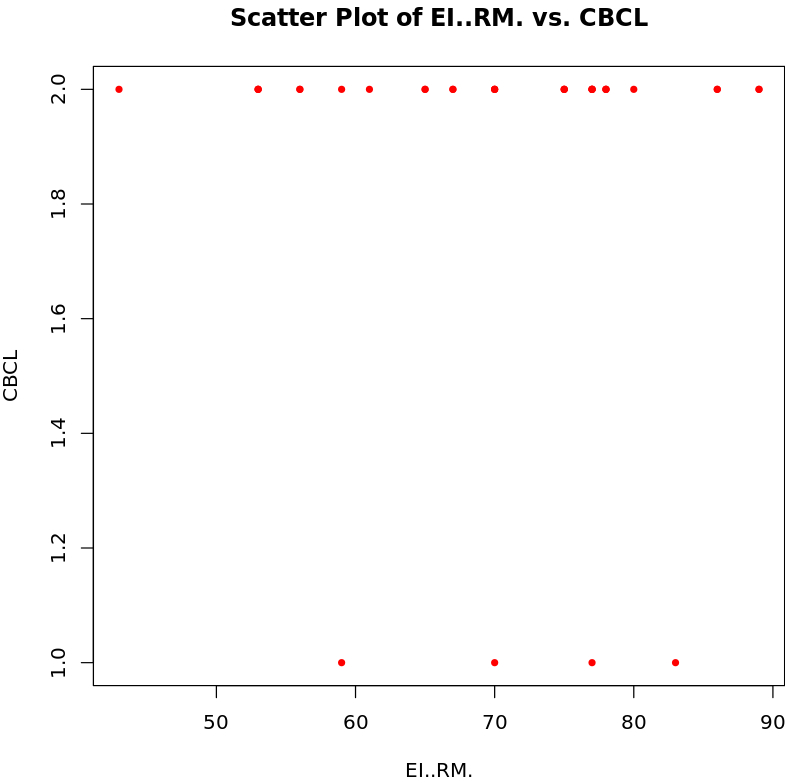## Scatter Plot of EI..Social.A. vs. CBCL
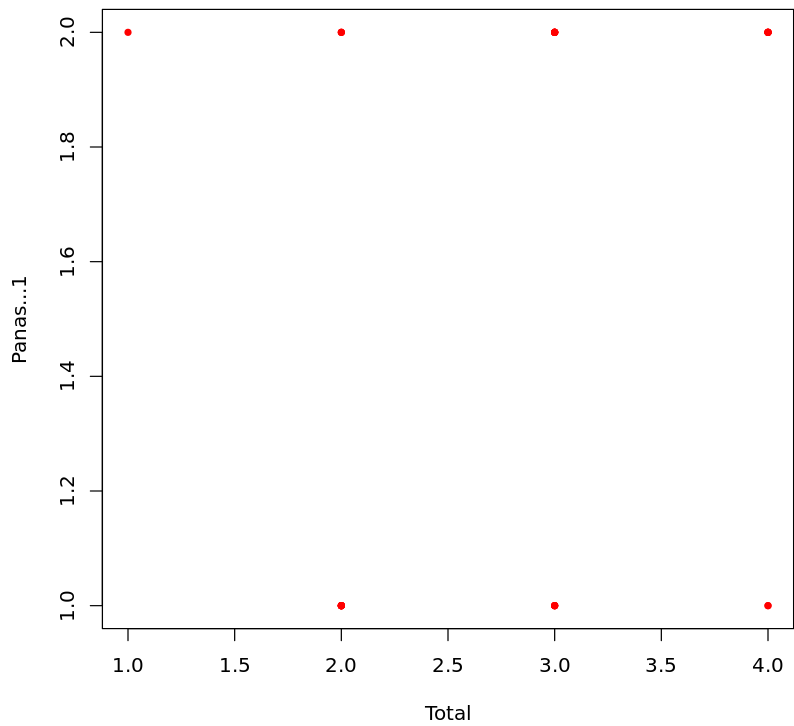
Scatter Plot of EI..RM. vs. Panas..
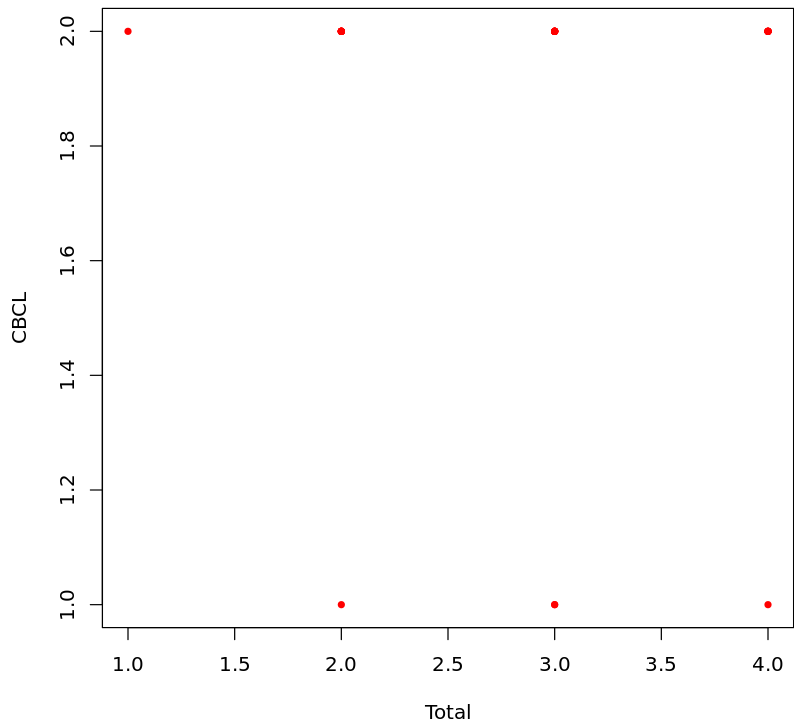

Scatter Plot of EI..RM. vs. Panas...1

Scatter Plot of EI..RM. vs. CBCL

Scatter Plot of Total vs. Panas..

