Supplementary Information for Doba et al. (Submitted)

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Contents

1 Data management

The database was saved in the file `data_converti.csv` (converted from the initial `.csv` file where the `#NULL!` were changed to `NA` using vim text editor command `:%s/#NULL!/NA`)

1.1 Loading raw data

```
data <- read.table('data/data_trauma.csv', sep=';', dec=',', header=TRUE,
                   colClasses=c(rep('factor',2), 'numeric',
                                rep('factor',2), rep("numeric", 34)))
nb.var <- ncol(data)
init.nb <- nrow(data)
print(names(data))
```

```
##  [1] "Code.participant"           "Sexe"
##  [3] "Age"                        "Situation.parentale"
##  [5] "Niveau.etudes"              "CTQ.emotional.neglect"
##  [7] "CTQ.physical.abuse"         "CTQ.emotional.abuse"
##  [9] "CTQ.physical.neglect"       "CTQ.sexual.abuse"
## [11] "CERQpositivefocusing"       "CERQpositivereappraisal"
## [13] "CERQputtingintoperspective" "CERQrefocusonplanning"
## [15] "CERQacceptance"             "CERQrumination"
## [17] "CERQselfblame"              "CERQblamingother"
## [19] "CERQcatastrophizing"        "DERSnonacceptance"
## [21] "DERSgoals"                  "DERSimpulse"
## [23] "DERSawareness"              "DERSstrategies"
## [25] "DERSclarity"                "DERStotal"
## [27] "DSIemotionalreact"          "DSIemotionalcutoff"
## [29] "DSIfusionwithothers"        "DSIiposition"
## [31] "DSItotal"                   "HADSanxiety"
## [33] "HADSdepression"             "HADStotal"
## [35] "SPShopelessness"            "SPSsuicideideation"
## [37] "SPSnegativeselfevaluation"  "SPShostility"
## [39] "SPS.total"
```

- The initial number of participants is `init.nb`: 508.
- The database has `nb.var`: 39 variables which names are given above.

1.2 Pre-processing for missing data or errors

```
attach(data)
```

The database is checked for errors that were noticed during data screening.

1.2.1 Double participation

Some participants appear twice:

```
tt <- table(Code.participant)
(twice <- as.data.frame(tt[tt!=1])$Code.participant)
```

```
## [1] C216 C364
## Levels: C216 C364
```

1.2.2 Sex

Sex variable is missing for some participants:

```
(sex.miss <- Code.participant[Sexe==''])
```

```
## [1] C1306
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

1.2.3 Parental situation

Parental situation is missing for some participants and bad encoding has been noticed:

```
(parental.miss <- Code.participant[Situation.parentale==''])
```

```
## [1] C760  C527  C135  C1220 C1141 C1321 C1132 C1134 C1242
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

```
(parental.error <- Code.participant[Situation.parentale=='15'])
```

```
## [1] C562
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

1.2.4 Age

Age is missing for some participants and some participants are older than 25 y.o.:

```
(age.miss <- Code.participant[is.na(Age)])
```

```
## [1] C1334 C1911
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

```
(age.old <- Code.participant[na.omit(Age)>25])
```

```
## [1] C744  C1133
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

1.2.5 Missing SPS

Score to SPS is missing for some participants:

```
(sps.miss <- Code.participant[is.na(SPS.total)])
```

```
## [1] C176  C704  C744  C202  C919  C1317
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

1.2.6 Wrong scores to CTQ

Some scores to the CTQ scale are erroneous:

```
(ctq.low <- Code.participant[(CTQ.sexual.abuse<5)    | (CTQ.physical.abuse<5) |
                             (CTQ.emotional.abuse<5) | (CTQ.physical.neglect<5) |
                             (CTQ.emotional.neglect<5)])
```

```
## [1] PD31 PD32
## 506 Levels: C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 C1009 C101 ... PD9
```

1.3 Subset the database

Participants with wrong data are:

```
detach(data)
(participants.drop <- c(twice, sex.miss, age.miss, age.old, sps.miss, ctq.low,
parental.miss, parental.error))
```

```
##  [1] C216  C364  C1306 C1334 C1911 C744  C1133 C176  C704  C744  C202  C919
## [13] C1317 PD31  PD32  C760  C527  C135  C1220 C1141 C1321 C1132 C1134 C1242
## [25] C562
## 506 Levels: C216 C364 C1000 C1001 C1003 C1004 C1005 C1006 C1007 C1008 ... PD9
```

Incomplete data are deleted from database.

```
trauma <- subset(data, !(Code.participant %in% participants.drop))
nb.subj <- nrow(trauma)
```

The number of subjects is now `nb.subj`: 482.

Some verifications and cleaning:

```
table(trauma$Sexe)
```

```
##
##       1   2
##   0 161 321
```

```
trauma$Sexe <- droplevels(trauma$Sexe)
table(trauma$Sexe)
```

```
##
##   1   2
## 161 321
```

```
summary(trauma$Age)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    14.0    17.0    17.0    17.7    18.0    25.0
```

```
table(trauma$Situation.parentale)
```

```
##
##      10  11  12  13  15
##   0  82 215 164  21   0
```

```
trauma$Situation.parentale <- droplevels(trauma$Situation.parentale)
names(trauma)[4:5] <- c('Parental','Education')
levels(trauma$Parental) <- c('Partnered', 'Married', 'Separated', 'Widowed')
levels(trauma$Education) <- c('Middle', 'General', 'Technical', 'Vocational',
'High')
```

2 Groups definition

2.1 Labeling data

The Childhood Trauma Questionnaire (CTQ) is used for labeling individuals according to several categories (`categ` variable) that are combined into groups (`group` variable) used in this study.

2.1.1 Categories definitions

Categories are defined using cut-off scores:

- CTQ.emotional.neglect >= 15 for severe emotional neglect
- CTQ.emotional.abuse >=10 for severe emotional abuse
- CTQ.physical.neglect >=8 for severe physical neglect
- CTQ.physical.abuse >=8 for severe physical abuse
- CTQ.sexual.abuse >=8 for severe sexual abuse

Score under the thresholds are considered as "low".

The dichotomy between low and severe scores was used to get an integer code (between 0 and $2^5 - 1 = 31$) to define categories which where then grouped in:

- Low maltreatment (`Low`)
- Abuse (`Abu`)
- Neglected (`Neg`)
- Combination (`Combi`)

according to the following code (the complete explicit table of correspondences is given in Table S1):

```
ctq <- trauma[, c("CTQ.emotional.neglect", # >= 15
                  "CTQ.emotional.abuse",   # >=10
                  "CTQ.physical.neglect",  # >=8
                  "CTQ.physical.abuse",    # >=8
                  "CTQ.sexual.abuse")]     # >=8
# binary encoding of categories
ctq$categ <- (ctq[,1]>=15) * 2^0  + (ctq[,2]>=10) * 2^1 +
             (ctq[,3]>=8) * 2^2 + (ctq[,4]>=8) * 2^3 +
             (ctq[,5]>=8) * 2^4
# groups definition
ctq$group <- rep('Combi', length(ctq$categ))
ctq$group[ctq$categ==0] <- 'Low'
ctq$group[ctq$categ==1 | ctq$categ==4 | ctq$categ==5] <- 'Neg'
ctq$group[ctq$categ==2 | ctq$categ==8 | ctq$categ==10 | ctq$categ==16 |
          ctq$categ==18 | ctq$categ==24 | ctq$categ==26] <- 'Abu'

scores <- ctq
head(scores)
```

```
##   CTQ.emotional.neglect CTQ.emotional.abuse CTQ.physical.neglect
## 1                     5                   5                    5
## 2                    21                   5                    6
## 3                     6                   6                    8
## 4                    15                  17                    9
## 5                     8                  12                   13
## 6                    11                   5                    5
##   CTQ.physical.abuse CTQ.sexual.abuse categ group
## 1                  5                5     0   Low
## 2                  5                5     1   Neg
## 3                  5                5     4   Neg
## 4                  6               18    23 Combi
## 5                 14                5    14 Combi
## 6                  5                5     0   Low
```

Definition of factors:

```
trauma$categ <- factor(ctq$categ)
trauma$group <- factor(ctq$group, levels=c('Low', 'Neg', 'Abu', 'Combi'))
trauma$Sexe <- factor(trauma$Sexe, labels=c('M', 'F'))
```

Table S1: Definitions of the 32 categories and the four groups of subjects, together with the number of participants in each category in the initial database (i.e., before pairing)

Neglect		Abuse						
Emotional	Physical	Emotional	Physical	Sexual	Categories	Males	Females	Groups
low	low	low	low	low	0	75	133	Low maltreatment
severe	low	low	low	low	1	9	10	
low	severe	low	low	low	4	10	12	Neglect
severe	severe	low	low	low	5	5	9	
					Total	24	31	
low	low	severe	low	low	2	2	7	
low	low	low	severe	low	8	6	2	
low	low	severe	severe	low	10	2	4	
low	low	low	low	severe	16	1	17	Abuse
low	low	severe	low	severe	18	0	3	
low	low	low	severe	severe	24	1	2	
low	low	severe	severe	severe	26	0	4	
					Total	12	39	
severe	low	severe	low	low	3	4	8	
low	severe	severe	low	low	6	5	6	
severe	severe	severe	low	low	7	1	11	
severe	low	low	severe	low	9	1	0	
severe	low	severe	severe	low	11	2	1	
low	severe	low	severe	low	12	1	1	
severe	severe	low	severe	low	13	0	1	
low	severe	severe	severe	low	14	3	2	
severe	severe	severe	severe	low	15	8	6	
severe	low	low	low	severe	17	2	3	
severe	low	severe	low	severe	19	1	1	Combination
low	severe	low	low	severe	20	1	2	
severe	severe	low	low	severe	21	0	1	
low	severe	severe	low	severe	22	0	5	
severe	severe	severe	low	severe	23	0	2	
severe	low	low	severe	severe	25	0	1	
severe	low	severe	severe	severe	27	1	3	
low	severe	low	severe	severe	28	1	1	
severe	severe	low	severe	severe	29	0	0	
low	severe	severe	severe	severe	30	1	6	
severe	severe	severe	severe	severe	31	4	6	
					Total	36	67	

2.1.2 Comparison with latent profile analysis

```
library(mclust)
```

```
## Package 'mclust' version 6.1.2
## Type 'citation("mclust")' for citing this R package in publications.
```

```
vars <- ctq[,1:5]
names(vars)
```

```
## [1] "CTQ.emotional.neglect" "CTQ.emotional.abuse"   "CTQ.physical.neglect"
## [4] "CTQ.physical.abuse"    "CTQ.sexual.abuse"
```

```
# scaled.vars <- scale(vars)
scaled.vars <- vars # same result with or without scaling
```

`Mclust` provides the model with the lowest BIC in several models with different numbers of classes and different covariance models.

```
mclust.fit <- Mclust(scaled.vars, G=2:20)  # tests for 2 to 20 classes
summary(mclust.fit)
```

```
## ----------------------------------------------------
## Gaussian finite mixture model fitted by EM algorithm
## ----------------------------------------------------
##
## Mclust VEV (ellipsoidal, equal shape) model with 10 components:
##
##  log-likelihood   n  df       BIC       ICL
##       -2855.657 482 173 -6780.098 -6789.539
##
## Clustering table:
##  1  2  3  4  5  6  7  8  9 10
## 69 41 38 46 73 21 42 52 38 62
```

```
ctq$mclass <- mclust.fit$classification
with(ctq, table(mclass, group))
```

```
##       group
## mclass Abu Combi Low Neg
##     1    0     0  69   0
##     2   21    10   9   1
##     3   10    25   0   3
##     4    6    39   0   1
##     5   17    29  20   7
##     6    0     4   9   8
##     7    0     0  35   7
##     8    4    16   2  30
##     9    5     2  30   1
##     10   0     0  60   2
```

```
nindiv <- nrow(ctq)
print(nindiv)
```

```
## [1] 482
```

```
bxp.data <- data.frame(Group = factor(rep(ctq$group, 5)),
                       Class  = factor(rep(ctq$mclass, 5)),
```

```
                       Scale = factor(c(rep('NE', nindiv),
                                        rep('NP', nindiv),
                                        rep('AE', nindiv),
                                        rep('AP', nindiv),
                                        rep('AS', nindiv))),
                      Scores = c(ctq$CTQ.emotional.neglect,
                                 ctq$CTQ.physical.neglect,
                                 ctq$CTQ.emotional.abuse,
                                 ctq$CTQ.physical.abuse,
                                 ctq$CTQ.sexual.abuse))
summary(bxp.data)
```

```
##    Group          Class     Scale        Scores
##  Abu  : 315   5      :365   AE:482   Min.   : 5.000
##  Combi: 625   1      :345   AP:482   1st Qu.: 5.000
##  Low  :1170   10     :310   AS:482   Median : 6.000
##  Neg  : 300   8      :260   NE:482   Mean   : 7.932
##               4      :230   NP:482   3rd Qu.: 9.000
##               7      :210            Max.   :25.000
##               (Other):690
```

```
par(mfrow=c(5,2), mar=c(2,2,1,0)+0.1)
for (id.class in levels(bxp.data$Class)){
boxplot(Scores~Scale,
        data=subset(bxp.data, Class==id.class),
        main=paste("Class", id.class, sep=' '),
        ylim=c(0,25))
}
```

```
par(mfrow=c(2,2), mar=c(2,2,1,0)+0.1)
for (id.group in levels(bxp.data$Group)){
boxplot(Scores~Scale,
        data=subset(bxp.data, Group==id.group),
        main=id.group,
        ylim=c(0,25),
        pars=list(cex.lab=0.7, cex.sub=0.7, cex.main=0.9, cex.axis=0.8))
}
```

2.2 Matching

Since data are coming from convenience sampling, we do not expect clear representativeness or comparability. We thus improve the situation by matching participants without trauma (denoted "Control Units") with participants with trauma (denoted "Treated Units") in order to improve the comparability between groups.

2.2.1 Cardinality matching

Cardinality matching selects largest subgroups of "Treated Units" and "Control Units" which are best paired on a set of characteristics, here: age, sex, parental situation and education level.

```
library(MatchIt)
# The trauma group is coded 1 ("treated")
trauma$binary <- as.numeric(trauma$group != 'Low')
# Fit the cardinality matching model
mi.model <- matchit(binary ~ Sexe + Age + Parental + Education,
                    data=trauma, method="cardinality")
```

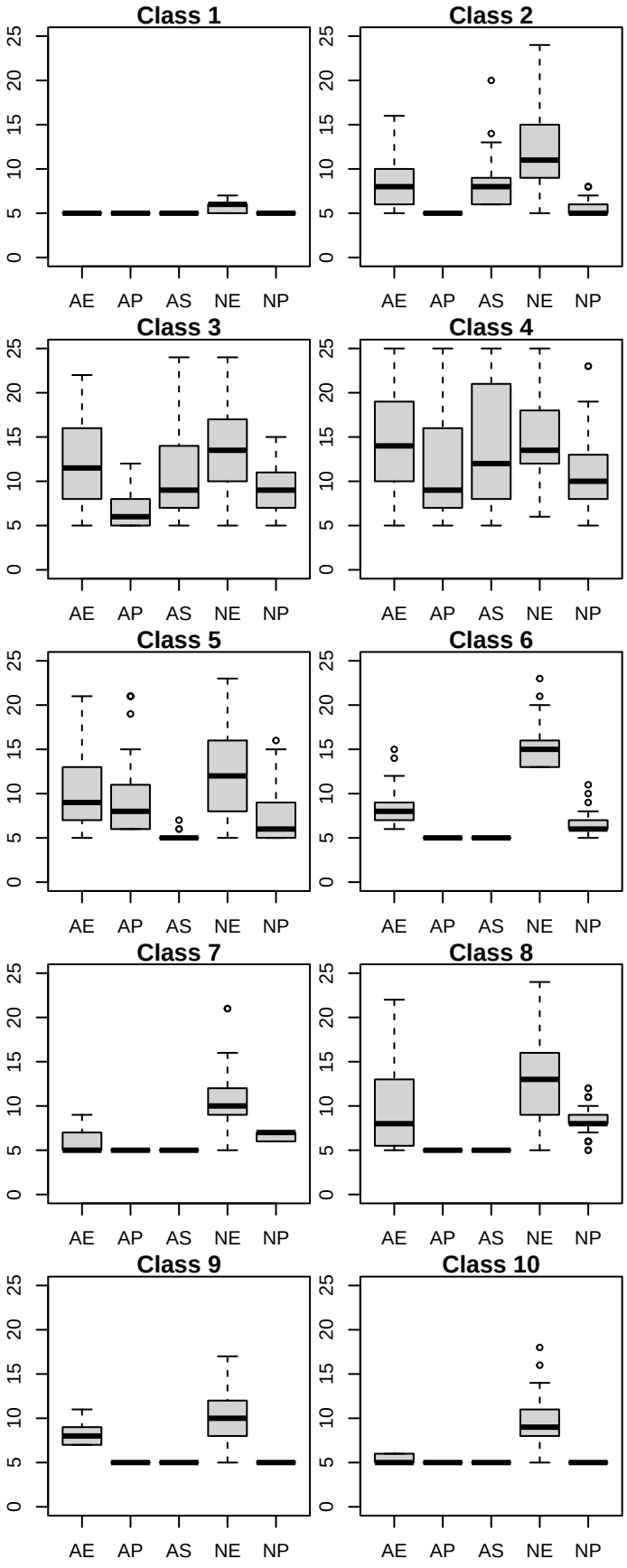

Figure S1: Scores to the CTQ sub-scales for the classes defined by latent profile analysis.