Scatter Plot of Total vs. Panas...1


```
[1] "========================================================================="
[1] "Scatter plots of independent vs. mediator variables"
```
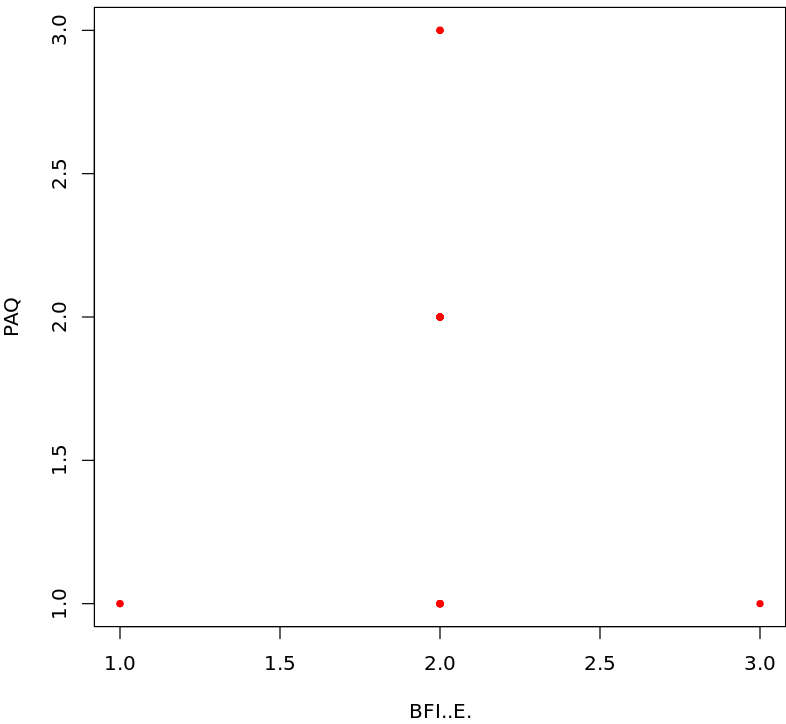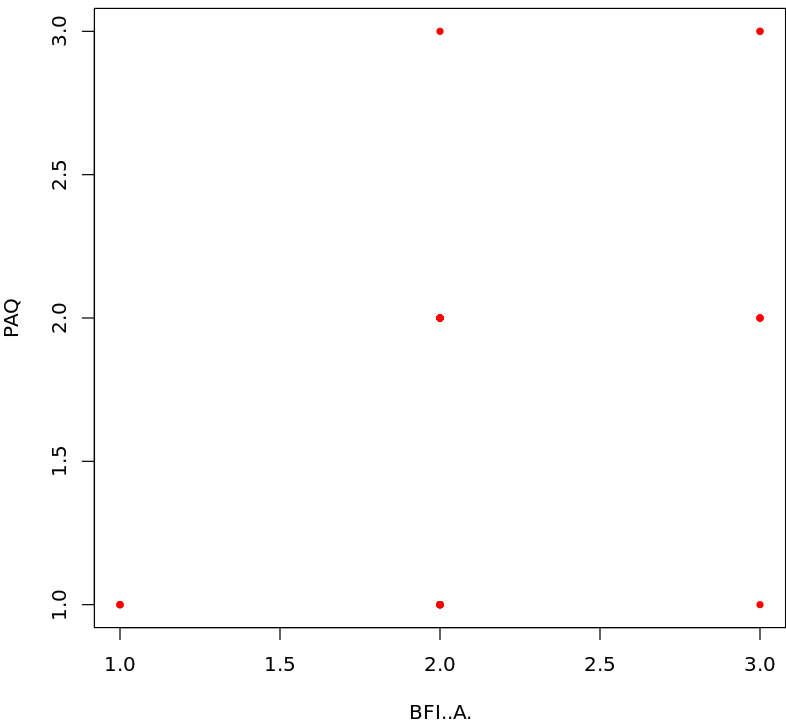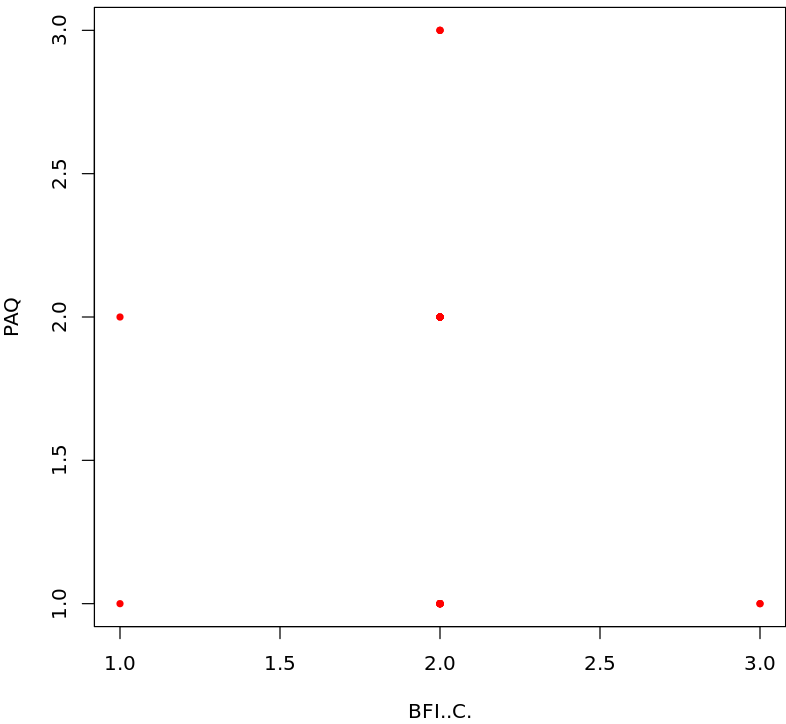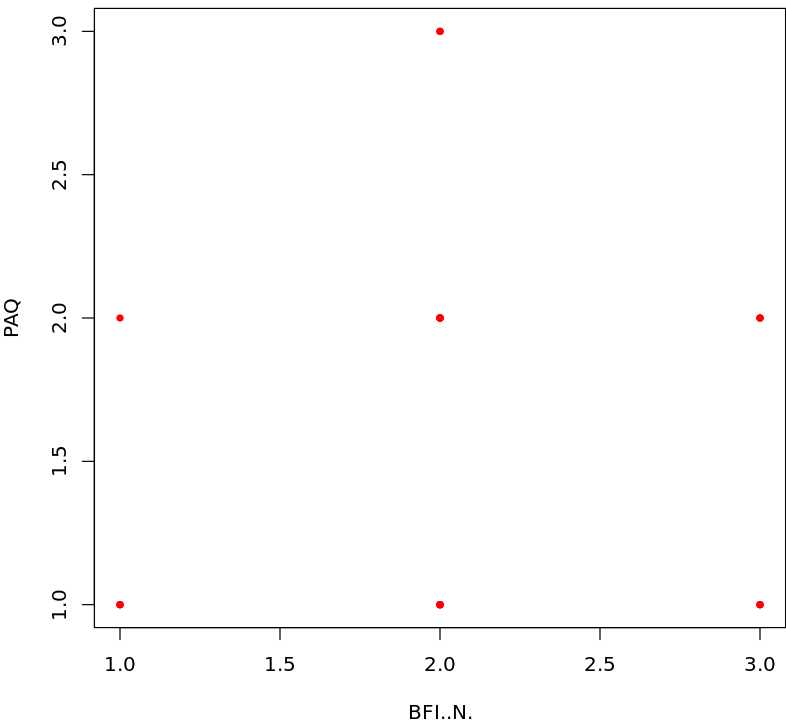
Scatter Plot of Total vs. CBCL
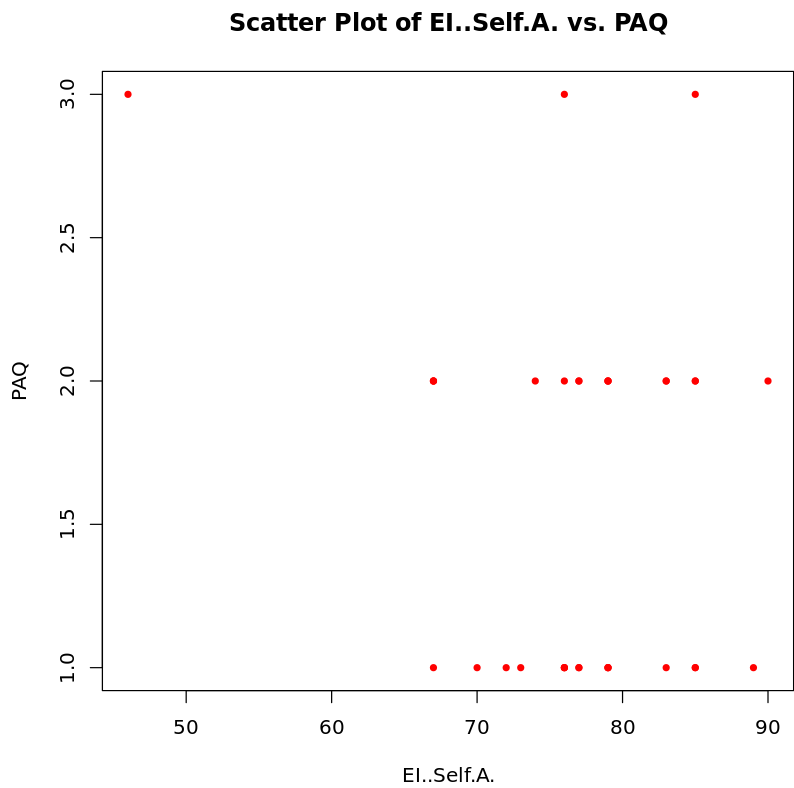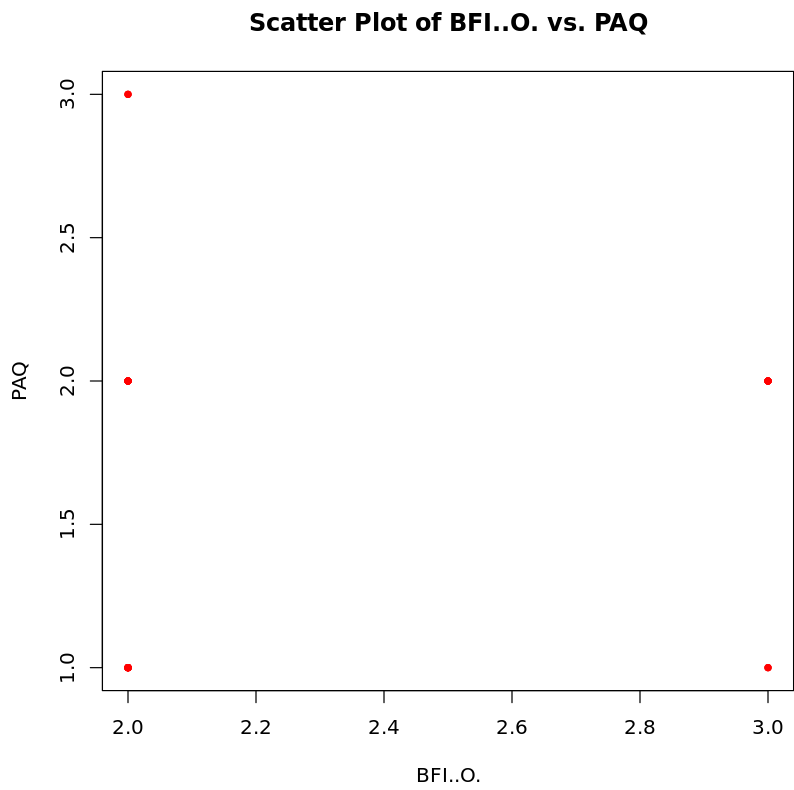
Scatter Plot of BFI..E. vs. PAQ
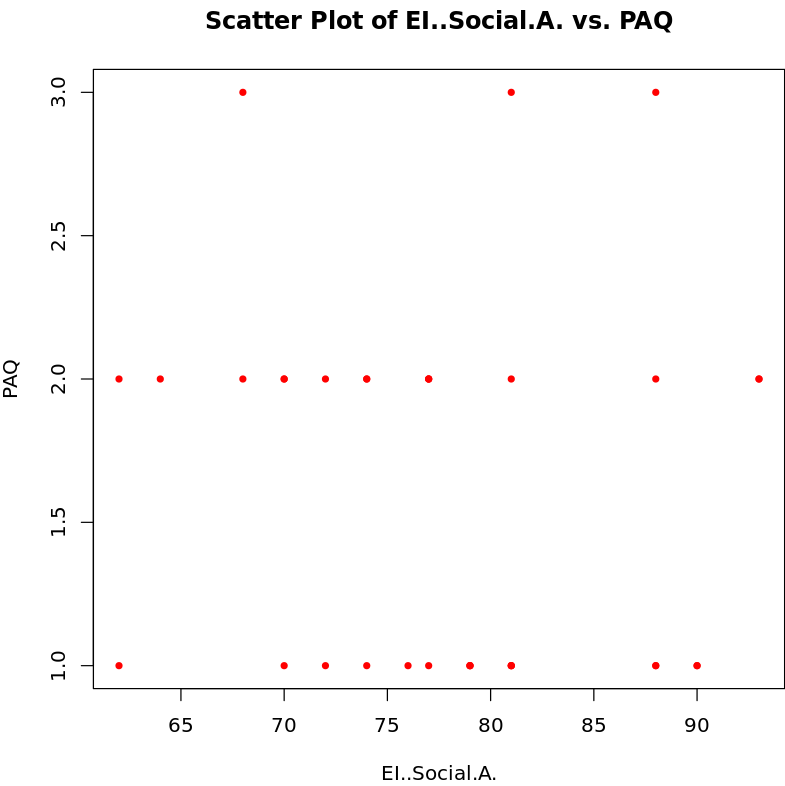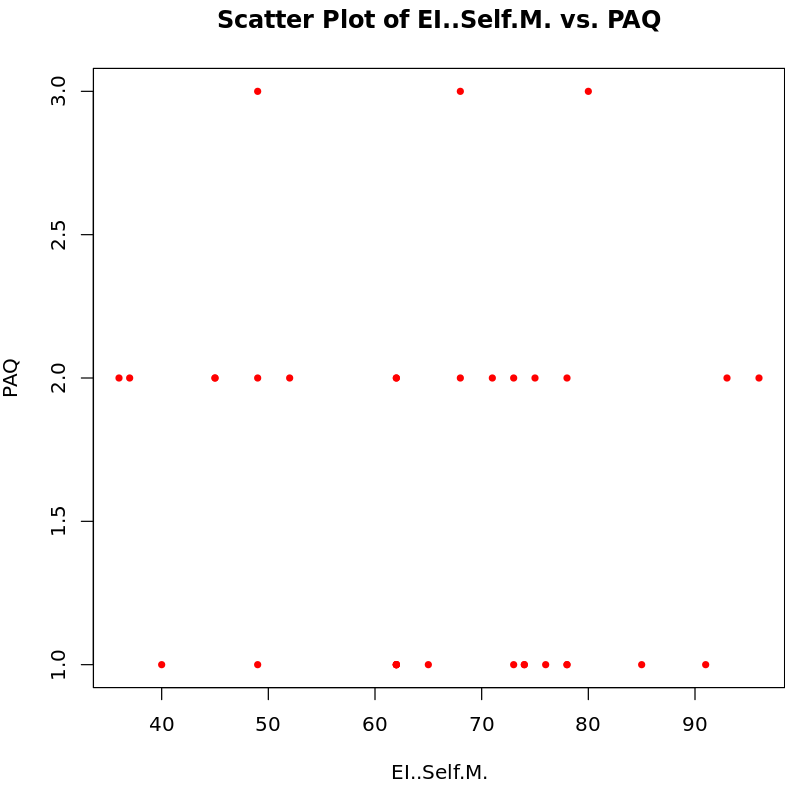