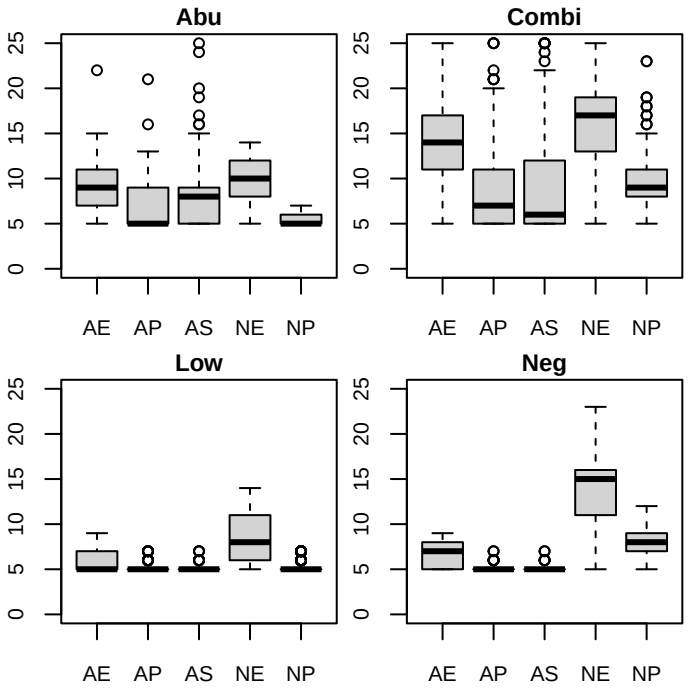

Figure S2: Scores to the CTQ sub-scales for the classes defined by categorical groups.

```
summary(mi.model)
```

```
##
## Call:
## matchit(formula = binary ~ Sexe + Age + Parental + Education,
##     data = trauma, method = "cardinality")
##
## Summary of Balance for All Data:
##                       Means Treated Means Control Std. Mean Diff. Var. Ratio
## SexeM                        0.3185        0.3504         -0.0684          .
## SexeF                        0.6815        0.6496          0.0684          .
## Age                         17.9234       17.4701          0.2588     1.3841
## ParentalPartnered            0.1532        0.1880         -0.0966          .
## ParentalMarried              0.3790        0.5171         -0.2846          .
## ParentalSeparated            0.4153        0.2607          0.3138          .
## ParentalWidowed              0.0524        0.0342          0.0818          .
## EducationMiddle              0.0282        0.0043          0.1446          .
## EducationGeneral             0.7097        0.7778         -0.1500          .
## EducationTechnical           0.0282        0.0513         -0.1392          .
## EducationVocational          0.0202        0.0043          0.1130          .
## EducationHigh                0.2137        0.1624          0.1252          .
##                       eCDF Mean eCDF Max
## SexeM                    0.0319   0.0319
## SexeF                    0.0319   0.0319
## Age                      0.0384   0.1034
## ParentalPartnered        0.0348   0.0348
## ParentalMarried          0.1381   0.1381
## ParentalSeparated        0.1546   0.1546
## ParentalWidowed          0.0182   0.0182
```

```
## EducationMiddle        0.0240   0.0240
## EducationGeneral       0.0681   0.0681
## EducationTechnical     0.0231   0.0231
## EducationVocational    0.0159   0.0159
## EducationHigh          0.0513   0.0513
##
## Summary of Balance for Matched Data:
##                      Means Treated Means Control Std. Mean Diff. Var. Ratio
## SexeM                       0.3125        0.3317         -0.0413          .
## SexeF                       0.6875        0.6683          0.0413          .
## Age                        17.6490       17.5625          0.0494     1.1539
## ParentalPartnered           0.1827        0.1971         -0.0400          .
## ParentalMarried             0.4519        0.4712         -0.0396          .
## ParentalSeparated           0.3173        0.2933          0.0488          .
## ParentalWidowed             0.0481        0.0385          0.0431          .
## EducationMiddle             0.0096        0.0048          0.0290          .
## EducationGeneral            0.7885        0.8077         -0.0424          .
## EducationTechnical          0.0337        0.0385         -0.0290          .
## EducationVocational         0.0096        0.0048          0.0342          .
## EducationHigh               0.1587        0.1442          0.0352          .
##                      eCDF Mean eCDF Max
## SexeM                   0.0192   0.0192
## SexeF                   0.0192   0.0192
## Age                     0.0104   0.0433
## ParentalPartnered       0.0144   0.0144
## ParentalMarried         0.0192   0.0192
## ParentalSeparated       0.0240   0.0240
## ParentalWidowed         0.0096   0.0096
## EducationMiddle         0.0048   0.0048
## EducationGeneral        0.0192   0.0192
## EducationTechnical      0.0048   0.0048
## EducationVocational     0.0048   0.0048
## EducationHigh           0.0144   0.0144
##
## Sample Sizes:
##           Control Treated
## All           234     248
## Matched       208     208
## Unmatched      26      40
## Discarded       0       0
```

```
plot(summary(mi.model), xlim=c(0, 0.35))
```

```
# Apply the cardinality matching model to the data to select a subset of subjects
m.data <- match.data(mi.model)

not.matched <- !(trauma$Code.participant %in% m.data$Code.participant)
table(trauma$group)
```

```
##
##   Low   Neg   Abu Combi
##   234    60    63   125
```

```
table(m.data$group)
```

```
##
```

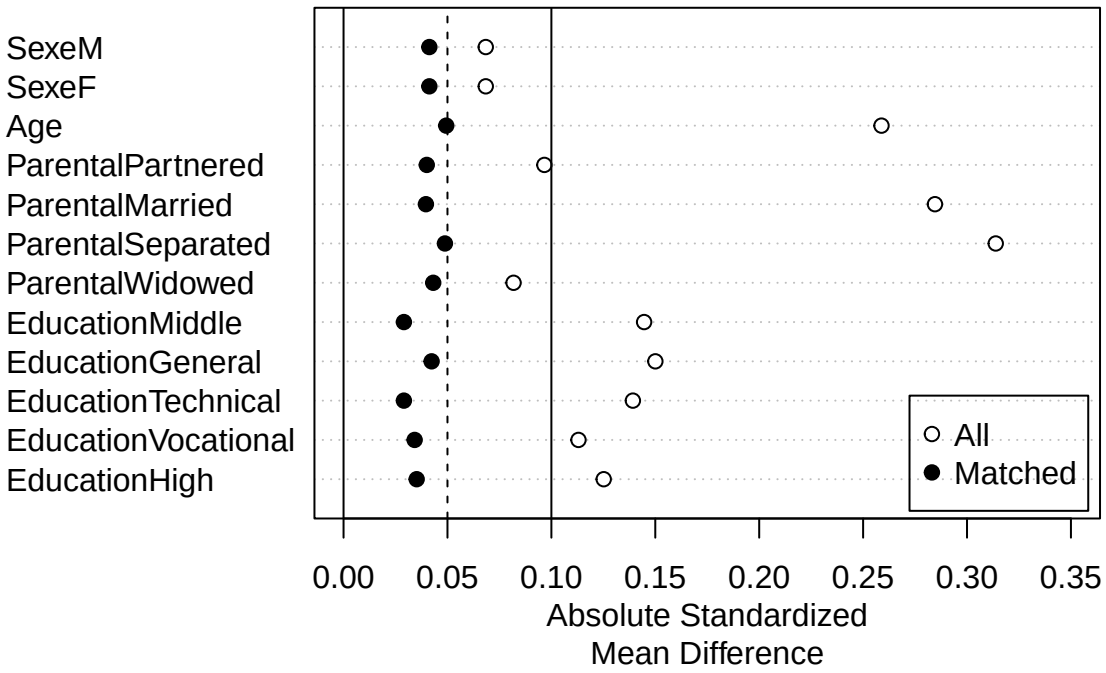

Figure S3: Absolute standardized mean difference for socio-demographic covarates before and after matching.

```
##   Low   Neg   Abu Combi
##   208    51    53   104
```

```
table(m.data$group) / sum(table(m.data$group))
```

```
##
##       Low       Neg       Abu     Combi
## 0.5000000 0.1225962 0.1274038 0.2500000
```

```
table(m.data$group, m.data$Sex)
```

```
##
##            M   F
##   Low     69 139
##   Neg     21  30
##   Abu     11  42
##   Combi   33  71
```

2.2.2 Optimal pair matching

Optimal pair matching find the best pairs "treated"-"non treated" in the data.

```
# Fit the optimal pair matching
opt.model <- matchit(binary ~ Sexe + Age + Parental + Education,
                     data=m.data, method="optimal")
plot(opt.model, type = "jitter", interactive = FALSE)
```

```
# Apply the optimal pair matching model to the selected data.
opt.data <- match.data(opt.model, weights="opt.weights")
opt.data$old.group <- opt.data$group
# Create the new levels for the group factor
levels(opt.data$group) <- c('Low', 'Neg', 'Abu', 'Combi', 'LowA', 'LowN', 'LowC')
```

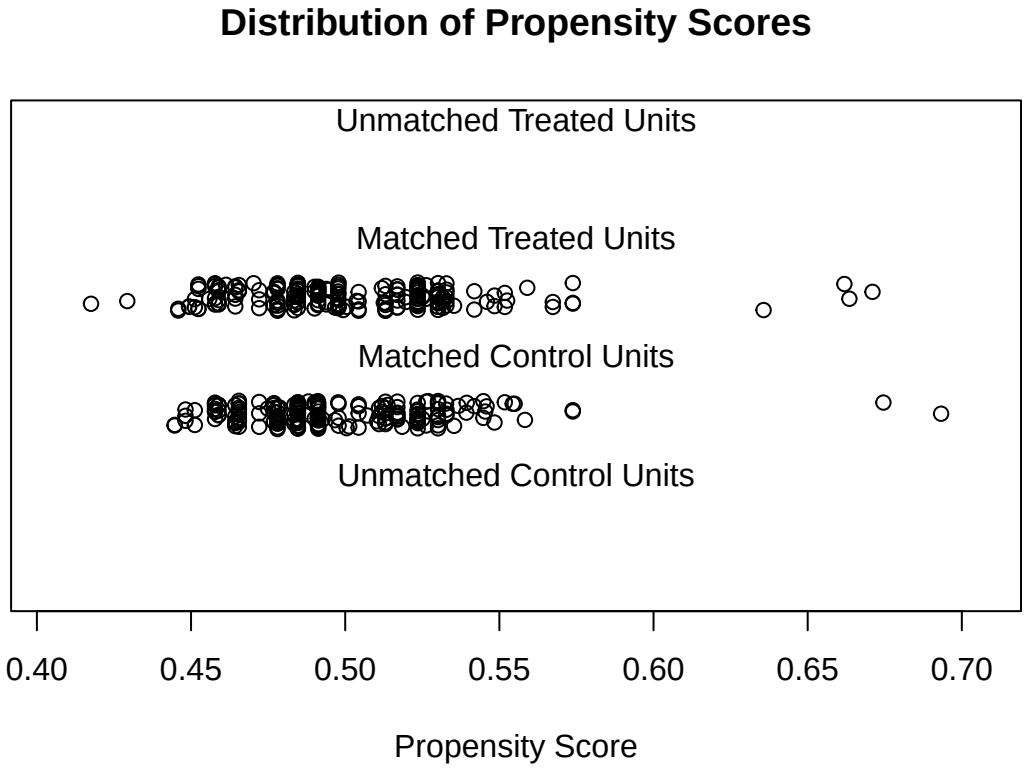

Figure S4: Distribution of the propensity score after optimal matching.

```
# The variable subclass defines the pairs of subjects with one in the trauma
# group and the other in the no trauma group
# Get the values for each trauma group
subc.abu <- opt.data$subclass[opt.data$old.group=='Abu']
subc.neg <- opt.data$subclass[opt.data$old.group=='Neg']
subc.multi <- opt.data$subclass[opt.data$old.group=='Combi']
# Associate the subjects in the "no trauma" group to their corresponding type of
# trauma group
opt.data$group[opt.data$old.group=="Low" &
               opt.data$subclass %in% subc.abu] <- "LowA"
opt.data$group[opt.data$old.group=="Low" &
               opt.data$subclass %in% subc.neg] <- 'LowN'
opt.data$group[opt.data$old.group=="Low" &
               opt.data$subclass %in% subc.multi] <- 'LowC'
# Delete the "Low" level for the group factor whihch is no more needed
opt.data$group <- droplevels(opt.data$group)
```

The groups are now denoted:

- Low maltreatment - Abuse: `LowA`
- Low maltreatment - Neglect: `LowN`
- Low maltreatment - Combination: `LowC`
- Trauma - Abuse: `Abu`
- Trauma - Neglect: `Neg`
- Trauma - Combination: `Combi`

and the sample size of each group is:

```r
table(opt.data$group)
```

```
##
##   Neg   Abu Combi  LowA  LowN  LowC
##    51    53   104    53    51   104
```

```r
nindiv <- nrow(opt.data)
# print(nindiv)
# names(opt.data)
bxp.data <- data.frame(Group = factor(rep(opt.data$group, 5)),
                       Scale = factor(c(rep('NE', nindiv),
                                        rep('NP', nindiv),
                                        rep('AE', nindiv),
                                        rep('AP', nindiv),
                                        rep('AS', nindiv))),
                      Scores = c(opt.data$CTQ.emotional.neglect,
                                 opt.data$CTQ.physical.neglect,
                                 opt.data$CTQ.emotional.abuse,
                                 opt.data$CTQ.physical.abuse,
                                 opt.data$CTQ.sexual.abuse))
summary(bxp.data)
```

```
##    Group     Scale        Scores
##  Neg  :255   AE:416   Min.   : 5.000
##  Abu  :265   AP:416   1st Qu.: 5.000
##  Combi:520   AS:416   Median : 6.000
##  LowA :265   NE:416   Mean   : 7.849
##  LowN :255   NP:416   3rd Qu.: 9.000
##  LowC :520            Max.   :25.000
```

```r
par(mfrow=c(2,3), mar=c(2,2,1,0)+0.1)

# for (id.group in levels(bxp.data$Group)){
for (id.group in c('Neg', 'Abu', 'Combi', 'LowN', 'LowA', 'LowC')){
boxplot(Scores~Scale,
        data=subset(bxp.data, Group==id.group),
        main=id.group,
        ylim=c(0,25))
}
```

3 Data analysis

```r
save(opt.data, file="output/opt.data.Robj")
```

Numerical descriptive statistics are given in the article.

Definition of functions:

```r
library(FactoMineR)
library(factoextra)
library(emmeans)
library(effectsize)
library(glue)

check.pca <- function(data, cutoff.thresh=0.999){
```

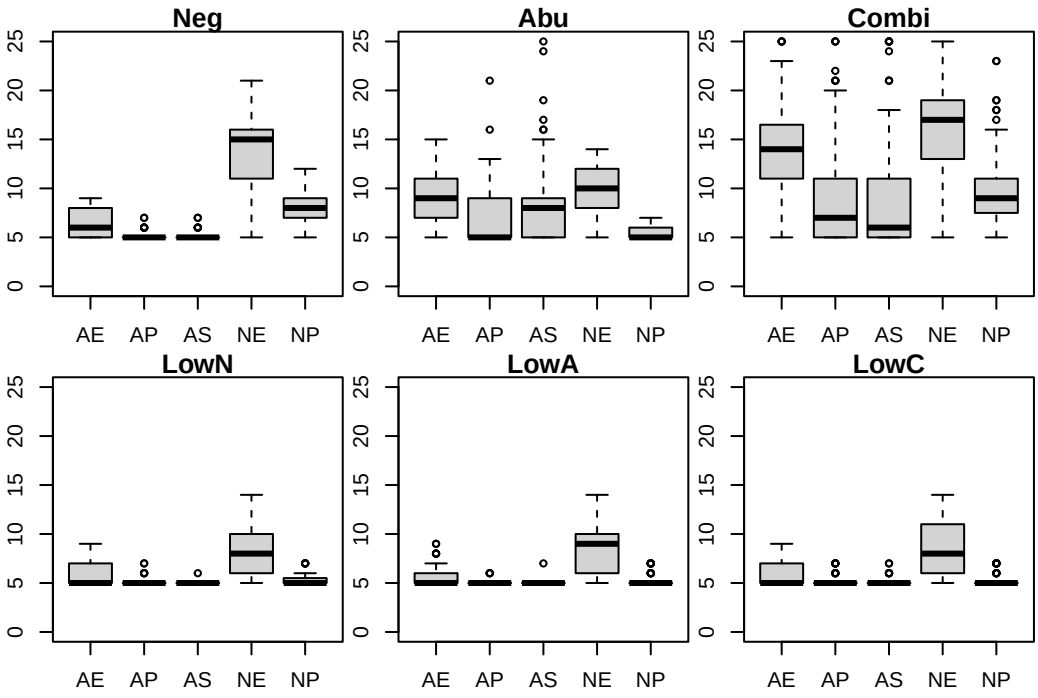

Figure S5: Distribtion of scores to the CTQ for the groups Neglected, Abuse and Combiation and their associated Low Maltreatment groups

```
    X.scaled <- scale(data)
    Sigma <- cov(X.scaled)
    d2.maha <- mahalanobis(X.scaled, colMeans(X.scaled), Sigma)
    cutoff <- qchisq(cutoff.thresh, df=ncol(X.scaled))
    outliers.nb <- sum(d2.maha > cutoff)
    outliers.idx <- if(outliers.nb!=0) which(d2.maha > cutoff)  else "None"
    print(glue("Nb outliers: {outliers.nb} -- {outliers.idx}"))
    return(outliers.idx)
}

show.pca <- function(data, qvs, qnvs, outliers){
    res.PCA <- PCA(data, quali.sup=qvs, quanti.sup=qnvs, graph=FALSE, ncp=30)
    if(all(outliers!="None")){
        print('----- Outliers influence -----')
        var.pc <- res.PCA$eig[, 2] / 100
        for (i in outliers){
            pc.tot <- round(sum(res.PCA$ind$contrib[i,] * var.pc), 3)
            print(glue("Contribution for outlier {i} to total variance: {pc.tot} %"))
        }
    print(' ')
    }
    print('----- Eigen values -----')
    print(res.PCA$eig)
    print(' ')
    print('----- Dimension description -----')
#   dimdesc:  This function is designed to point out the variables and the
#   categories that are the most characteristic according to each
```

```
#   dimension obtained by a Factor Analysis. (From the documentation)
    print(dimdesc(res.PCA, axes=1:2, proba=1))
    aov.data <- data.frame(d1=res.PCA$ind$coord[,1],
                           d2=res.PCA$ind$coord[,2],
                          group=data[,qvs])
    return(aov.data)
}

my.mcomp <- function(data, form){
   mod <- lm(as.formula(form), data=data)

   par(mfrow=c(1,3), mar=c(4,4,0.1,1.5))
   plot(mod, which=c(1,2,6))

   print(anova(mod))
   print(omega_squared(mod))
   print(' ')
   print(paste('----- Estimated marginal means for', form, '-----'))
   emm_groupe <- emmeans(mod,  ~ group)
   print(summary(emm_groupe))

   contrasts_list <- list(
               'Neglect - Control'=c(1,0,0,0,-1,0),
               'Neglect - Abuse'=c(1,-1,0,0,0,0),
               'Neglect - Combination'=c(1,0,-1,0,0,0),
               'Abuse - Control'=c(0,1,0,-1,0,0),
               'Abuse - Combination'=c(0,1,-1,0,0,0),
               'Combination - Control'=c(0,0,1,0,0,-1))

   all_contrasts <- contrast(emm_groupe, contrasts_list)
   print(' ')
   print(paste('----- Contrasts ', form, '-----'))
   print(summary(all_contrasts))
   print(eff_size(all_contrasts,
                  sigma = sigma(mod),
                  edf = df.residual(mod),
                  method='identity'))
   return(mod)
}

library(car)

my.lmcomp <- function(data, form){
   mod <- lm(as.formula(form), data=data)

   par(mfrow=c(1,3), mar=c(4,4,0.1,1.5))
   plot(mod, which=c(1,2,6))
   print(summary(mod))
   print(Anova(mod, type=2))
   print(omega_squared(Anova(mod, type=2)))
   return(mod)
}
```

```
mod.comp <- function(mod1, mod2){
    name1 <- deparse(substitute(mod1))
    name2 <- deparse(substitute(mod2))
radj <- c(summary(mod1)$adj.r.squared,
          summary(mod2)$adj.r.squared)
radj <- c(radj, radj[1]-radj[2])
aic <- c(AIC(mod1), AIC(mod2))
aic <- c(aic, aic[1]-aic[2])
bic <- c(BIC(mod1), BIC(mod2))
bic <- c(bic, bic[1]-bic[2])

dd <- data.frame(model = c(name1, name2, 'Delta'),
                 R2adj = round(radj, 3),
                 AIC = round(aic, 3),
                 BIC = round(bic, 3))
print(dd)
}
```

The five types of child trauma evaluated by the CTQ scale are renamed according to:

```
names(opt.data)[6:10] <- c('ctq.en', # emotional neglect
                           'ctq.pa', # physical abuse
                           'ctq.ea', # emotional abuse
                           'ctq.pn', # physical neglect
                           'ctq.sa'  # sexual abuse
                           )
```

3.1 DERS

3.1.1 PCA description

```
ders <- opt.data[,c(20:25, 41, 6:10)]
pca.out <- check.pca(ders[,1:6])
```

```
## Nb outliers: 1 -- 224
```

```
aov.ders <- show.pca(ders,qvs=c(7), qnvs=c(8:12), outliers=pca.out)
```

```
## [1] "----- Outliers influence -----"
## Contribution for outlier 224 to total variance: 0.649 %
## [1] " "
## [1] "----- Eigen values -----"
##        eigenvalue percentage of variance cumulative percentage of variance
## comp 1  2.9852230              49.753716                          49.75372
## comp 2  1.2136385              20.227308                          69.98102
## comp 3  0.6853257              11.422095                          81.40312
## comp 4  0.4451239               7.418732                          88.82185
## comp 5  0.4117515               6.862525                          95.68438
## comp 6  0.2589374               4.315624                         100.00000
## [1] " "
## [1] "----- Dimension description -----"
## $Dim.1
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                    correlation       p.value
## DERSstrategies       0.8850106 1.556210e-139
## DERSimpulse          0.8229383 1.044451e-103
## DERSnonacceptance    0.7389241  5.401735e-73
## DERSgoals            0.7328327  3.119255e-71
## DERSclarity          0.6527146  7.347411e-52
## ctq.ea               0.3036451  2.541023e-10
## ctq.en               0.2411606  6.438262e-07
## ctq.pn               0.1805985  2.131403e-04
## ctq.sa               0.1311125  7.412919e-03
## ctq.pa               0.1100027  2.485257e-02
## DERSawareness       -0.1251514  1.061973e-02
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##                R2      p.value
## group 0.08443648 8.273753e-07
##
## Link between variable and the categories of the categorical variables
## ================================================================
##                Estimate      p.value
## group=Combi   0.7564038 1.192753e-06
## group=Abu     0.3524300 1.757802e-01
## group=Neg     0.1860496 5.544387e-01
## group=LowA   -0.3193115 9.465136e-02
## group=LowC   -0.3517619 5.883790e-03
## group=LowN   -0.6238101 2.808877e-03
```

```
##
## $Dim.2
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                     correlation       p.value
## DERSawareness      0.913891364 3.496421e-164
## DERSclarity        0.562282751  4.745983e-36
## ctq.en             0.215298380  9.419413e-06
## ctq.ea             0.194212605  6.683376e-05
## ctq.pn             0.191210896  8.691497e-05
## ctq.pa             0.111772710  2.260686e-02
## ctq.sa             0.102039896  3.749030e-02
## DERSnonacceptance  0.002143437  9.652342e-01
## DERSimpulse       -0.002924330  9.525813e-01
## DERSstrategies    -0.092690020  5.890624e-02
## DERSgoals         -0.231677772  1.786063e-06
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##               R2    p.value
## group 0.03463201 0.01270863
##
## Link between variable and the categories of the categorical variables
## ============================================================
##                 Estimate      p.value
## group=Combi  0.32968174 0.0007646306
## group=Neg    0.10249492 0.5507831139
## group=LowN   0.02333811 0.9598845812
## group=Abu   -0.12620911 0.3153970591
## group=LowA  -0.13546159 0.2849131450
## group=LowC  -0.19384407 0.0248567139
```

3.1.2 First component analysis

```
ders.d1.group <- my.mcomp(aov.ders, 'd1~group')
```

3.1.2.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d1
##             Df  Sum Sq Mean Sq F value    Pr(>F)
## group        5  104.86 20.9715  7.5623 8.274e-07 ***
## Residuals 410 1137.00  2.7732
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
```

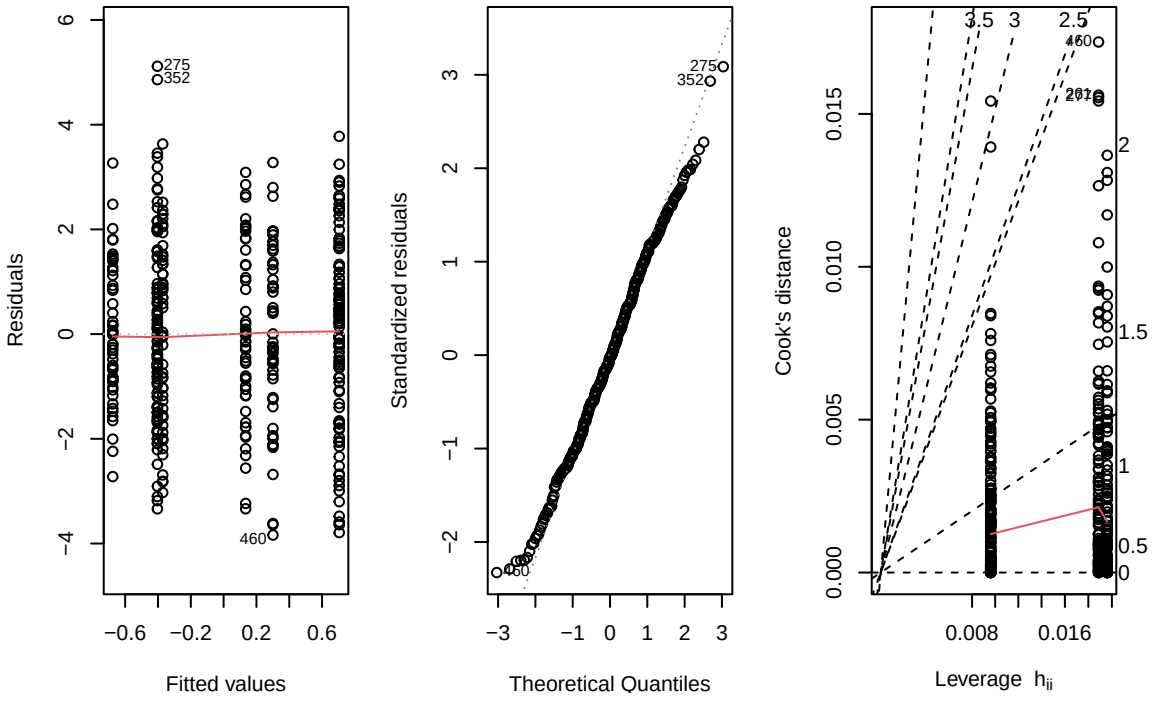

Figure S6: Diagnostic plots of the linear model d1∼group for DERS data.

```
## group     |   0.07 | [0.03, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d1~group -----"
##  group emmean    SE  df lower.CL upper.CL
##  Neg    0.134 0.233 410   -0.324   0.5927
##  Abu    0.301 0.229 410   -0.149   0.7504
##  Combi  0.705 0.163 410    0.384   1.0257
##  LowA  -0.371 0.229 410   -0.821   0.0786
##  LowN  -0.676 0.233 410   -1.134  -0.2171
##  LowC  -0.403 0.163 410   -0.724  -0.0825
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d1~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control        0.810 0.330 410   2.456  0.0145
##  Neglect - Abuse         -0.166 0.327 410  -0.509  0.6108
##  Neglect - Combination   -0.570 0.285 410  -2.004  0.0458
##  Abuse - Control          0.672 0.323 410   2.077  0.0385
##  Abuse - Combination     -0.404 0.281 410  -1.437  0.1514
##  Combination - Control    1.108 0.231 410   4.799  <.0001
##
##  contrast               effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)         0.4863 0.199 410   0.0956  0.87703
##  (Neglect - Abuse)          -0.0999 0.196 410  -0.4856  0.28574
##  (Neglect - Combination)    -0.3425 0.171 410  -0.6794 -0.00563
##  (Abuse - Control)           0.4034 0.195 410   0.0205  0.78625
##  (Abuse - Combination)      -0.2426 0.169 410  -0.5748  0.08959
```

```
##  (Combination - Control)      0.6655 0.141 410   0.3890  0.94186
##
## sigma used for effect sizes: 1.665
## Confidence level used: 0.95
```

```
ders.mod <- cbind(aov.ders, opt.data[,6:10])
ders.d1.ctq <- my.lmcomp(ders.mod, 'd1~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

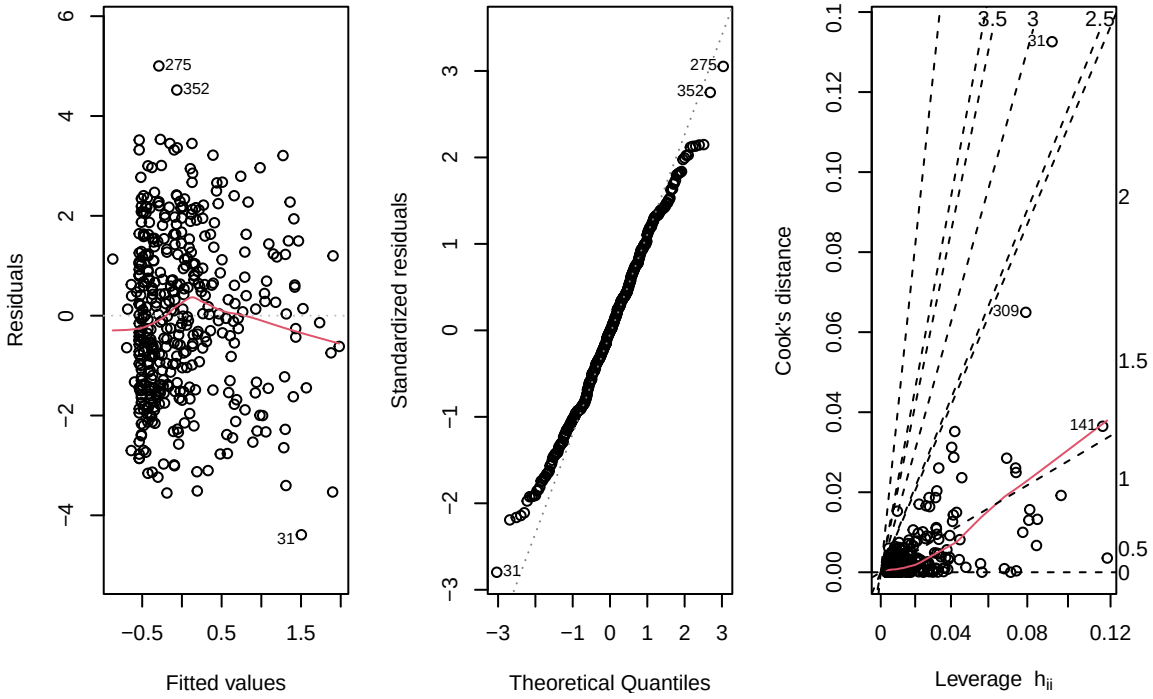

Figure S7: Diagnostic plots of the linear model d1∼CTQ sub-scales for DERS data.

3.1.2.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.3890 -1.3354 -0.0173  1.1996  5.0027
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -1.070596   0.245997  -4.352 1.70e-05 ***
## ctq.en       0.027474   0.022803   1.205   0.2289
## ctq.pa      -0.059435   0.032449  -1.832   0.0677 .
## ctq.ea       0.128915   0.030057   4.289 2.24e-05 ***
## ctq.pn       0.004501   0.040881   0.110   0.9124
## ctq.sa       0.005179   0.025146   0.206   0.8369
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 1.647 on 410 degrees of freedom
## Multiple R-squared:  0.1046, Adjusted R-squared:  0.09371
## F-statistic: 9.582 on 5 and 410 DF,  p-value: 1.162e-08
##
## Anova Table (Type II tests)
##
## Response: d1
##            Sum Sq  Df F value    Pr(>F)
## ctq.en       3.94   1  1.4517   0.22895
## ctq.pa       9.10   1  3.3550   0.06773 .
## ctq.ea      49.89   1 18.3954 2.241e-05 ***
## ctq.pn       0.03   1  0.0121   0.91239
## ctq.sa       0.12   1  0.0424   0.83692
## Residuals 1111.92 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |         1.08e-03 | [0.00, 1.00]
## ctq.pa    |         5.63e-03 | [0.00, 1.00]
## ctq.ea    |             0.04 | [0.01, 1.00]
## ctq.pn    |             0.00 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(ders.d1.group, ders.d1.ctq)
```

```
##           model  R2adj      AIC      BIC
## 1 ders.d1.group  0.073 1612.828 1641.043
## 2   ders.d1.ctq  0.094 1603.552 1631.767
## 3         Delta -0.020    9.276    9.276
```

3.1.3 Second component analysis

```
ders.d2.group <- my.mcomp(aov.ders, 'd2~group')
```

3.1.3.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d2
##            Df Sum Sq Mean Sq F value  Pr(>F)
## group       5  17.48  3.4970  2.9417 0.01271 *
## Residuals 410 487.39  1.1888
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
```