Scatter Plot of BFI..A. vs. PAQ

Scatter Plot of BFI..C. vs. PAQ

Scatter Plot of BFI..N. vs. PAQ

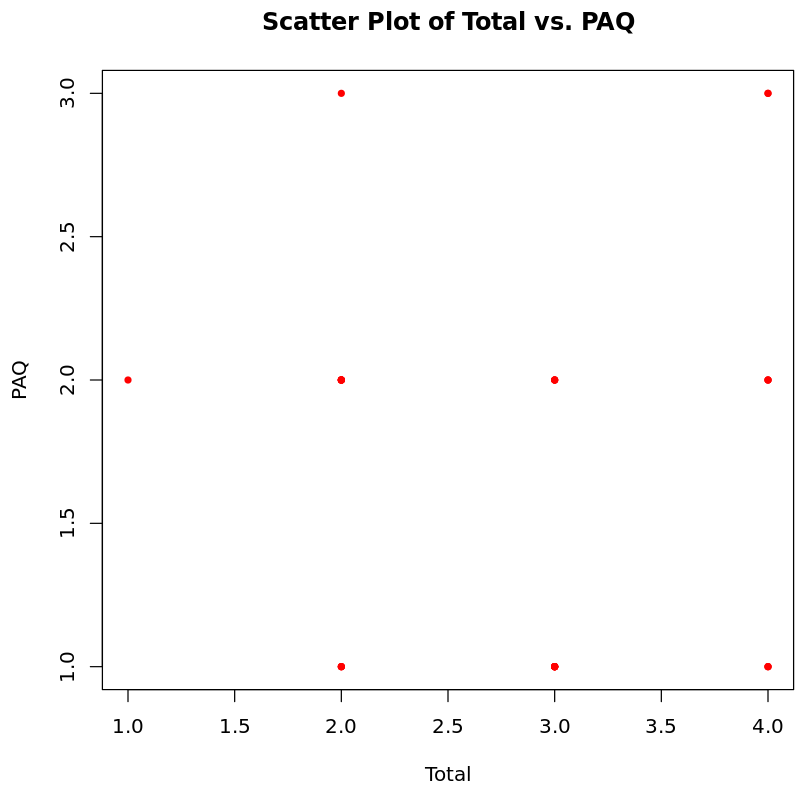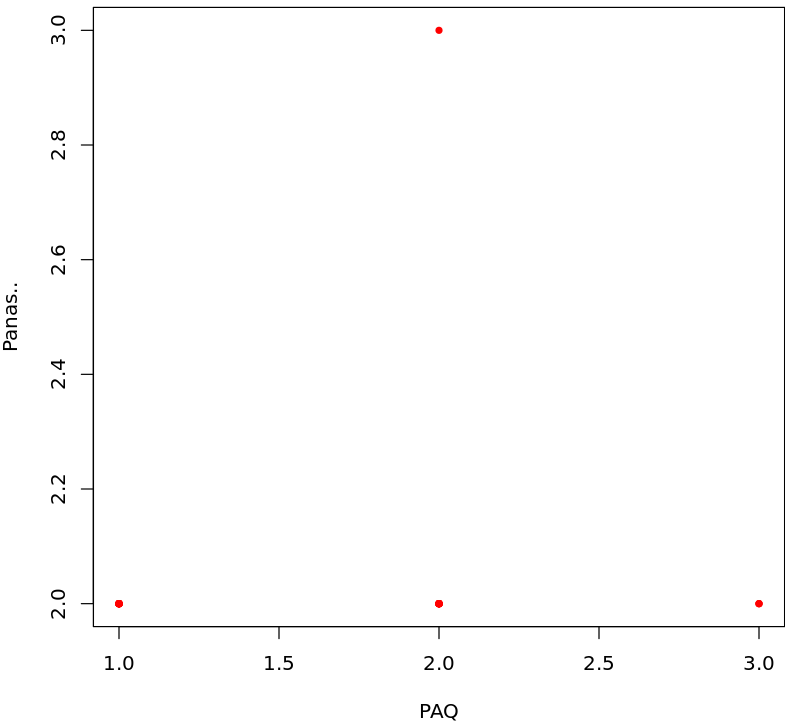## Scatter Plot of BFI..O. vs. PAQ

Scatter Plot of EI..Self.A. vs. PAQ

Scatter Plot of EI..Self.M. vs. PAQ

Scatter Plot of EI..Social.A. vs. PAQ

Scatter Plot of EI..RM. vs. PAQ


```
[1] "========================================================================="
[1] "Scatter plots of mediator vs. dependent variables"
```
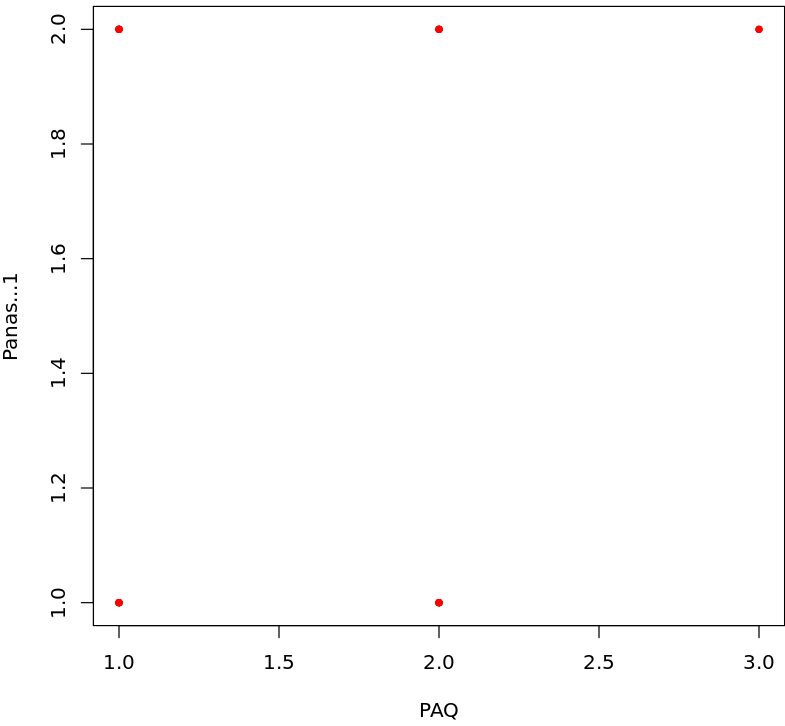
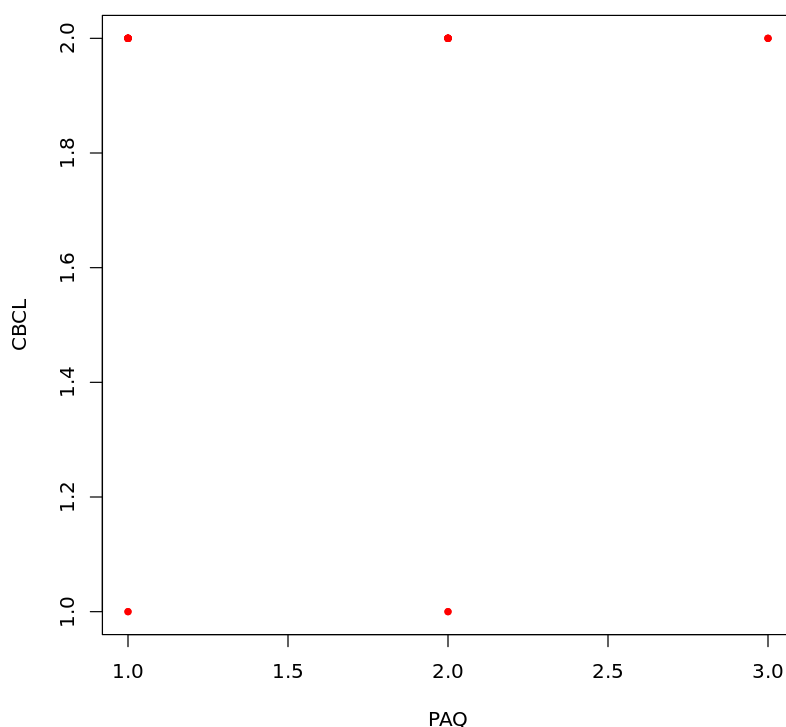## Scatter Plot of Total vs. PAQ
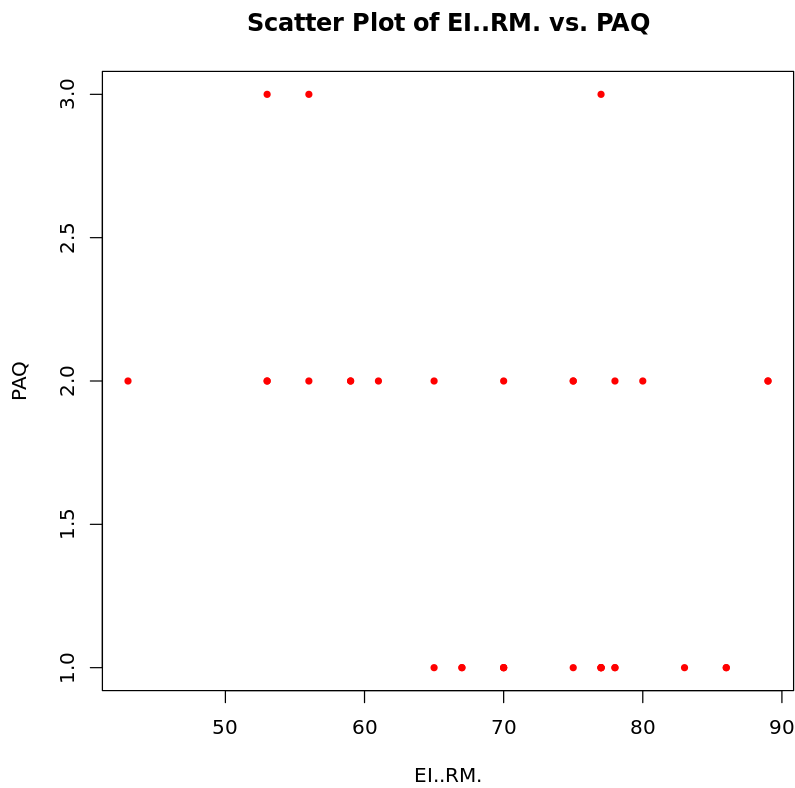
Scatter Plot of PAQ vs. Panas..

Scatter Plot of PAQ vs. Panas...1

Scatter Plot of PAQ vs. CBCL


```
In [2]: #SOURCE ::
        #1) https://www.geeksforgeeks.org/how-to-use-the-jitter-function-in-r-for-scatterpl
        #2) https://statisticsglobe.com/jitter-r-function-example/
        #3) https://stackoverflow.com/questions/17547699/what-does-the-jitter-function-do-i

        #NOTES ::
        # As we see in the above graph in a few of the scatter plots , only 4-7 dots /data
        # This can be due to overlapping of the datapoints . To see if this is the case , a
        # This helps us to see most of the data points on the graph by shifting them a bit
        # Explanations available in the sources .

        # Load necessary libraries
        install.packages("GGally")
        library(ggplot2)
        library(GGally)
        library(dplyr)  # Load the dplyr package

        # Sample data frame 'data' with columns 'Panas..', 'Panas...1', 'BFI..E.', 'BFI..A.
        data <- read.csv("Pilot_modified_data_1.csv")

        # Independent variables
        independent_variables <- c('BFI..E.', 'BFI..A.', 'BFI..C.', 'BFI..N.', 'BFI..O.', '

        # Dependent variables
        dependent_variables <- c('Panas..', 'Panas...1', 'CBCL')

        # Mediator variables
        mediator_variables <- 'PAQ'

        print("Scatter plots of independent vs. dependent variables with jittering")
```

```r
# Create scatter plots of independent vs. dependent variables with jittering
for (iv in independent_variables) {
  for (dv in dependent_variables) {
    # Add jitter to the data points
    jittered_x <- jitter(data[[iv]], factor = 0.2)  # Adjust factor as needed
    jittered_y <- jitter(data[[dv]], factor = 0.2)  # Adjust factor as needed

    # Create the scatter plot with jittered points
    plot(jittered_x, jittered_y,
         xlab = iv, ylab = dv,
         main = paste("Scatter Plot of", iv, "vs.", dv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}

print("===========================================================================")
print("Scatter plots of independent vs. mediator variables with jittering")

# Create scatter plots of independent vs. mediator variables with jittering
for (iv in independent_variables) {
  for (mv in mediator_variables) {
    # Add jitter to the data points
    jittered_x <- jitter(data[[iv]], factor = 0.2)  # Adjust factor as needed
    jittered_y <- jitter(data[[mv]], factor = 0.2)  # Adjust factor as needed

    # Create the scatter plot with jittered points
    plot(jittered_x, jittered_y,
         xlab = iv, ylab = mv,
         main = paste("Scatter Plot of", iv, "vs.", mv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}

print("===========================================================================")
print("Scatter plots of mediator vs. dependent variables with jittering")

# Create scatter plots of mediator vs. dependent variables with jittering
for (mv in mediator_variables) {
  for (dv in dependent_variables) {
    # Add jitter to the data points
    jittered_x <- jitter(data[[mv]], factor = 0.2)  # Adjust factor as needed
    jittered_y <- jitter(data[[dv]], factor = 0.2)  # Adjust factor as needed

    # Create the scatter plot with jittered points
    plot(jittered_x, jittered_y,
         xlab = mv, ylab = dv,
         main = paste("Scatter Plot of", mv, "vs.", dv),
         col = "red", pch = 20)  # Set color to red and point type to red dots
  }
}
```
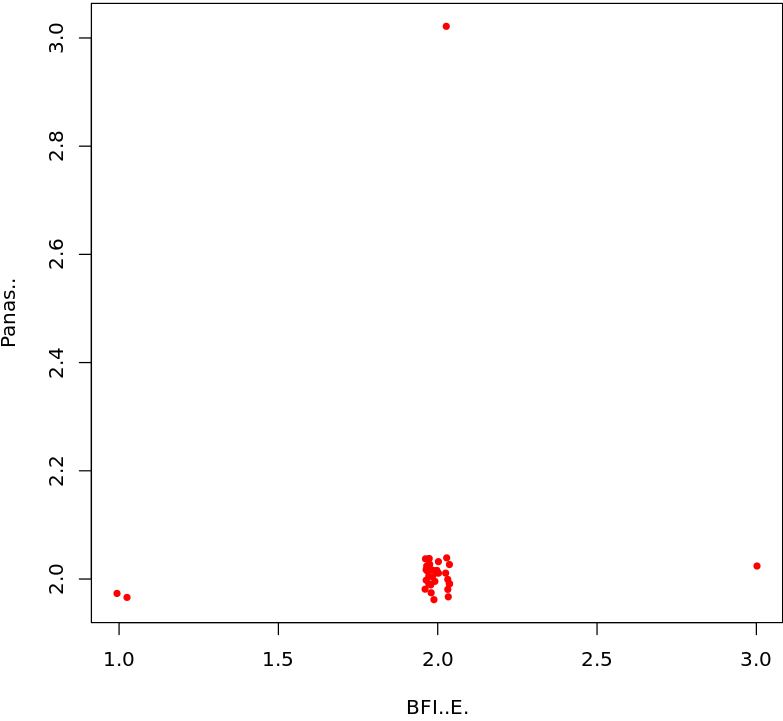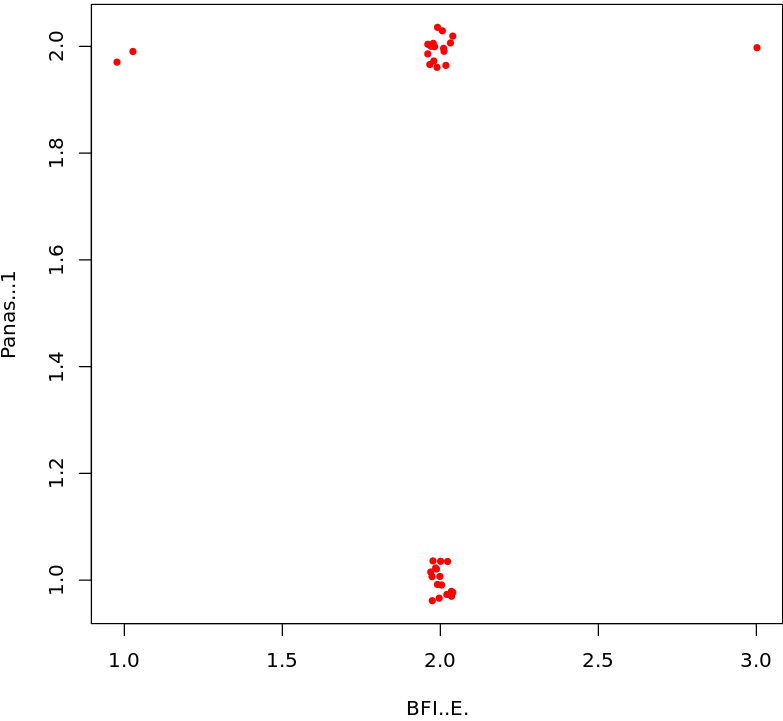
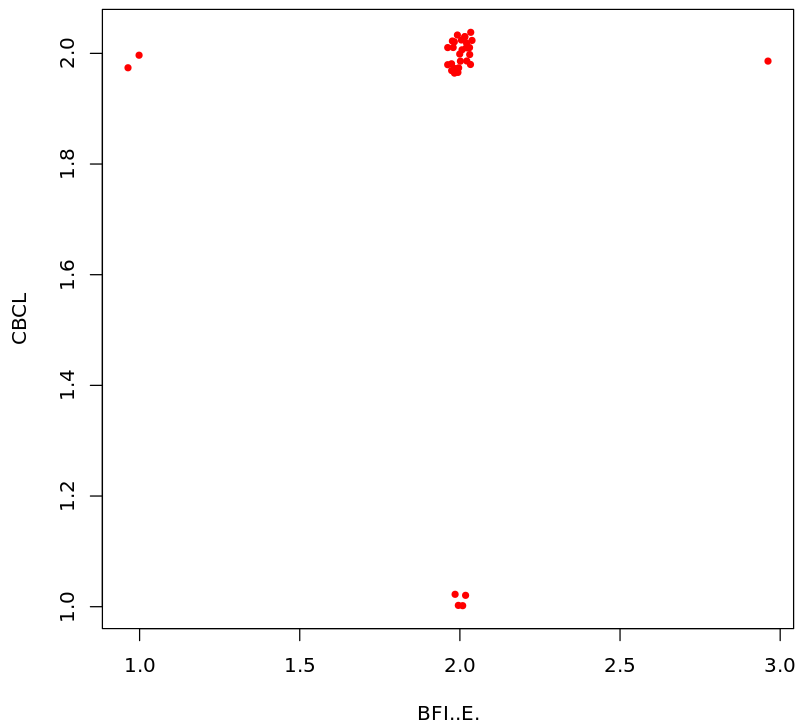[1] "Scatter plots of independent vs. dependent variables with jittering"