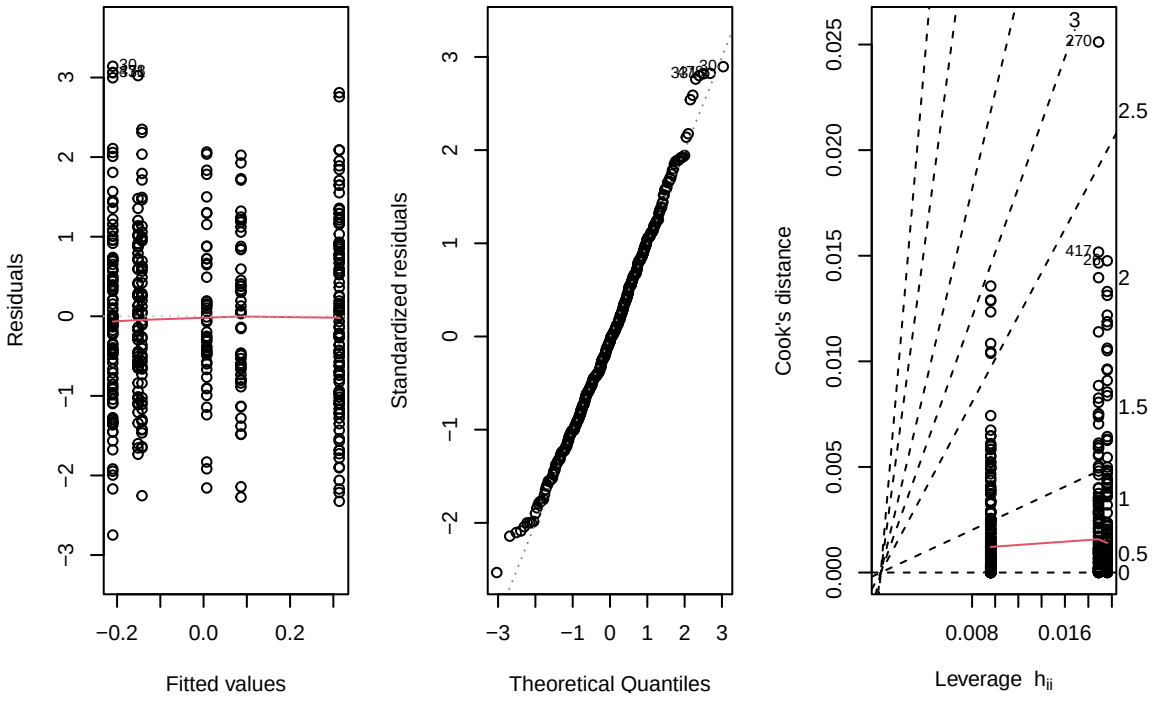

Figure S8: Diagnostic plots of the linear model d2∼group for DERS data.

```
## ---------------------------------
## group     |   0.02 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d2~group -----"
##  group   emmean    SE  df lower.CL upper.CL
##  Neg    0.08645 0.153 410   -0.214 0.386565
##  Abu   -0.14226 0.150 410   -0.437 0.152144
##  Combi  0.31363 0.107 410    0.103 0.523799
##  LowA  -0.15151 0.150 410   -0.446 0.142892
##  LowN   0.00729 0.153 410   -0.293 0.307408
##  LowC  -0.20989 0.107 410   -0.420 0.000273
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d2~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control      0.07916 0.216 410   0.367  0.7141
##  Neglect - Abuse        0.22870 0.214 410   1.069  0.2855
##  Neglect - Combination -0.22719 0.186 410  -1.219  0.2236
##  Abuse - Control        0.00925 0.212 410   0.044  0.9652
##  Abuse - Combination   -0.45589 0.184 410  -2.478  0.0136
##  Combination - Control  0.52353 0.151 410   3.463  0.0006
##
##  contrast                effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)         0.07260 0.198 410   -0.317   0.4619
##  (Neglect - Abuse)           0.20976 0.196 410   -0.176   0.5956
##  (Neglect - Combination)    -0.20837 0.171 410   -0.545   0.1280
##  (Abuse - Control)           0.00849 0.194 410   -0.373   0.3904
```

```
##  (Abuse - Combination)      -0.41813 0.169 410   -0.751  -0.0851
##  (Combination - Control)     0.48017 0.140 410    0.206   0.7548
##
## sigma used for effect sizes: 1.09
## Confidence level used: 0.95
```

```
ders.d2.ctq <- my.lmcomp(ders.mod, 'd2~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

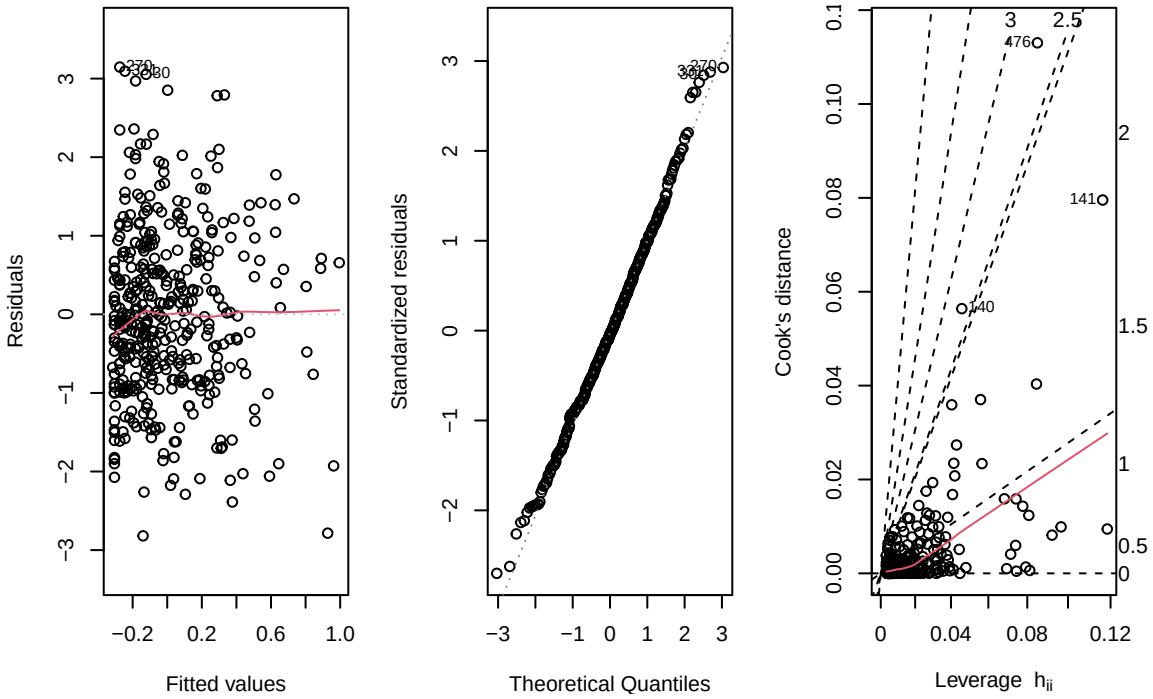

Figure S9: Diagnostic plots of the linear model d2∼CTQ sub-scales for DERS data.

3.1.3.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.81856 -0.75512 -0.04205  0.71216  3.14663
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.694806   0.160964  -4.317 1.99e-05 ***
## ctq.en       0.030502   0.014921   2.044   0.0416 *
## ctq.pa      -0.009797   0.021232  -0.461   0.6447
## ctq.ea       0.018466   0.019667   0.939   0.3483
## ctq.pn       0.037609   0.026750   1.406   0.1605
## ctq.sa       0.001133   0.016454   0.069   0.9451
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 1.078 on 410 degrees of freedom
## Multiple R-squared:  0.05704,    Adjusted R-squared:  0.04554
## F-statistic:  4.96 on 5 and 410 DF,  p-value: 0.0002015
##
## Anova Table (Type II tests)
##
## Response: d2
##           Sum Sq  Df F value  Pr(>F)
## ctq.en      4.85   1  4.1790 0.04157 *
## ctq.pa      0.25   1  0.2129 0.64473
## ctq.ea      1.02   1  0.8815 0.34834
## ctq.pn      2.30   1  1.9766 0.16050
## ctq.sa      0.01   1  0.0047 0.94512
## Residuals 476.07 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |         7.58e-03 | [0.00, 1.00]
## ctq.pa    |             0.00 | [0.00, 1.00]
## ctq.ea    |             0.00 | [0.00, 1.00]
## ctq.pn    |         2.34e-03 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(ders.d2.group, ders.d2.ctq)
```

```
##           model  R2adj      AIC      BIC
## 1 ders.d2.group  0.023 1260.442 1288.656
## 2   ders.d2.ctq  0.046 1250.671 1278.886
## 3         Delta -0.023    9.771    9.771
```

3.2 CERQ

3.2.1 PCA description

```
cerq <- opt.data[, c(11:19, 41, 6:10)]
pca.out <- check.pca(cerq[,1:9])
```

```
## Nb outliers: 2 -- 68
## Nb outliers: 2 -- 392
```

```
aov.cerq <- show.pca(cerq, qvs=c(10), qnvs=c(11:15), outliers=pca.out)
```

```
## [1] "----- Outliers influence -----"
## Contribution for outlier 68 to total variance: 0.779 %
## Contribution for outlier 392 to total variance: 0.669 %
## [1] " "
## [1] "----- Eigen values -----"
##        eigenvalue percentage of variance cumulative percentage of variance
## comp 1  2.3289202              25.876891                           25.87689
## comp 2  1.8956248              21.062498                           46.93939
## comp 3  1.1486817              12.763130                           59.70252
## comp 4  0.8110942               9.012157                           68.71468
## comp 5  0.7303331               8.114813                           76.82949
## comp 6  0.6840165               7.600183                           84.42967
## comp 7  0.5190504               5.767227                           90.19690
## comp 8  0.4634024               5.148915                           95.34582
## comp 9  0.4188766               4.654185                          100.00000
## [1] " "
## [1] "----- Dimension description -----"
## $Dim.1
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                             correlation      p.value
## CERQpositivereappraisal      0.78787559 3.421132e-89
## CERQputtingintoperspective   0.70269267 3.500404e-63
## CERQrefocusonplanning        0.69164687 1.759073e-60
## CERQpositivefocusing         0.65577527 1.716509e-52
## CERQacceptance               0.51149302 4.118721e-29
## ctq.sa                      -0.02700534 5.828367e-01
## CERQrumination              -0.04377713 3.731319e-01
## ctq.pa                      -0.04409354 3.696840e-01
## ctq.ea                      -0.09220340 6.025361e-02
## CERQblamingother            -0.09765726 4.652577e-02
## CERQselfblame               -0.12570076 1.027975e-02
## CERQcatastrophizing         -0.13076524 7.572735e-03
## ctq.pn                      -0.14898476 2.314598e-03
## ctq.en                      -0.19790067 4.813122e-05
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##               R2     p.value
## group 0.03870734 0.006180248
##
## Link between variable and the categories of the categorical variables
```

```
## ================================================================
##                  Estimate     p.value
## group=LowC   0.280052191 0.036002980
## group=Abu    0.353229108 0.078412409
## group=LowA   0.163231593 0.429756861
## group=LowN  -0.008425785 0.933977471
## group=Combi -0.235129304 0.060657375
## group=Neg   -0.552957804 0.004979009
##
## $Dim.2
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                             correlation      p.value
## CERQrumination               0.81231530 5.458564e-99
## CERQselfblame                0.71755388 5.087007e-67
## CERQcatastrophizing          0.62729433 6.924024e-47
## CERQblamingother             0.43841388 5.730055e-21
## CERQacceptance               0.31783219 3.225998e-11
## ctq.ea                       0.29492301 8.562227e-10
## CERQrefocusonplanning        0.16084659 9.939650e-04
## ctq.en                       0.15532574 1.483914e-03
## ctq.sa                       0.15077051 2.045682e-03
## ctq.pn                       0.14112096 3.925343e-03
## ctq.pa                       0.10256385 3.651702e-02
## CERQpositivereappraisal      0.02297493 6.403209e-01
## CERQputtingintoperspective   0.02104638 6.686370e-01
## CERQpositivefocusing        -0.08555983 8.132811e-02
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##               R2      p.value
## group 0.09128294 1.983808e-07
##
## Link between variable and the categories of the categorical variables
## ================================================================
##                 Estimate      p.value
## group=Combi  0.59700388 3.329540e-06
## group=Abu    0.49900345 1.264627e-02
## group=Neg   -0.09241639 4.035895e-01
## group=LowC  -0.14260069 8.534073e-02
## group=LowA  -0.30865835 3.759817e-02
## group=LowN  -0.55233190 6.799304e-04
```

3.2.2 First component analysis

```
cerq.mod <- cbind(aov.cerq, opt.data[,6:10])
cerq.d1.group <- my.mcomp(aov.cerq, 'd1~group')
```

3.2.2.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d1
```

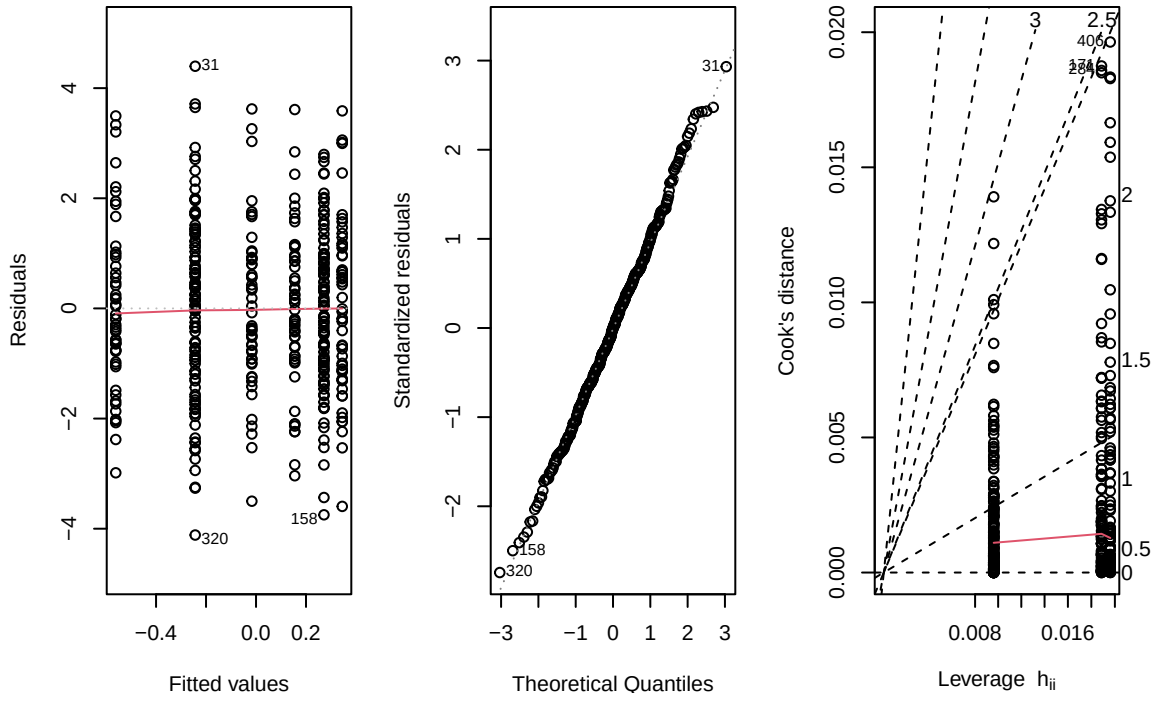

Figure S10: Diagnostic plots of the linear model d1∼group for CERQ data.

```
##             Df Sum Sq Mean Sq F value  Pr(>F)
## group        5  37.50  7.5002  3.3018 0.00618 **
## Residuals  410 931.33  2.2715
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.
```

```
## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
## group     |   0.03 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d1~group -----"
##  group  emmean    SE  df lower.CL upper.CL
##  Neg   -0.5612 0.211 410  -0.9760  -0.1463
##  Abu    0.3450 0.207 410  -0.0619   0.7520
##  Combi -0.2433 0.148 410  -0.5339   0.0472
##  LowA   0.1550 0.207 410  -0.2519   0.5620
##  LowN  -0.0166 0.211 410  -0.4315   0.3982
##  LowC   0.2718 0.148 410  -0.0187   0.5624
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d1~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control       -0.545 0.298 410  -1.824  0.0688
```

```
##  Neglect - Abuse          -0.906 0.296 410  -3.065  0.0023
##  Neglect - Combination    -0.318 0.258 410  -1.234  0.2181
##  Abuse - Control           0.190 0.293 410   0.649  0.5167
##  Abuse - Combination       0.588 0.254 410   2.313  0.0212
##  Combination - Control    -0.515 0.209 410  -2.465  0.0141
##
##  contrast                 effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)           -0.361 0.198 410  -0.7514   0.0288
##  (Neglect - Abuse)             -0.601 0.197 410  -0.9890  -0.2135
##  (Neglect - Combination)       -0.211 0.171 410  -0.5472   0.1255
##  (Abuse - Control)              0.126 0.194 410  -0.2559   0.5080
##  (Abuse - Combination)          0.390 0.169 410   0.0575   0.7232
##  (Combination - Control)       -0.342 0.139 410  -0.6154  -0.0682
##
## sigma used for effect sizes: 1.507
## Confidence level used: 0.95
```

```
cerq.d1.ctq <- my.lmcomp(cerq.mod, 'd1~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

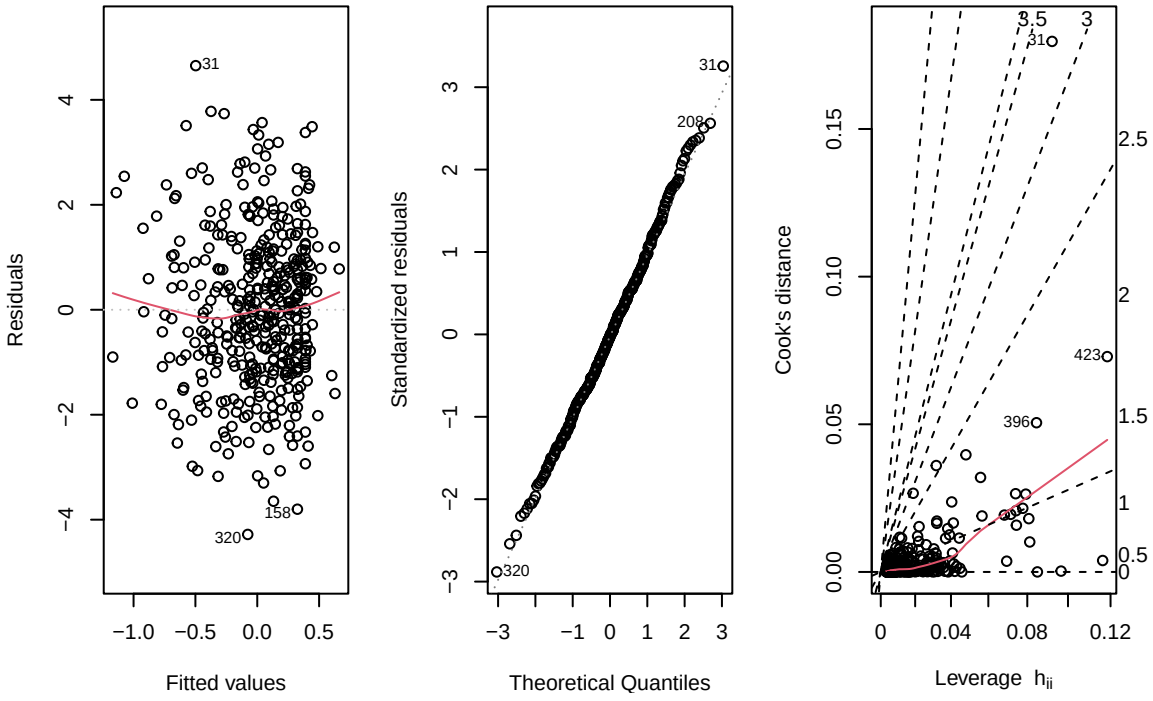

Figure S11: Diagnostic plots of the linear model d1∼CTQ sub-scales for CERQ data.

3.2.2.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.2812 -1.0305 -0.0386  0.9567  4.6515
##
```

```
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.77787    0.22397   3.473 0.000569 ***
## ctq.en      -0.06434    0.02076  -3.099 0.002075 **
## ctq.pa       0.01452    0.02954   0.491 0.623418
## ctq.ea       0.02516    0.02737   0.920 0.358337
## ctq.pn      -0.06759    0.03722  -1.816 0.070089 .
## ctq.sa       0.01446    0.02289   0.632 0.528017
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.499 on 410 degrees of freedom
## Multiple R-squared:  0.04866,    Adjusted R-squared:  0.03706
## F-statistic: 4.194 on 5 and 410 DF,  p-value: 0.0009955
##
## Anova Table (Type II tests)
##
## Response: d1
##           Sum Sq  Df F value   Pr(>F)
## ctq.en     21.59   1  9.6044 0.002075 **
## ctq.pa      0.54   1  0.2415 0.623418
## ctq.ea      1.90   1  0.8456 0.358337
## ctq.pn      7.41   1  3.2981 0.070089 .
## ctq.sa      0.90   1  0.3989 0.528017
## Residuals 921.69 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.02 | [0.00, 1.00]
## ctq.pa    |             0.00 | [0.00, 1.00]
## ctq.ea    |             0.00 | [0.00, 1.00]
## ctq.pn    |         5.49e-03 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(cerq.d1.group, cerq.d1.ctq)
```

```
##           model  R2adj      AIC      BIC
## 1 cerq.d1.group  0.027 1529.823 1558.038
## 2   cerq.d1.ctq  0.037 1525.495 1553.710
## 3         Delta -0.010    4.328    4.328
```

3.2.3 Second component analysis

```
cerq.d2.group <- my.mcomp(aov.cerq, 'd2~group')
```

3.2.3.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d2
```

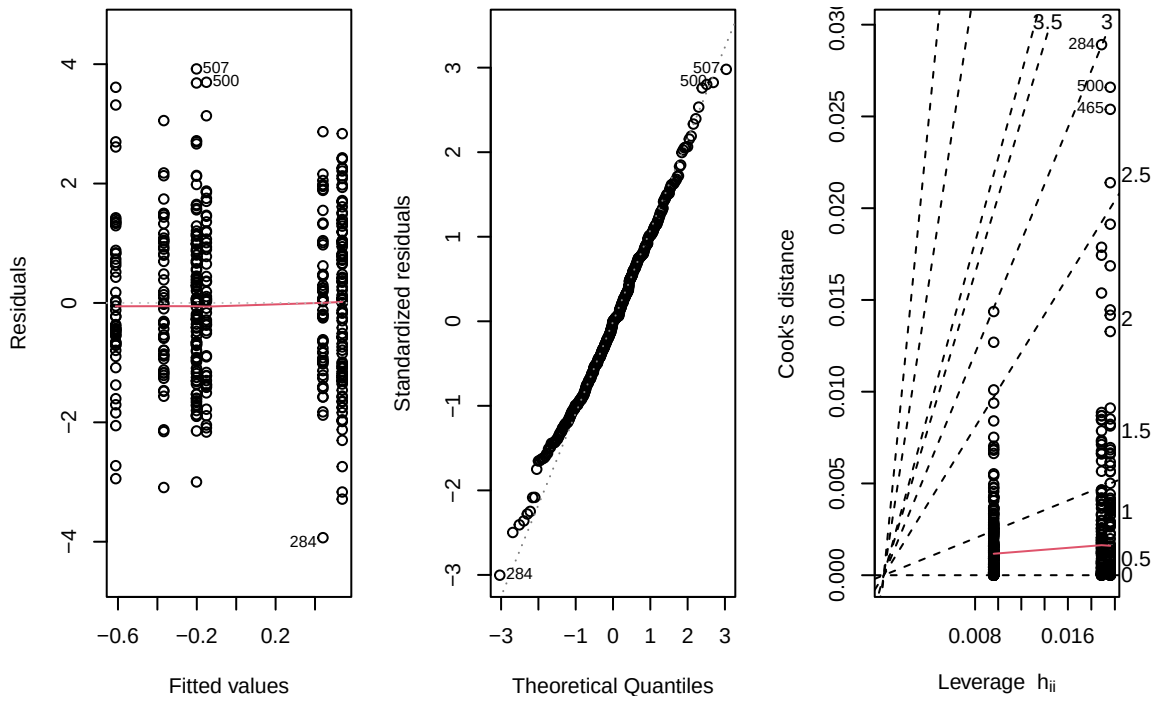

Figure S12: Diagnostic plots of the linear model d2∼group for CERQ data.

```
##             Df Sum Sq Mean Sq F value    Pr(>F)
## group        5  71.98 14.3968  8.2371 1.984e-07 ***
## Residuals 410 716.60  1.7478
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
## group     |   0.08 | [0.04, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d2~group -----"
##  group emmean    SE  df lower.CL upper.CL
##  Neg   -0.151 0.185 410  -0.5151   0.2127
##  Abu    0.440 0.182 410   0.0832   0.7972
##  Combi  0.538 0.130 410   0.2834   0.7930
##  LowA  -0.367 0.182 410  -0.7244  -0.0105
##  LowN  -0.611 0.185 410  -0.9750  -0.2472
##  LowC  -0.201 0.130 410  -0.4562   0.0534
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d2~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control        0.460 0.262 410   1.757  0.0797
```

```
##  Neglect - Abuse          -0.591 0.259 410  -2.281  0.0231
##  Neglect - Combination    -0.689 0.226 410  -3.051  0.0024
##  Abuse - Control           0.808 0.257 410   3.145  0.0018
##  Abuse - Combination      -0.098 0.223 410  -0.439  0.6607
##  Combination - Control     0.740 0.183 410   4.034  0.0001
##
##  contrast                effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)          0.3479 0.198 410  -0.0421   0.7379
##  (Neglect - Abuse)           -0.4474 0.197 410  -0.8342  -0.0605
##  (Neglect - Combination)     -0.5215 0.172 410  -0.8594  -0.1835
##  (Abuse - Control)            0.6109 0.195 410   0.2268   0.9951
##  (Abuse - Combination)       -0.0741 0.169 410  -0.4059   0.2577
##  (Combination - Control)      0.5594 0.140 410   0.2841   0.8347
##
## sigma used for effect sizes: 1.322
## Confidence level used: 0.95
```

```
cerq.d2.ctq <- my.lmcomp(cerq.mod, 'd2~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

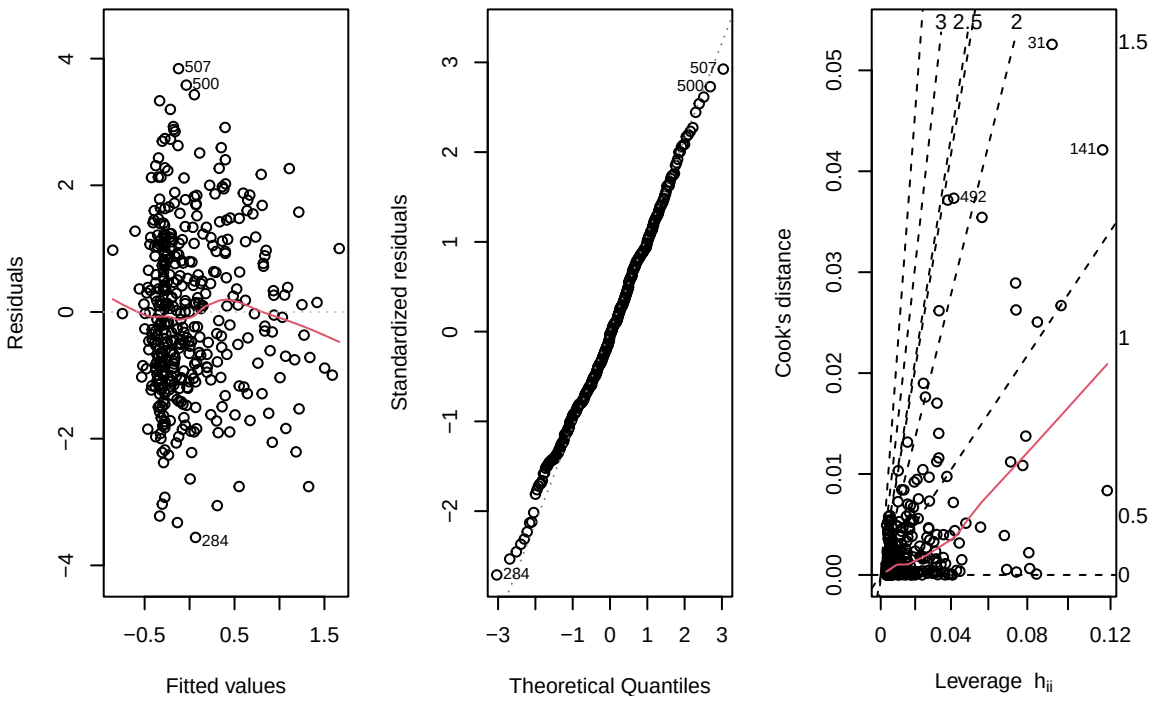

Figure S13: Diagnostic plots of the linear model d2∼CTQ sub-scales for CERQ data.

3.2.3.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.5591 -0.9338 -0.0409  0.9565  3.8418
##
```

```
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.60806    0.19654  -3.094  0.00211 **
## ctq.en      -0.01455    0.01822  -0.798  0.42508
## ctq.pa      -0.05275    0.02592  -2.035  0.04253 *
## ctq.ea       0.12803    0.02401   5.331 1.61e-07 ***
## ctq.pn      -0.01232    0.03266  -0.377  0.70622
## ctq.sa       0.01820    0.02009   0.906  0.36546
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.316 on 410 degrees of freedom
## Multiple R-squared:  0.09997,    Adjusted R-squared:  0.089
## F-statistic: 9.108 on 5 and 410 DF,  p-value: 3.15e-08
##
## Anova Table (Type II tests)
##
## Response: d2
##           Sum Sq  Df F value    Pr(>F)
## ctq.en      1.10   1  0.6375   0.42508
## ctq.pa      7.17   1  4.1398   0.04253 *
## ctq.ea     49.20   1 28.4239 1.613e-07 ***
## ctq.pn      0.25   1  0.1423   0.70622
## ctq.sa      1.42   1  0.8209   0.36546
## Residuals 709.74 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.00 | [0.00, 1.00]
## ctq.pa    |         7.49e-03 | [0.00, 1.00]
## ctq.ea    |             0.06 | [0.03, 1.00]
## ctq.pn    |             0.00 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(cerq.d2.group, cerq.d2.ctq)
```

```
##           model  R2adj      AIC      BIC
## 1 cerq.d2.group  0.080 1420.789 1449.004
## 2   cerq.d2.ctq  0.089 1416.791 1445.006
## 3         Delta -0.009    3.997    3.997
```

3.3 DSI

3.3.1 PCA description

```
dsi <- opt.data[,c(27:30, 41, 6:10)]
pca.out <- check.pca(dsi[,1:4])
```

```
## Nb outliers: 1 -- 28
```

```
aov.dsi <- show.pca(dsi, qvs=c(5), qnvs=c(6:10), outliers=pca.out)
```

```
## [1] "----- Outliers influence -----"
## Contribution for outlier 28 to total variance: 0.612 %
## [1] " "
## [1] "----- Eigen values -----"
##        eigenvalue percentage of variance cumulative percentage of variance
## comp 1  2.1242382             53.105956                          53.10596
## comp 2  1.0032656             25.081639                          78.18760
## comp 3  0.5524315             13.810789                          91.99838
## comp 4  0.3200646              8.001616                         100.00000
## [1] " "
## [1] "----- Dimension description -----"
## $Dim.1
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                       correlation       p.value
## DSIemotionalreact    0.884968904 1.669886e-139
## DSIfusionwithothers  0.847224077 8.584022e-116
## DSIiposition         0.777916304  1.452647e-85
## DSIemotionalcutoff   0.134632372  5.955136e-03
## ctq.pa               0.004802321  9.222068e-01
## ctq.pn              -0.083095268  9.052282e-02
## ctq.en              -0.091350684  6.267598e-02
## ctq.ea              -0.091390048  6.256241e-02
## ctq.sa              -0.105738453  3.106740e-02
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##              R2   p.value
## group 0.0181512 0.1836181
##
## Link between variable and the categories of the categorical variables
## ============================================================
##               Estimate    p.value
## group=LowC   0.2561012 0.04123812
## group=LowA   0.1257701 0.51386391
## group=LowN   0.1035180 0.60131392
## group=Neg   -0.0464917 0.79492323
## group=Abu   -0.2123199 0.24987030
## group=Combi -0.2265777 0.06346324
##
## $Dim.2
##
## Link between the variable and the continuous variables (R-square)
```

```
## ================================================================================
##                      correlation      p.value
## DSIemotionalcutoff    0.98733951 0.000000e+00
## DSIemotionalreact     0.05575911 2.564893e-01
## ctq.sa               -0.04607080 3.485867e-01
## DSIfusionwithothers -0.10707125 2.899585e-02
## DSIiposition         -0.11769852 1.631828e-02
## ctq.pa               -0.13791694 4.832701e-03
## ctq.pn               -0.21651360 8.361891e-06
## ctq.en               -0.25644449 1.134956e-07
## ctq.ea               -0.26274354 5.368322e-08
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##               R2      p.value
## group 0.06403583 5.141364e-05
##
## Link between variable and the categories of the categorical variables
## ================================================================
##                 Estimate      p.value
## group=LowN    0.37912695 1.784470e-03
## group=LowC    0.15536942 2.923565e-02
## group=LowA    0.05484979 5.097370e-01
## group=Abu    -0.05990405 8.172204e-01
## group=Neg    -0.13791879 4.130985e-01
## group=Combi -0.39152331 1.841919e-05
```

3.3.2 First component analysis

```
dsi.mod <- cbind(aov.dsi, opt.data[,6:10])
dsi.d1.group <- my.mcomp(aov.dsi, 'd1~group')
```

3.3.2.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d1
##            Df Sum Sq Mean Sq F value Pr(>F)
## group       5  16.04  3.2080  1.5159 0.1836
## Residuals 410 867.64  2.1162

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter |   Omega2 |       95% CI
## ------------------------------------
## group     | 6.16e-03 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d1~group -----"
##  group  emmean    SE  df lower.CL upper.CL
##  Neg   -0.0498 0.204 410  -0.4503   0.3506
##  Abu   -0.2157 0.200 410  -0.6085   0.1771
```

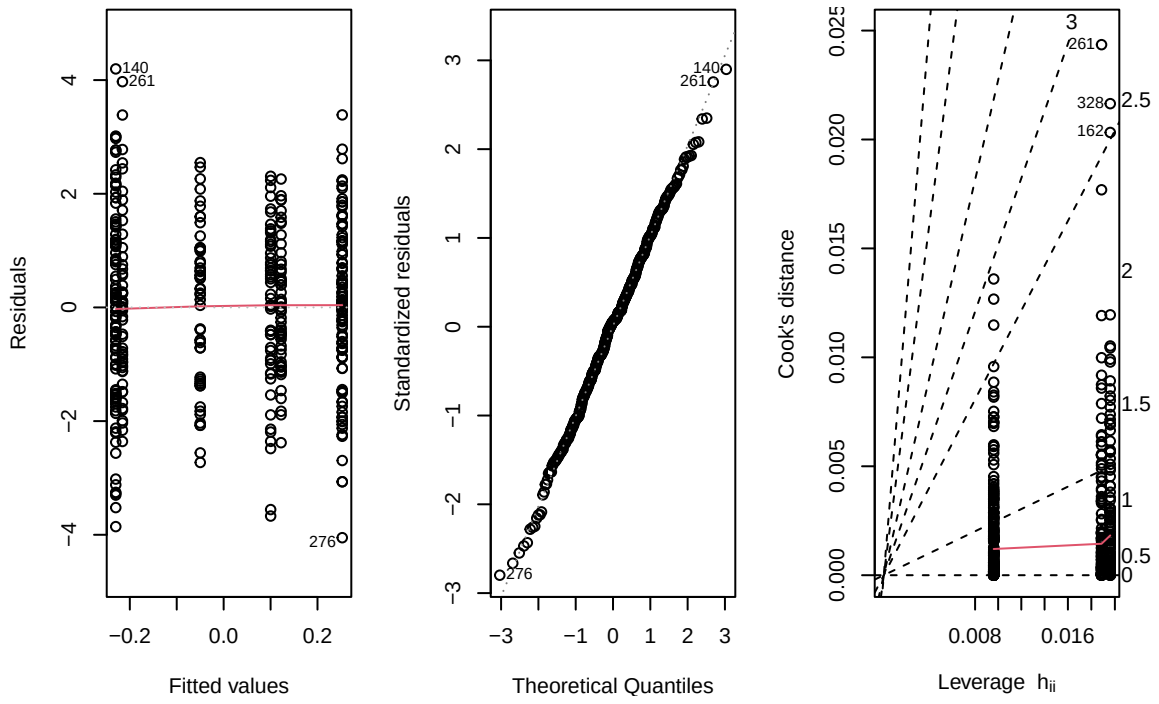

Figure S14: Diagnostic plots of the linear model d1∼group for DSI data.

```
##  Combi -0.2299 0.143 410  -0.5103   0.0505
##  LowA   0.1224 0.200 410  -0.2704   0.5152
##  LowN   0.1002 0.204 410  -0.3003   0.5006
##  LowC   0.2528 0.143 410  -0.0277   0.5332
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d1~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control      -0.1500 0.288 410  -0.521  0.6028
##  Neglect - Abuse         0.1658 0.285 410   0.581  0.5615
##  Neglect - Combination   0.1801 0.249 410   0.724  0.4694
##  Abuse - Control        -0.3381 0.283 410  -1.196  0.2322
##  Abuse - Combination     0.0143 0.246 410   0.058  0.9537
##  Combination - Control  -0.4827 0.202 410  -2.393  0.0172
##
##  contrast               effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)        -0.1031 0.198 410   -0.492   0.2862
##  (Neglect - Abuse)           0.1140 0.196 410   -0.272   0.4997
##  (Neglect - Combination)     0.1238 0.171 410   -0.212   0.4599
##  (Abuse - Control)          -0.2324 0.194 410   -0.615   0.1498
##  (Abuse - Combination)       0.0098 0.169 410   -0.322   0.3416
##  (Combination - Control)    -0.3318 0.139 410   -0.605  -0.0582
##
## sigma used for effect sizes: 1.455
## Confidence level used: 0.95
```

```
dsi.d1.ctq <- my.lmcomp(dsi.mod, 'd1~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

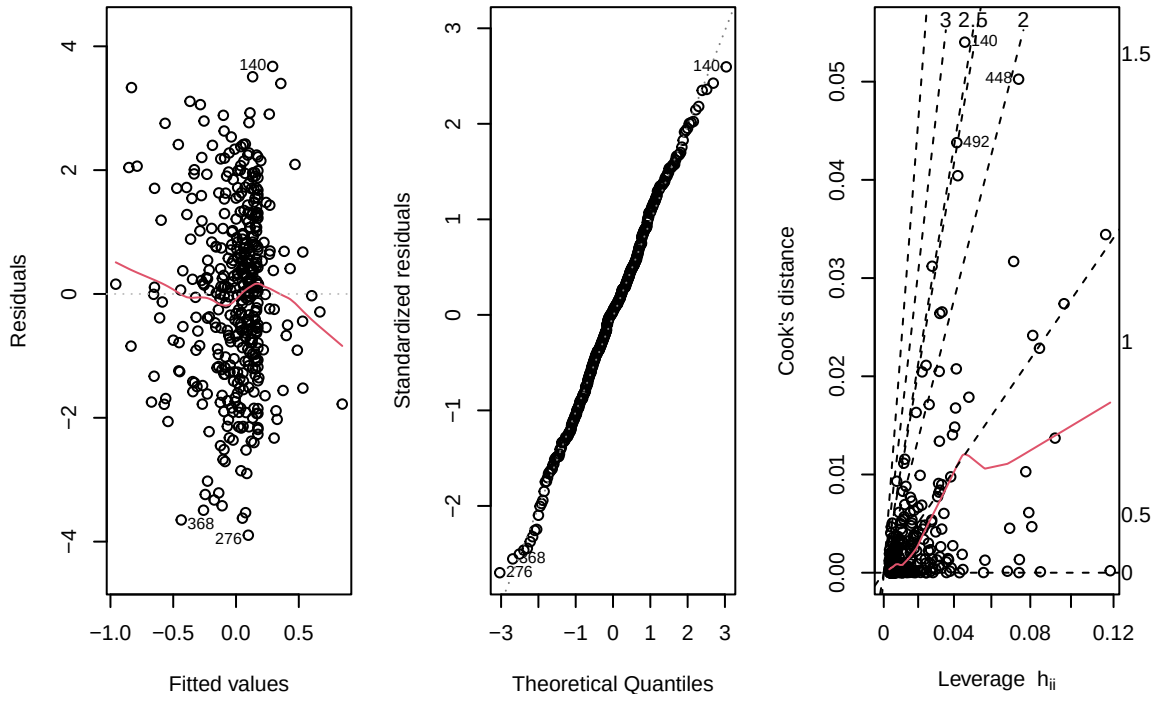

Figure S15: Diagnostic plots of the linear model d1∼CTQ sub-scales for DSI data.

3.3.2.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.8964 -0.9874  0.0619  0.9454  3.6751
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.39471    0.21648   1.823   0.0690 .
## ctq.en      -0.01046    0.02007  -0.521   0.6024
## ctq.pa       0.05871    0.02856   2.056   0.0404 *
## ctq.ea      -0.02493    0.02645  -0.943   0.3464
## ctq.pn      -0.02883    0.03598  -0.801   0.4233
## ctq.sa      -0.03856    0.02213  -1.743   0.0822 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.449 on 410 degrees of freedom
## Multiple R-squared:  0.02556,    Adjusted R-squared:  0.01367
## F-statistic: 2.151 on 5 and 410 DF,  p-value: 0.0587
##
## Anova Table (Type II tests)
```

```
##
## Response: d1
##           Sum Sq  Df F value  Pr(>F)
## ctq.en      0.57   1  0.2718 0.60242
## ctq.pa      8.88   1  4.2265 0.04043 *
## ctq.ea      1.87   1  0.8885 0.34644
## ctq.pn      1.35   1  0.6423 0.42334
## ctq.sa      6.38   1  3.0363 0.08217 .
## Residuals 861.10 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.00 | [0.00, 1.00]
## ctq.pa    |         7.70e-03 | [0.00, 1.00]
## ctq.ea    |             0.00 | [0.00, 1.00]
## ctq.pn    |             0.00 | [0.00, 1.00]
## ctq.sa    |         4.87e-03 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(dsi.d1.group, dsi.d1.ctq)
```

```
##          model  R2adj      AIC      BIC
## 1 dsi.d1.group  0.006 1500.357 1528.571
## 2   dsi.d1.ctq  0.014 1497.207 1525.422
## 3        Delta -0.007    3.150    3.150
```

3.3.3 Second component analysis

```
dsi.d2.group <- my.mcomp(aov.dsi, 'd2~group')
```

3.3.3.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d2
##            Df Sum Sq Mean Sq F value    Pr(>F)
## group       5  26.73  5.3452  5.6102 5.141e-05 ***
## Residuals 410 390.63  0.9528
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.
```

```
## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## --------------------------------
## group     |   0.05 | [0.02, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d2~group -----"
```

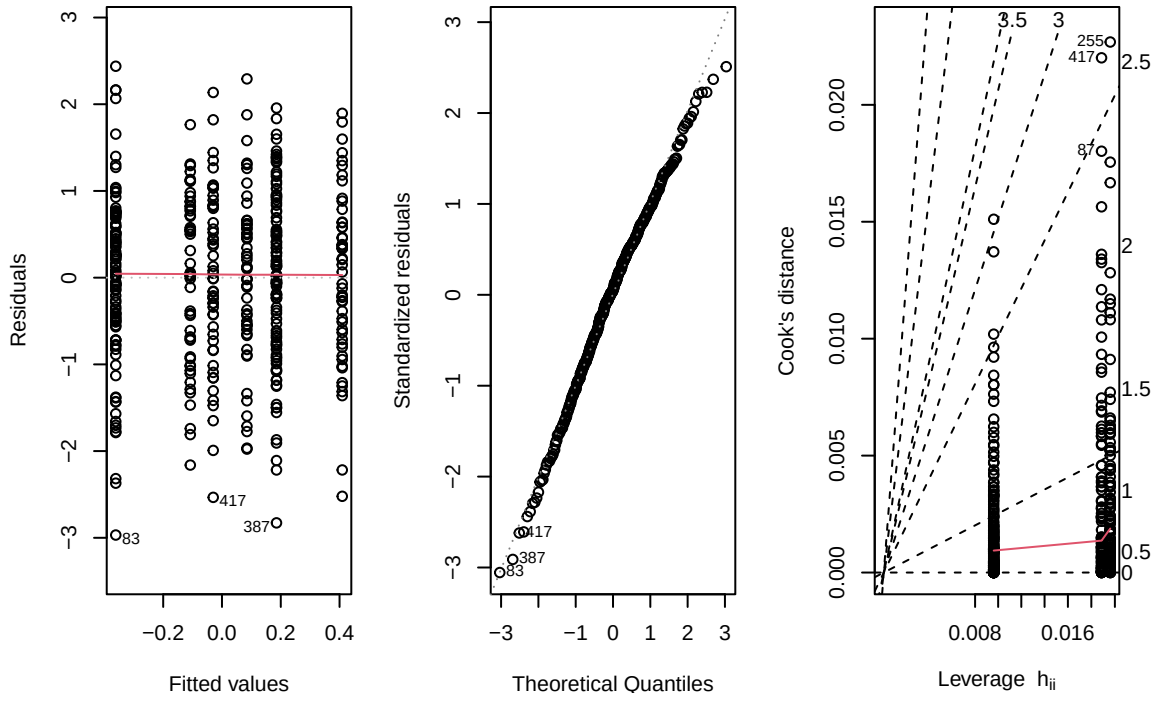

Figure S16: Diagnostic plots of the linear model d2∼group for DSI data.

```
##  group  emmean     SE  df lower.CL upper.CL
##  Neg   -0.1078 0.1370 410 -0.37649    0.161
##  Abu   -0.0298 0.1340 410 -0.29336    0.234
##  Combi -0.3614 0.0957 410 -0.54956   -0.173
##  LowA   0.0850 0.1340 410 -0.17860    0.349
##  LowN   0.4092 0.1370 410  0.14056    0.678
##  LowC   0.1855 0.0957 410 -0.00267    0.374
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d2~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control       -0.517 0.193 410  -2.675  0.0078
##  Neglect - Abuse         -0.078 0.191 410  -0.407  0.6839
##  Neglect - Combination    0.254 0.167 410   1.520  0.1293
##  Abuse - Control         -0.115 0.190 410  -0.605  0.5454
##  Abuse - Combination      0.332 0.165 410   2.013  0.0448
##  Combination - Control   -0.547 0.135 410  -4.040  0.0001
##
##  contrast                effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)         -0.5297 0.199 410 -0.92068   -0.139
##  (Neglect - Abuse)           -0.0799 0.196 410 -0.46555    0.306
##  (Neglect - Combination)      0.2598 0.171 410 -0.07670    0.596
##  (Abuse - Control)           -0.1176 0.194 410 -0.49951    0.264
##  (Abuse - Combination)        0.3397 0.169 410  0.00716    0.672
##  (Combination - Control)     -0.5603 0.140 410 -0.83559   -0.285
##
## sigma used for effect sizes: 0.9761
## Confidence level used: 0.95
```

```r
dsi.d2.ctq <- my.lmcomp(dsi.mod, 'd2~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

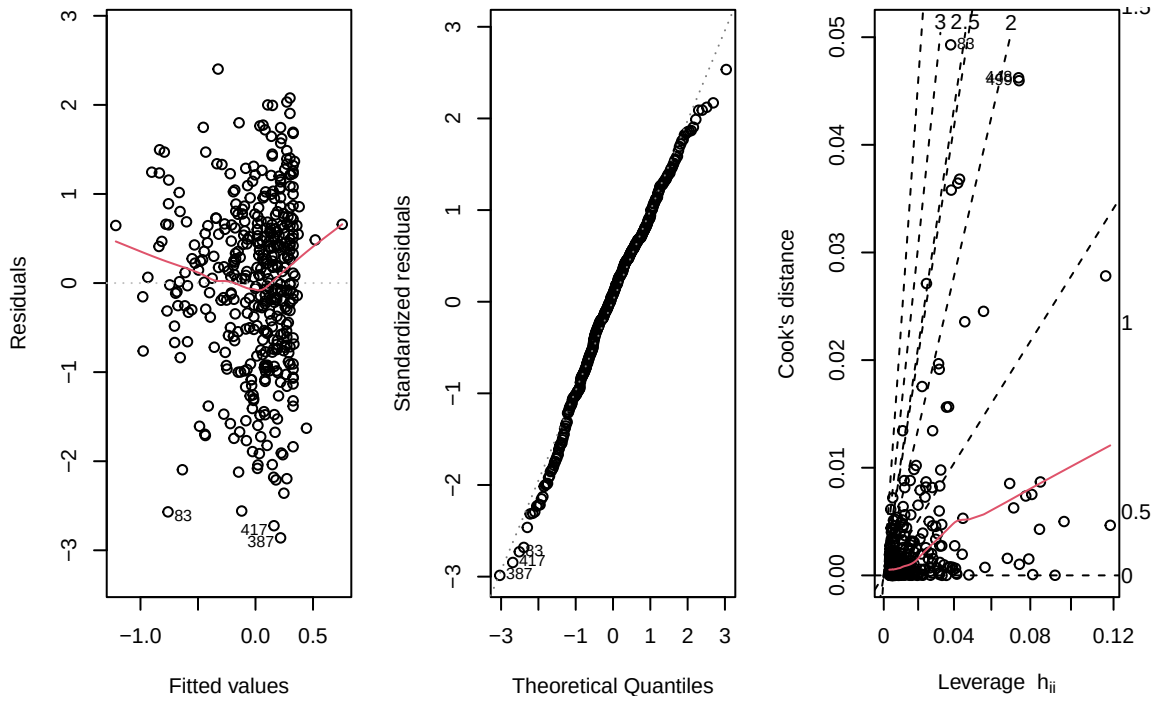

Figure S17: Diagnostic plots of the linear model d2∼CTQ sub-scales for DSI data.

3.3.3.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.86056 -0.62138  0.08278  0.64499  2.40187
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.676456   0.143381   4.718 3.27e-06 ***
## ctq.en      -0.027246   0.013291  -2.050   0.0410 *
## ctq.pa       0.007001   0.018913   0.370   0.7114
## ctq.ea      -0.044876   0.017519  -2.562   0.0108 *
## ctq.pn      -0.033724   0.023828  -1.415   0.1577
## ctq.sa       0.028973   0.014656   1.977   0.0487 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9599 on 410 degrees of freedom
## Multiple R-squared:  0.09492,    Adjusted R-squared:  0.08388
## F-statistic:   8.6 on 5 and 410 DF,  p-value: 9.219e-08
##
## Anova Table (Type II tests)
```

```
##
## Response: d2
##           Sum Sq  Df F value  Pr(>F)
## ctq.en      3.87   1  4.2025 0.04100 *
## ctq.pa      0.13   1  0.1370 0.71143
## ctq.ea      6.05   1  6.5615 0.01078 *
## ctq.pn      1.85   1  2.0031 0.15774
## ctq.sa      3.60   1  3.9079 0.04873 *
## Residuals 377.74 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |         7.64e-03 | [0.00, 1.00]
## ctq.pa    |             0.00 | [0.00, 1.00]
## ctq.ea    |             0.01 | [0.00, 1.00]
## ctq.pn    |         2.41e-03 | [0.00, 1.00]
## ctq.sa    |         6.94e-03 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(dsi.d2.group, dsi.d2.ctq)
```

```
##          model  R2adj      AIC      BIC
## 1 dsi.d2.group  0.053 1168.383 1196.598
## 2   dsi.d2.ctq  0.084 1154.425 1182.640
## 3        Delta -0.031   13.958   13.958
```

3.4 HADS

3.4.1 PCA description

```
had <- opt.data[,c(32:33, 41, 6:10)]
pca.out <- check.pca(had[,1:2])
```

```
## Nb outliers: 0 -- None
```

```
aov.had <- show.pca(had, qvs=c(3), qnvs=c(4:8), outliers=pca.out)
```

```
## [1] "----- Eigen values -----"
##        eigenvalue percentage of variance cumulative percentage of variance
## comp 1  1.1398253              56.99126                          56.99126
## comp 2  0.8601747              43.00874                         100.00000
## [1] " "
## [1] "----- Dimension description -----"
## $Dim.1
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                correlation      p.value
## HADSanxiety      0.7549256 7.256420e-78
## HADSdepression   0.7549256 7.256420e-78
## ctq.en           0.3663352 1.169755e-14
## ctq.ea           0.3627741 2.194744e-14
## ctq.pn           0.2678635 2.878968e-08
## ctq.sa           0.1285062 8.689746e-03
## ctq.pa           0.1077429 2.799758e-02
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##             R2      p.value
## group 0.119305 4.734844e-10
##
## Link between variable and the categories of the categorical variables
## ============================================================
##                 Estimate      p.value
## group=Combi  0.629429405 7.904423e-11
## group=Neg    0.192966939 3.184321e-01
## group=Abu    0.003380728 7.184243e-01
## group=LowA  -0.255484335 2.436003e-02
## group=LowC  -0.204546742 4.439423e-03
## group=LowN  -0.365745995 2.726967e-03
##
## $Dim.2
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                correlation      p.value
## HADSdepression  0.65581046 1.687882e-52
## ctq.en          0.16165399 9.363800e-04
## ctq.pn          0.11110649 2.343064e-02
## ctq.pa          0.09249904 5.943201e-02
## ctq.ea          0.08950662 6.818945e-02
```

```
## ctq.sa          0.01790129 7.158232e-01
## HADSanxiety    -0.65581046 1.687882e-52
##
## Link between the variable and the categorical variable (1-way anova)
## ==========================================
##                R2      p.value
## group 0.06395825 5.220658e-05
##
## Link between variable and the categories of the categorical variables
## ================================================================
##                 Estimate     p.value
## group=Combi  0.23617666 0.002779429
## group=Neg    0.28815319 0.018272136
## group=LowN   0.04653701 0.709922476
## group=LowA   0.02998343 0.809151377
## group=LowC  -0.21362458 0.006312730
## group=Abu   -0.38722571 0.001056989
```

3.4.2 First component analysis

```
had.mod <- cbind(aov.had, opt.data[,6:10])
had.d1.group <- my.mcomp(aov.had, 'd1~group')
```

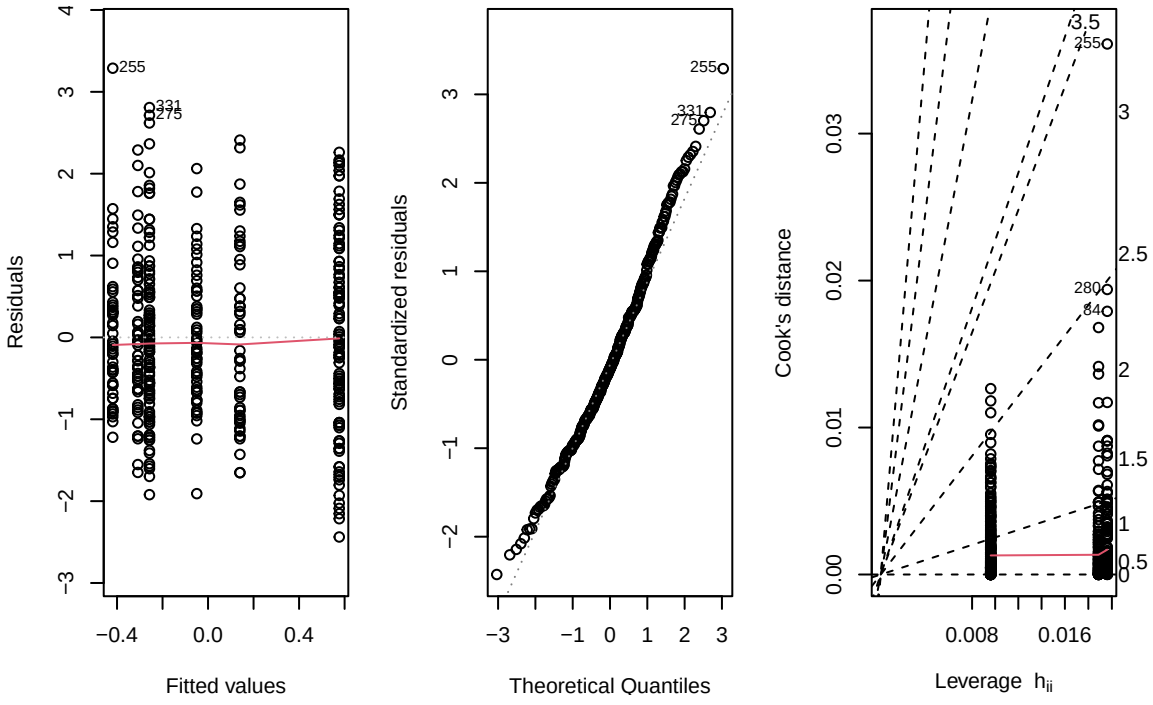

Figure S18: Diagnostic plots of the linear model d1∼group for HAD data.

3.4.2.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d1
##            Df Sum Sq Mean Sq F value    Pr(>F)
```

```
## group       5  56.57 11.3141  11.108 4.735e-10 ***
## Residuals 410 417.60  1.0185
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.
```

```
## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
## group     |   0.11 | [0.06, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d1~group -----"
##  group  emmean    SE  df lower.CL upper.CL
##  Neg    0.1400 0.141 410   -0.138   0.4178
##  Abu   -0.0495 0.139 410   -0.322   0.2230
##  Combi  0.5765 0.099 410    0.382   0.7710
##  LowA  -0.3084 0.139 410   -0.581  -0.0359
##  LowN  -0.4187 0.141 410   -0.696  -0.1409
##  LowC  -0.2575 0.099 410   -0.452  -0.0629
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d1~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control        0.559 0.200 410   2.796  0.0054
##  Neglect - Abuse          0.190 0.198 410   0.958  0.3388
##  Neglect - Combination   -0.436 0.173 410  -2.530  0.0118
##  Abuse - Control          0.259 0.196 410   1.320  0.1874
##  Abuse - Combination     -0.626 0.170 410  -3.676  0.0003
##  Combination - Control    0.834 0.140 410   5.959  <.0001
##
##  contrast                effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)           0.554 0.199 410    0.162   0.9447
##  (Neglect - Abuse)             0.188 0.196 410   -0.198   0.5737
##  (Neglect - Combination)      -0.432 0.172 410   -0.770  -0.0951
##  (Abuse - Control)             0.256 0.194 410   -0.126   0.6388
##  (Abuse - Combination)        -0.620 0.170 410   -0.955  -0.2858
##  (Combination - Control)       0.826 0.142 410    0.548   1.1048
##
## sigma used for effect sizes: 1.009
## Confidence level used: 0.95
```

```
had.d1.ctq <- my.lmcomp(had.mod, 'd1~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

3.4.2.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
```

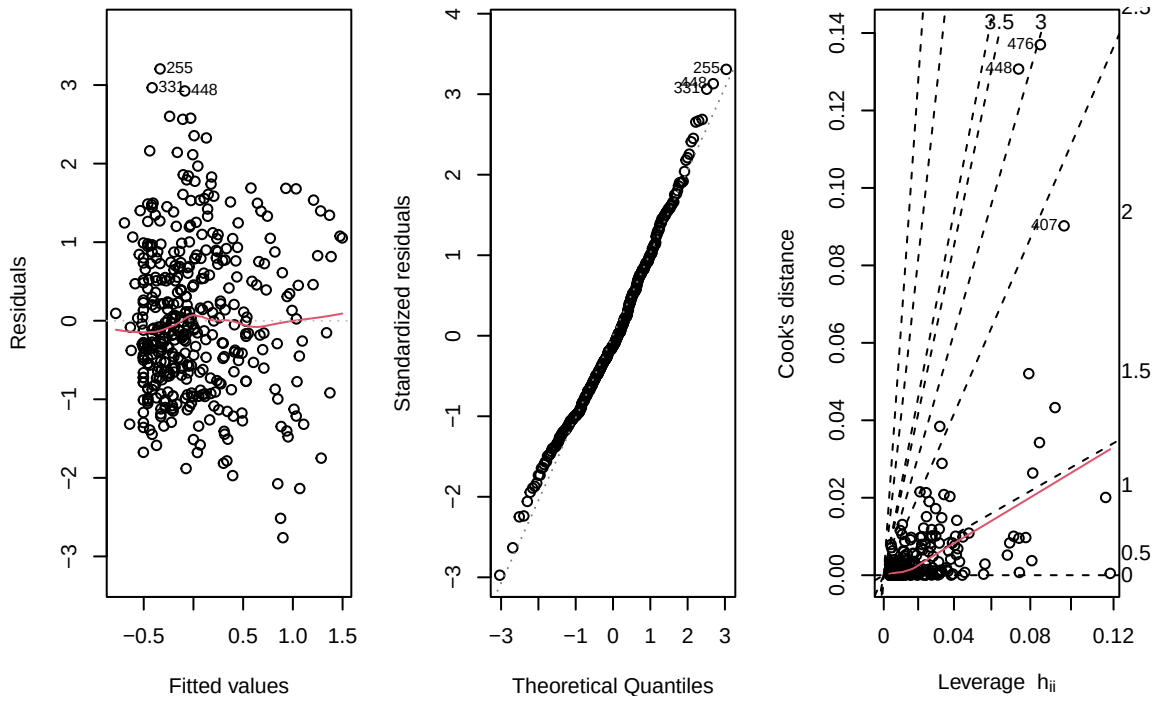

Figure S19: Diagnostic plots of the linear model d1∼CTQ sub-scales for HAD data.

```
##     Min      1Q  Median      3Q     Max
## -2.7618 -0.6644 -0.1191  0.6713  3.2054
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.961140   0.145034  -6.627 1.08e-10 ***
## ctq.en       0.043959   0.013444   3.270  0.00117 **
## ctq.pa      -0.057926   0.019131  -3.028  0.00262 **
## ctq.ea       0.077551   0.017721   4.376 1.53e-05 ***
## ctq.pn       0.035980   0.024102   1.493  0.13626
## ctq.sa      -0.008006   0.014825  -0.540  0.58949
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9709 on 410 degrees of freedom
## Multiple R-squared:  0.1849, Adjusted R-squared:  0.1749
## F-statistic:  18.6 on 5 and 410 DF,  p-value: < 2.2e-16
##
## Anova Table (Type II tests)
##
## Response: d1
##           Sum Sq  Df F value    Pr(>F)
## ctq.en     10.08   1 10.6916  0.001167 **
## ctq.pa      8.64   1  9.1681  0.002618 **
## ctq.ea     18.05   1 19.1513 1.534e-05 ***
## ctq.pn      2.10   1  2.2284  0.136262
## ctq.sa      0.27   1  0.2916  0.589494
## Residuals 386.50 410
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.02 | [0.00, 1.00]
## ctq.pa    |             0.02 | [0.00, 1.00]
## ctq.ea    |             0.04 | [0.02, 1.00]
## ctq.pn    |         2.94e-03 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(had.d1.group, had.d1.ctq)
```

```
##          model  R2adj      AIC      BIC
## 1 had.d1.group  0.109 1196.151 1224.365
## 2   had.d1.ctq  0.175 1163.962 1192.177
## 3        Delta -0.066   32.189   32.189
```

3.4.3 Second component analysis

```
had.d2.group <- my.mcomp(aov.had, 'd2~group')
```

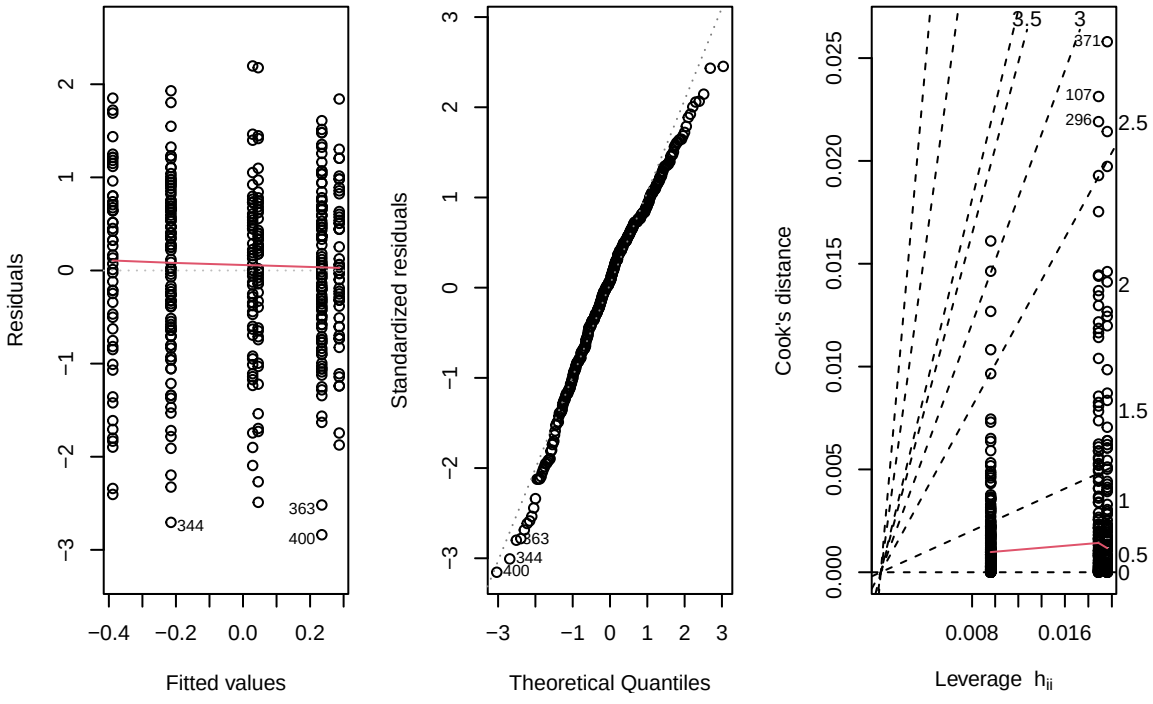

Figure S20: Diagnostic plots of the linear model d2∼group for HAD data.

3.4.3.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d2
##            Df Sum Sq Mean Sq F value    Pr(>F)
```

```
## group       5  22.89  4.5773  5.6029 5.221e-05 ***
## Residuals 410 334.95  0.8169
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
## group     |   0.05 | [0.02, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d2~group -----"
##  group  emmean     SE  df lower.CL upper.CL
##  Neg    0.2870 0.1270 410   0.0382   0.5358
##  Abu   -0.3884 0.1240 410  -0.6324  -0.1443
##  Combi  0.2350 0.0886 410   0.0608   0.4092
##  LowA   0.0288 0.1240 410  -0.2152   0.2729
##  LowN   0.0454 0.1270 410  -0.2034   0.2942
##  LowC  -0.2148 0.0886 410  -0.3890  -0.0406
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d2~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control        0.242 0.179 410   1.350  0.1778
##  Neglect - Abuse          0.675 0.177 410   3.809  0.0002
##  Neglect - Combination    0.052 0.155 410   0.336  0.7367
##  Abuse - Control         -0.417 0.176 410  -2.376  0.0180
##  Abuse - Combination     -0.623 0.153 410  -4.087  0.0001
##  Combination - Control    0.450 0.125 410   3.589  0.0004
##
##  contrast                effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)          0.2673 0.198 410   -0.122   0.6570
##  (Neglect - Abuse)            0.7472 0.198 410    0.358   1.1362
##  (Neglect - Combination)      0.0575 0.171 410   -0.279   0.3936
##  (Abuse - Control)           -0.4616 0.195 410   -0.845  -0.0784
##  (Abuse - Combination)       -0.6897 0.170 410   -1.025  -0.3546
##  (Combination - Control)      0.4977 0.140 410    0.223   0.7724
##
## sigma used for effect sizes: 0.9038
## Confidence level used: 0.95
```

```
had.d2.ctq <- my.lmcomp(had.mod, 'd2~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

3.4.3.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
```

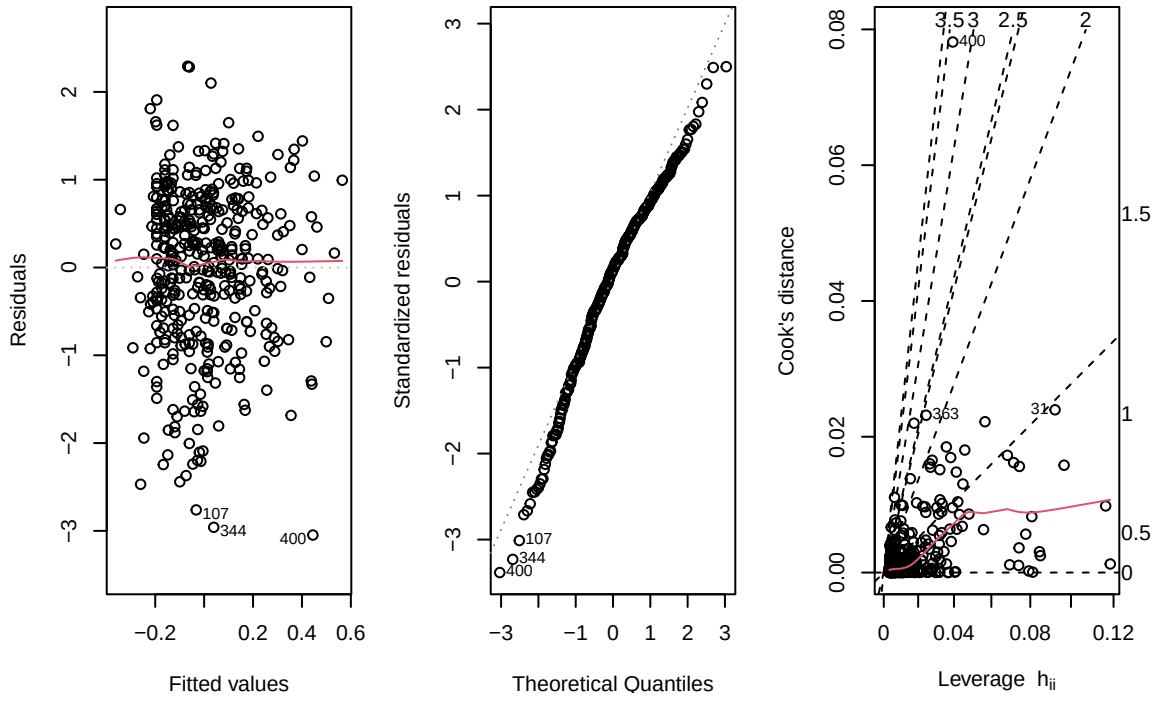

Figure S21: Diagnostic plots of the linear model d2∼CTQ sub-scales for HAD data.

```
##     Min      1Q  Median      3Q     Max
## -3.0474 -0.5470  0.1317  0.6564  2.2923
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.39907    0.13727  -2.907  0.00385 **
## ctq.en       0.03329    0.01272   2.616  0.00922 **
## ctq.pa       0.02044    0.01811   1.129  0.25970
## ctq.ea      -0.01331    0.01677  -0.793  0.42803
## ctq.pn       0.01382    0.02281   0.606  0.54485
## ctq.sa      -0.01317    0.01403  -0.938  0.34855
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.919 on 410 degrees of freedom
## Multiple R-squared:  0.03236,    Adjusted R-squared:  0.02056
## F-statistic: 2.743 on 5 and 410 DF,  p-value: 0.01883
##
## Anova Table (Type II tests)
##
## Response: d2
##           Sum Sq  Df F value   Pr(>F)
## ctq.en      5.78   1  6.8439 0.009223 **
## ctq.pa      1.08   1  1.2739 0.259702
## ctq.ea      0.53   1  0.6294 0.428029
## ctq.pn      0.31   1  0.3672 0.544855
## ctq.sa      0.74   1  0.8808 0.348547
## Residuals 346.25 410
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.01 | [0.00, 1.00]
## ctq.pa    |         6.58e-04 | [0.00, 1.00]
## ctq.ea    |             0.00 | [0.00, 1.00]
## ctq.pn    |             0.00 | [0.00, 1.00]
## ctq.sa    |             0.00 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(had.d2.group, had.d2.ctq)
```

```
##          model R2adj      AIC      BIC
## 1 had.d2.group 0.053 1104.403 1132.618
## 2   had.d2.ctq 0.021 1118.213 1146.428
## 3        Delta 0.032  -13.810  -13.810
```

3.5 SPS

3.5.1 PCA description

```
sps <- opt.data[,c(35:38, 41, 6:10)]
pca.out <- check.pca(sps[,1:4])
```

```
## Nb outliers: 1 -- 396
```

```
aov.sps <- show.pca(sps, qvs=c(5), qnvs=c(6:10), outliers=pca.out)
```

```
## [1] "----- Outliers influence -----"
## Contribution for outlier 396 to total variance: 1.424 %
## [1] " "
## [1] "----- Eigen values -----"
##        eigenvalue percentage of variance cumulative percentage of variance
## comp 1  2.8829643              72.074107                          72.07411
## comp 2  0.5009278              12.523196                          84.59730
## comp 3  0.3835958               9.589895                          94.18720
## comp 4  0.2325121               5.812802                         100.00000
## [1] " "
## [1] "----- Dimension description -----"
## $Dim.1
##
## Link between the variable and the continuous variables (R-square)
## ================================================================================
##                            correlation       p.value
## SPShopelessness              0.9023737 1.959510e-153
## SPSsuicideideation           0.8609233 1.397414e-123
## SPSnegativeselfevaluation    0.8427008 2.180819e-113
## SPShostility                 0.7857178  2.170831e-88
## ctq.en                       0.5278642  3.201746e-31
## ctq.ea                       0.4287662  4.941718e-20
## ctq.pn                       0.3273475  7.592296e-12
## ctq.sa                       0.2289904  2.366526e-06
## ctq.pa                       0.2067101  2.143721e-05
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##              R2      p.value
## group 0.2086644 3.184221e-19
##
## Link between variable and the categories of the categorical variables
## ============================================================
##                Estimate      p.value
## group=Combi  1.26391195 5.384916e-17
## group=Neg    0.52201228 5.946692e-02
## group=Abu    0.08967889 9.553779e-01
## group=LowA  -0.64366224 5.898380e-04
## group=LowC  -0.44313904 1.437220e-04
## group=LowN  -0.78880183 5.659376e-05
##
## $Dim.2
##
## Link between the variable and the continuous variables (R-square)
```

```
## ================================================================================
##                             correlation      p.value
## SPShostility                0.588795850 3.566674e-40
## ctq.en                      0.105146096 3.202796e-02
## ctq.pn                      0.019462415 6.922526e-01
## SPSsuicideideation         -0.005720813 9.073894e-01
## ctq.ea                     -0.025637374 6.020783e-01
## ctq.pa                     -0.040128662 4.143095e-01
## ctq.sa                     -0.156656384 1.348870e-03
## SPShopelessness            -0.182491694 1.822798e-04
## SPSnegativeselfevaluation -0.347723094 2.880194e-13
##
## Link between the variable and the categorical variable (1-way anova)
## ============================================
##                R2   p.value
## group 0.007237064 0.7017036
##
## Link between variable and the categories of the categorical variables
## ============================================================
##                  Estimate   p.value
## group=Neg    0.116202939 0.2263527
## group=LowC   0.033085969 0.6253444
## group=Combi  0.000805077 0.9623136
## group=LowN  -0.011925312 0.8671228
## group=LowA  -0.025872596 0.7458111
## group=Abu   -0.112296077 0.2025998
```

3.5.2 First component analysis

```
sps.mod <- cbind(aov.sps, opt.data[,6:10])
sps.d1.group <- my.mcomp(aov.sps, 'd1~group')
```

3.5.2.1 Categorical model

```
## Analysis of Variance Table
##
## Response: d1
##            Df Sum Sq Mean Sq F value    Pr(>F)
## group       5 250.25  50.051  21.622 < 2.2e-16 ***
## Residuals 410 949.06   2.315
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## For one-way between subjects designs, partial omega squared is
##   equivalent to omega squared. Returning omega squared.

## # Effect Size for ANOVA
##
## Parameter | Omega2 |       95% CI
## ---------------------------------
## group     |   0.20 | [0.14, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].[1] " "
## [1] "----- Estimated marginal means for d1~group -----"
##  group  emmean    SE  df lower.CL upper.CL
```

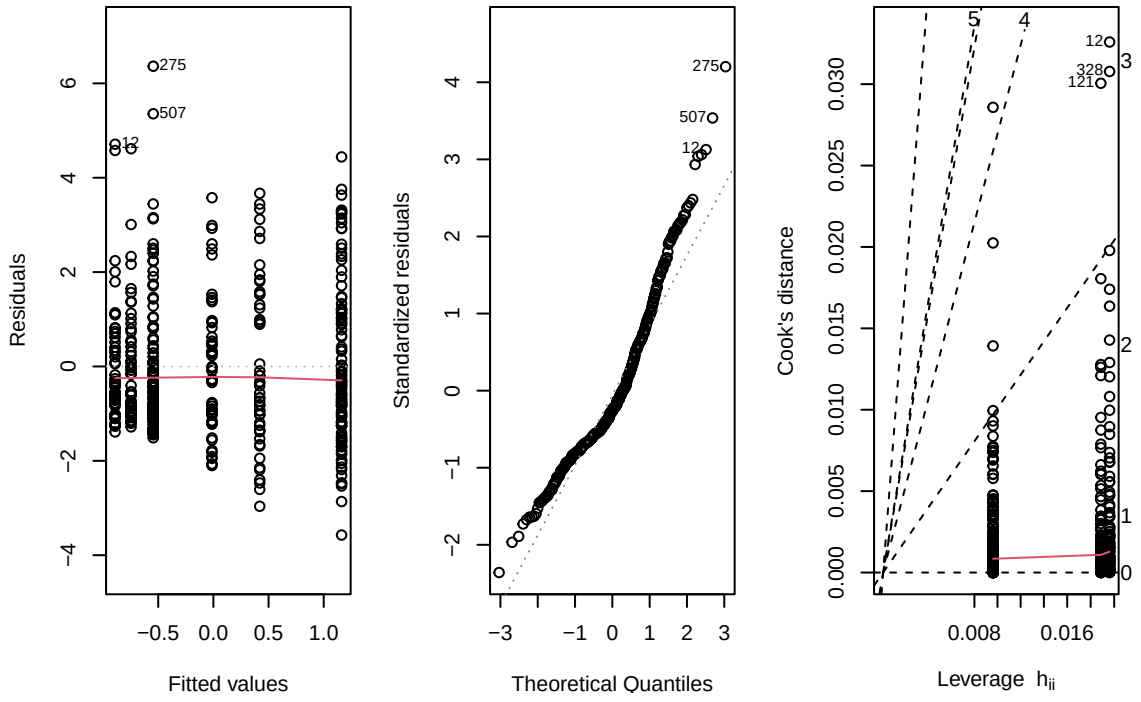

Figure S22: Diagnostic plots of the linear model d1∼group for SPS data.

```
##  Neg    0.4201 0.213 410  0.00131    0.839
##  Abu   -0.0122 0.209 410 -0.42304    0.399
##  Combi  1.1620 0.149 410  0.86873    1.455
##  LowA  -0.7456 0.209 410 -1.15639   -0.335
##  LowN  -0.8907 0.213 410 -1.30950   -0.472
##  LowC  -0.5450 0.149 410 -0.83832   -0.252
##
## Confidence level used: 0.95
## [1] " "
## [1] "----- Contrasts  d1~group -----"
##  contrast              estimate    SE  df t.ratio p.value
##  Neglect - Control        1.311 0.301 410   4.351  <.0001
##  Neglect - Abuse          0.432 0.298 410   1.449  0.1482
##  Neglect - Combination   -0.742 0.260 410  -2.853  0.0046
##  Abuse - Control          0.733 0.296 410   2.481  0.0135
##  Abuse - Combination     -1.174 0.257 410  -4.573  <.0001
##  Combination - Control    1.707 0.211 410   8.091  <.0001
##
##  contrast               effect.size    SE  df lower.CL upper.CL
##  (Neglect - Control)          0.862 0.200 410   0.4678    1.255
##  (Neglect - Abuse)            0.284 0.196 410  -0.1019    0.670
##  (Neglect - Combination)     -0.488 0.172 410  -0.8253   -0.150
##  (Abuse - Control)            0.482 0.195 410   0.0987    0.865
##  (Abuse - Combination)       -0.772 0.171 410  -1.1078   -0.436
##  (Combination - Control)      1.122 0.144 410   0.8387    1.405
##
## sigma used for effect sizes: 1.521
## Confidence level used: 0.95
```

```r
sps.d1.ctq <- my.lmcomp(sps.mod, 'd1~ctq.en+ctq.pa+ctq.ea+ctq.pn+ctq.sa')
```

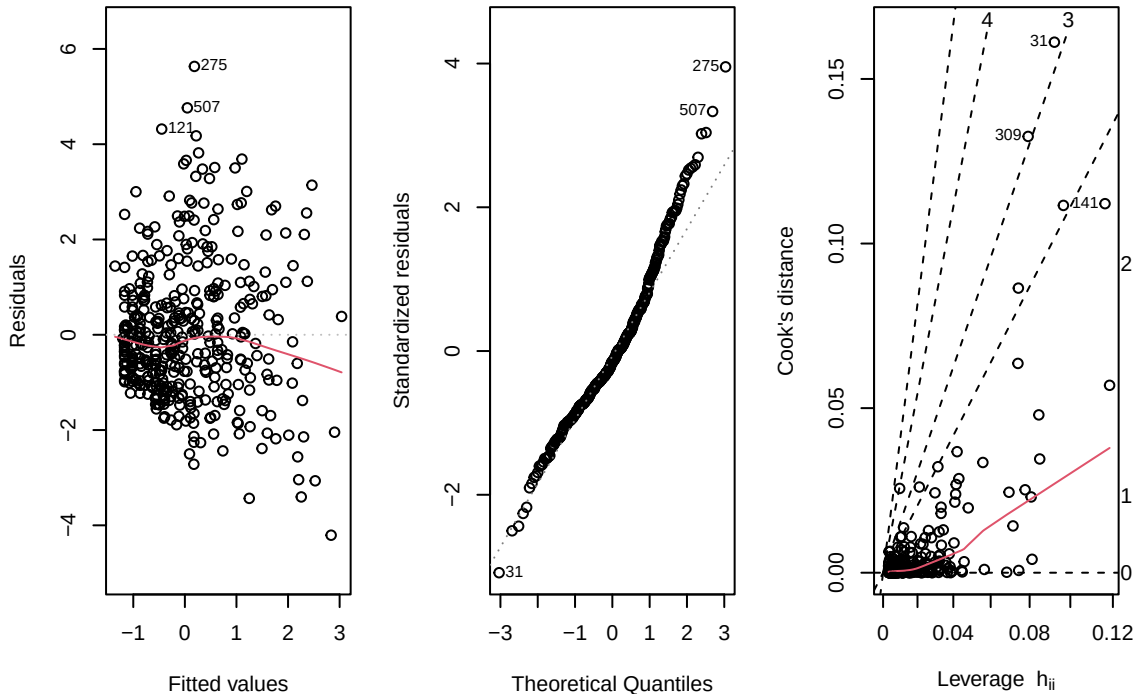

Figure S23: Diagnostic plots of the linear model d1∼CTQ sub-scales for SPS data.

3.5.2.2 Dimensional model

```
##
## Call:
## lm(formula = as.formula(form), data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.2071 -0.9509 -0.2181  0.7375  5.6330
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -2.26652    0.21387 -10.598  < 2e-16 ***
## ctq.en       0.15030    0.01982   7.582  2.3e-13 ***
## ctq.pa      -0.03621    0.02821  -1.284  0.20000
## ctq.ea       0.07103    0.02613   2.718  0.00685 **
## ctq.pn       0.01135    0.03554   0.319  0.74968
## ctq.sa       0.02325    0.02186   1.064  0.28807
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.432 on 410 degrees of freedom
## Multiple R-squared:  0.2992, Adjusted R-squared:  0.2907
## F-statistic: 35.02 on 5 and 410 DF,  p-value: < 2.2e-16
##
## Anova Table (Type II tests)
```

```
##
## Response: d1
##           Sum Sq  Df F value   Pr(>F)
## ctq.en    117.83   1 57.4834  2.3e-13 ***
## ctq.pa      3.38   1  1.6477 0.199999
## ctq.ea     15.14   1  7.3879 0.006845 **
## ctq.pn      0.21   1  0.1019 0.749677
## ctq.sa      2.32   1  1.1315 0.288075
## Residuals 840.43 410
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## # Effect Size for ANOVA (Type II)
##
## Parameter | Omega2 (partial) |       95% CI
## ------------------------------------------
## ctq.en    |             0.12 | [0.07, 1.00]
## ctq.pa    |         1.55e-03 | [0.00, 1.00]
## ctq.ea    |             0.02 | [0.00, 1.00]
## ctq.pn    |             0.00 | [0.00, 1.00]
## ctq.sa    |         3.16e-04 | [0.00, 1.00]
##
## - One-sided CIs: upper bound fixed at [1.00].
```

```
mod.comp(sps.d1.group, sps.d1.ctq)
```

```
##          model  R2adj      AIC      BIC
## 1 sps.d1.group  0.199 1537.668 1565.883
## 2   sps.d1.ctq  0.291 1487.101 1515.316
## 3        Delta -0.092   50.567   50.567
```

4 Session information

```
sessionInfo()
```

```
## R version 4.5.2 (2025-10-31)
## Platform: x86_64-pc-linux-gnu
## Running under: Debian GNU/Linux forky/sid
##
## Matrix products: default
## BLAS:   /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.12.1
## LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.12.1;  LAPACK version 3.12.0
##
## locale:
##  [1] LC_CTYPE=fr_FR.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=C                  LC_COLLATE=fr_FR.UTF-8
##  [5] LC_MONETARY=fr_FR.UTF-8    LC_MESSAGES=fr_FR.UTF-8
##  [7] LC_PAPER=fr_FR.UTF-8       LC_NAME=C
##  [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=fr_FR.UTF-8 LC_IDENTIFICATION=C
##
## time zone: Europe/Paris
## tzcode source: system (glibc)
##
## attached base packages:
## [1] stats     graphics  grDevices datasets  utils     methods   base
##
## other attached packages:
##  [1] car_3.1-3        carData_3.0-5    glue_1.8.0       effectsize_1.0.1
##  [5] emmeans_1.11.0   factoextra_1.0.7 ggplot2_3.5.2    FactoMineR_2.11
##  [9] MatchIt_4.7.0    mclust_6.1.2     knitr_1.50
##
## loaded via a namespace (and not attached):
##  [1] generics_0.1.3       renv_1.1.5           lattice_0.22-7
##  [4] digest_0.6.37        magrittr_2.0.3       evaluate_1.0.3
##  [7] grid_4.5.2           estimability_1.5.1   RColorBrewer_1.1-3
## [10] rlemon_0.2.1         mvtnorm_1.3-3        fastmap_1.2.0
## [13] ggrepel_0.9.6        backports_1.5.0      Formula_1.2-5
## [16] tinytex_0.57         scales_1.4.0         abind_1.4-8
## [19] cli_3.6.5            rlang_1.1.6          chk_0.10.0
## [22] scatterplot3d_0.3-44 optmatch_0.10.8      leaps_3.2
## [25] withr_3.0.2          yaml_2.3.10          datawizard_1.1.0
## [28] tools_4.5.2          multcompView_0.1-10  checkmate_2.3.4
## [31] dplyr_1.1.4          DT_0.33              bayestestR_0.16.0
## [34] flashClust_1.01-2    vctrs_0.6.5          R6_2.6.1
## [37] lifecycle_1.0.4      htmlwidgets_1.6.4    MASS_7.3-65
## [40] insight_1.3.0        cluster_2.1.8.1      pkgconfig_2.0.3
## [43] pillar_1.10.2        gtable_0.3.6         Rcpp_1.0.14
## [46] xfun_0.52            tibble_3.2.1         tidyselect_1.2.1
## [49] parameters_0.26.0    highs_1.9.0-1        farver_2.1.2
## [52] htmltools_0.5.8.1    rmarkdown_2.29       compiler_4.5.2
```