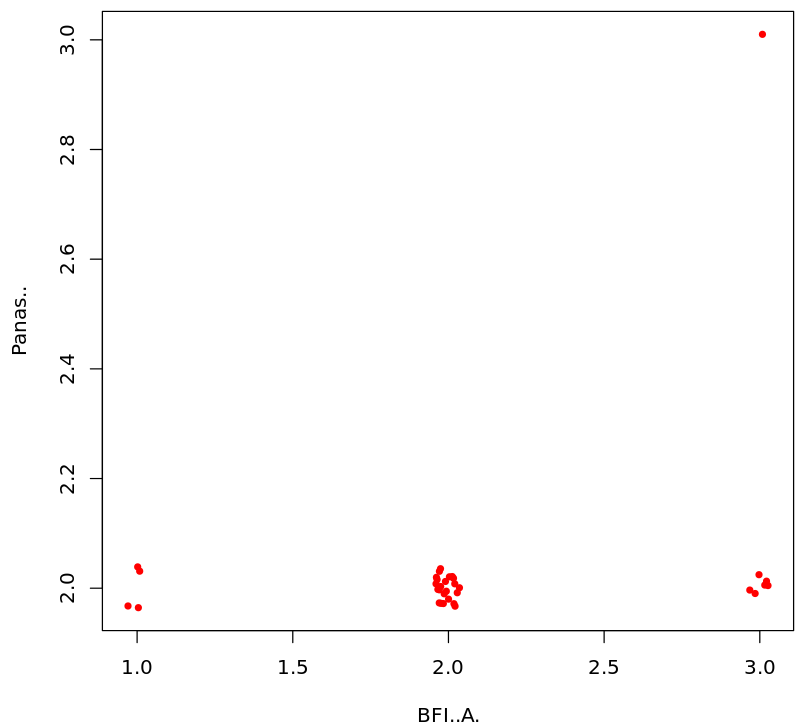**Scatter Plot of BFI..E. vs. Panas..**

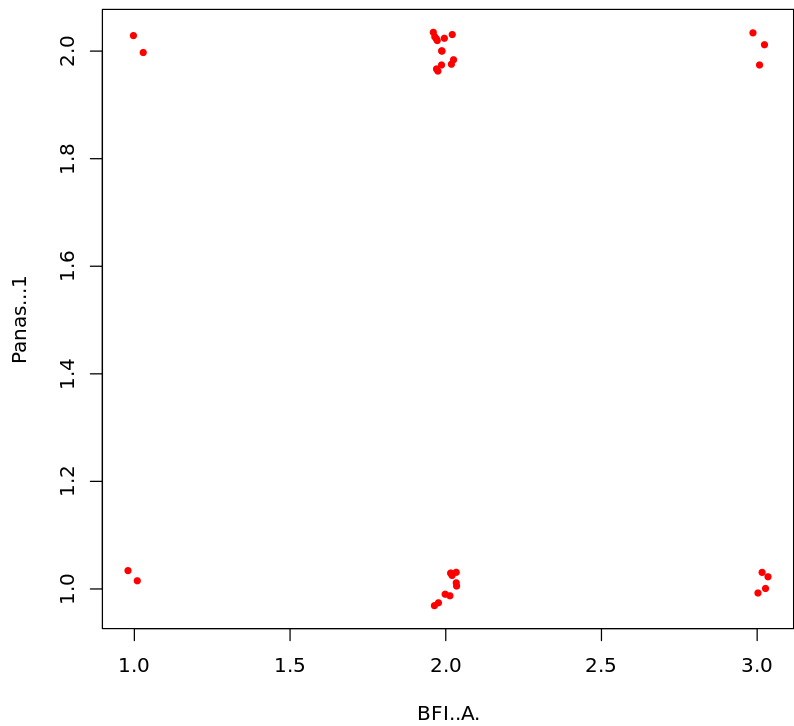**Scatter Plot of BFI..E. vs. Panas...1**
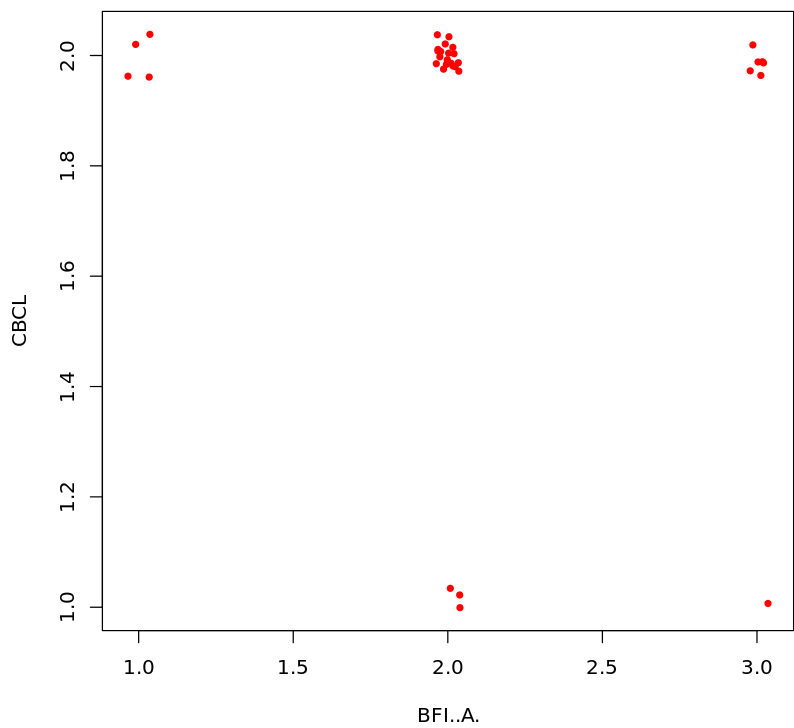
Scatter Plot of BFI..E. vs. CBCL

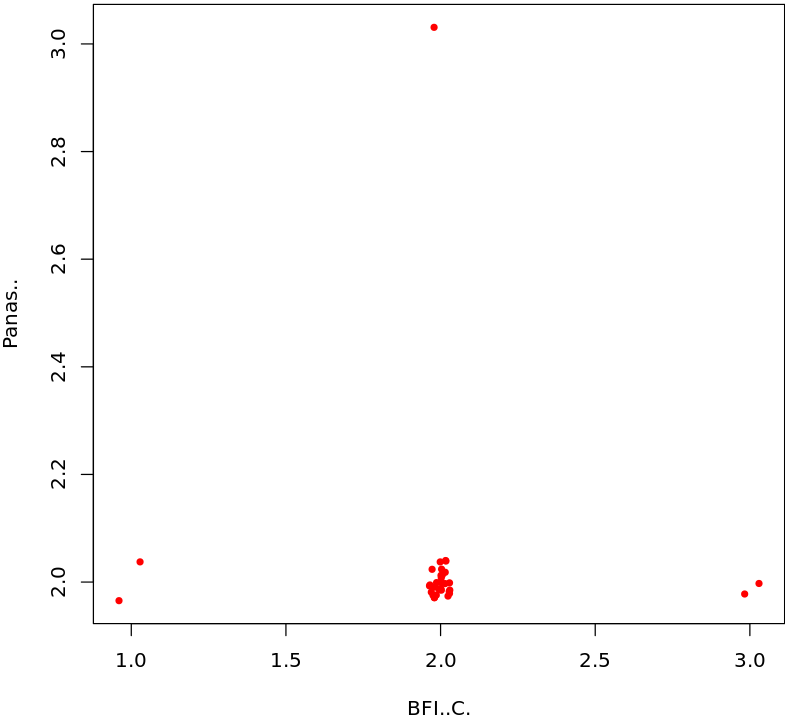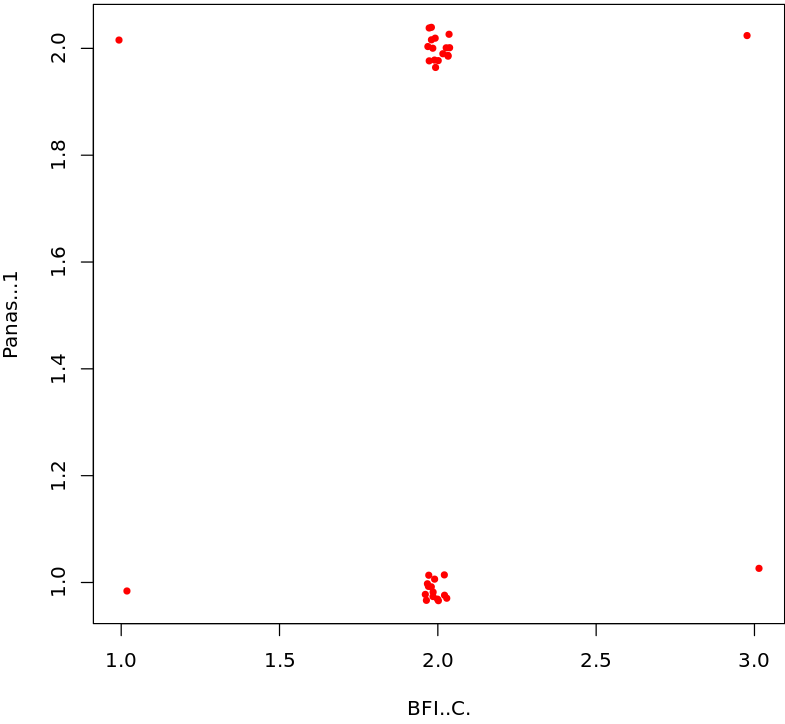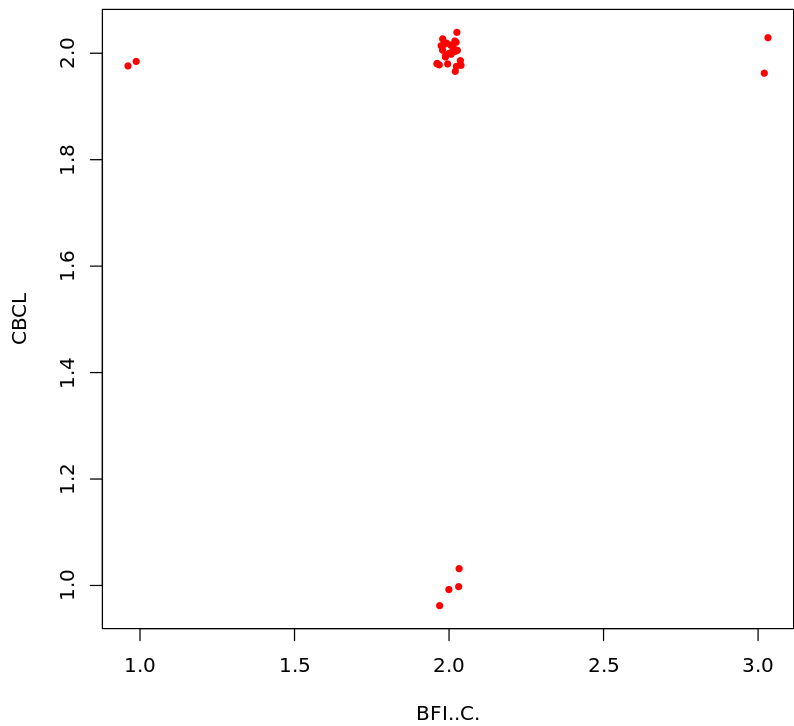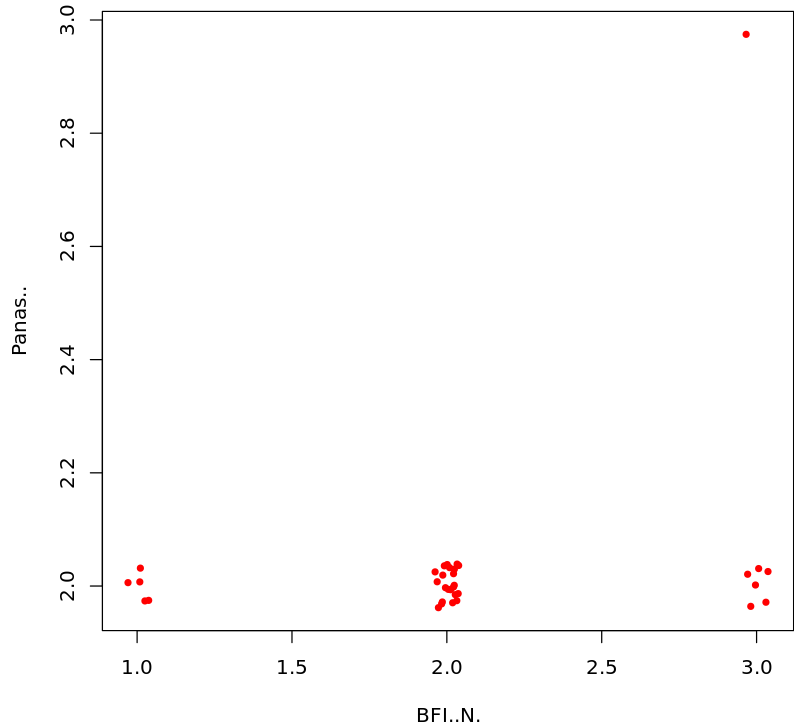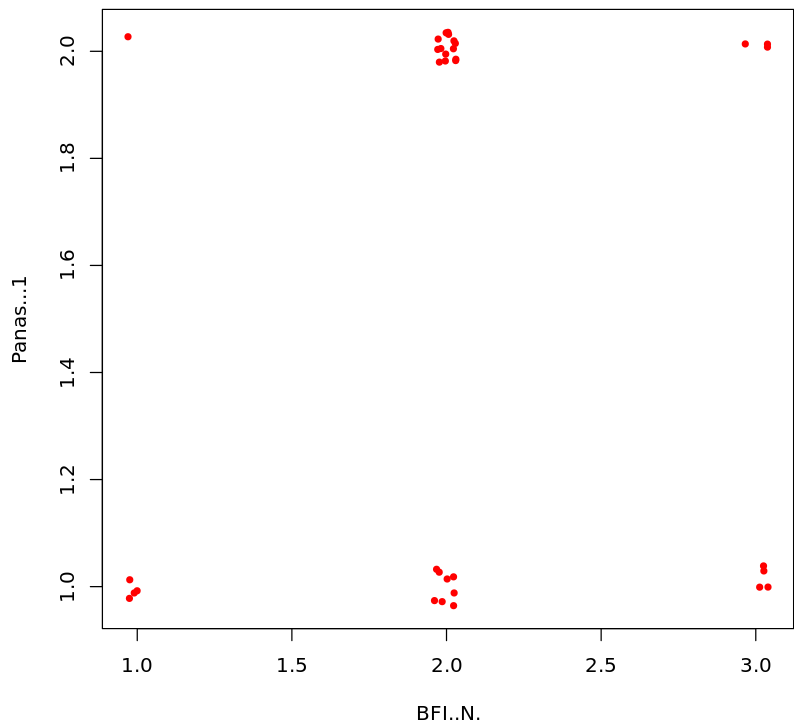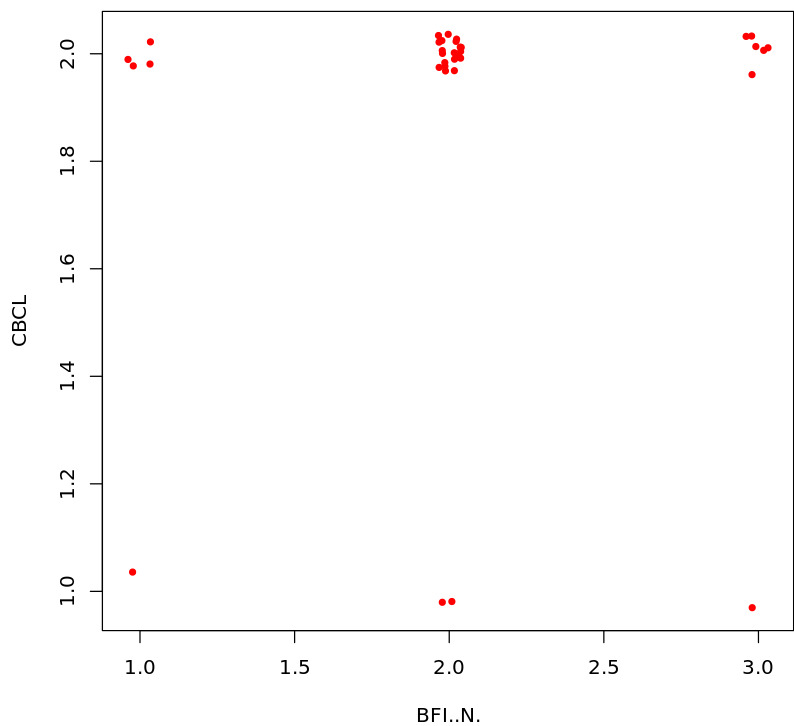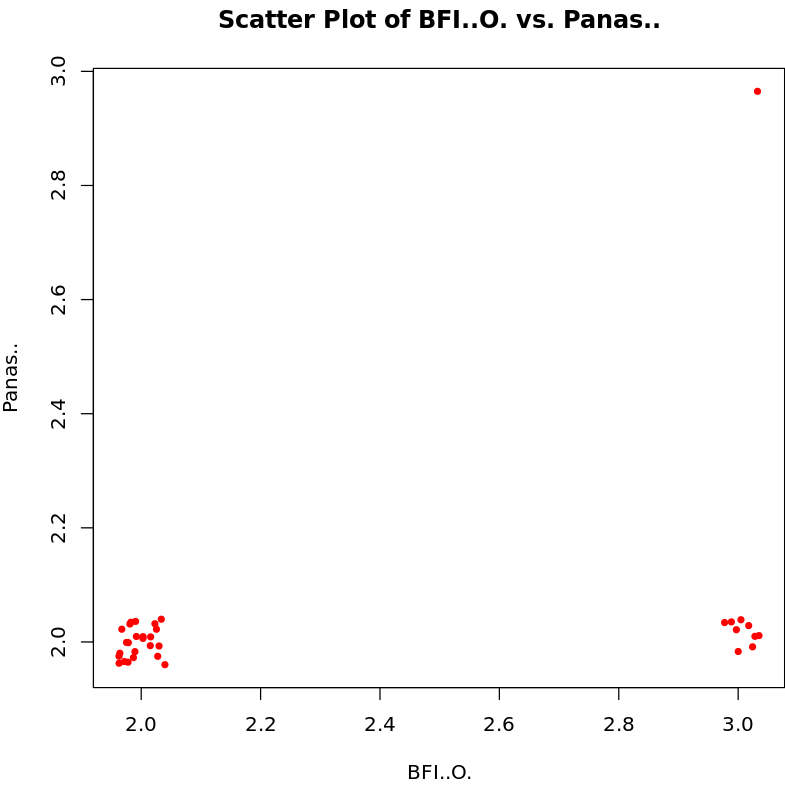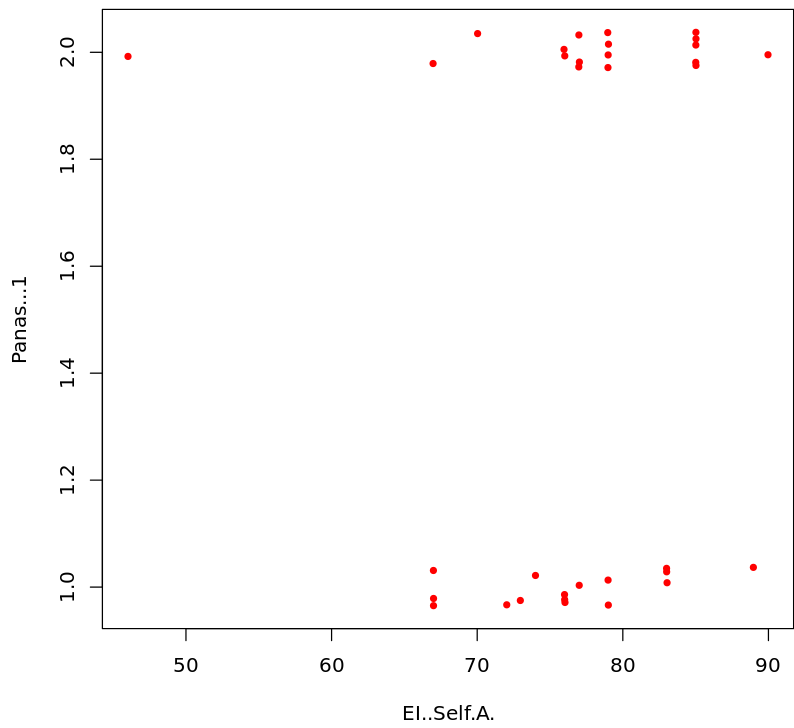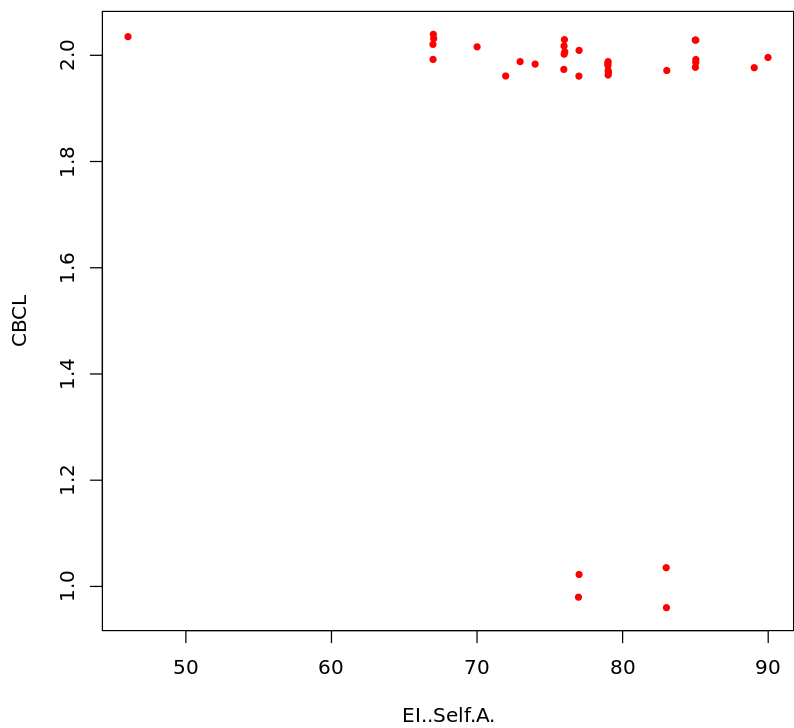## Scatter Plot of BFI..A. vs. Panas..

Scatter Plot of BFI..A. vs. Panas...1

Scatter Plot of BFI..A. vs. CBCL
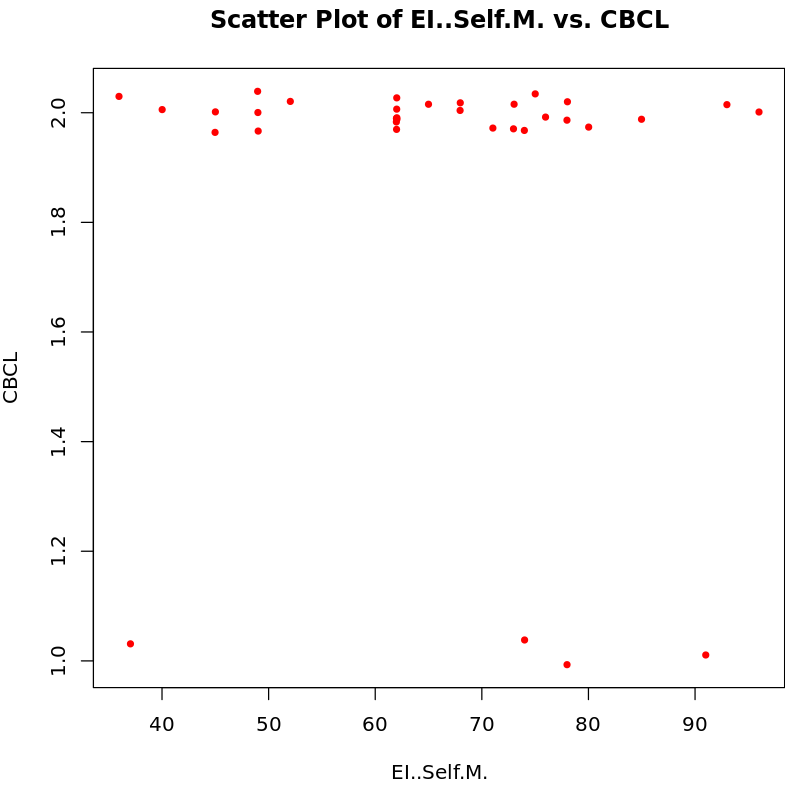
Scatter Plot of BFI..C. vs. Panas..

Scatter Plot of BFI..C. vs. Panas...1

Scatter Plot of BFI..C. vs. CBCL

Scatter Plot of BFI..N. vs. Panas..

Scatter Plot of BFI..N. vs. Panas...1

Scatter Plot of BFI..N. vs. CBCL

Scatter Plot of BFI..O. vs. Panas..

Scatter Plot of BFI..O. vs. Panas...1

Scatter Plot of BFI..O. vs. CBCL

Scatter Plot of EI..Self.A. vs. Panas..

Scatter Plot of EI..Self.A. vs. Panas...1

Scatter Plot of EI..Self.A. vs. CBCL

Scatter Plot of EI..Self.M. vs. Panas..

Scatter Plot of EI..Self.M. vs. Panas...1

Scatter Plot of EI..Self.M. vs. CBCL

Scatter Plot of EI..Social.A. vs. Panas..

Scatter Plot of EI..Social.A. vs. Panas...1

Scatter Plot of EI..Social.A. vs. CBCL

Scatter Plot of EI..RM. vs. Panas..

Scatter Plot of EI..RM. vs. Panas...1

Scatter Plot of EI..RM. vs. CBCL

Scatter Plot of Total vs. Panas..

Scatter Plot of Total vs. Panas...1


```
[1] "========================================================================="
[1] "Scatter plots of independent vs. mediator variables with jittering"
```
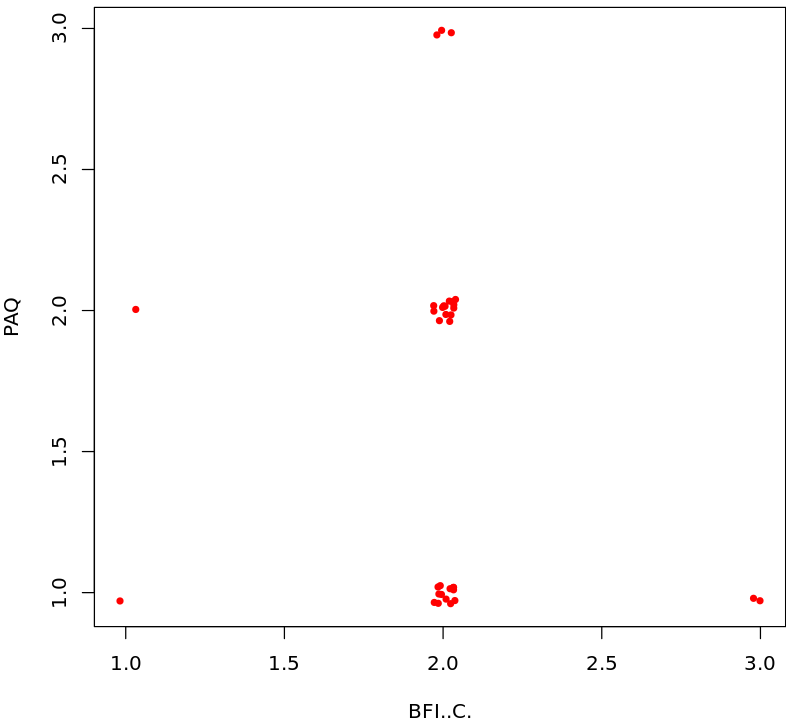
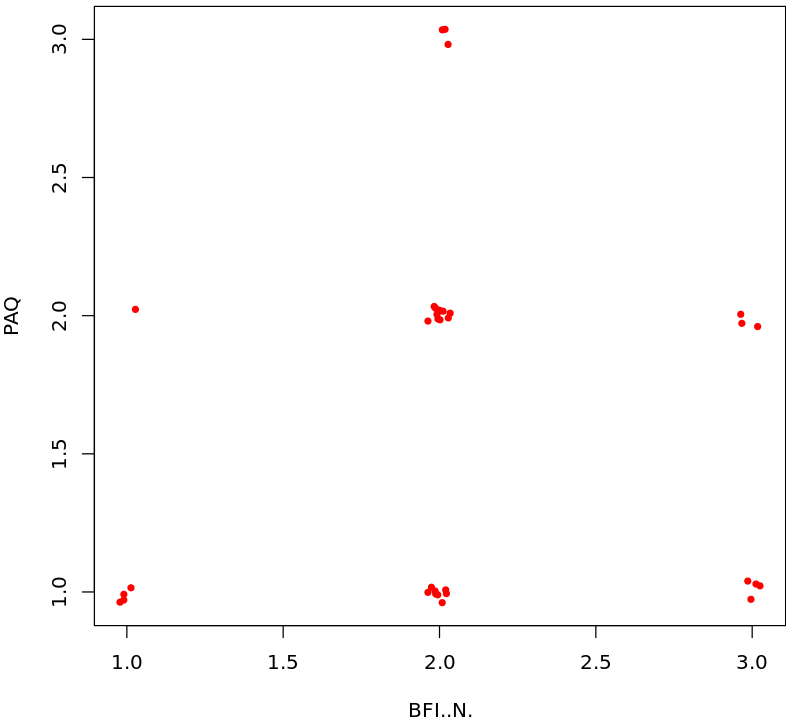## Scatter Plot of Total vs. CBCL

Scatter Plot of BFI..E. vs. PAQ
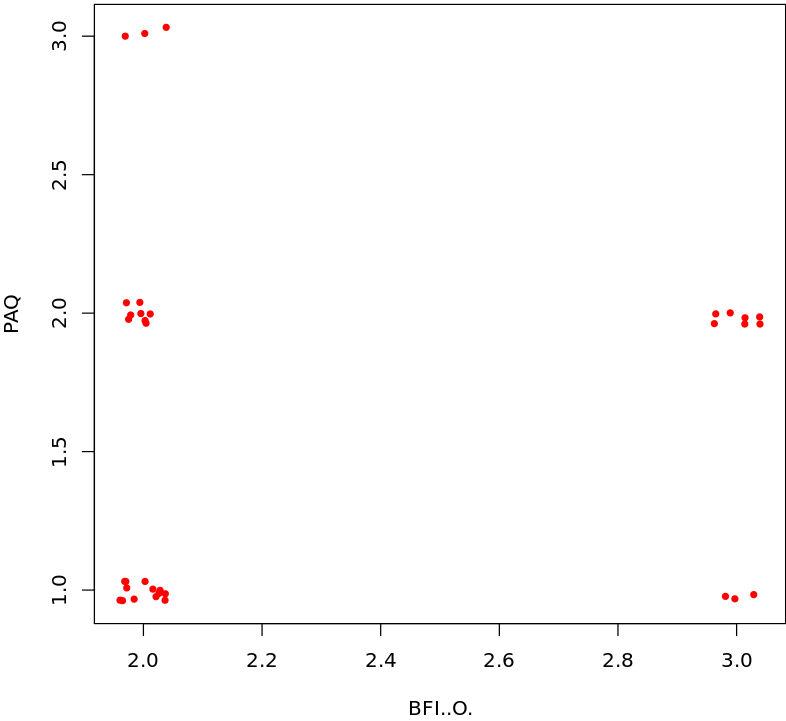

Scatter Plot of BFI..A. vs. PAQ

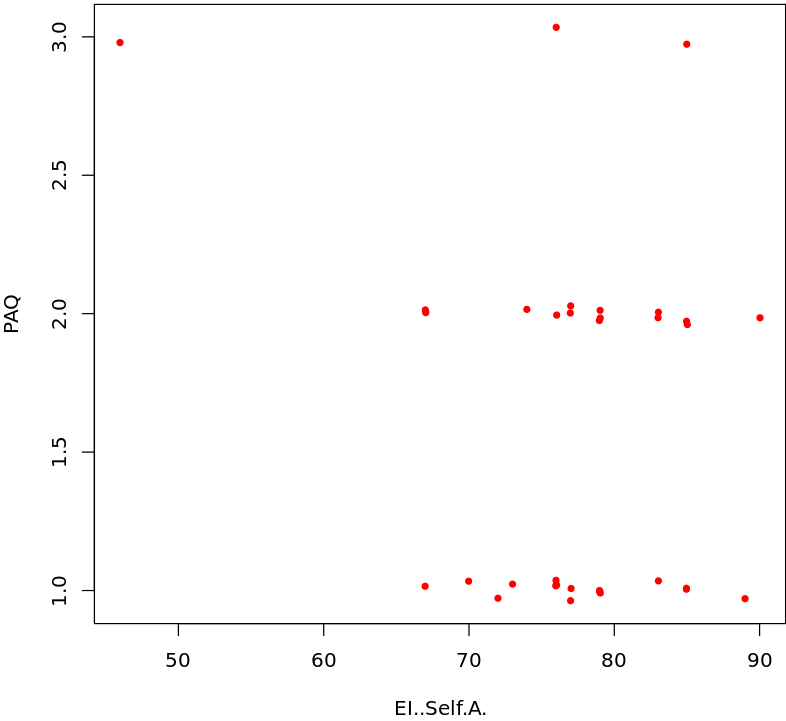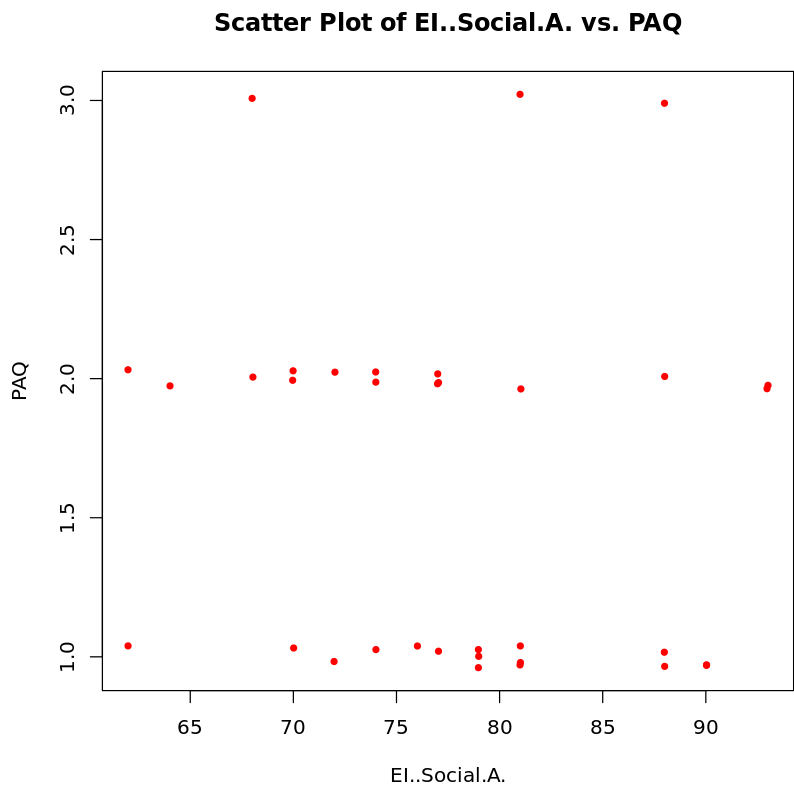**Scatter Plot of BFI..C. vs. PAQ**
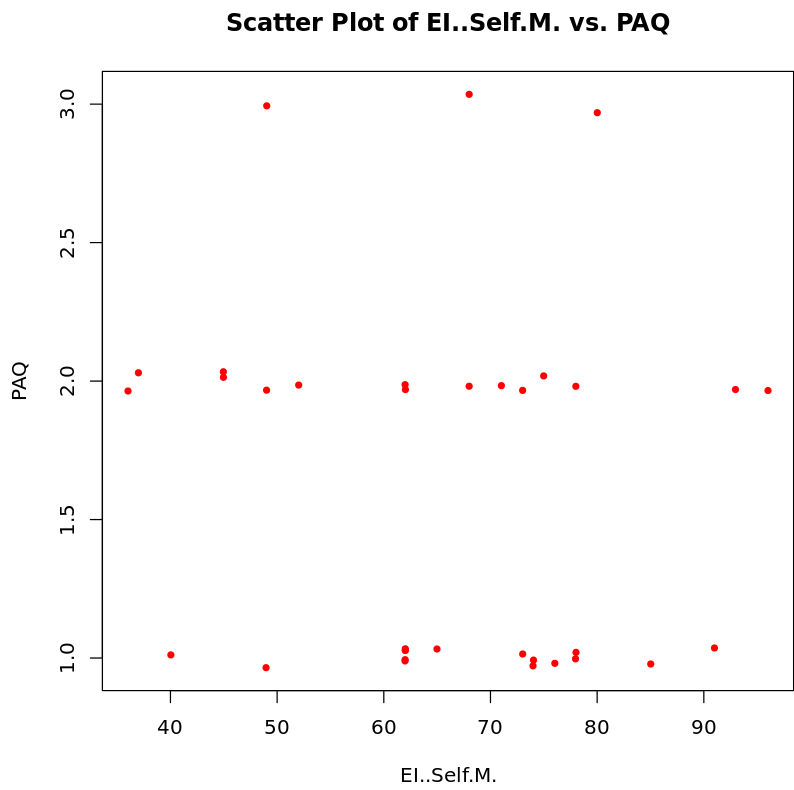

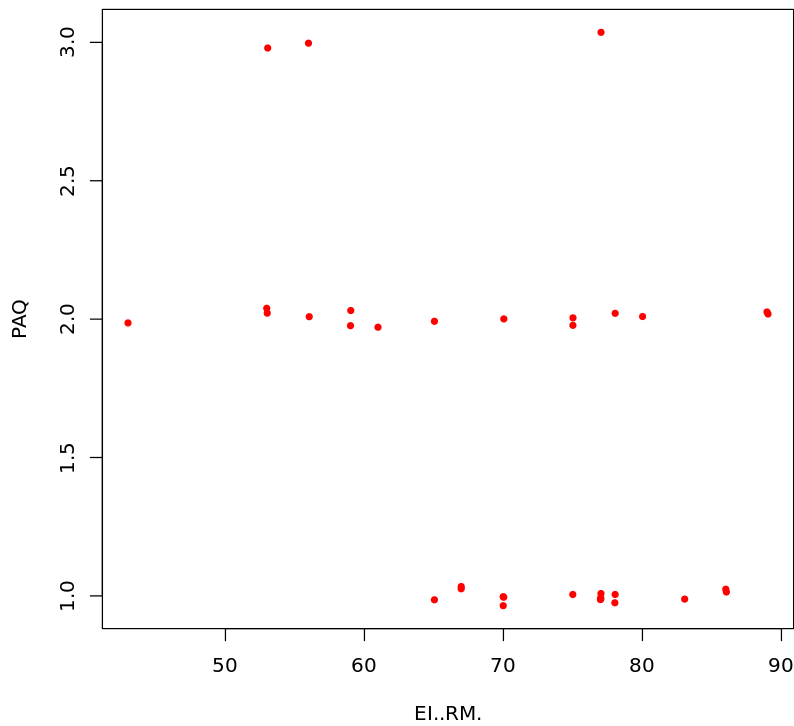**Scatter Plot of BFI..N. vs. PAQ**

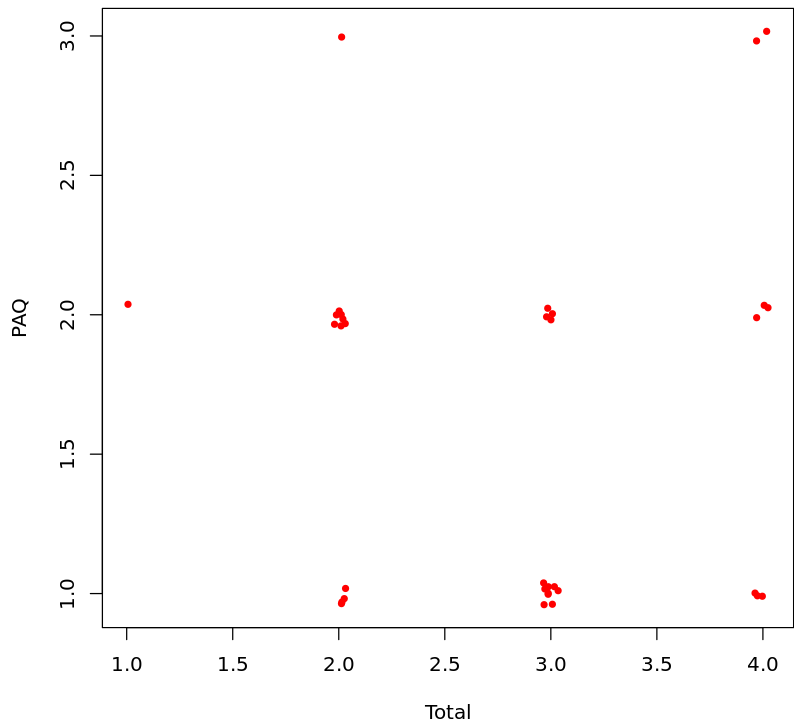**Scatter Plot of BFI..O. vs. PAQ**

Scatter Plot of EI..Self.A. vs. PAQ

Scatter Plot of EI..Self.M. vs. PAQ

Scatter Plot of EI..Social.A. vs. PAQ

Scatter Plot of EI..RM. vs. PAQ


```
[1] "========================================================================="
[1] "Scatter plots of mediator vs. dependent variables with jittering"
```
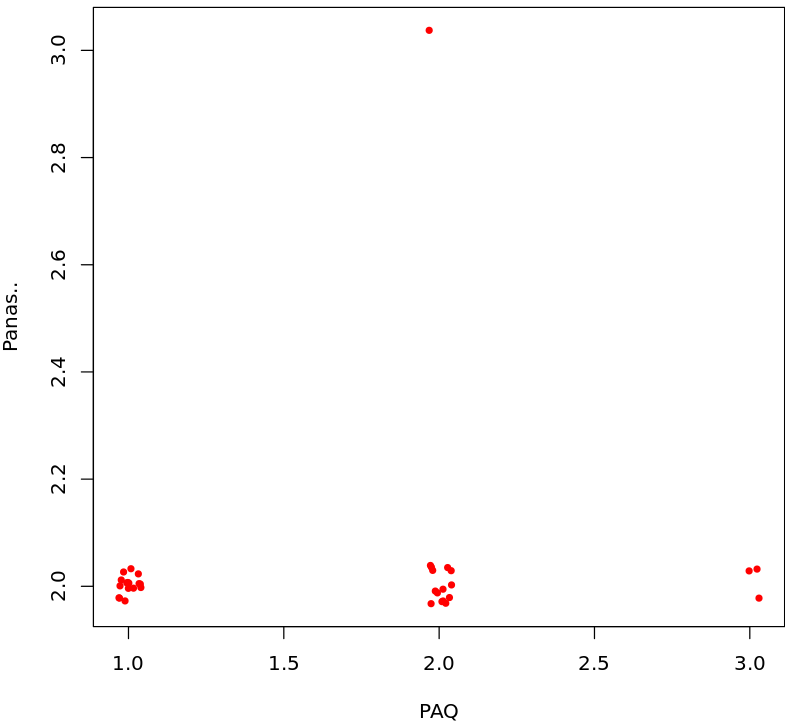
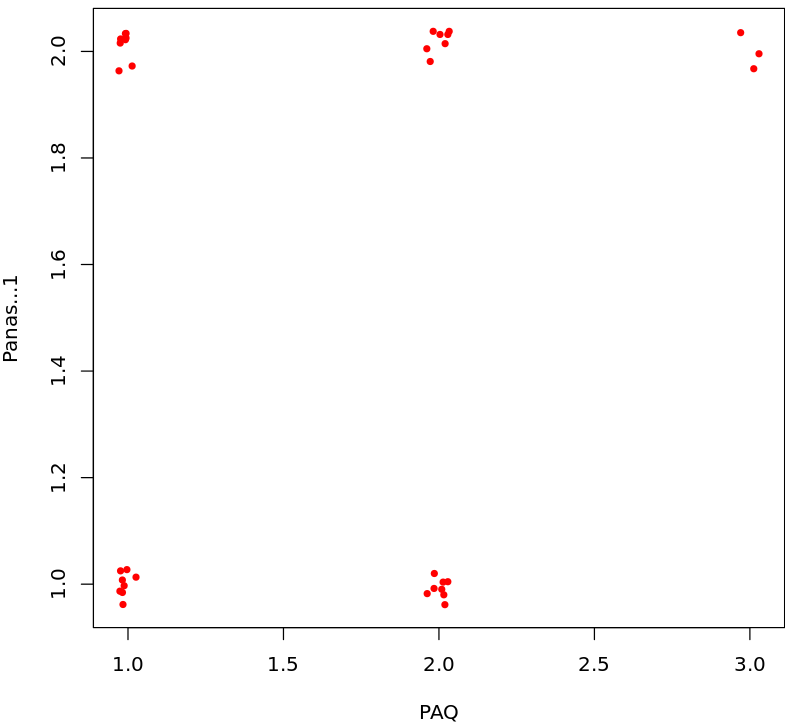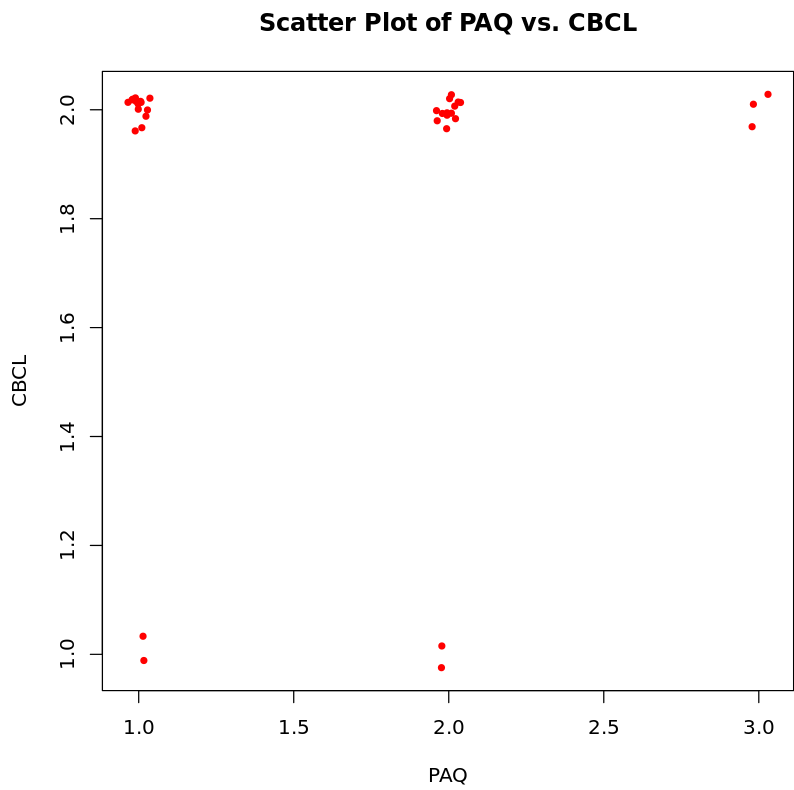**Scatter Plot of Total vs. PAQ**

Scatter Plot of PAQ vs. Panas..

Scatter Plot of PAQ vs. Panas...1

Scatter Plot of PAQ vs. CBCL

In [ ]: