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Transmission Game: Variables and Measures in Study 1 (VM1)

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Abstract

Transmission Game: Variables and Measures in Study 1 (VM1)

Contents

VM1-1 Data preparation **7**

VM1-2 Distribution of single-item measures in Study 1 **10**
VM1-2.1 Demographics 1 10
VM1-2.1.1 Gender 10
VM1-2.1.2 Age 11
VM1-2.1.3 Education 12
VM1-2.1.4 Household income (2019) 12
VM1-2.1.5 Employment status 13
VM1-2.2 MTurk 14
VM1-2.2.1 MTurk participant 14

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VM1-2.2.2 Number of HITs (for participants) . . . 15
VM1-2.3 Postquestionnaire . . . 15
VM1-2.3.1 Motivation . . . 15
VM1-2.3.2 Color estimate . . . 18
VM1-2.3.3 Roundwise Estimates . . . 18
VM1-2.4 Single-item measures . . . 23
VM1-2.4.1 General Risk Taking . . . 23
VM1-2.4.2 Trust . . . 24
VM1-2.4.3 Time preference . . . 25
VM1-2.4.4 Subjective Life Expectancy . . . 26
VM1-2.4.5 General Health . . . 27
VM1-2.4.6 Impatience . . . 28
VM1-2.4.7 Impulsiveness . . . 29
VM1-2.5 Politics and religion . . . 30
VM1-2.5.1 Voting . . . 30
VM1-2.5.2 Presidential candidates . . . 31
VM1-2.5.3 Political position . . . 32
VM1-2.5.4 Political party . . . 33
VM1-2.5.5 Religion . . . 34
VM1-2.6 Economic Games . . . 35
VM1-2.6.1 Dictator Games . . . 35
VM1-2.6.2 Money Burning Game . . . 37
VM1-2.7 COVID-19 related . . . 40
VM1-2.7.1 Job situation . . . 40
VM1-2.7.2 Positive tests . . . 41
VM1-2.7.3 Single items . . . 44
VM1-2.7.4 Vaccination . . . 50
VM1-2.8 Comprehension checks . . . 51
VM1-2.8.1 Transmission game . . . 51
VM1-2.8.2 Dice game . . . 53

VM1-3 Scales in Study 1 55
VM1-3.1 HEXACO scales . . . 55
VM1-3.1.1 Source . . . 55
VM1-3.1.2 Items . . . 56
VM1-3.1.3 Item histograms . . . 57
VM1-3.1.4 Inter-correlations . . . 61
VM1-3.1.5 Scale statistics (for subscales) . . . 67
VM1-3.1.6 Subscale inter-correlations . . . 69
VM1-3.2 Psychological reactance scale . . . 70
VM1-3.2.1 Source . . . 70
VM1-3.2.2 Items . . . 70
VM1-3.2.3 Item histograms . . . 70
VM1-3.2.4 Inter-correlations . . . 73
VM1-3.2.5 Scale statistics . . . 73

VM1-3.3 Oxford Utilitarianism Scale . . . 75
VM1-3.3.1 Source . . . 75
VM1-3.3.2 Items . . . 75
VM1-3.3.3 Item histograms . . . 76
VM1-3.3.4 Inter-correlations . . . 77
VM1-3.3.5 Scale statistics (for subscales) . . . 79
VM1-3.3.6 Scale histograms . . . 83
VM1-3.4 Cognitive Reflection Test (CRT) . . . 84
VM1-3.4.1 Source . . . 84
VM1-3.4.2 Items . . . 84
VM1-3.4.3 Item preparation . . . 84
VM1-3.4.4 Item pie charts . . . 85
VM1-3.4.5 Inter-correlations . . . 87
VM1-3.4.6 Scale statistcs (for subscales) . . . 88
VM1-3.5 EXP . . . 91
VM1-3.5.1 Source . . . 91
VM1-3.5.2 Items . . . 91
VM1-3.5.3 Item preparation . . . 91
VM1-3.5.4 Item histograms . . . 92
VM1-3.5.5 Inter-correlations . . . 93
VM1-3.5.6 Scale statistcs (for subscales) . . . 94
VM1-3.6 BNT . . . 97
VM1-3.6.1 Source . . . 97
VM1-3.6.2 Items . . . 97
VM1-3.6.3 Item preparation . . . 98
VM1-3.6.4 Item histograms . . . 99
VM1-3.6.5 Inter-correlations . . . 100
VM1-3.6.6 Scale statistcs (for subscales) . . . 101
VM1-3.7 Subjective Numeracy . . . 104
VM1-3.7.1 Source . . . 104
VM1-3.7.2 Items . . . 104
VM1-3.7.3 Item preparation . . . 104
VM1-3.7.4 Item histograms . . . 105
VM1-3.7.5 Inter-correlations . . . 106
VM1-3.7.6 Scale statistics (for subscales) . . . 107
VM1-3.8 Dark Core . . . 110
VM1-3.8.1 Source . . . 110
VM1-3.8.2 Items . . . 110
VM1-3.8.3 Item preparation . . . 110
VM1-3.8.4 Item histograms . . . 112
VM1-3.8.5 Inter-correlations . . . 114
VM1-3.8.6 Scale statistics (for subscales) . . . 115
VM1-3.9 Climate Change Skepticism . . . 118
VM1-3.9.1 Source . . . 118
VM1-3.9.2 Items . . . 118

VM1-3.9.3 Item preparation . . . 119
VM1-3.9.4 Item histograms . . . 119
VM1-3.9.5 Inter-correlations . . . 120
VM1-3.9.6 Scale statistics (for subscales) . . . 121
VM1-3.10 Social and Economic Conservatism Scale . . . 124
VM1-3.10.1 Source . . . 124
VM1-3.10.2 Items . . . 124
VM1-3.10.3 Item preparation . . . 124
VM1-3.10.4 Item histograms . . . 125
VM1-3.10.5 Inter-correlations . . . 128
VM1-3.10.6 Scale statistics (for subscales) . . . 128
VM1-3.11 Social Value Orientation . . . 131
VM1-3.11.1 Source . . . 131
VM1-3.11.2 Item preparation . . . 131
VM1-3.11.3 Item histograms . . . 133
VM1-3.11.4 Scale statistics (for subscales) . . . 136
VM1-3.12 COV-Worries . . . 137
VM1-3.12.1 Items . . . 137
VM1-3.12.2 Item preparation . . . 138
VM1-3.12.3 Item histograms . . . 138
VM1-3.12.4 Inter-correlations . . . 139
VM1-3.12.5 Scale statistics (for subscales) . . . 140
VM1-3.13 COV-Compliance . . . 143
VM1-3.13.1 Items . . . 143
VM1-3.13.2 Item preparation . . . 143
VM1-3.13.3 Item histograms . . . 144
VM1-3.13.4 Inter-correlations . . . 145
VM1-3.13.5 Scale statistics (for subscales) . . . 146
VM1-3.14 COV-Social Distancing . . . 149
VM1-3.14.1 Items . . . 149
VM1-3.14.2 Item preparation . . . 150
VM1-3.14.3 Item histograms . . . 150
VM1-3.14.4 Inter-correlations . . . 151
VM1-3.14.5 Scale statistics (for subscales) . . . 152
VM1-3.15 COV-Misinformation . . . 155
VM1-3.15.1 Source . . . 155
VM1-3.15.2 Items . . . 155
VM1-3.15.3 Item preparation . . . 155
VM1-3.15.4 Item histograms . . . 156
VM1-3.15.5 Inter-correlations . . . 157
VM1-3.15.6 Scale statistics (for subscales) . . . 158
VM1-3.16 COV-Tradeoffs . . . 161
VM1-3.16.1 Items . . . 161
VM1-3.16.2 Item preparation . . . 161
VM1-3.16.3 Item histograms . . . 162

VM1-3.16.4 Inter-correlations . . . 163
VM1-3.16.5 Scale statistics (for subscales) . . . 164
VM1-3.17 Dice game . . . 167
VM1-3.17.1 Source . . . 167
VM1-3.17.2 Items . . . 167
VM1-3.17.3 Item preparation . . . 167
VM1-3.17.4 Item histograms . . . 168
VM1-3.17.5 Inter-correlations . . . 169
VM1-3.17.6 Scale statistics . . . 170

VM1-4 Qualitative Data **173**
VM1-4.1 Game Strategy . . . 173
VM1-4.2 Seen similarities . . . 174
VM1-4.3 Messages . . . 175
VM1-4.4 General comments . . . 175
VM1-4.5 COVID-19 comments . . . 177
VM1-4.6 Final . . . 179

List of Figures

VM1-1 Gender . . . 11
VM1-2 Age . . . 12
VM1-3 Education . . . 12
VM1-4 Household income . . . 13
VM1-5 Emplyoment status . . . 14
VM1-6 MTurk . . . 14
VM1-7 Number of HITs . . . 15
VM1-8 Post-questionnaire . . . 17
VM1-9 Own color estimate . . . 18
VM1-10 Estimates of purple players . . . 20
VM1-11 Individual estimates of purple players . . . 21
VM1-12 Estimates of H-choices . . . 22
VM1-13 Individual estimates of H-choices . . . 23
VM1-14 General risk . . . 24
VM1-15 Trust . . . 25
VM1-16 Time preference . . . 26
VM1-17 Subjective life expectancy . . . 27
VM1-18 Age vs. expected years remaining . . . 27
VM1-19 General health . . . 28
VM1-20 Impatience . . . 29
VM1-21 Impulsiveness . . . 30
VM1-22 Voting . . . 31
VM1-23 Ratings of presidential candidates . . . 32
VM1-24 Political position . . . 33
VM1-25 Political party . . . 34

VM1-26 Religion . . . 34
VM1-27 Dictator Game: decision . . . 35
VM1-28 Dictator Game: expectation . . . 36
VM1-29 Dictator game: scatterplot . . . 37
VM1-30 Money burning game: decision . . . 38
VM1-31 Money burning game: expectation . . . 39
VM1-32 Money burning game: scatterplot . . . 40
VM1-33 Job situation . . . 41
VM1-34 COVID-19 related death . . . 41
VM1-35 Positive cases (friends) . . . 42
VM1-36 Positive cases (city) . . . 43
VM1-37 Positive cases (world) . . . 44
VM1-38 COVID-19 related death . . . 44
VM1-39 Donations . . . 45
VM1-40 Children at risk . . . 46
VM1-41 Tradeoff (single item) . . . 47
VM1-42 Distancing and certainty . . . 48
VM1-43 Antibiotics . . . 49
VM1-44 Lockdown harms . . . 50
VM1-45 Vaccination . . . 51
VM1-46 Dictator game: scatterplot . . . 55
VM1-47 HEXACO items . . . 60
VM1-48 Brief H-scale . . . 61
VM1-49 Brief E-scale . . . 62
VM1-50 Brief X-scale . . . 63
VM1-51 Brief A-scale . . . 64
VM1-52 Brief C-scale . . . 65
VM1-53 Brief O-scale . . . 66
VM1-54 H60-scale . . . 67
VM1-55 Brief H-scalepairs . . . 69
VM1-56 Psychological reactance scale . . . 72
VM1-57 Psychological reactance scale . . . 73
VM1-58 Oxford Utilitarianism Scale . . . 77
VM1-59 Oxford Utilitarianism Scale . . . 78
VM1-60 Brief H-scalepairs . . . 82
VM1-61 Brief HEXCACO scale . . . 83
VM1-62 CRT . . . 86
VM1-63 CRT inter-correlations . . . 88
VM1-64 CRT scores . . . 90
VM1-65 EXP items . . . 93
VM1-66 EXP inter-correlations . . . 94
VM1-67 EXP scores . . . 97
VM1-68 Berlin numeracy test (BNT) items . . . 100
VM1-69 BNT items . . . 101
VM1-70 BNT scores . . . 104

VM1-71 Subjective numeracy items . . . 106
VM1-72 SN inter-correlations . . . 107
VM1-73 SN scores . . . 109
VM1-74 Dark Core Scale . . . 113
VM1-75 SN items . . . 115
VM1-76 SN . . . 118
VM1-77 Climate change skepticism . . . 120
VM1-78 Climate change skepticism inter-correlations . . . 121
VM1-79 Climate change skepticism scores . . . 123
VM1-80 SECS items . . . 127
VM1-81 SECS inter-correlations . . . 128
VM1-82 SECS scores . . . 131
VM1-83 SVO items . . . 135
VM1-84 SVO scores . . . 137
VM1-85 COV-Worries items . . . 139
VM1-86 COV-Worries items . . . 140
VM1-87 COV-Worries scores . . . 143
VM1-88 COV-Compliance items . . . 145
VM1-89 COV-Compliance inter-correlations . . . 146
VM1-90 COV-Compliance scores . . . 149
VM1-91 COV-Social Distancing items . . . 151
VM1-92 COV-Social Distancing inter-correlations . . . 152
VM1-93 COV-Social Distancing scores . . . 154
VM1-94 COV-Misinformation items . . . 157
VM1-95 COV-Misinformation inter-correlations . . . 158
VM1-96 COV-Misinformation scores . . . 160
VM1-97 COV-Tradeoffs items . . . 163
VM1-98 COV-Tradeoffs inter-correlations . . . 164
VM1-99 COV-Tradeoffs scores . . . 166
VM1-100 Deice game items . . . 169
VM1-101 Dice game inter-correlations . . . 170
VM1-102 Dice game scores . . . 172

List of Tables

VM1-1 Data preparation

This document was prepared in Overleaf, as an Rtex file implementing knitr. Any output is generated by R during compilation, and can thus be replicated by entering the same commands referencing the same dataset. Overleaf's R version and selection and versions of packages are not under the user's control. This section demonstrates the R version and the list of packages used for calculations and output generation. https://cran.r-project.org/web/packages/psych/psych.pdf

```r
# Loading required libraries
library(foreign)
library(ggplot2)
library(dplyr)

##
## 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

library(tidyr)
library("purrr")
library("tidyverse")

## Warning in system("timedatectl", intern = TRUE): running command
'timedatectl' had status 1
## - Attaching packages --------------------- tidyverse 1.3.1 -
## v tibble  3.1.3     v stringr 1.4.0
## v readr   2.0.0     v forcats 0.5.1
## - Conflicts ---------------------- tidyverse_conflicts() -
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()

library("psych", verbose=TRUE)

##
## Attaching package:  'psych'
## The following objects are masked from 'package:ggplot2':
##
##     %+%, alpha

library("rmarkdown",verbose=TRUE)


library("viridis")

## Loading required package:  viridisLite

library(viridisLite)

# R version
R.version
```

```
##                _
## platform       x86_64-pc-linux-gnu
## arch           x86_64
## os             linux-gnu
## system         x86_64, linux-gnu
## status
## major          3
## minor          6.3
## year           2020
## month          02
## day            29
## svn rev        77875
## language       R
## version.string R version 3.6.3 (2020-02-29)
## nickname       Holding the Windsock

# Loading data
fn='TRANSMISSION_GAME_STUDY1_DEIDENTIFIED.sav'
dataS=read.spss(file=fn)
df=data.frame(dataS)

palette2=colorRampPalette(c("#ff7f50", "white", "#2171B5"))

sessionInfo()

## R version 3.6.3 (2020-02-29)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 20.04.3 LTS
##
## Matrix products: default
## BLAS:   /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.9.0
## LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.9.0
##
## locale:
##  [1] LC_CTYPE=C.UTF-8       LC_NUMERIC=C           LC_TIME=C.UTF-8
##  [4] LC_COLLATE=C.UTF-8     LC_MONETARY=C.UTF-8    LC_MESSAGES=C.UTF-8
##  [7] LC_PAPER=C.UTF-8       LC_NAME=C              LC_ADDRESS=C
## [10] LC_TELEPHONE=C         LC_MEASUREMENT=C.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] viridis_0.6.1     viridisLite_0.4.0 rmarkdown_2.9     psych_2.1.6
##  [5] forcats_0.5.1     stringr_1.4.0     readr_2.0.0       tibble_3.1.3
```

```
##  [9] tidyverse_1.3.1   purrr_0.3.4       tidyr_1.1.3       dplyr_1.0.7
## [13] ggplot2_3.3.5     foreign_0.8-76    knitr_1.33
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_1.0.7         lubridate_1.7.10  lattice_0.20-44   assertthat_0.2.1
##  [5] digest_0.6.27      utf8_1.2.2        R6_2.5.0          cellranger_1.1.0
##  [9] backports_1.2.1    reprex_2.0.0      evaluate_0.14     httr_1.4.2
## [13] pillar_1.6.2       rlang_0.4.11      readxl_1.3.1      rstudioapi_0.13
## [17] munsell_0.5.0      broom_0.7.9       compiler_3.6.3    modelr_0.1.8
## [21] xfun_0.24          pkgconfig_2.0.3   mnormt_2.0.2      tmvnsim_1.0-2
## [25] htmltools_0.5.1.1 tidyselect_1.1.1  gridExtra_2.3     fansi_0.5.0
## [29] crayon_1.4.1       tzdb_0.1.2        dbplyr_2.1.1      withr_2.4.2
## [33] grid_3.6.3         nlme_3.1-152      jsonlite_1.7.2    gtable_0.3.0
## [37] lifecycle_1.0.0    DBI_1.1.1         magrittr_2.0.1    scales_1.1.1
## [41] cli_3.0.1          stringi_1.7.3     fs_1.5.0          xml2_1.3.2
## [45] ellipsis_0.3.2     generics_0.1.0    vctrs_0.3.8       tools_3.6.3
## [49] glue_1.4.2         hms_1.1.0         parallel_3.6.3    colorspace_2.0-2
## [53] rvest_1.0.1        haven_2.4.1
```

VM1-2 Distribution of single-item measures in Study 1

VM1-2.1 Demographics 1

VM1-2.1.1 Gender

```
ggplot(df, aes(x=demo01Gender))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)+
    coord_flip()
```

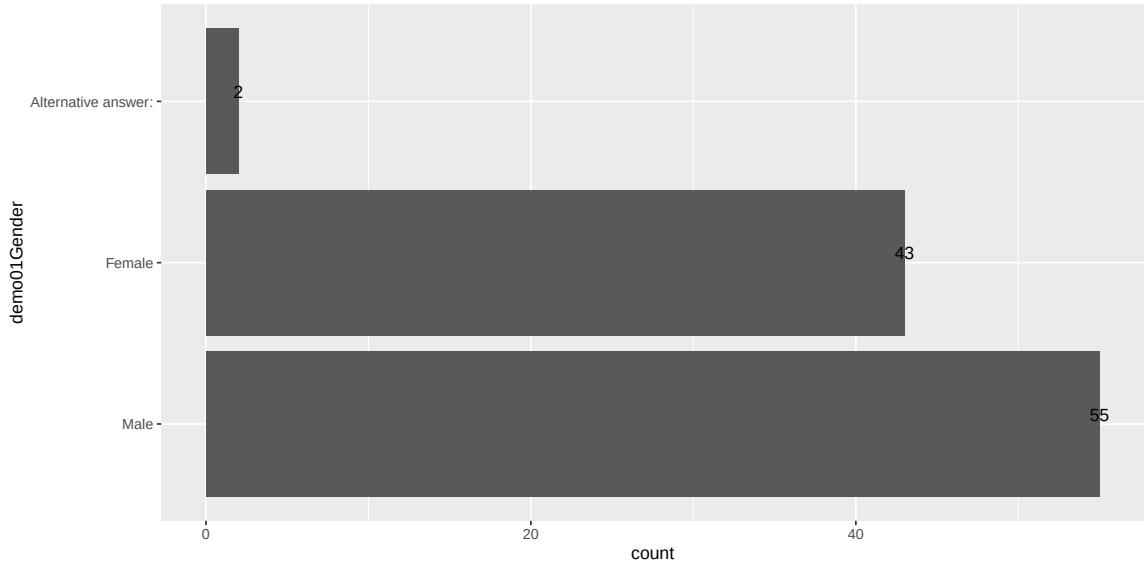

Figure VM1-1
Gender distribution

VM1-2.1.2 Age

```
summary(df$demo01Age)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   18.00   22.75   28.00   30.73   35.00   78.00
```

```
df %>%
  ggplot(aes(demo01Age)) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=40)
```

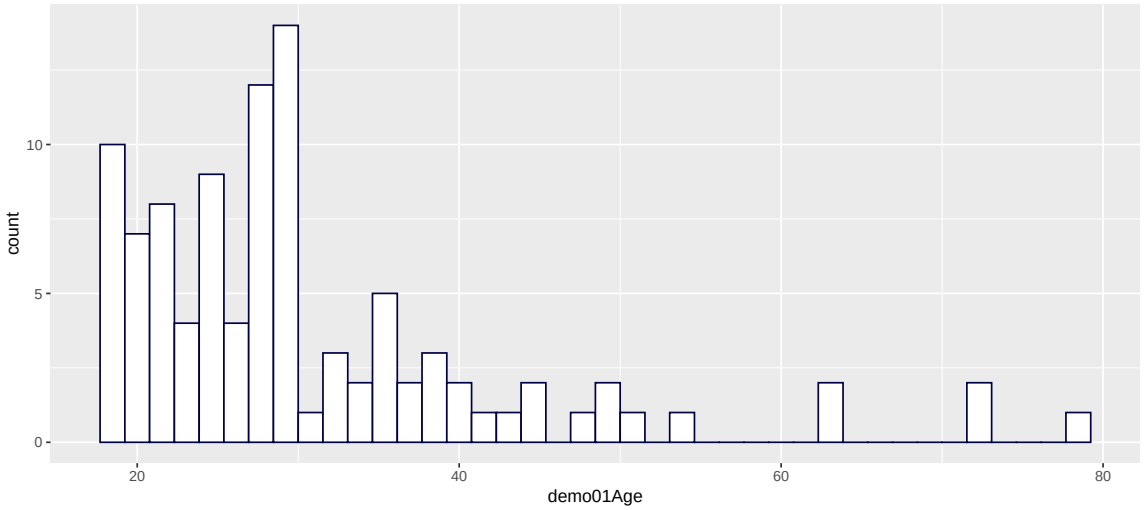

Figure VM1-2
Age distribution

VM1-2.1.3 Education

```
ggplot(df, aes(x=demo02Education))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

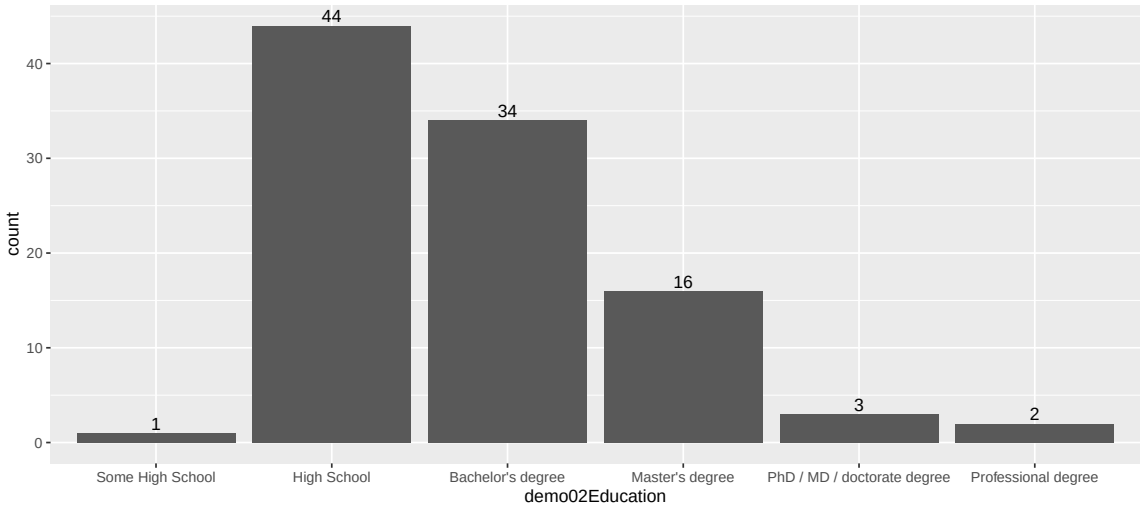

Figure VM1-3
Highest degree or level of education you have completed

VM1-2.1.4 Household income (2019)

```
ggplot(df, aes(x=demo03Income))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

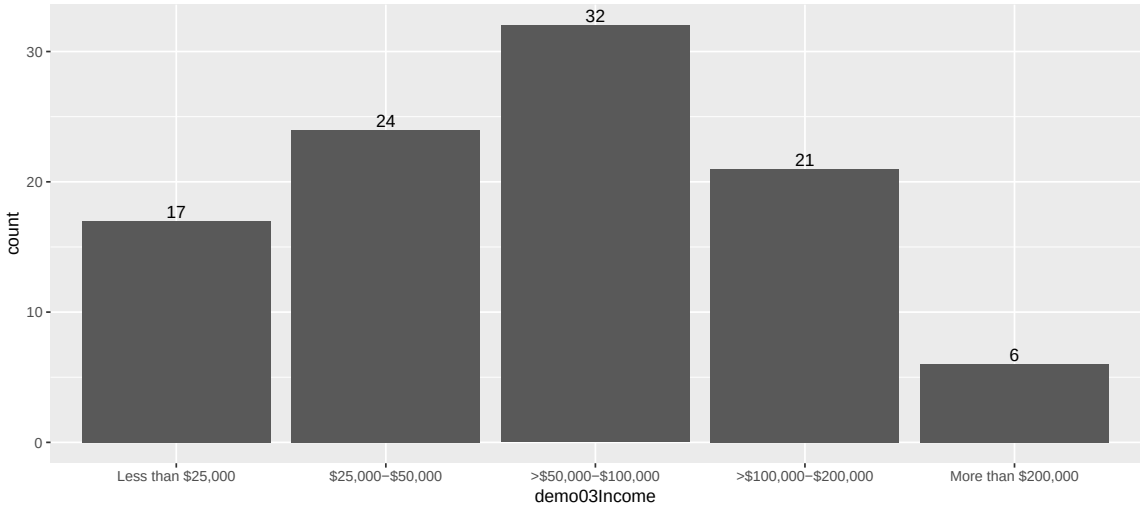

Figure VM1-4
What was your annual household income in 2019?

VM1-2.1.5 Employment status

```
ggplot(df, aes(x=demo04Emplyoment))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

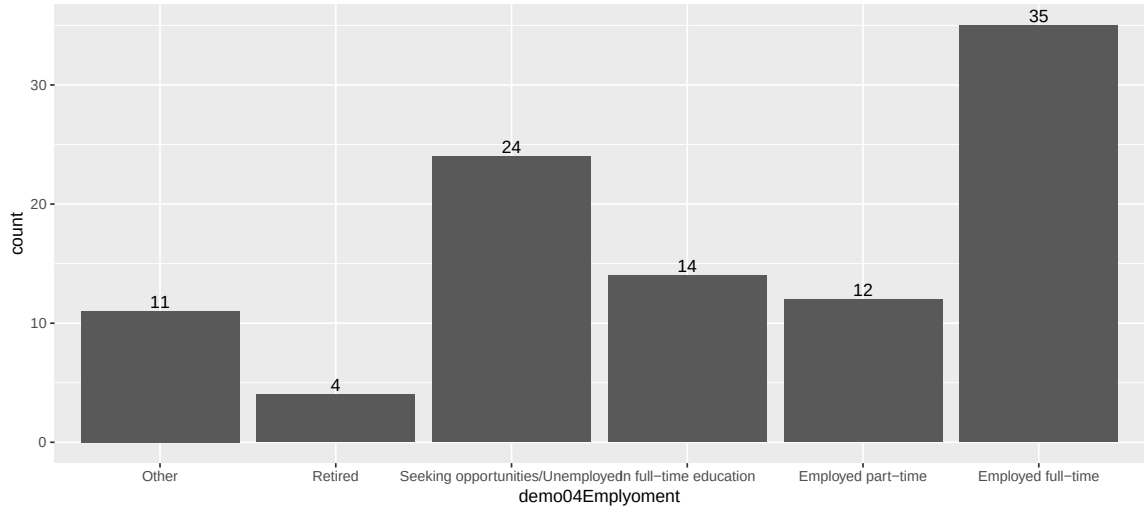

Figure VM1-5
What is your current employment status?

VM1-2.2 MTurk

VM1-2.2.1 MTurk participant

```
ggplot(df, aes(x=First01MTurk))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)+
   coord_flip()
```

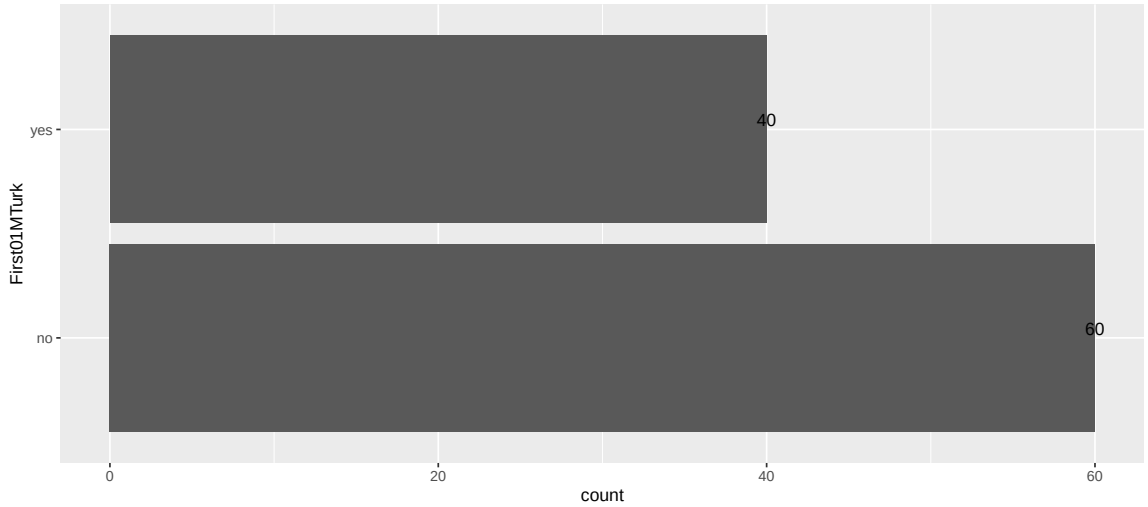

Figure VM1-6
Are you also registered on Amazon Mechanical Turk?

VM1-2.2.2 Number of HITs (for participants)

```
summary(df$First02numHits)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##       0      46     662    7612    2400   65000      60
```

```
df %>%
  ggplot(aes(First02numHits)) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=40)

## Warning:  Removed 60 rows containing non-finite values (stat_bin).
```

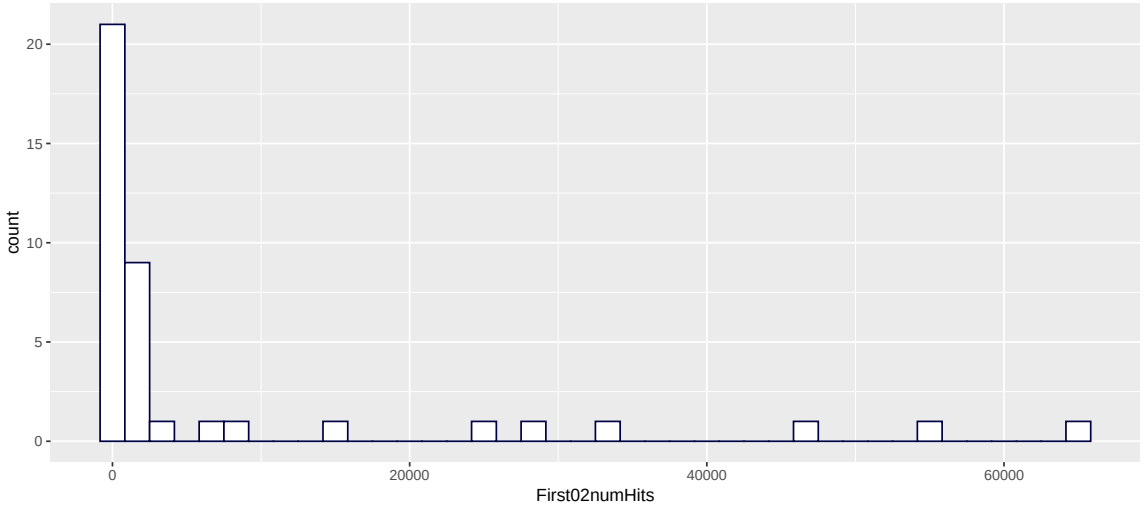

Figure VM1-7
How many HITs (in total) have you completed on Amazon Mechanical Turk in your lifetime?

VM1-2.3 Postquestionnaire

VM1-2.3.1 Motivation

Five questions were answered on a scale from 1–5: Strongly disagree—Disagree—Neither agree nor disagree—Agree—Strongly agree.

- **Post1**: I wanted to make as much bonus money as possible.
- **Post2**: I wanted to make more bonus money than other players.
- **Post3**: I felt responsible for other players.
- **Post4**: I wanted to make other players switch color.

- **Post5**: I did not care at all what happened in this game.

```
    VarsPost <- c("PostTG_1", "PostTG_2", "PostTG_3",
    "PostTG_4", "PostTG_5")

    FramePost <- df[VarsPost]

  FramePost <- FramePost %>%
    rename(
    Post1=PostTG_1,Post2=PostTG_2,Post3=PostTG_3,Post4=PostTG_4,
    Post5=PostTG_5 )

    FramePost[] <-data.matrix(FramePost)

 summary(FramePost)
```

```
##      Post1           Post2           Post3           Post4           Post5
##  Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:3.00   1st Qu.:2.00   1st Qu.:2.00   1st Qu.:1.00   1st Qu.:1.00
##  Median :4.00   Median :2.00   Median :2.00   Median :1.00   Median :1.50
##  Mean   :3.67   Mean   :2.64   Mean   :2.69   Mean   :1.65   Mean   :1.79
##  3rd Qu.:5.00   3rd Qu.:4.00   3rd Qu.:4.00   3rd Qu.:2.00   3rd Qu.:2.00
##  Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :4.00   Max.   :5.00
```

```
   pairs.panels(FramePost, smooth = TRUE, scale = FALSE,  digits = 2,
   method="pearson",pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,
   factor=2,breaks=40,hist.col="blue",show.points=FALSE,
   rug=FALSE,cex.cor=1,wt=NULL, stars=TRUE,
   ci=TRUE,alpha=.05)
```

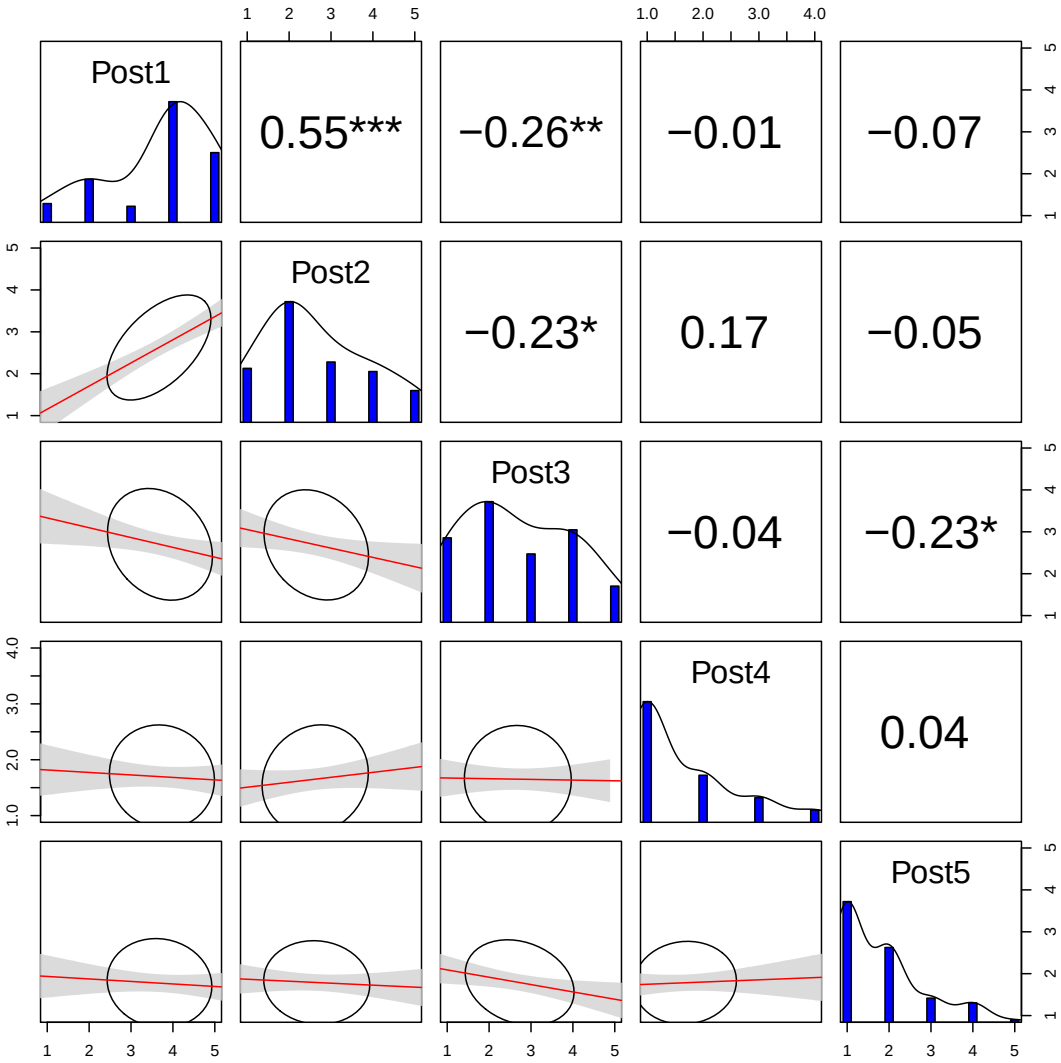

Figure VM1-8
Post-questionnaire items

VM1-2.3.2 Color estimate

```
summary(df$PostTGcolor)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00   25.00   50.00   49.51   70.00  100.00
```

```
df %>%
  ggplot(aes(PostTGcolor)) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=40)
```

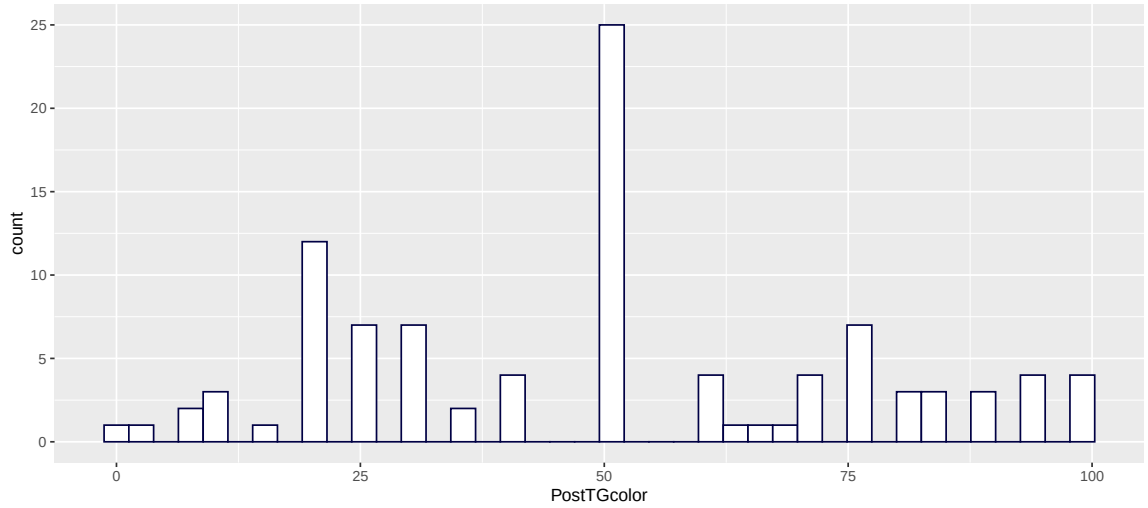

Figure VM1-9
How likely is it that your final color is purple?

VM1-2.3.3 Roundwise Estimates

```
#Data preparation:

round<-c()
round[1:100]<-1
round[101:200]<-5
round[201:300]<-10
round[301:400]<-15
round[401:500]<-20
round[501:600]<-25
```

```
participantID<-c()
participantID[1:100]<-1:100
participantID[101:200]<-1:100
participantID[201:300]<-1:100
participantID[301:400]<-1:100
participantID[401:500]<-1:100
participantID[501:600]<-1:100

estimatePurple<-c()
estimatePurple[1:100] <-df$PostTGestimatepurple_1
estimatePurple[101:200] <-df$PostTGestimatepurple_2
estimatePurple[201:300] <-df$PostTGestimatepurple_3
estimatePurple[301:400] <-df$PostTGestimatepurple_4
estimatePurple[401:500] <-df$PostTGestimatepurple_5
estimatePurple[501:600] <-df$PostTGestimatepurple_6

estimateH<-c()
estimateH[1:100] <-df$PostTGestimateH_1
estimateH[101:200] <-df$PostTGestimateH_2
estimateH[201:300] <-df$PostTGestimateH_3
estimateH[301:400] <-df$PostTGestimateH_4
estimateH[401:500] <-df$PostTGestimateH_5
estimateH[501:600] <-df$PostTGestimateH_6

lineFramePurple<-data.frame(
  round,
  estimatePurple,
  participantID
)

lineFrameH<-data.frame(
  round,
  estimateH,
  participantID
)
```

Data preparation.

Estimates of number of purple players. Participants were asked: "How many players in your group do you think were purple in each of the following rounds?" with estimates for rounds 1,5, 10, 15, 20, and 25.

```
    lineFramePurple %>%
    ggplot(aes(y = estimatePurple, x = round, group=round)) +
    geom_boxplot(color="red",width=1.5)  +
    geom_dotplot(aes(fill = round),
```

```
                binaxis = "y",
                binwidth = 1,
                stackdir = "center"
    )  +
    theme(legend.position = "none")
```

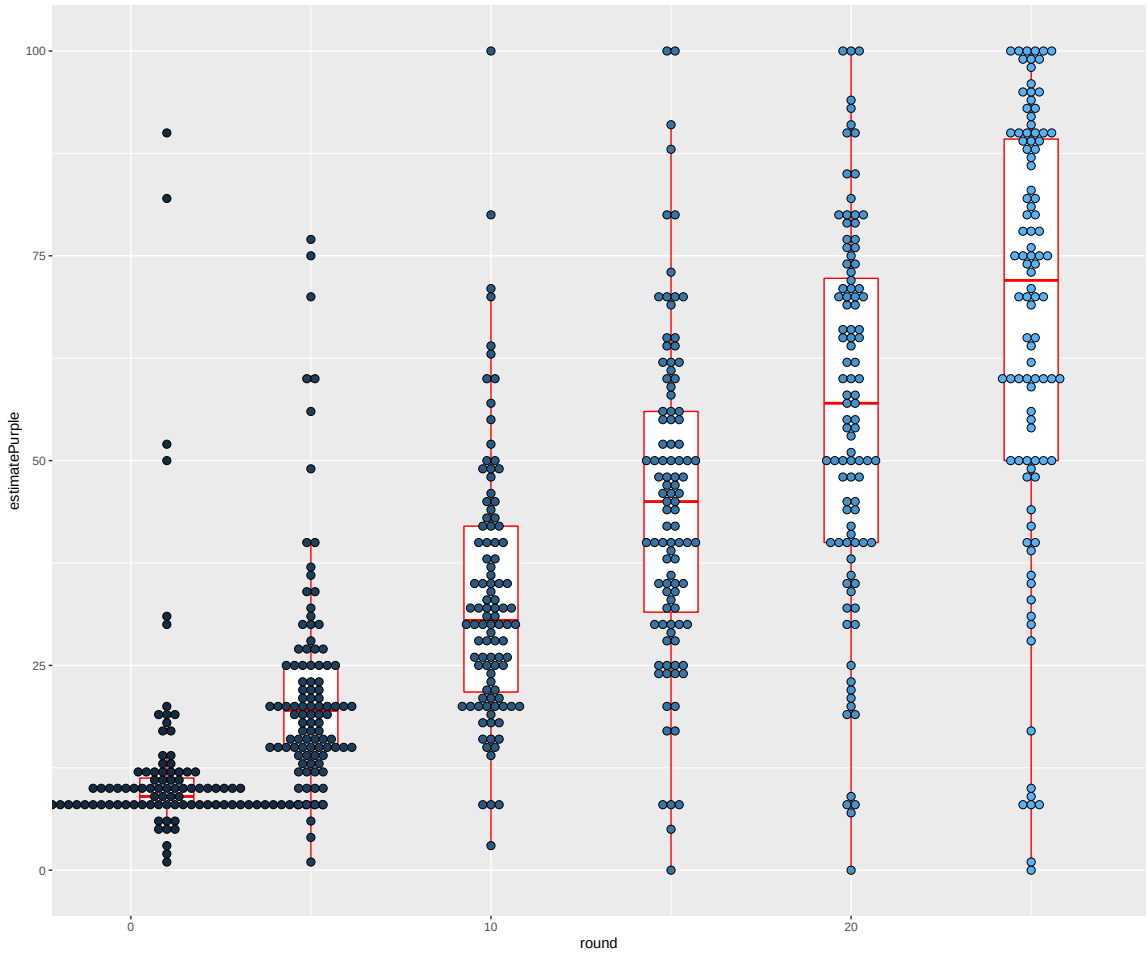

Figure VM1-10
Estimates for the proportion of purple players: Boxplots

```
lineFramePurple %>%
ggplot( aes(x=round, y=estimatePurple, group=participantID,
color=participantID)) +
scale_colour_viridis_c(option="magma")+
geom_line(position=position_jitter(w=0.1, h=0),alpha=0.4)+
theme(legend.position = "none")
```

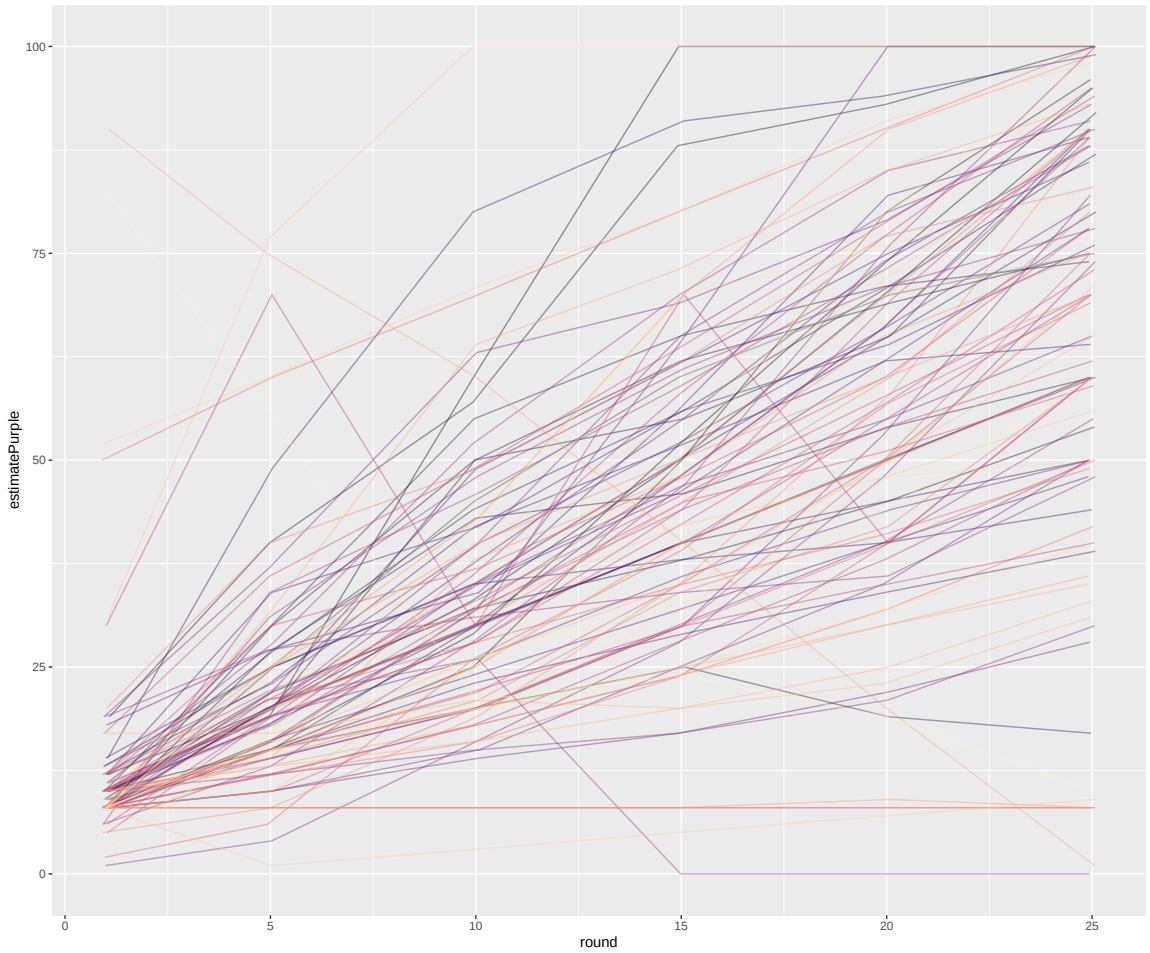

Figure VM1-11
Estimates for the proportion of purple players: Individual lineplots

Estimates of number of H-choices. Participants were asked: "How many players in your group do you think chose action H (40 points) in each of the following rounds?" with estimates for rounds 1,5, 10, 15, 20, and 25.

```
lineFrameH %>%
ggplot(aes(y = estimateH, x = round, group=round)) +
geom_boxplot(color="red",width=1.5)  +
geom_dotplot(aes(fill = round),
             binaxis = "y",
             binwidth = 1,
             stackdir = "center"
)  +
theme(legend.position = "none")
```

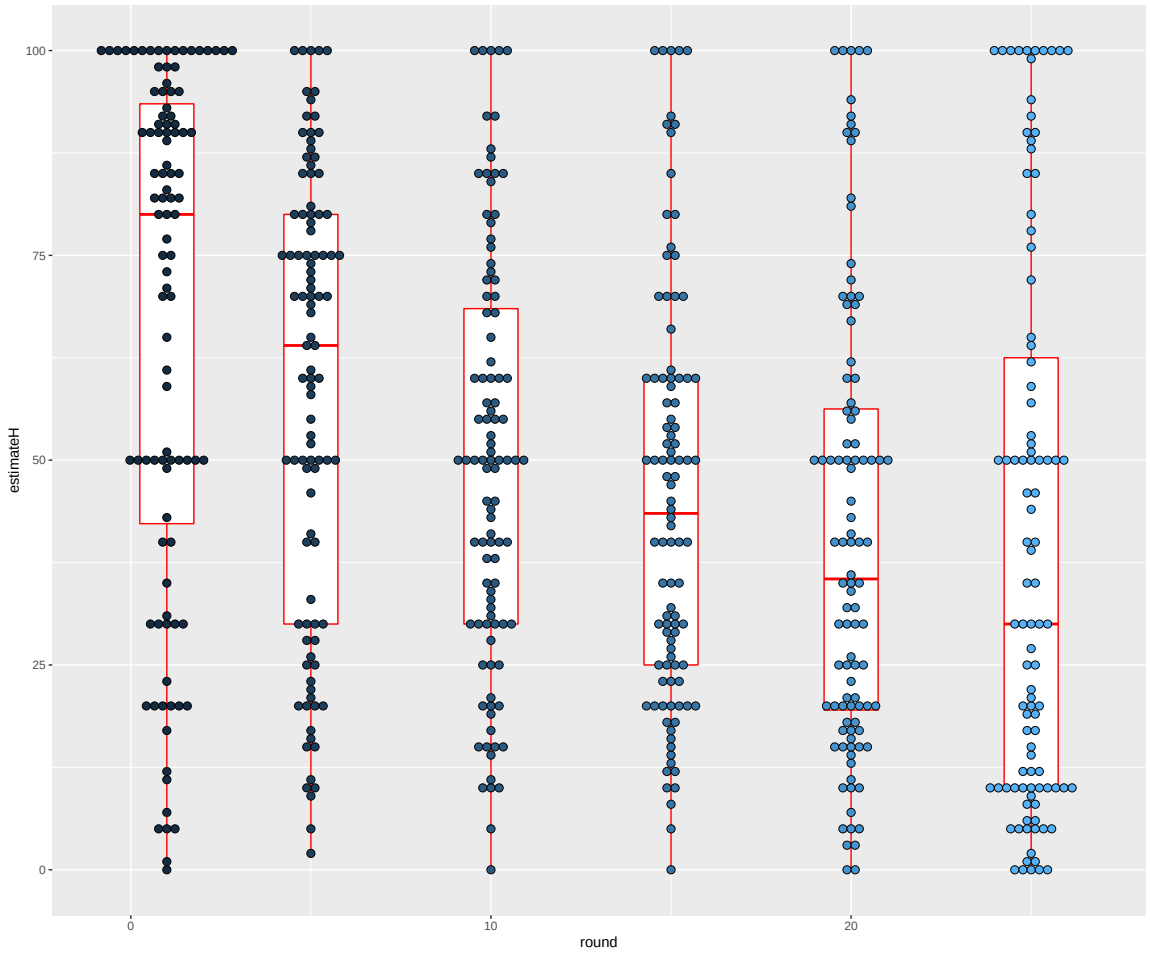

Figure VM1-12
Estimates for the proportion of players choosing H: Boxplots

```
lineFrameH %>%
ggplot( aes(x=round, y=estimateH, group=participantID,
color=participantID)) +
scale_colour_viridis_c(option="magma")+
geom_line(position=position_jitter(w=0.1, h=0),alpha=0.4)+
theme(legend.position = "none")
```

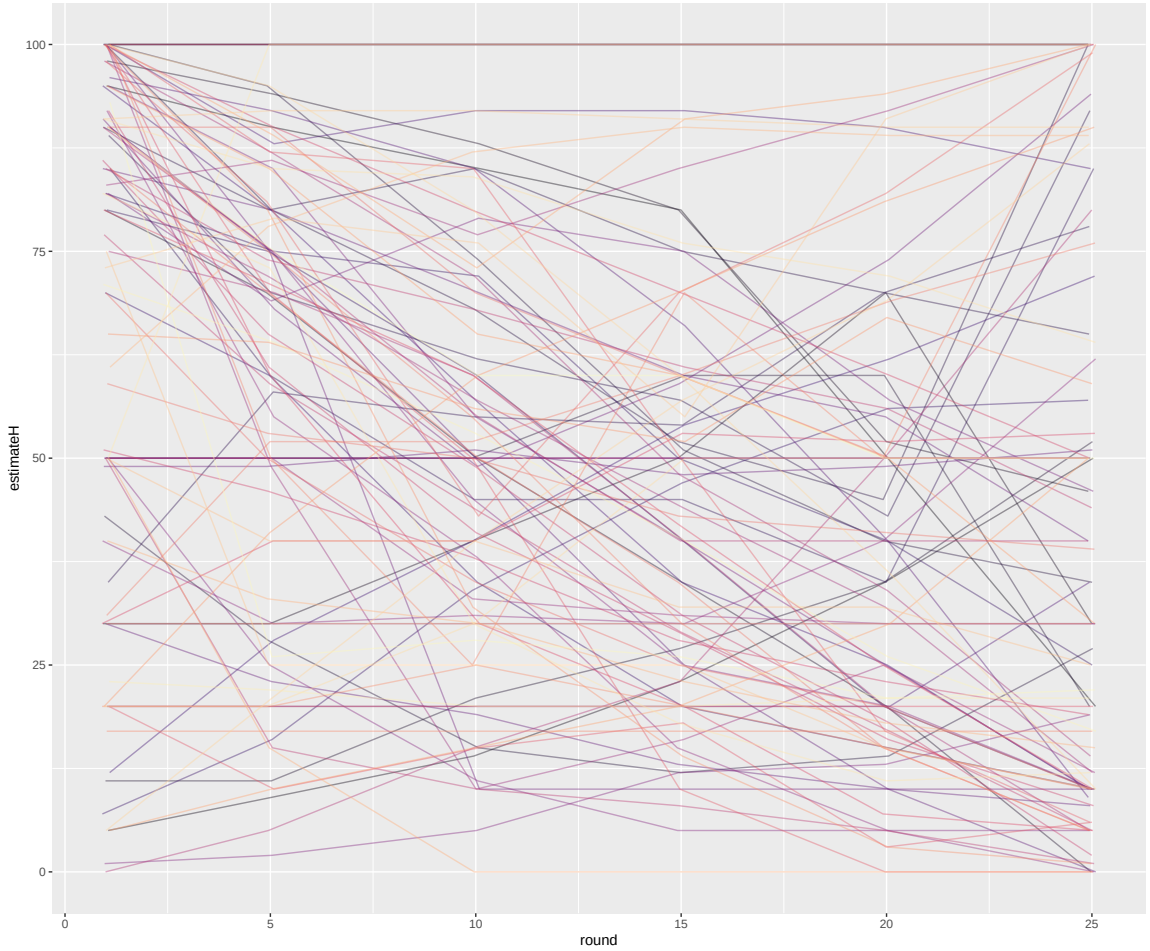

Figure VM1-13
Estimates for the proportion of players choosing H: Individual lineplots

VM1-2.4 Single-item measures

VM1-2.4.1 General Risk Taking

Source. The general risk question has been used in the German Socio-Economic Panel (SOEP), and has been demonstrated to predict actual risky behavior (Dohmen et al., 2011).

```
ggplot(df, aes(x=RTGeneral))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

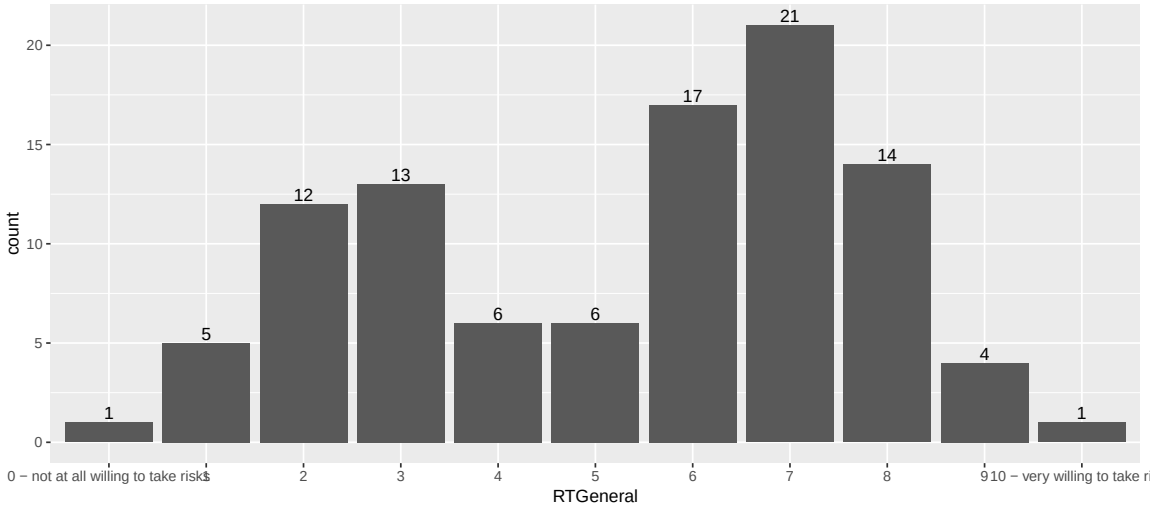

Figure VM1-14
Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?

```
summary(as.numeric(df$RTGeneral)-1)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    3.00    6.00    5.29    7.00   10.00
```

VM1-2.4.2 Trust

Source. The trust question was part of the global preference survey, as described in Falk et al. (2018).

```
ggplot(df, aes(x=TRUST))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

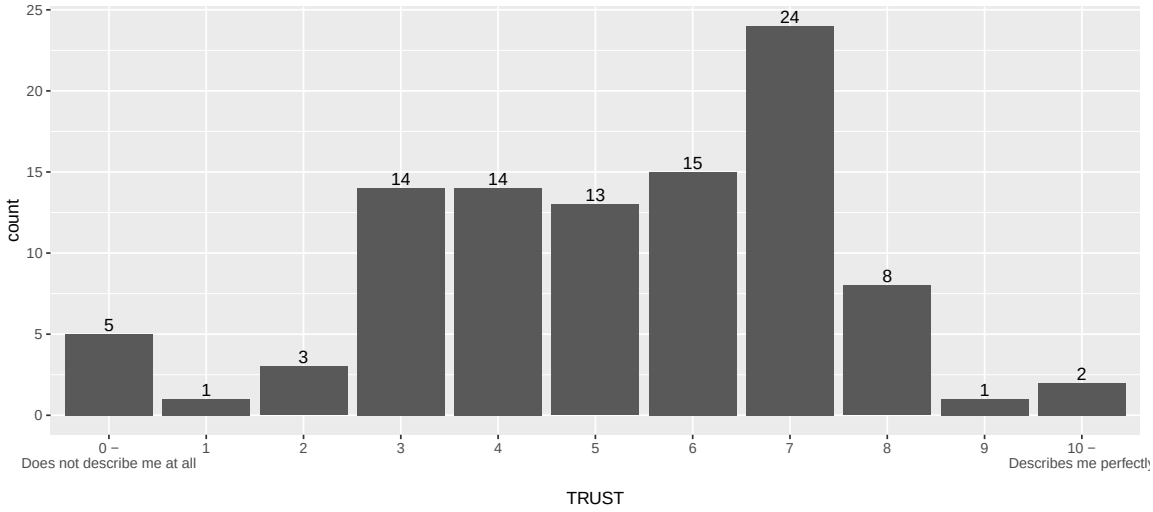

Figure VM1-15
I assume that people have only the best intentions.

```
summary(as.numeric(df$TRUST)-1)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    4.00    5.50    5.21    7.00   10.00
```

VM1-2.4.3 Time preference

Source. The time preference measure is used as a "qualitative measure of patience" in Falk et al. (2018, p. 1654).

```
ggplot(df, aes(x=TIMEPREFERENCE))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

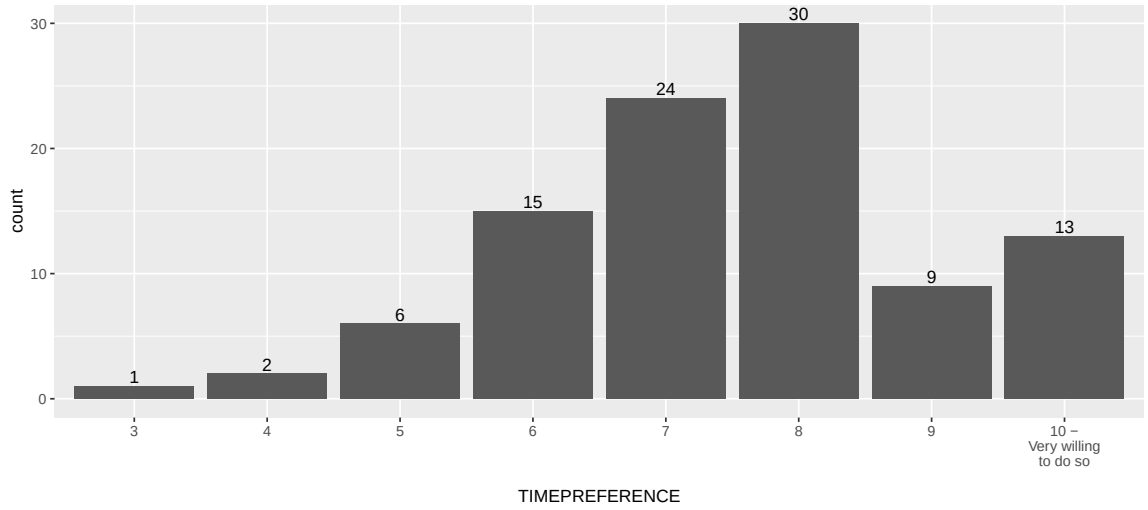

Figure VM1-16
How willing are you to give up something that is beneficial for you today in order to benefit more from that in the future?

VM1-2.4.4 Subjective Life Expectancy

Source. The subjective life expectancy was measured on a slider scale similar to the method used in Mittal et al. (2020).

```
summary(df$SLExp_1)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   29.00   78.00   85.00   82.27   90.00  110.00
```

```
df %>%
  ggplot(aes(SLExp_1)) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=40)
```

Responses.

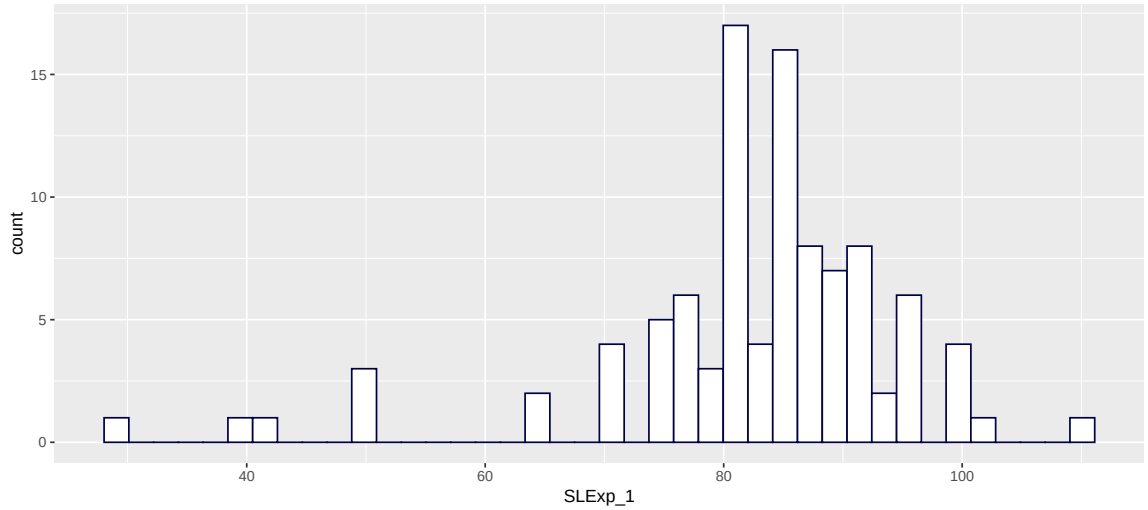

Figure VM1-17
Please indicate the age to which you expect to live

```
plot(df$demo01Age,df$SLExp_1-df$demo01Age)
```

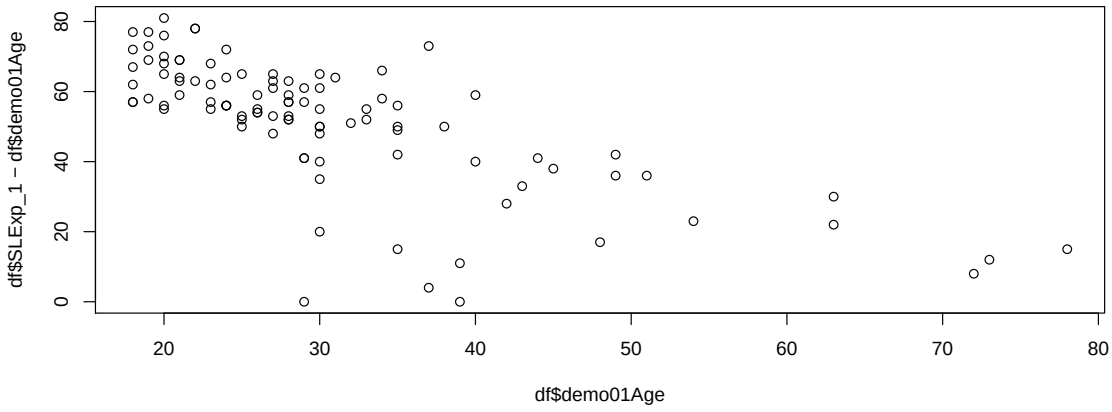

Figure VM1-18
Scatterplot of age and expected life years remaining

VM1-2.4.5 General Health

Source. The general health question was taken from Centers for Disease Control and Prevention (CDC) (2000).

```
ggplot(df, aes(x=GenHealth))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

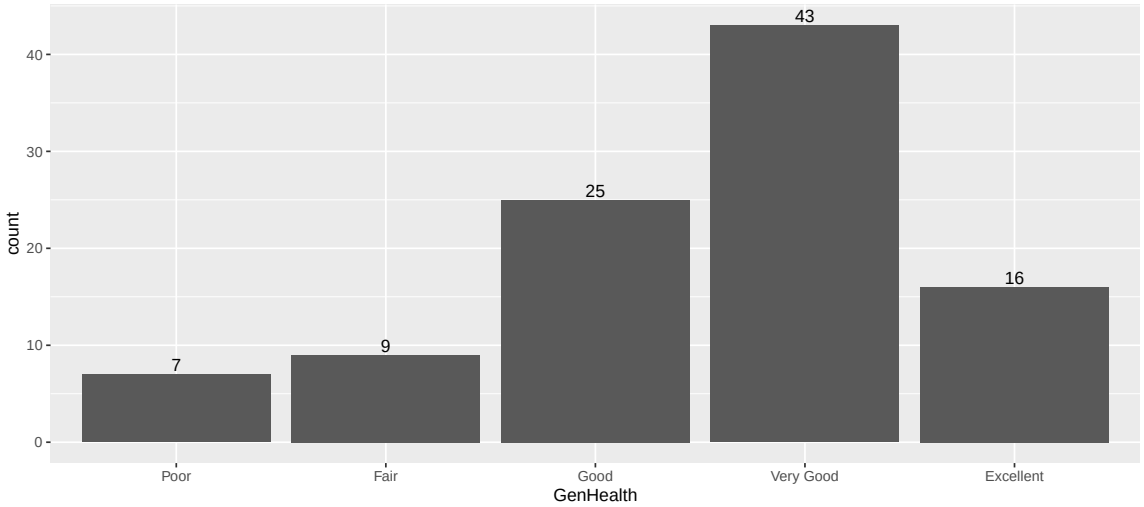

Figure VM1-19
Would you say that, in general, your health is.

```
summary(as.numeric(df$GenHealth))

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    3.00    4.00    3.52    4.00    5.00
```

Responses.

VM1-2.4.6 Impatience

Source. This brief measure of patience was part of the German Socio-economic Panel (SOEP) and validated in Vischer et al. (2013).

```
ggplot(df, aes(x=IMPATIENCE))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

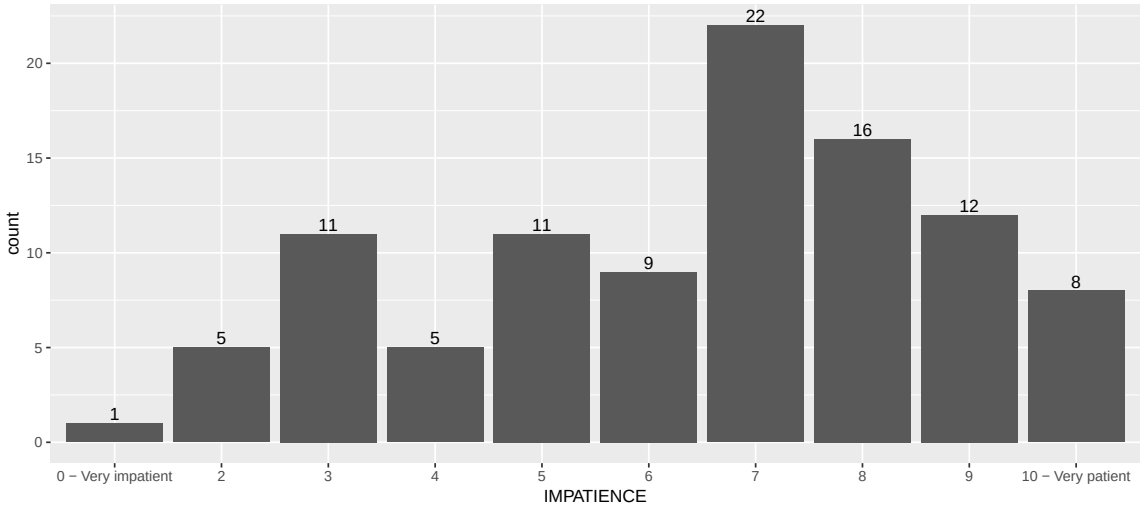

Figure VM1-20
Would you describe yourself as an impatient or a patient person in general?

```
summary(as.numeric(df$IMPATIENCE)-1)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    5.00    7.00    6.42    8.00   10.00
```

VM1-2.4.7 Impulsiveness

Source. This brief measure of patience was part of the German Socio-economic Panel (SOEP) and discussed in Vischer et al. (2013).

```
ggplot(df, aes(x=IMPULSIVENESS))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

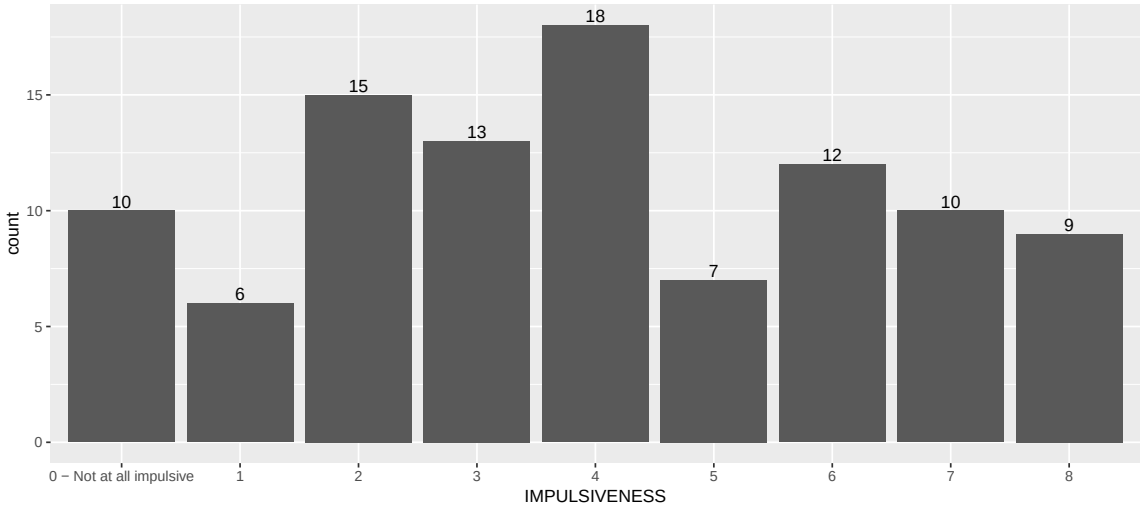

Figure VM1-21
Do you generally think things over for a long time before acting—in other words, are you not impulsive at all?

```
summary(as.numeric(df$IMPULSIVENESS)-1)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    2.00    4.00    3.96    6.00    8.00
```

VM1-2.5 Politics and religion

VM1-2.5.1 Voting

```
ggplot(df, aes(x=polVote))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

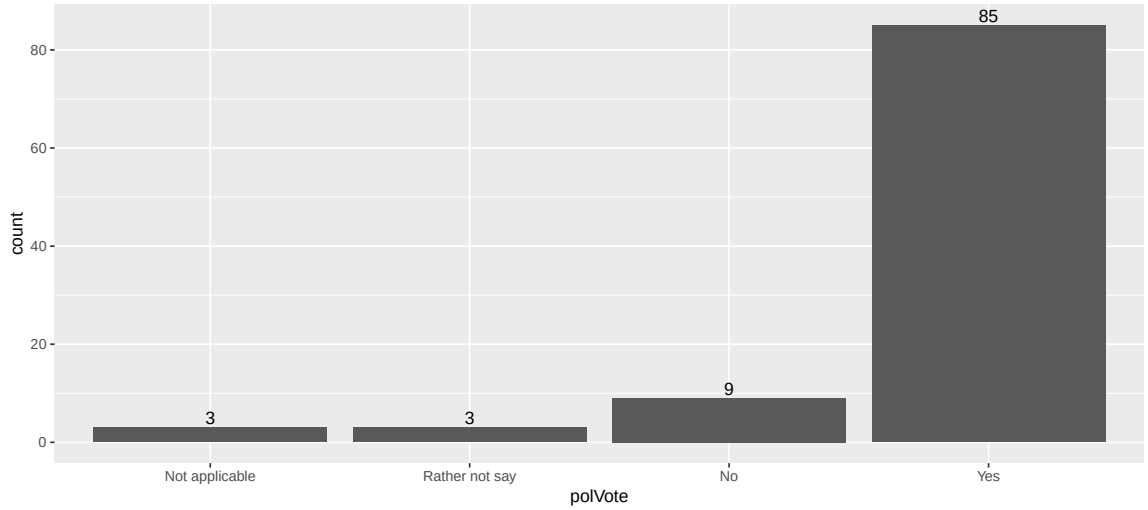

Figure VM1-22
Are you currently registered to vote?

VM1-2.5.2 Presidential candidates

```
polVars <- c("polCandScale_2", "polCandScale_4")
scoresCandidates <- df[polVars]

scoresCandidates <- scoresCandidates %>%
  rename(
     Trump=polCandScale_2,
     Biden=polCandScale_4
    )
summary(scoresCandidates)
```

```
##      Trump             Biden
##  Min.   :-100.00   Min.   :-100.00
##  1st Qu.:-100.00   1st Qu.: -58.00
##  Median : -99.00   Median :   0.00
##  Mean   : -55.21   Mean   :  -0.49
##  3rd Qu.: -33.50   3rd Qu.:  55.25
##  Max.   : 100.00   Max.   : 100.00
```

```
  pairs.panels(scoresCandidates, smooth = TRUE, scale = FALSE,  digits = 2,
  method="pearson",pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,
  factor=2,breaks=15,hist.col="blue",show.points=TRUE,
```

```
  rug=FALSE,cex.cor=1,wt=NULL,stars=TRUE,
  ci=TRUE,alpha=.05)
```

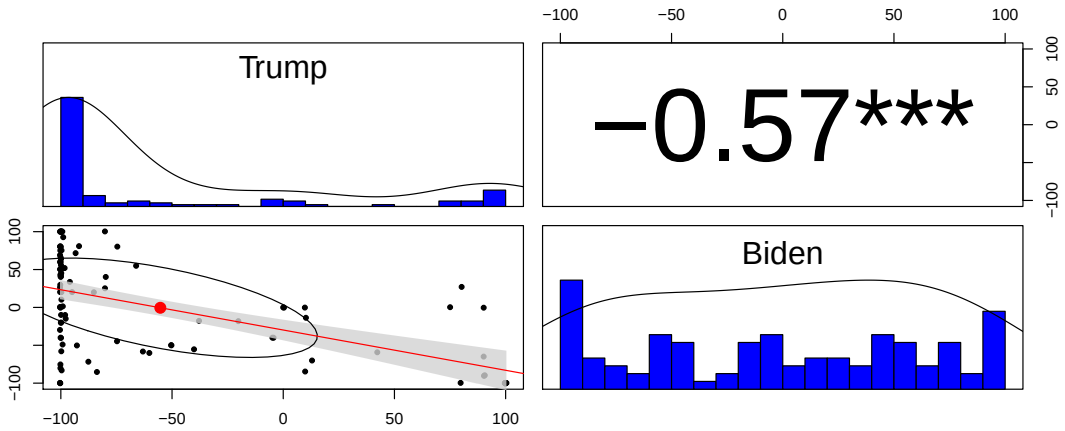

Figure VM1-23
Please rate each candidate individually according to how you would feel if they were elected in 2020

Responses.

VM1-2.5.3 Political position

"Slightly conservative" was erroneously mapped to the highest integer in Qualtrics. The following command corrects the ordering.

```
df$polPosition=fct_relevel(df$polPosition, "slightly\nconser-\nvative", after = 4)
```

```
ggplot(df, aes(x=polPosition))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

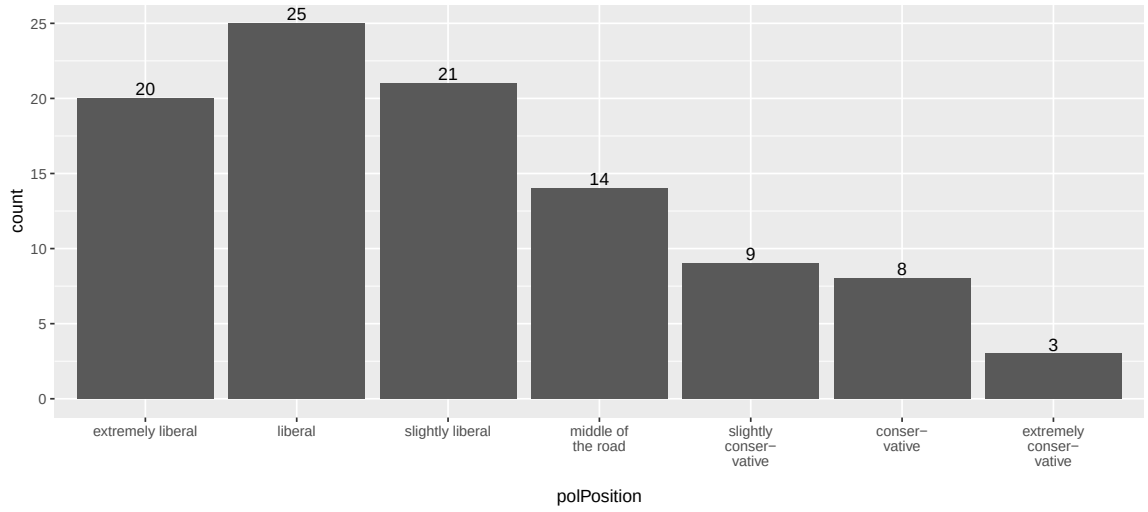

Figure VM1-24

When it comes to politics, do you usually think of yourself as extremely liberal, liberal, slightly liberal, moderate or middle of the road, slightly conservative, extremely conservative?

VM1-2.5.4 Political party

```
ggplot(df, aes(x=polParty1))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

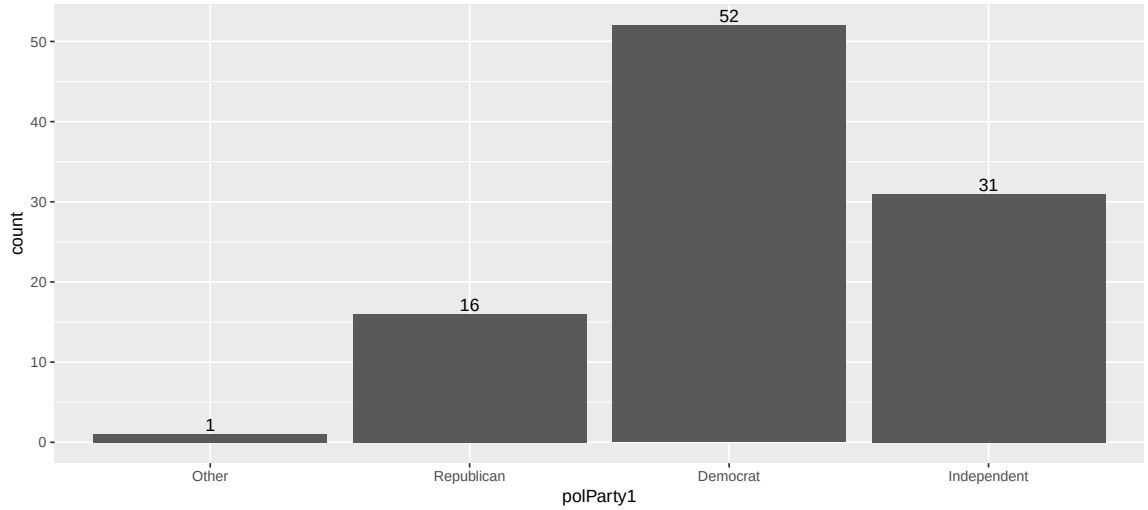

Figure VM1-25

Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or what?

VM1-2.5.5 Religion

```
ggplot(df, aes(x=religion1))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)+
    coord_flip()
```

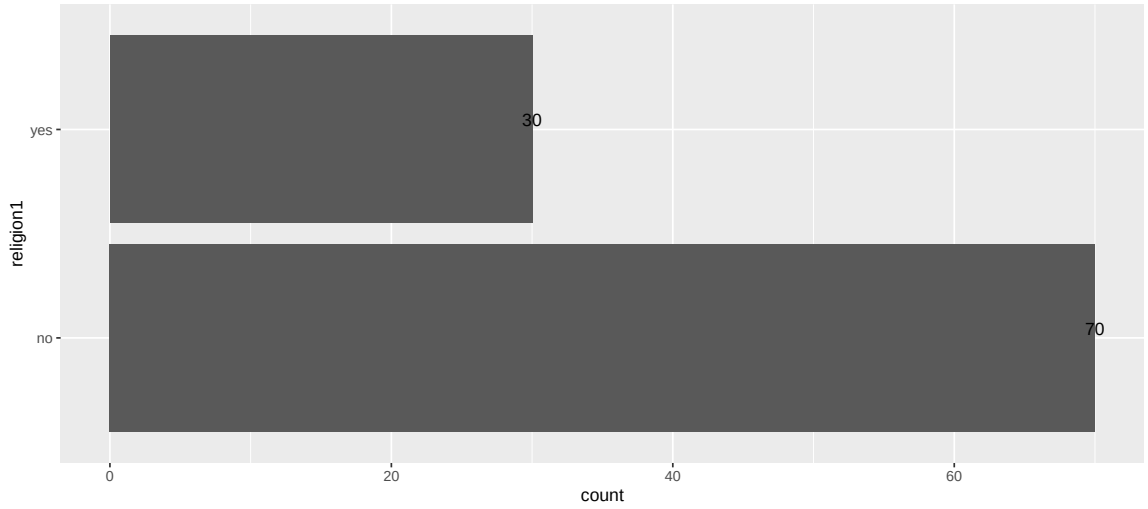

Figure VM1-26

Do you consider religion to be an important part of your life?

VM1-2.6 Economic Games

VM1-2.6.1 Dictator Games

Source. Participants played a simple dictator game (see, e.g., Engel, 2011).

```
ggplot(df, aes(x=DictatorGame))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

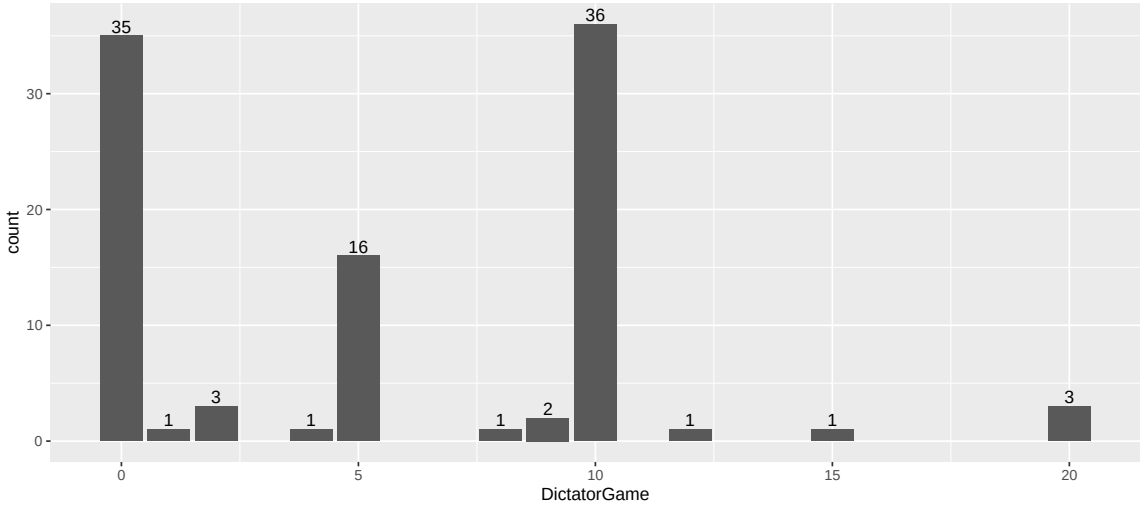

Figure VM1-27
How much do you give to the other person?

```
summary(as.numeric(df$DictatorGame))

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    0.00    5.00    5.64   10.00   20.00
```

```
ggplot(df, aes(x=DictatorExpect))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

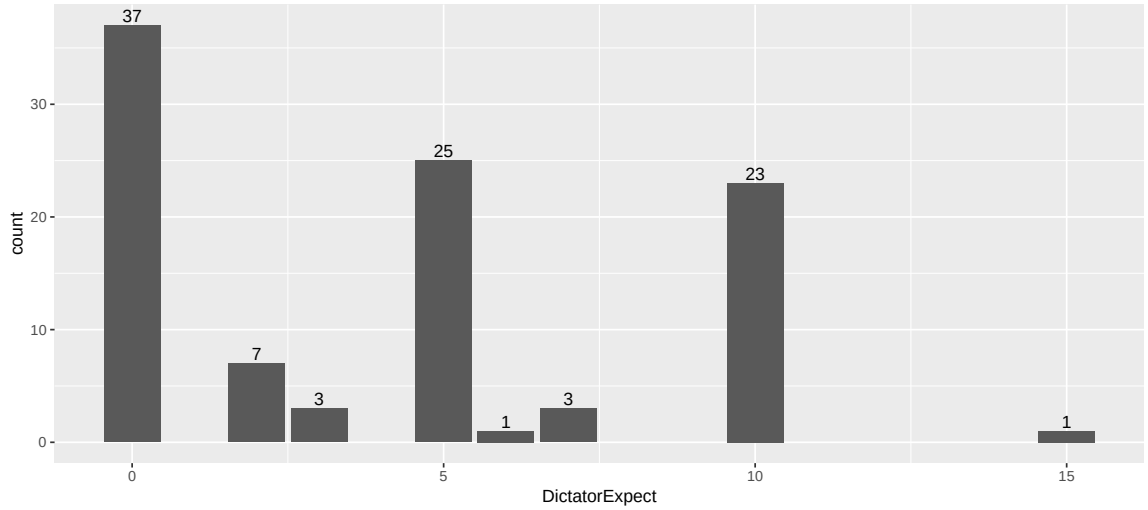

Figure VM1-28

How much do you expect other players to give on average in the game you just played?

```
summary(as.numeric(df$DictatorExpect))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0.0     0.0     5.0     4.2     7.0    15.0
```

```
 dictVars <- c("DictatorGame", "DictatorExpect")
 dictFrame <- df[dictVars]

 dictFrame <- dictFrame %>%
   rename(
      Behavior=DictatorGame,
      Expectation=DictatorExpect
     )
```

```
   pairs.panels(dictFrame, smooth = TRUE, scale = FALSE,  digits = 2,
   method="pearson",pch = 20, lm=TRUE, cor=TRUE,
   jiggle=TRUE,factor=2,breaks=15,hist.col="blue",
   show.points=TRUE,rug=FALSE,cex.cor=1,wt=NULL,
     stars=TRUE,ci=TRUE,alpha=.05)
```

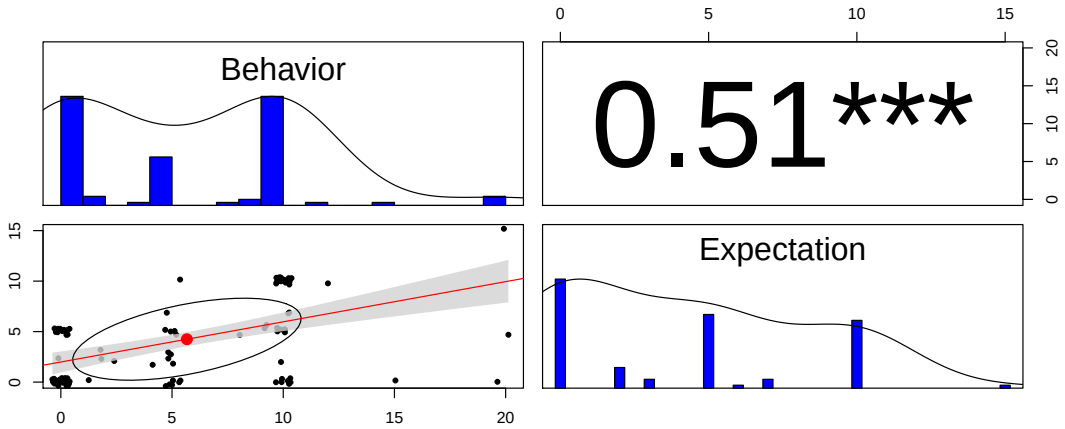

Figure VM1-29
Dictator game: Expectation vs. behavior

VM1-2.6.2 Money Burning Game

Source. Participants played a money burning game (Zizzo, 2003), in which they could reduce another participant's bonus money at no personal gain.

```
ggplot(df, aes(x=MonBurnGame))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Responses.

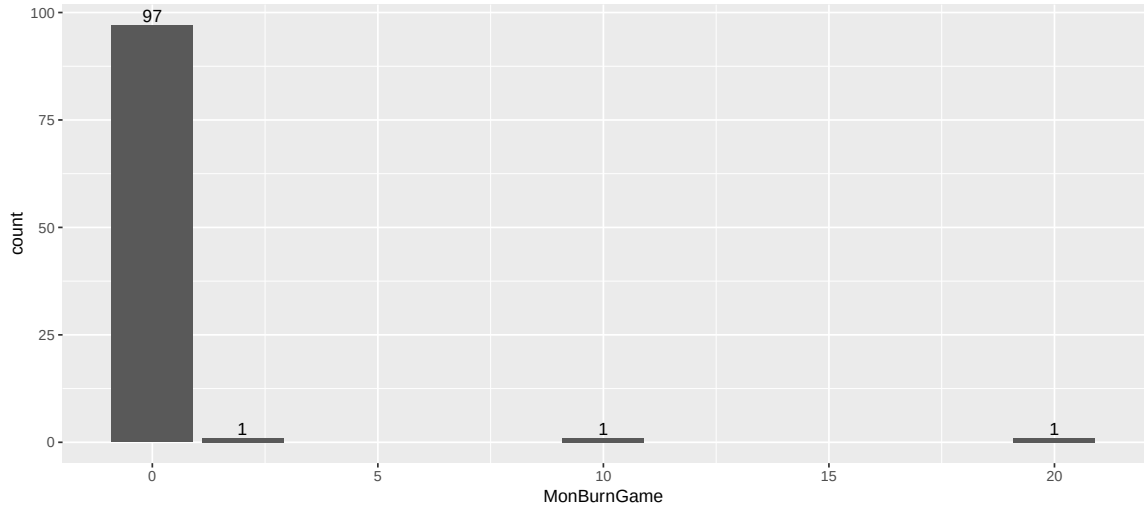

Figure VM1-30

By how many pence do you want to reduce the other player's bonus payment?

```
summary(as.numeric(df$MonBurnGame))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    0.00    0.00    0.32    0.00   20.00
```

```
ggplot(df, aes(x=MonBurnExpect))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

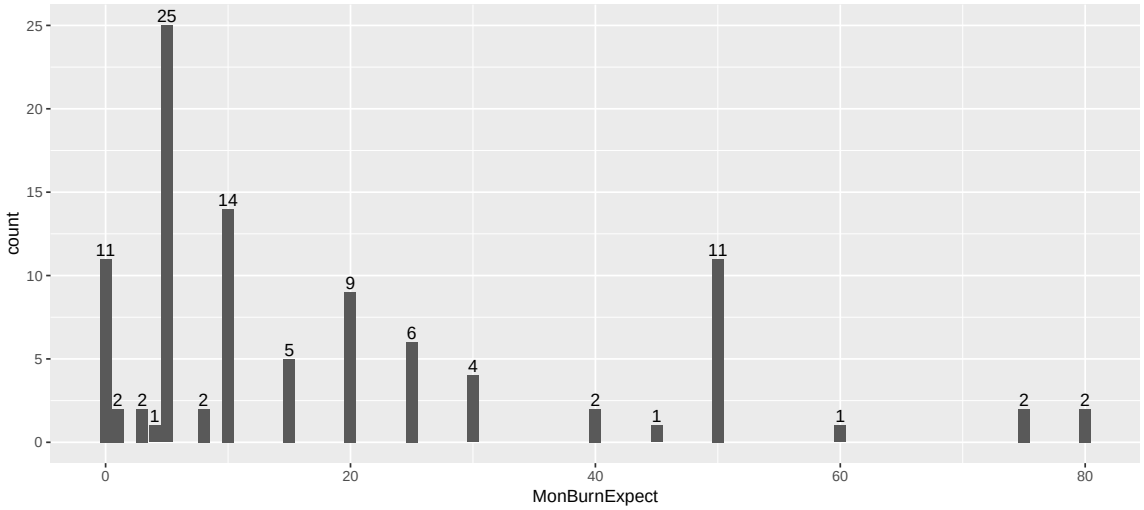

Figure VM1-31

Out of 100 players, how many do you think will reduce the other player's bonus by at least 1p?

```
summary(as.numeric(df$MonBurnExpect))

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    5.00   10.00   18.63   25.00   80.00

 burnVars <- c("MonBurnGame", "MonBurnExpect")
 burnFrame <- df[burnVars]

 burnFrame <- burnFrame %>%
   rename(
      Behavior=MonBurnGame,
      Expectation=MonBurnExpect
     )
```

```
   pairs.panels(burnFrame, smooth = TRUE, scale = FALSE,  digits = 2,
   method="pearson",pch = 20, lm=TRUE,cor=TRUE, jiggle=TRUE,
   factor=2,breaks=15,hist.col="blue",show.points=TRUE,
   rug=FALSE,cex.cor=1,wt=NULL,  stars=TRUE,
   ci=TRUE,alpha=.05)
```

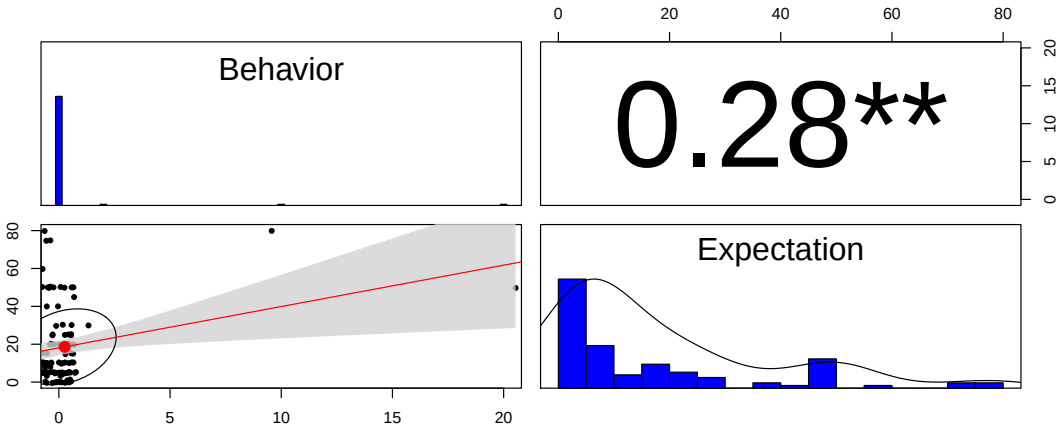

Figure VM1-32
Money burning game: Expectation vs. behavior

VM1-2.7 COVID-19 related

VM1-2.7.1 Job situation

This question is similar to the one asked in Dennis et al. (2020).

```
ggplot(df, aes(x=demo04jobcorona))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25) +
coord_flip()
```

Responses.

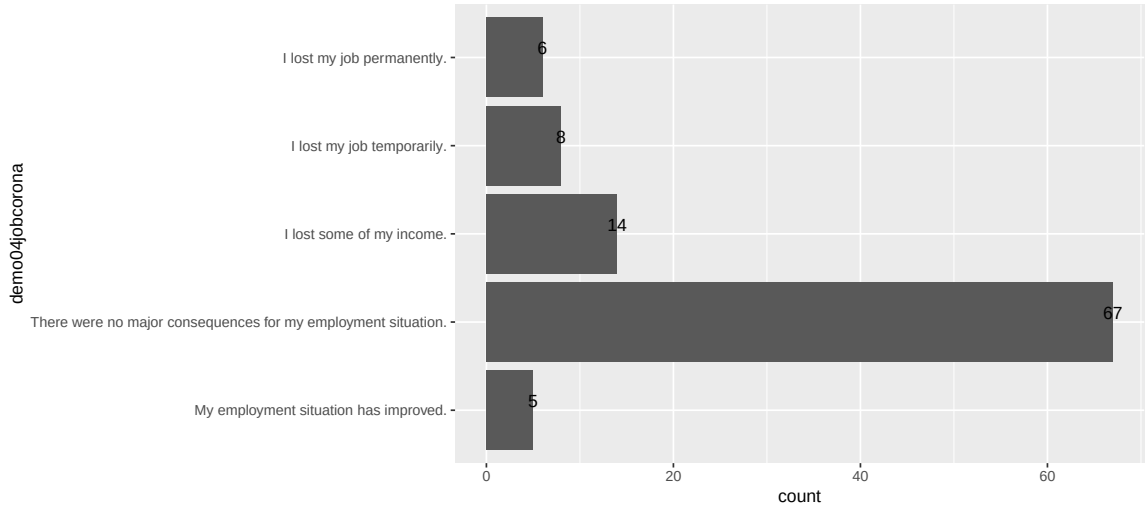

Figure VM1-33
Has the current coronavirus disease (COVID-19) affected your employment situation?

VM1-2.7.2 Positive tests

```
ggplot(df, aes(x=COV_PosTest))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25) +
coord_flip()
```

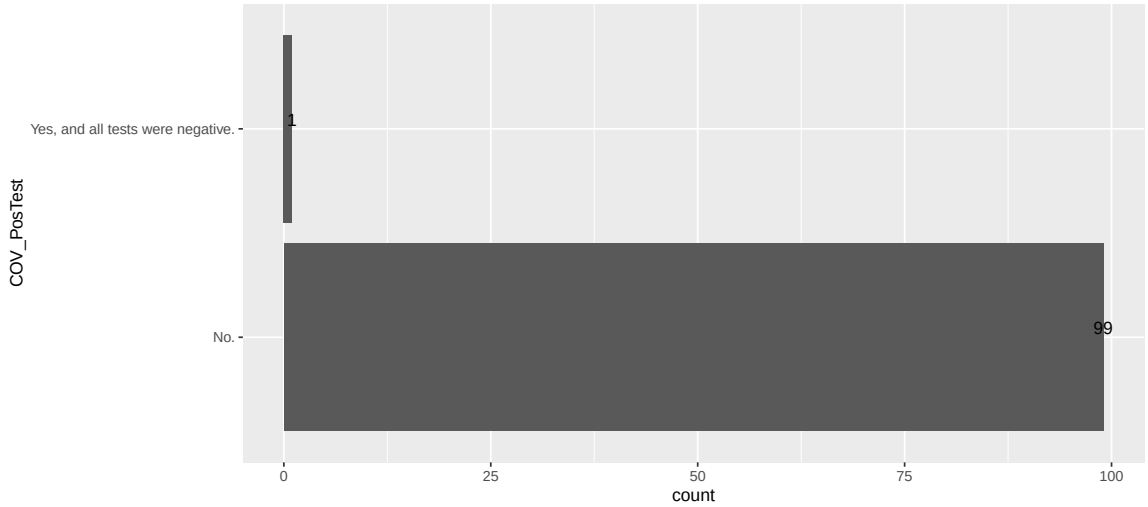

Figure VM1-34
Has anyone you know died as a consequence of COVID-19?

```
ggplot(df, aes(x=COV_pplfamily))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

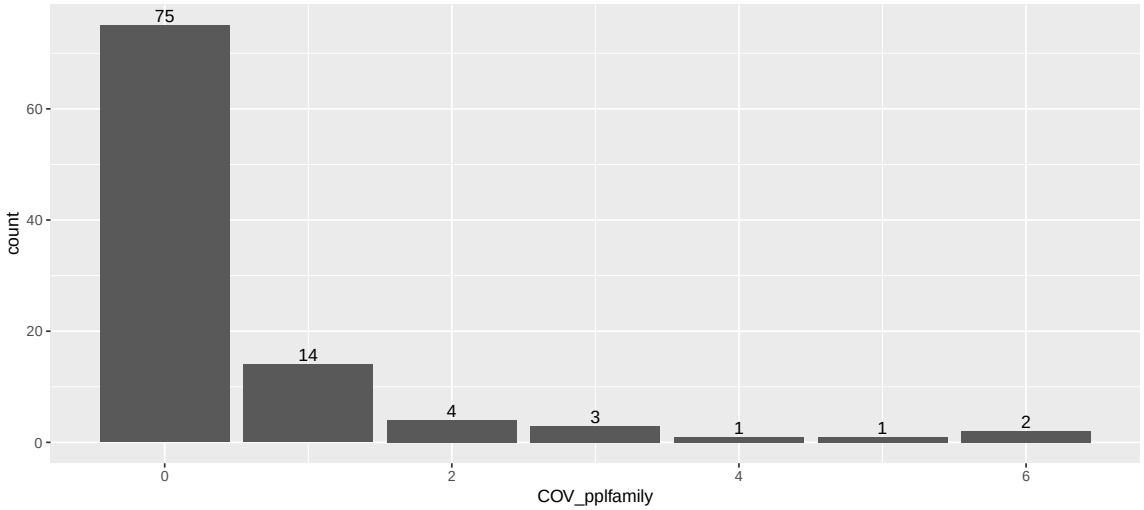

Figure VM1-35

How many of your friends and family members have at any point tested positive for COVID-19?

```
ggplot(df, aes(x=COV_pplcity))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

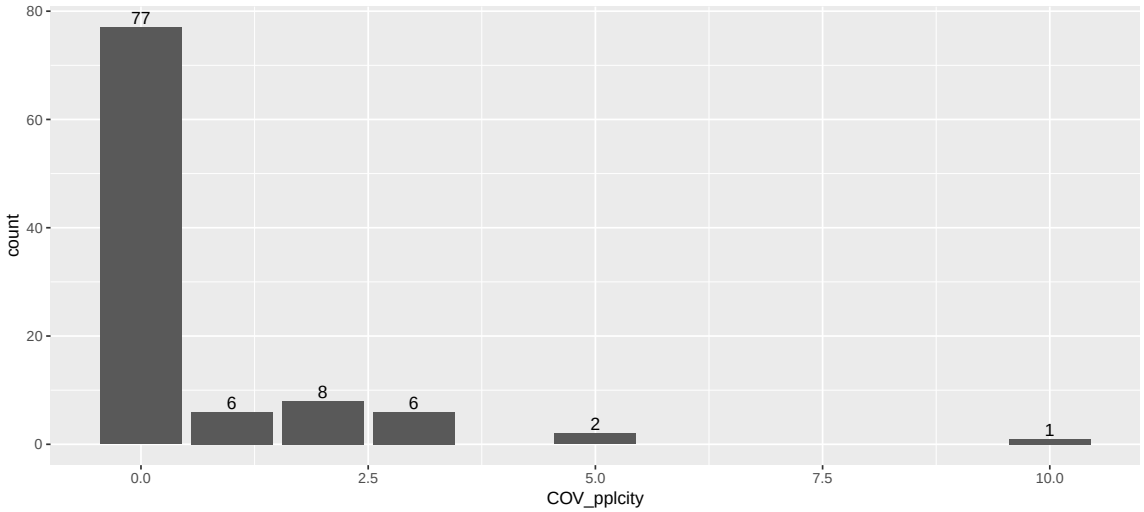

Figure VM1-36

How many people do you know personally in your city who have at any point tested positive for COVID-19 (including friends and family)?

```
ggplot(df, aes(x=COV_pplworld))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

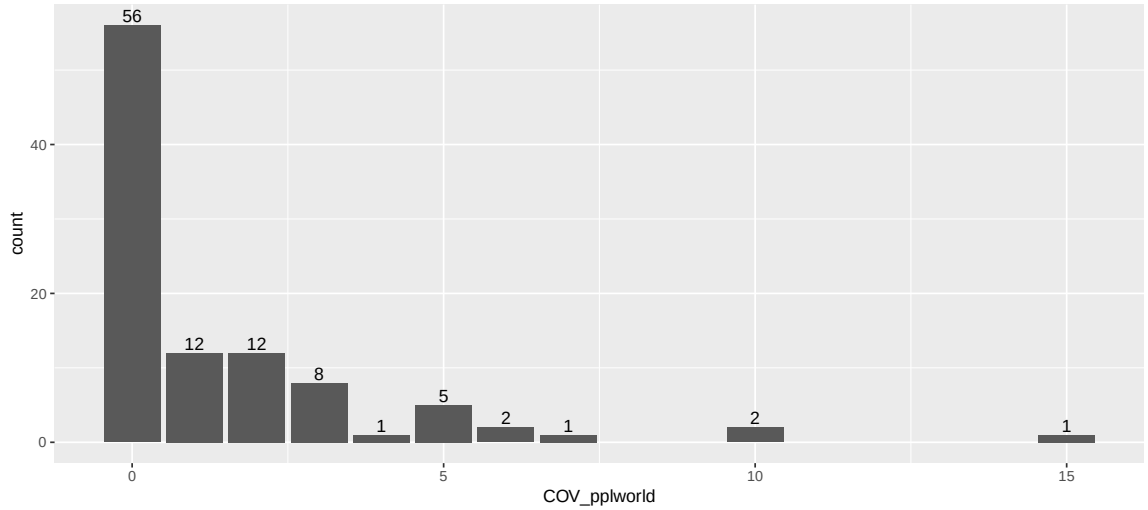

Figure VM1-37

How many people do you know personally anywhere in the world who have at any point tested positive for COVID-19?

```
ggplot(df, aes(x=COV_death))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25) +
coord_flip()
```

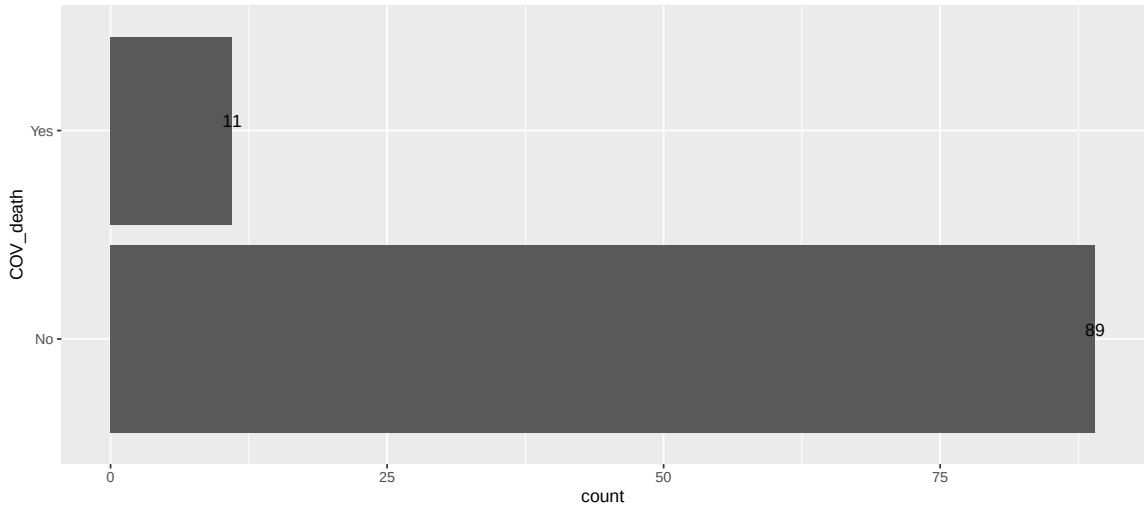

Figure VM1-38

Has anyone you know died as a consequence of COVID-19?

VM1-2.7.3 Single items

```
ggplot(df, aes(x=COV_donate))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

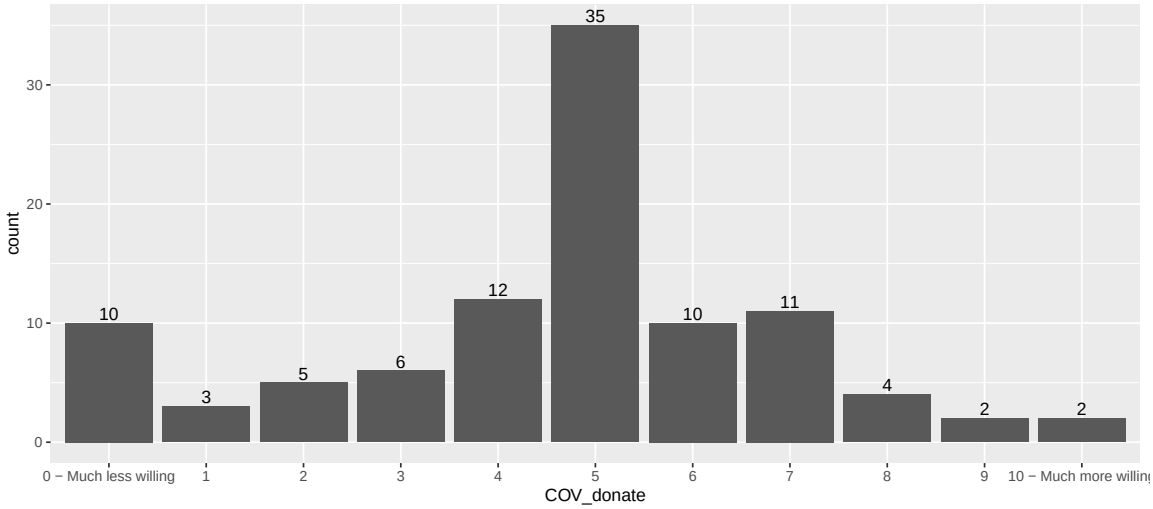

Figure VM1-39

Compared to other people in your region are you more willing or less willing to donate time or money to support others who suffer from consequences of COVID-19?

```
summary(as.numeric(df$COV_donate)-1)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00    4.00    5.00    4.61    6.00   10.00
```

Donations.

```
ggplot(df, aes(x=COV_statem1_7))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Children at risk.

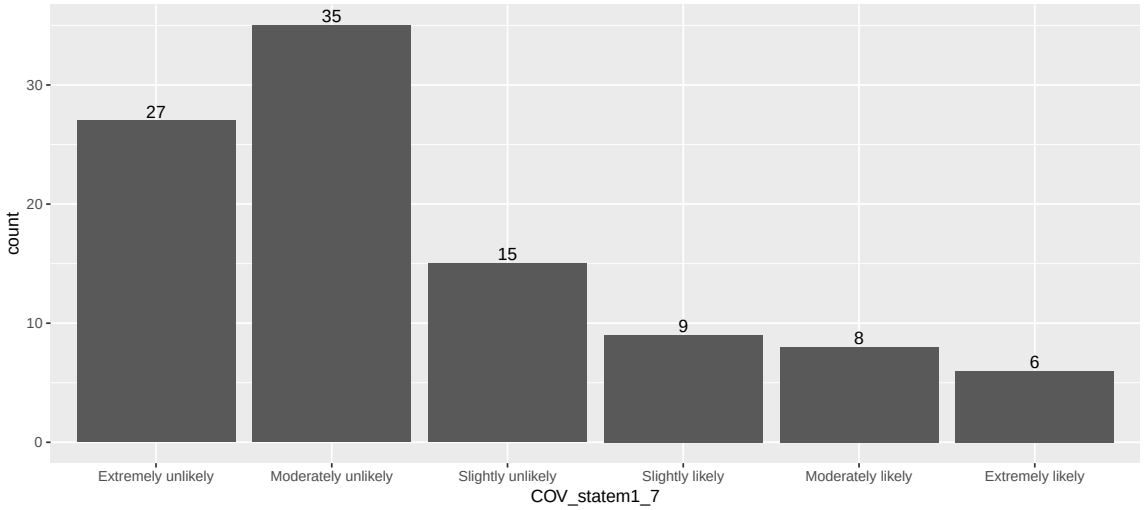

Figure VM1-40
Children are at a higher risk from COVID-19.

```
summary(as.numeric(df$COV_statem1_7))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    2.00    2.54    3.00    6.00
```

```
ggplot(df, aes(x=COV_statem2_4))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Tradeoff (single item).

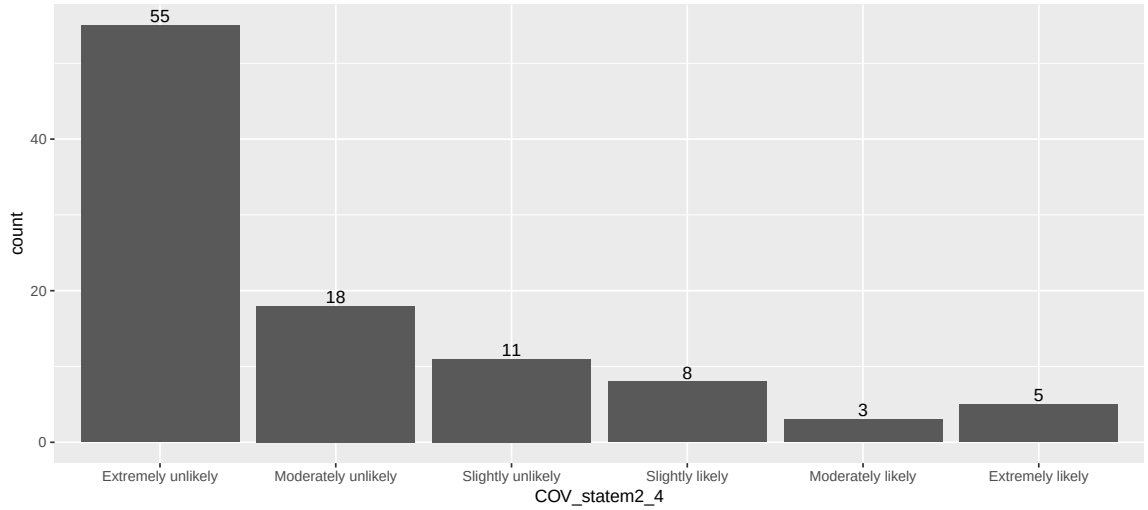

Figure VM1-41

The health of the economy is more important than the health of a small minority of vulnerable people.

```
summary(as.numeric(df$COV_statem2_4))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    1.00    2.01    3.00    6.00
```

```
ggplot(df, aes(x=COV_statem2_3))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Distancing and certainty.

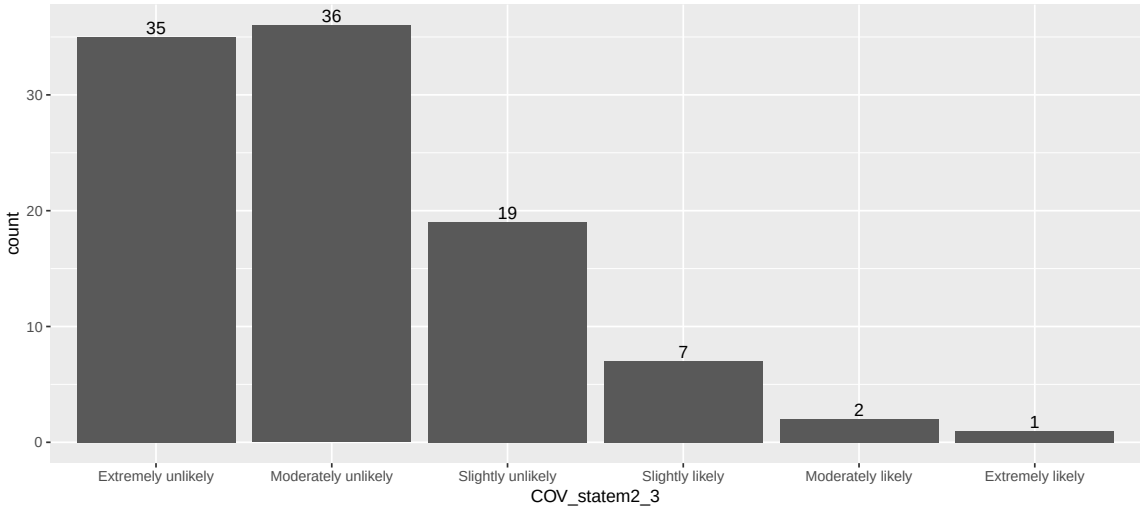

Figure VM1-42

It is not possible to contract COVID-19 if I always stay away six feet from others.

```
summary(as.numeric(df$COV_statem2_3))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    2.00    2.08    3.00    6.00
```

```
ggplot(df, aes(x=COV_statem2_6))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Antibiotics.

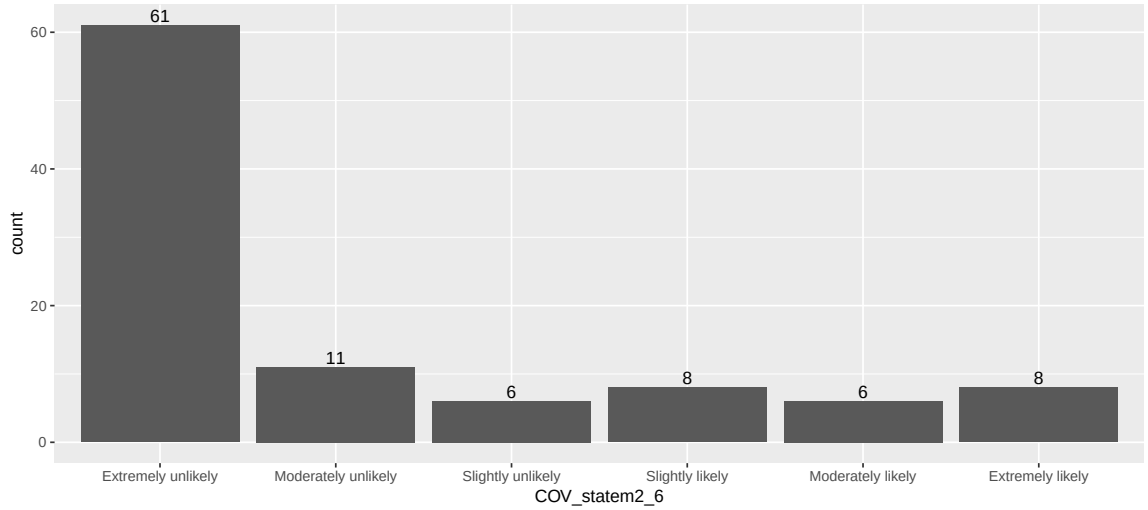

Figure VM1-43
Doctors prescribe antibiotics to kill viruses.

```
summary(as.numeric(df$COV_statem2_6))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    1.00    2.11    3.00    6.00
```

```
ggplot(df, aes(x=COV_statem2_7))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)
```

Lockdown harms.

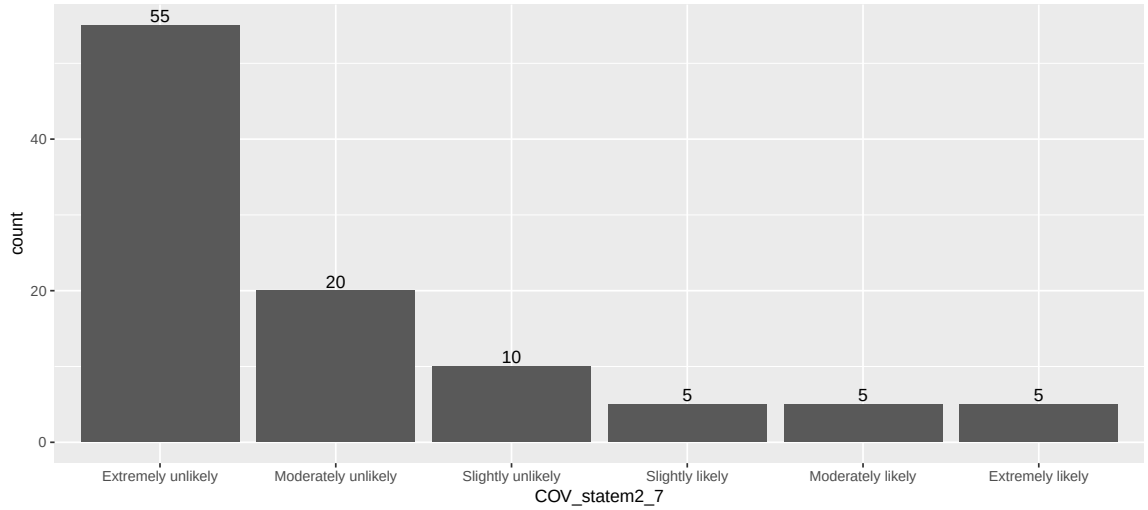

Figure VM1-44
Lockdowns cause more harm than benefit.

```
summary(as.numeric(df$COV_statem2_7))
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.00    1.00    1.00    2.00    2.25    6.00
```

VM1-2.7.4 Vaccination

```
ggplot(df, aes(x=COV_vaccine))+
geom_bar(aes(y = ..count..), stat="count")+
   geom_text(aes( label = (..count..),
                  y= ..count.. ), stat= "count",  vjust = -0.25)+
    coord_flip()
```

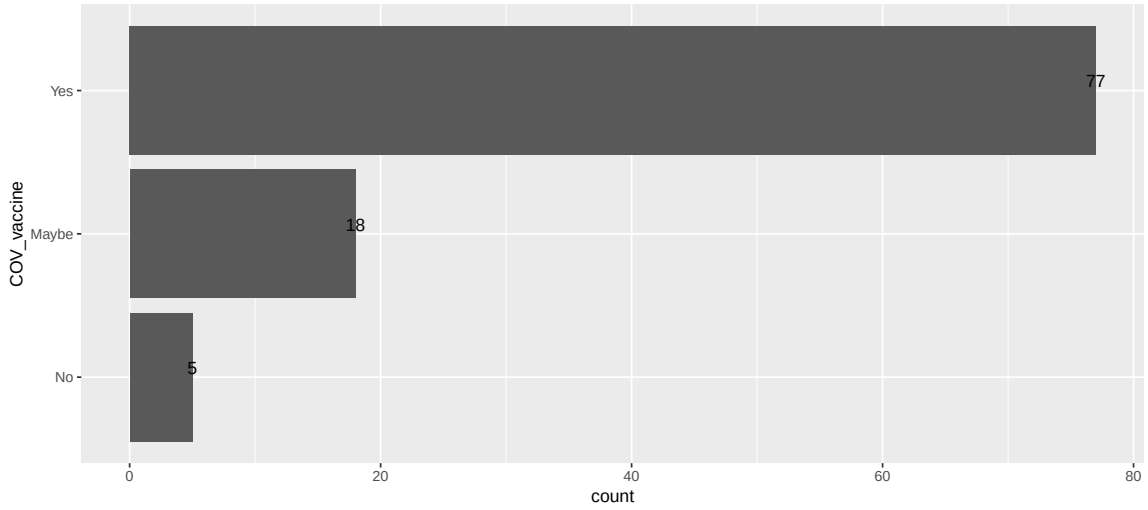

Figure VM1-45
If a vaccine is developed for COVID-19 that is considered medically safe, would you be willing to be vaccinated?

VM1-2.8 Comprehension checks

VM1-2.8.1 Transmission game

```
cctgVars <- c("CCtgi01", "CCtgi02", "CCtgi03",
                  "CCtgi04","CCtgi05","CCtgi06","CCtgi07",
                  "CCtgi08", "CCtgi09","CCtgi10","CCtgi11",
                  "CCtgi12","CCtgi13", "CCtgi14","CCtgi15",
                  "CCtgi16.0" )


comprehensionTGframe <- df[cctgVars]

 summary(comprehensionTGframe)
```

```
##     CCtgi01         CCtgi02     CCtgi03         CCtgi04         CCtgi05
##  Min.   :0.00   Min.   :0   Min.   :0.00   Min.   :0.00   Min.   :0.00
##  1st Qu.:0.00   1st Qu.:0   1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00
##  Median :0.00   Median :0   Median :0.00   Median :0.00   Median :0.00
##  Mean   :0.01   Mean   :0   Mean   :0.06   Mean   :0.08   Mean   :0.03
##  3rd Qu.:0.00   3rd Qu.:0   3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0.00
##  Max.   :1.00   Max.   :0   Max.   :2.00   Max.   :1.00   Max.   :1.00
##     CCtgi06         CCtgi07     CCtgi08         CCtgi09         CCtgi10
##  Min.   :0.00   Min.   :0   Min.   :0.00   Min.   :0.00   Min.   :0.00
##  1st Qu.:0.00   1st Qu.:0   1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00
##  Median :0.00   Median :0   Median :0.00   Median :0.00   Median :0.00
```

```
##  Mean   :0.49   Mean   :0   Mean   :0.03   Mean   :0.31   Mean   :0.08
##  3rd Qu.:1.00   3rd Qu.:0   3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0.00
##  Max.   :6.00   Max.   :0   Max.   :1.00   Max.   :7.00   Max.   :3.00
##     CCtgi11        CCtgi12        CCtgi13        CCtgi14        CCtgi15
##  Min.   :0.00   Min.   :0.00   Min.   :0.00   Min.   :0.00   Min.   :0.00
##  1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00
##  Median :0.00   Median :0.00   Median :0.00   Median :0.00   Median :0.00
##  Mean   :0.05   Mean   :0.11   Mean   :0.09   Mean   :0.34   Mean   :0.23
##  3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0.00
##  Max.   :1.00   Max.   :3.00   Max.   :2.00   Max.   :5.00   Max.   :9.00
##    CCtgi16.0
##  Min.   :0.00
##  1st Qu.:0.00
##  Median :0.00
##  Mean   :0.22
##  3rd Qu.:0.00
##  Max.   :9.00
```

```
 scaleComprehensionTG=scoreItems(keys=c(1,1,1,1,1,1,
                                1,1,1,1,1,1,1,1,1,1),
                    items=comprehensionTGframe,totals=TRUE)
```

```
## Warning in scoreItems(keys = c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, :  Item= CCtgi02 had no variance and was deleted from the data and the
keys.
## Warning in scoreItems(keys = c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, :  Item= CCtgi07 had no variance and was deleted from the data and the
keys.
```

```
print(scaleComprehensionTG)
```

```
## Call: scoreItems(keys = c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
##     1, 1), items = comprehensionTGframe, totals = TRUE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.55
##
## Standard errors of unstandardized Alpha:
##        [,1]
## ASE   0.072
##
## Average item correlation:
##           [,1]
## average.r 0.08
##
```

```
## Median item correlation:
## Scale1
##  0.017
##
##  Guttman 6* reliability:
##          [,1]
## Lambda.6 0.76
##
## Signal/Noise based upon av.r :
##              [,1]
## Signal/Noise  1.2
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.55
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE
```

VM1-2.8.2 Dice game

```
ccDiceVars <- c("CCerrorsDice01", "CCerrorsDice02", "CCerrorsDice03",
             "CCerrorsDice04")


 comprehensionDiceframe <- df[ccDiceVars]

  summary(comprehensionDiceframe)
```

```
##  CCerrorsDice01 CCerrorsDice02 CCerrorsDice03 CCerrorsDice04
##  Min.   :0.00   Min.   :0.00   Min.   :0      Min.   :0.00
##  1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0      1st Qu.:0.00
##  Median :0.00   Median :0.00   Median :0      Median :0.00
##  Mean   :0.06   Mean   :0.06   Mean   :0      Mean   :0.15
##  3rd Qu.:0.00   3rd Qu.:0.00   3rd Qu.:0      3rd Qu.:0.00
##  Max.   :3.00   Max.   :3.00   Max.   :0      Max.   :4.00
```

```
  scaleComprehensionDice=scoreItems(keys=c(1,1,1,1),
                items=comprehensionDiceframe,totals=TRUE)
```

```
## Warning in scoreItems(keys = c(1, 1, 1, 1), items =
comprehensionDiceframe, :  Item= CCerrorsDice03 had no variance and was
deleted from the data and the keys.
```

```
  print(scaleComprehensionDice)

## Call: scoreItems(keys = c(1, 1, 1, 1), items = comprehensionDiceframe,
##     totals = TRUE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.81
##
## Standard errors of unstandardized Alpha:
##        [,1]
## ASE   0.088
##
## Average item correlation:
##           [,1]
## average.r 0.59
##
## Median item correlation:
## Scale1
##   0.61
##
##  Guttman 6* reliability:
##          [,1]
## Lambda.6 0.77
##
## Signal/Noise based upon av.r :
##              [,1]
## Signal/Noise  4.4
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.81
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

  comprehensionScales=data.frame(
            scaleComprehensionTG$scores,
            scaleComprehensionDice$scores
             )
 comprehensionScales <- comprehensionScales %>%
      rename(
            TG=Scale1,
```

```
            Dice=Scale1.1
            )

  pairs.panels(comprehensionScales, smooth = TRUE, scale = FALSE,
       digits = 2,method="pearson",pch = 20, lm=TRUE,cor=TRUE,
       jiggle=TRUE,factor=2,breaks=25, stars=TRUE,
        ci=TRUE,alpha=.05)
```

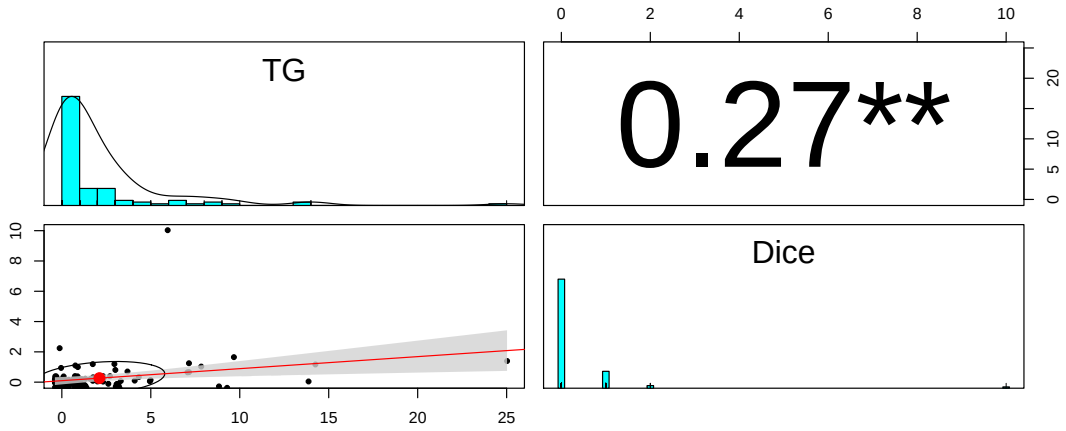

Figure VM1-46
Dictator game: Expectation vs. behavior

VM1-3 Scales in Study 1

VM1-3.1 HEXACO scales

VM1-3.1.1 Source

Brief HEXCACO inventory (BHI). The 24-item Brief HEXACO Inventory (De Vries, 2013) offers scales for all six personality factors:

1. H: Honesty-Humility (4 items)
2. E: Emotionality (4 items)
3. X: eXtraversion (4 items)
4. A: Agreeableness (4 items)
5. C: Conscientiousness (4 items)
6. O: Openness to Experience (4 items)

Each item was rated on a scale from 1–5 with 1 = strongly disagree, 2 = disagree, 3 = neutral (neither agree, nor disagree), 4 = agree, and 5 = strongly agree.

HEXACO-60: 60 item version (only H). In addition, participants completed the full Honesty-Humility scale of the 60-item HEXACO-60 scales (based on the HEXACO-PI-R) in the self report form (Ashton & Lee, 2009).

Items were presented in a matrix and answered on a five-point scale (1–5): strongly disagree (1) —(2) — neither agree nor disagree (3) —(4)—strongly agree (5).

VM1-3.1.2 Items

Brief H-scale.

- I find it difficult to lie. (bH1+)
- I would like to know how to make lots of money in a dishonest manner. (bH2-)
- I want to be famous. (bH3-)
- I am entitled to special treatment. (bH4-)

Brief E-scale.

- I am afraid of feeling pain. (bE1+)
- I worry less than others. (bE2-)
- I can easily overcome difficulties on my own. (bE3-)
- I have to cry during sad or romantic movies. (bE4+)

Brief X-scale.

- Nobody likes talking with me. (bX1-)
- I easily approach strangers. (bX2+)
- I like to talk with others. (bX3+)
- I am seldom cheerful. (bX4-)

Brief A-scale.

- I remain unfriendly to someone who was mean to me. (bA1-)
- I often express criticism. (bA2-)
- I tend to quickly agree with others. (bA3+)
- Even when I'm treated badly, I remain calm. (bA4+)

Brief C-scale.

- I make sure that things are in the right spot. (bC1+)
- I postpone complicated tasks as long as possible. (bC2-)
- I work very precisely. (bC3+)
- I often do things without really thinking. (bC4-)

Brief O-scale.

- I can look at a painting for a long time. (bO1+)
- I think science is boring. (bO2-)
- I have a lot of imagination. (bO3+)
- I like people with strange ideas. (bO4+)

H60-scale.

- I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed. (H60_01+)
- If I knew that I could never get caught, I would be willing to steal a million dollars. (H60_02-)
- Having a lot of money is not especially important to me. (H60_03+)
- I think that I am entitled to more respect than the average person is. (H60_04-)
- If I want something from someone, I will laugh at that person's worst jokes. (H60_05-)
- I would never accept a bribe, even if it were very large. (H60_06+)
- I would get a lot of pleasure from owning expensive luxury goods. (H60_07-)
- I want people to know that I am an important person of high status. (H60_08-)
- I wouldn't pretend to like someone just to get that person to do favors for me. (H60_09+)
- I'd be tempted to use counterfeit money, if I were sure I could get away with it. (H60_10-)

VM1-3.1.3 Item histograms

```
scaleVars <- c("HexBHI_O01", "HexBHI_C02", "HexBHI_A03R",
"HexBHI_X04R","HexBHI_E05","HexBHI_H06","HexBHI_O07R",
"HexBHI_C08R", "HexBHI_A09R","HexBHI_X10","HexBHI_E11R",
"HexBHI_H12R","HexBHI_O13", "HexBHI_C14","HexBHI_A15",
"HexBHI_X16","HexBHI_E17R","HexBHI_H18R","HexBHI_O19",
"HexBHI_C20R","HexBHI_A21","HexBHI_X22R","HexBHI_E23",
"HexBHI_H24R", "HexacoH_06", "HexacoH_12R", "HexacoH_18",
"HexacoH_24R", "HexacoH_30R", "HexacoH_36", "HexacoH_42R",
"HexacoH_48R", "HexacoH_54", "HexacoH_60R" )

scaleFrame <- df[scaleVars]

head(scaleFrame$HexBHI_X04R)
```

```
## [1] 4-\nagree             2-\ndisagree          2-\ndisagree
## [4] 1-\nstrongly disagree 2-\ndisagree          1-\nstrongly disagree
## 5 Levels: 1-\nstrongly disagree ... 5-\nstrongly agree
```

```
   scaleFrame <- scaleFrame %>%
    rename(
    bO1p=HexBHI_O01, bC1p=HexBHI_C02, bA1n=HexBHI_A03R,
    bX1n=HexBHI_X04R,bE1p=HexBHI_E05, bH1p=HexBHI_H06,
    bO2n=HexBHI_O07R,bC2n=HexBHI_C08R,bA2n=HexBHI_A09R,
    bX2p=HexBHI_X10,bE2n=HexBHI_E11R, bH2n=HexBHI_H12R,
    bO3p=HexBHI_O13, bC3p=HexBHI_C14, bA3p=HexBHI_A15,
    bX3p=HexBHI_X16,bE3n=HexBHI_E17R, bH3n=HexBHI_H18R,
    bO4p=HexBHI_O19, bC4n=HexBHI_C20R,bA4p=HexBHI_A21,
    bX4n=HexBHI_X22R,bE4p=HexBHI_E23, bH4n=HexBHI_H24R,
    H60_01p=HexacoH_06,H60_02n=HexacoH_12R,H60_03p=HexacoH_18,
    H60_04n=HexacoH_24R,H60_05n=HexacoH_30R,H60_06p=HexacoH_36,
    H60_07n=HexacoH_42R,H60_08n=HexacoH_48R,H60_09p=HexacoH_54,
    H60_10n=HexacoH_60R
  )

 scaleFrame[] <-data.matrix(scaleFrame)

 weightsBHI <-list(scaleBH=c("bH1p","-bH2n","-bH3n","-bH4n"),
  scaleBE = c("bE1p","-bE2n","-bE3n","bE4p"),
  scaleBX = c("-bX1n","bX2p","bX3p","-bX4n"),
  scaleBA =  c("-bA1n","-bA2n","bA3p","bA4p"),
  scaleBC =  c("bC1p","-bC2n","bC3p","-bC4n"),
  scaleBO = c("bO1p","-bO2n","bO3p","bO4p"),
  scaleH60= c("H60_01p","-H60_02n","H60_03p","-H60_04n",
              "-H60_05n","H60_06p","-H60_07n","-H60_08n",
              "H60_09p","-H60_10n")
 )

  scaleVarsBH <- c("bH1p","bH2n","bH3n","bH4n")
  scaleVarsBE <- c("bE1p","bE2n","bE3n","bE4p")
  scaleVarsBX <- c("bX1n","bX2p","bX3p","bX4n")
  scaleVarsBA <- c("bA1n","bA2n","bA3p","bA4p")
  scaleVarsBC <- c("bC1p","bC2n","bC3p","bC4n")
  scaleVarsBO <- c("bO1p","bO2n","bO3p","bO4p")

  scaleVarsH60 <- c("H60_01p","H60_02n","H60_03p","H60_04n",
              "H60_05n","H60_06p","H60_07n","H60_08n",
              "H60_09p","H60_10n")

  scaleFrameBH <- scaleFrame[scaleVarsBH]
```

```
scaleFrameBE <- scaleFrame[scaleVarsBE]
scaleFrameBX <- scaleFrame[scaleVarsBX]
scaleFrameBA <- scaleFrame[scaleVarsBA]
scaleFrameBC <- scaleFrame[scaleVarsBC]
scaleFrameBO <- scaleFrame[scaleVarsBO]
scaleFrameH60 <- scaleFrame[scaleVarsH60]

scaleFrameBH[] <-data.matrix(scaleFrameBH)
scaleFrameBE[] <-data.matrix(scaleFrameBE)
scaleFrameBX[] <-data.matrix(scaleFrameBX)
scaleFrameBA[] <-data.matrix(scaleFrameBA)
scaleFrameBC[] <-data.matrix(scaleFrameBC)
scaleFrameBO[] <-data.matrix(scaleFrameBO)
scaleFrameH60[] <-data.matrix(scaleFrameH60)

scale_mean =summarise_all(scaleFrame,mean)
sdf=data.frame(scale_mean=t(summarise_all(scaleFrame,mean)),
        key=names(scaleFrame))

scaleFrame %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=4) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=5) +
       geom_vline(aes(xintercept =scale_mean),sdf,col='red',
       linetype = "dashed",size=1)
```

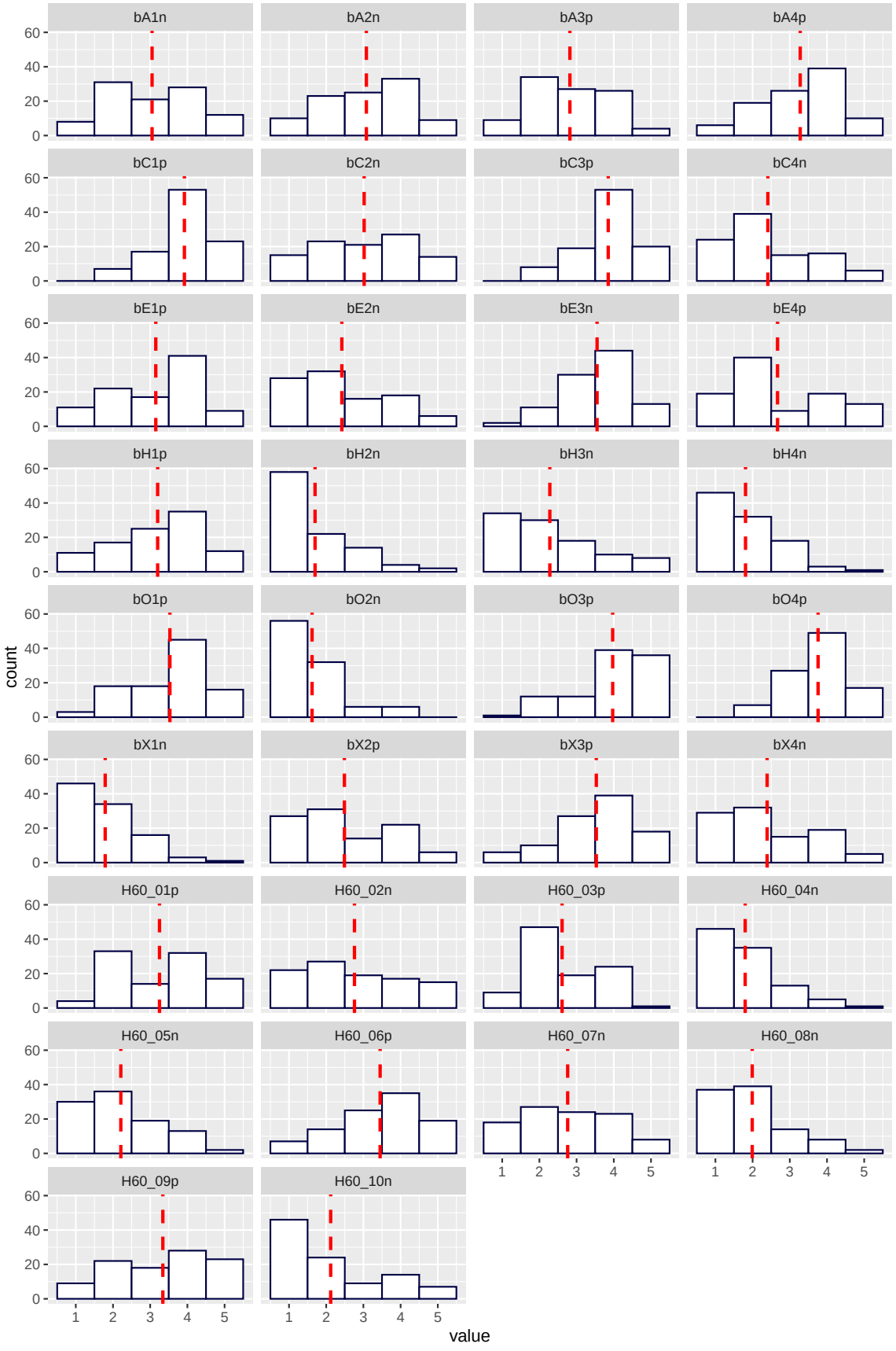

Figure VM1-47
All HEXACO items: Histograms with marked means

VM1-3.1.4 Inter-correlations

```
corPlot(scaleFrameBH,numbers=TRUE,diag=FALSE,
main="Brief H-scale",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
zlim=c(-0.7,0.7))
```

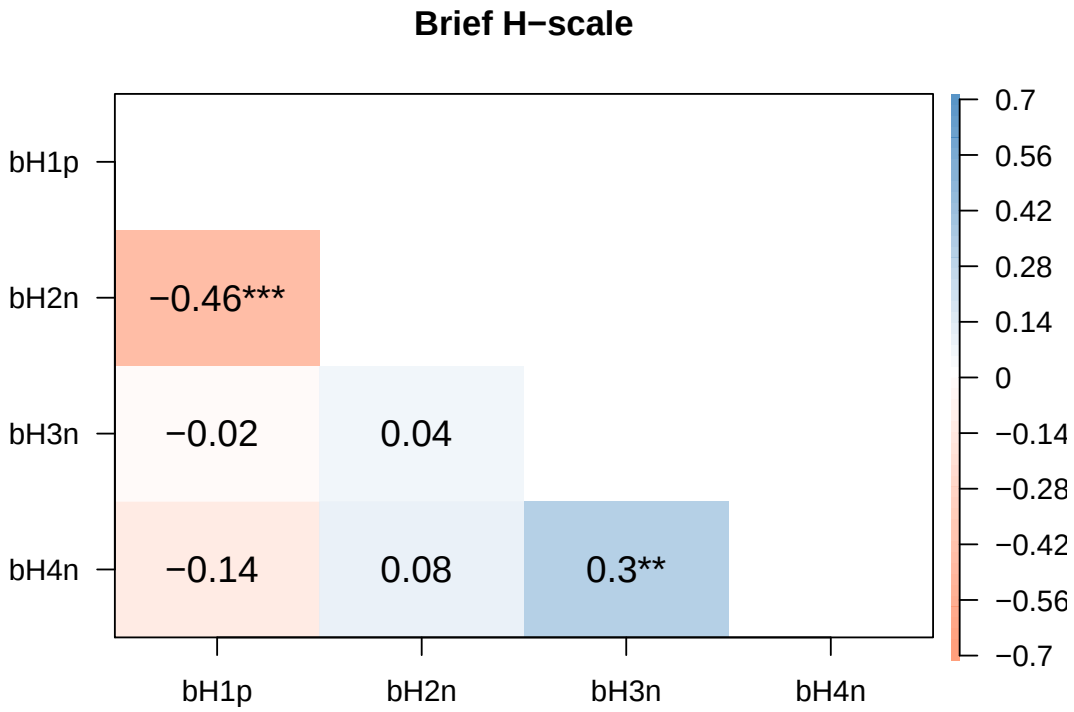

Figure VM1-48
Brief H-scale: item inter-correlations

```
corPlot(scaleFrameBE,numbers=TRUE,diag=FALSE,
main="Brief E-scale",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
zlim=c(-0.7,0.7))
```

Brief scales.

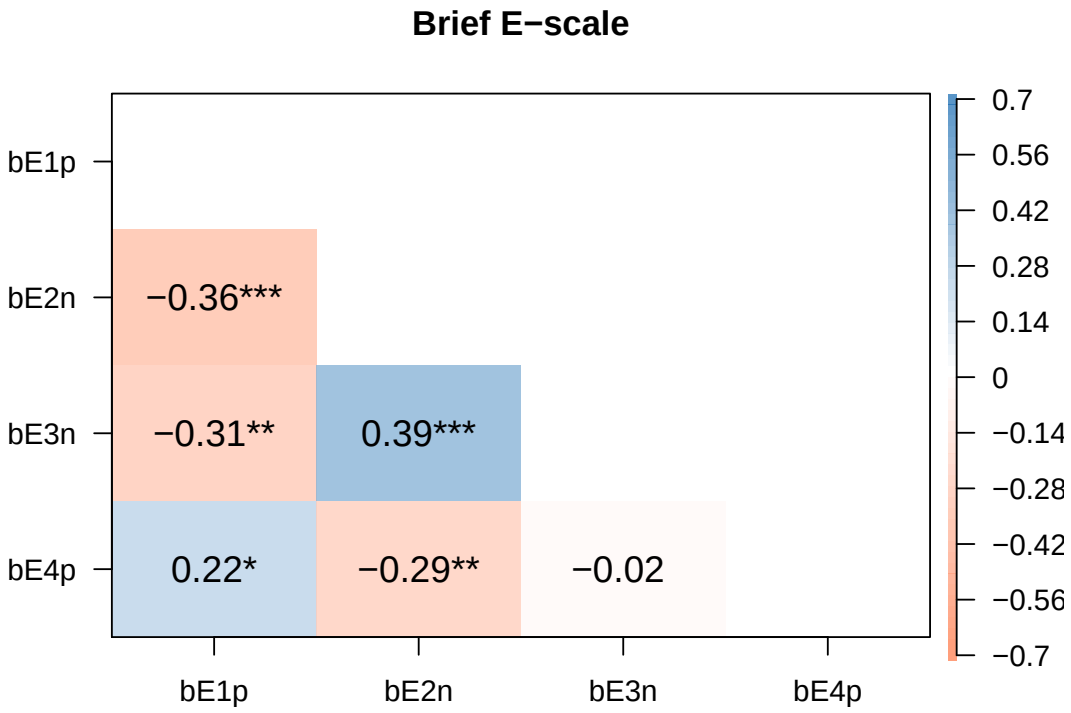

Figure VM1-49
Brief E-scale: item inter-correlations

```
  palette2=colorRampPalette(c("#ff7f50", "white", "#2171B5"))
corPlot(scaleFrameBX,numbers=TRUE,diag=FALSE,
 main="Brief X-scale",stars=TRUE,upper=FALSE,
 cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
 zlim=c(-0.7,0.7))
```

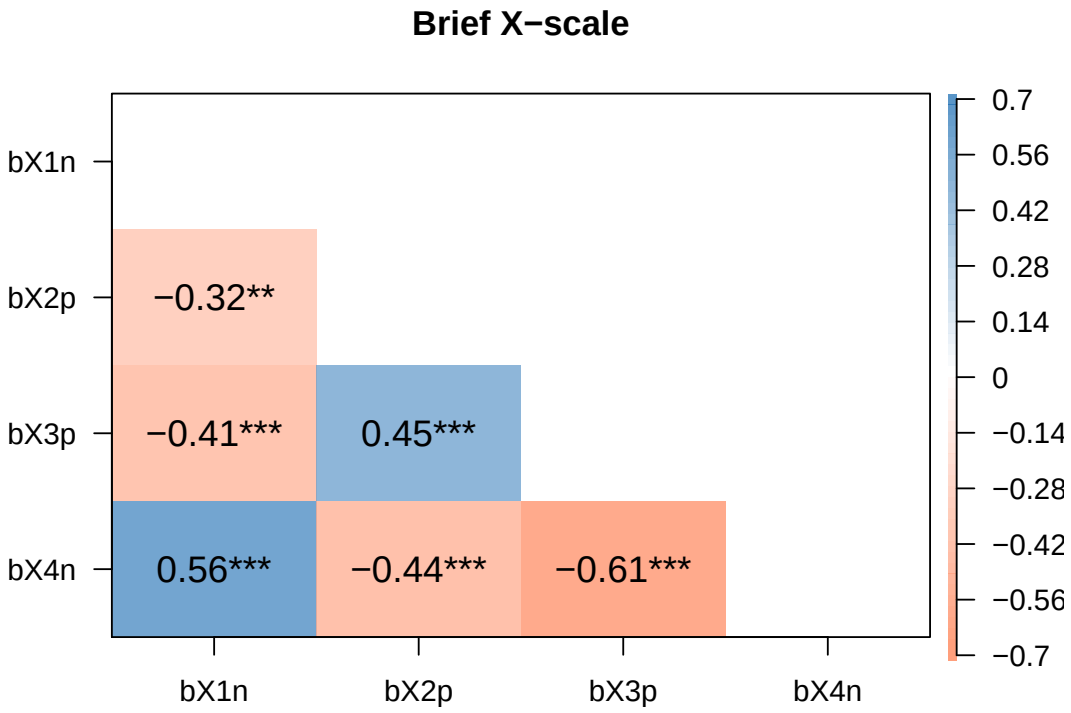

Figure VM1-50
Brief X-scale: item inter-correlations

```
corPlot(scaleFrameBA,numbers=TRUE,diag=FALSE,
 main="Brief A-scale",stars=TRUE,upper=FALSE,
 cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
 zlim=c(-0.7,0.7))
```

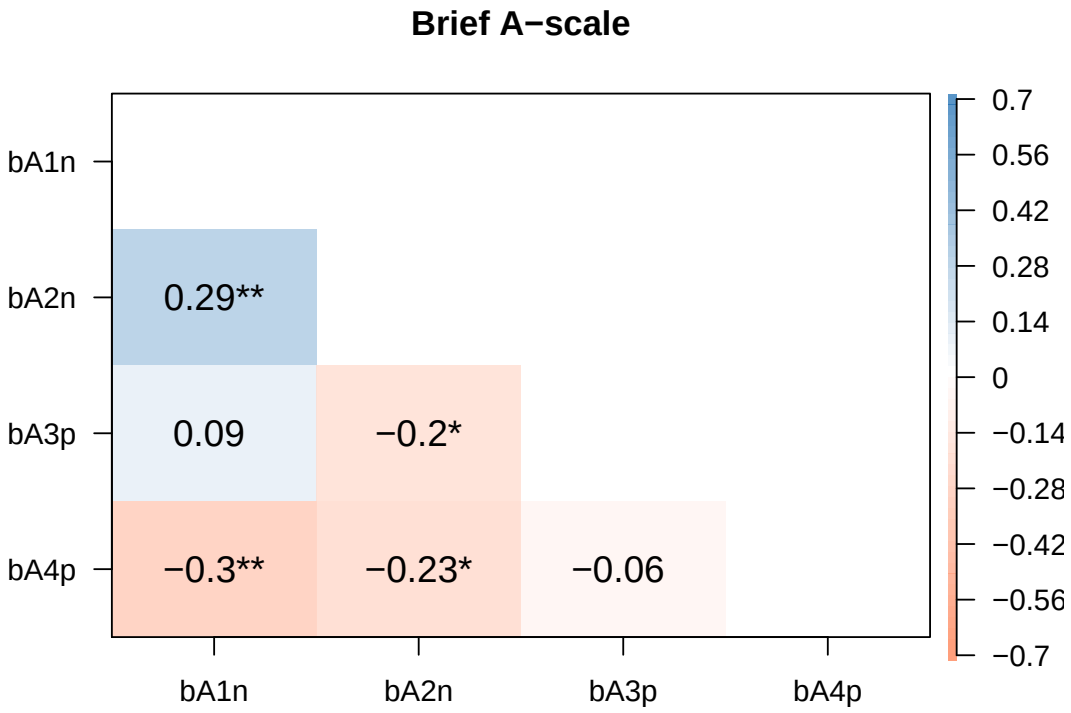

Figure VM1-51
Brief A-scale: item inter-correlations

```
corPlot(scaleFrameBC,numbers=TRUE,diag=FALSE,
 main="Brief C-scale",stars=TRUE,upper=FALSE,
 cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
 zlim=c(-0.7,0.7))
```

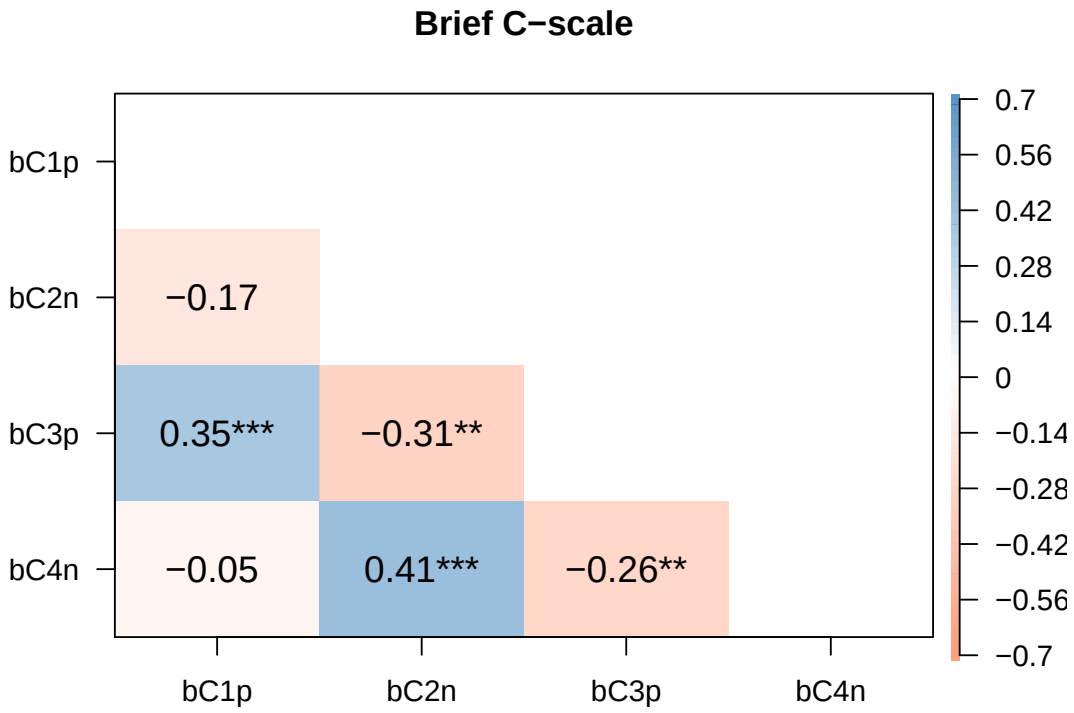

Figure VM1-52
Brief C-scale: item inter-correlations

```
corPlot(scaleFrameBO,numbers=TRUE,diag=FALSE,
 main="Brief O-scale",stars=TRUE,upper=FALSE,
 cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
 zlim=c(-0.7,0.7))
```

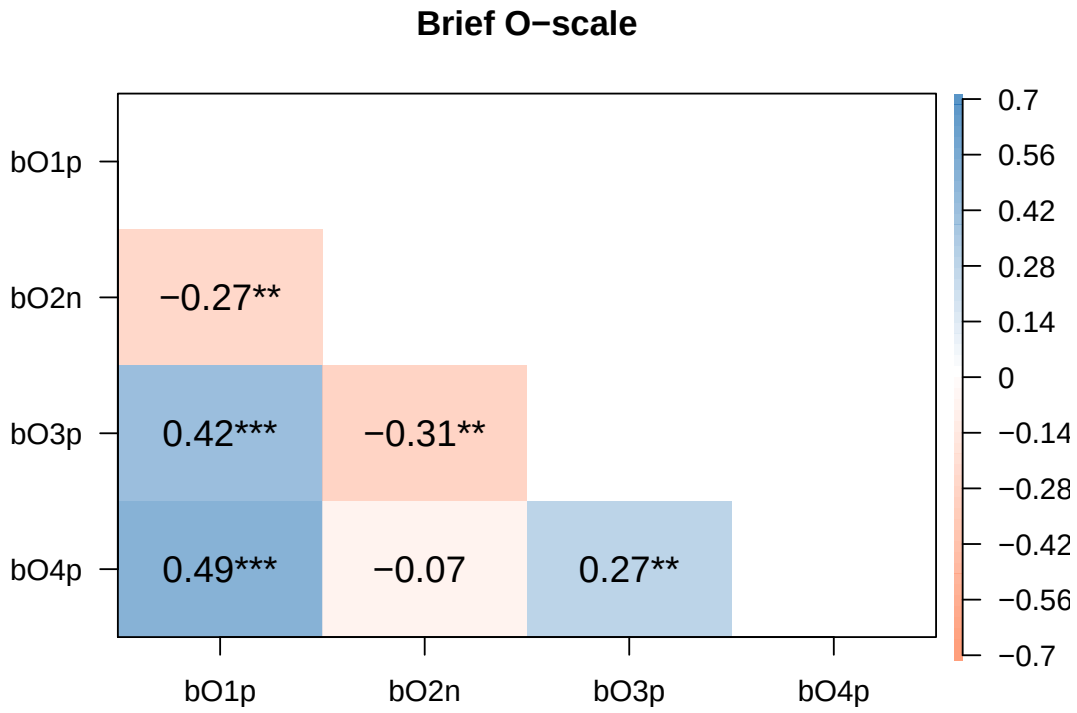

Figure VM1-53
Brief O-scale: item inter-correlations

```
corPlot(scaleFrameH60,numbers=TRUE,diag=FALSE,
 main="H60-scale",stars=TRUE,upper=FALSE,
 cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
 zlim=c(-0.7,0.7))
```

H60-scale.

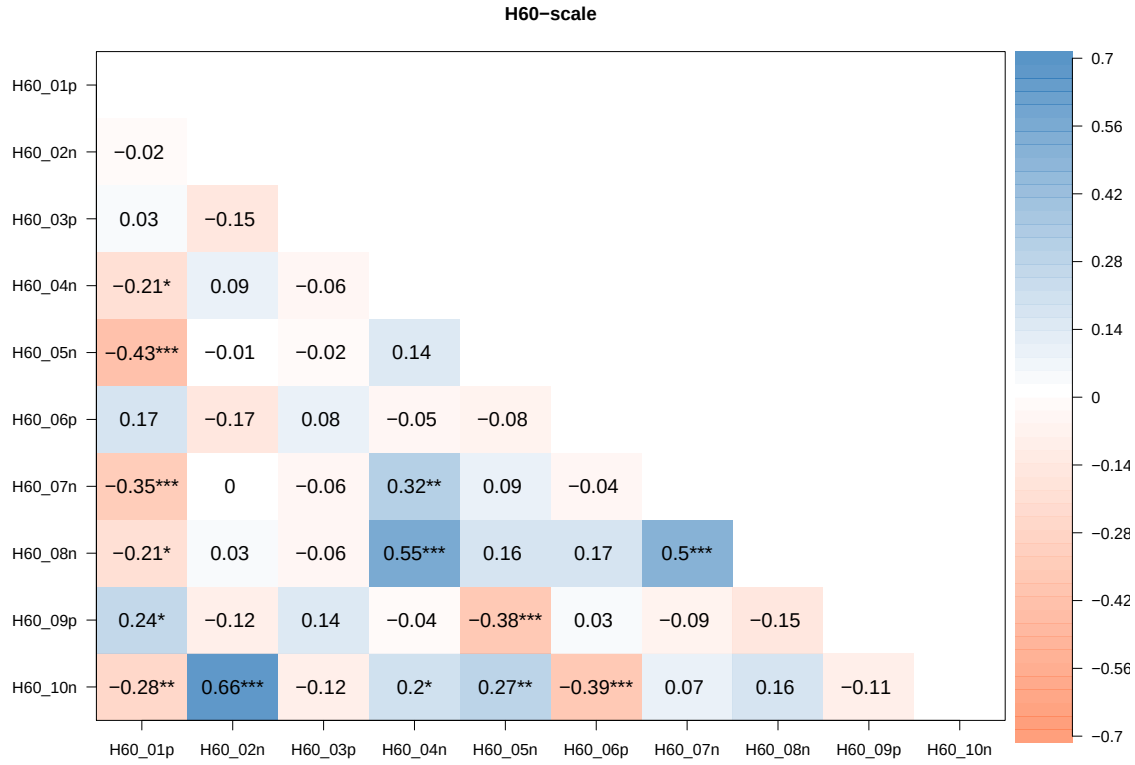

Figure VM1-54
H60-scale: item inter-correlations

VM1-3.1.5 Scale statistics (for subscales)

```
scoresHEXACO=scoreItems(keys= weightsBHI , items=scaleFrame)
print(scoresHEXACO)

## Call: scoreItems(keys = weightsBHI, items = scaleFrame)
##
## (Unstandardized) Alpha:
##       scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
## alpha    0.44    0.58    0.77    0.41    0.57    0.65     0.66
##
## Standard errors of unstandardized Alpha:
##       scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
## ASE      0.12     0.1   0.075    0.12     0.1   0.092    0.063
##
## Average item correlation:
##           scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
```

```
## average.r    0.17    0.26    0.46    0.15    0.25    0.31     0.16
##
## Median item correlation:
##  scaleBH  scaleBE  scaleBX  scaleBA  scaleBC  scaleBO scaleH60
##     0.11     0.30     0.45     0.21     0.28     0.29     0.12
##
##  Guttman 6* reliability:
##          scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
## Lambda.6    0.71    0.73    0.85    0.64    0.75    0.78     0.84
##
## Signal/Noise based upon av.r :
##              scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
## Signal/Noise    0.79     1.4     3.4     0.7     1.3     1.8        2
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##          scaleBH scaleBE scaleBX scaleBA scaleBC scaleBO scaleH60
## scaleBH    0.442  -0.380   0.393   0.584   0.417  -0.113    1.007
## scaleBE   -0.193   0.582  -0.365  -0.399  -0.681  -0.104   -0.055
## scaleBX    0.229  -0.245   0.772   0.378   0.306   0.191    0.092
## scaleBA    0.249  -0.195   0.213   0.411   0.501   0.119    0.512
## scaleBC    0.210  -0.394   0.204   0.243   0.574   0.183    0.123
## scaleBO   -0.061  -0.064   0.135   0.061   0.111   0.645    0.127
## scaleH60   0.545  -0.034   0.066   0.267   0.076   0.083    0.662
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

summary(scoresHEXACO$scores)

##     scaleBH         scaleBE         scaleBX        scaleBA         scaleBC
##  Min.   :2.000   Min.   :1.000   Min.   :1.25   Min.   :1.250   Min.   :1.750
##  1st Qu.:3.500   1st Qu.:2.500   1st Qu.:2.75   1st Qu.:2.500   1st Qu.:3.000
##  Median :4.000   Median :3.000   Median :3.50   Median :3.000   Median :3.750
##  Mean   :3.853   Mean   :2.962   Mean   :3.46   Mean   :2.993   Mean   :3.585
##  3rd Qu.:4.312   3rd Qu.:3.500   3rd Qu.:4.25   3rd Qu.:3.500   3rd Qu.:4.000
##  Max.   :5.000   Max.   :5.000   Max.   :5.00   Max.   :4.500   Max.   :5.000
##     scaleBO        scaleH60
##  Min.   :1.75   Min.   :2.000
##  1st Qu.:3.50   1st Qu.:3.100
##  Median :4.00   Median :3.500
##  Mean   :3.91   Mean   :3.501
##  3rd Qu.:4.25   3rd Qu.:3.900
##  Max.   :5.00   Max.   :4.700
```

VM1-3.1.6 Subscale inter-correlations

```
pairs.panels(scoresHEXACO$scores, smooth = TRUE, scale = FALSE,
digits = 2,method="pearson",
 pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,factor=2,breaks=15,
  hist.col="blue",show.points=FALSE,rug=FALSE,cex.cor=1,wt=NULL,
  stars=TRUE,ci=TRUE,alpha=.05)
```

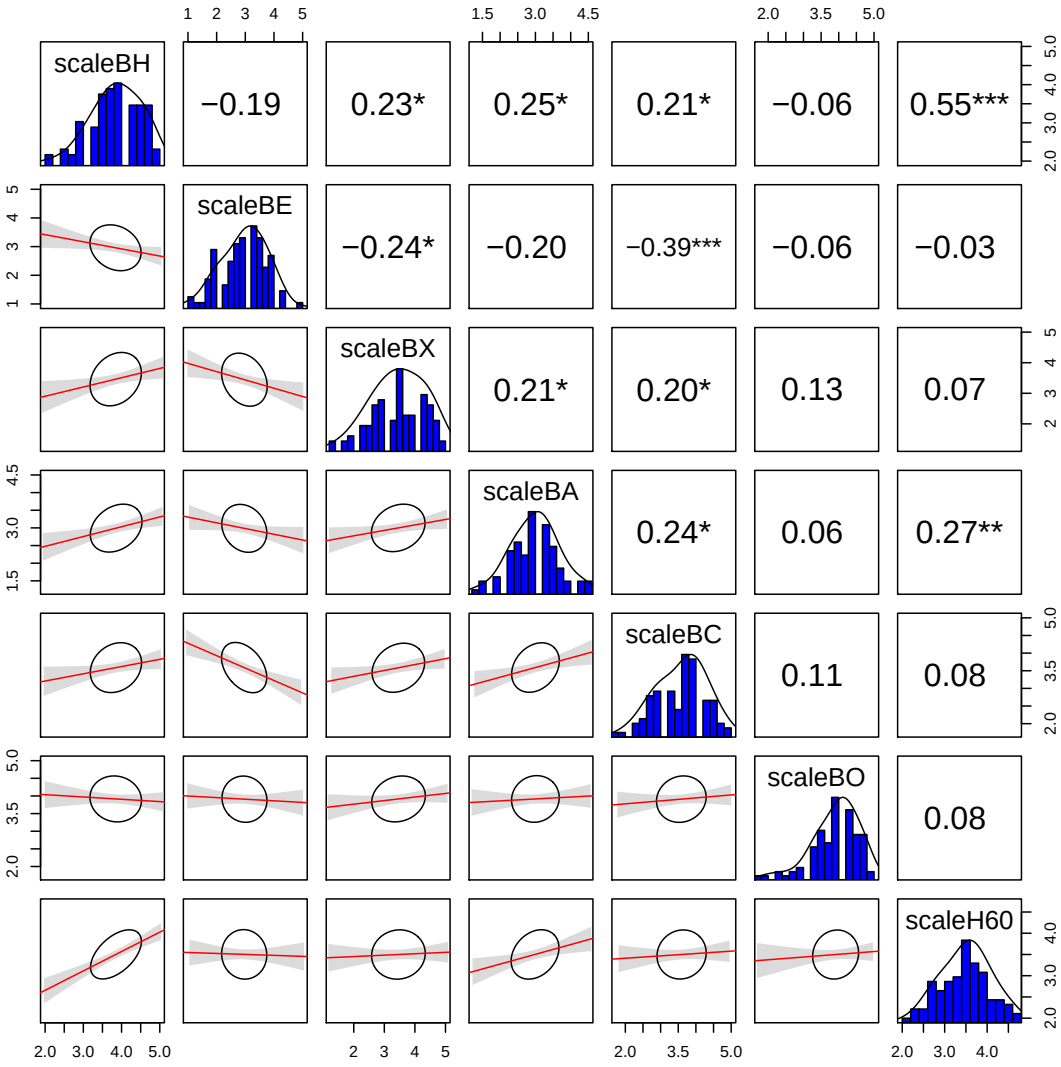

Figure VM1-55
Brief H-scalepairs

VM1-3.2 Psychological reactance scale

VM1-3.2.1 Source

We used a refined, 11-item version of the Hong psychological reactance scale Hong and Faedda, 1996. Items were answered on a five-point scale from 1–5: strongly disagree (1) —(2) — neither agree nor disagree (3) —(4)—strongly agree (5)

VM1-3.2.2 Items

- **PR01**: Regulations trigger a sense of resistance in me.
- **PR02**: I find contradicting others stimulating.
- **PR03**: When something is prohibited, I usually think "that's exactly what I am going to do.
- **PR04**: I consider advice from others to be an intrusion.
- **PR05**: I become frustrated when I am unable to make free and independent decisions.
- **PR06**: It irritates me when someone points out things which are obvious to me.
- **PR07**: I become angry when my freedom of choice is restricted.
- **PR08**: Advice and recommendations induce me to do just the opposite.
- **PR09**: I resist the attempts of others to influence me.
- **PR10**: It makes me angry when another person is held up as a model for me to follow.
- **PR11**: When someone forces me to do something, I feel like doing the opposite.

VM1-3.2.3 Item histograms

```
scaleReactanceVars <- c("PsyReact_01", "PsyReact_02", "PsyReact_03",
"PsyReact_04","PsyReact_05","PsyReact_06","PsyReact_07",
"PsyReact_08", "PsyReact_09", "PsyReact_10", "PsyReact_11")

scaleReactanceFrame <- df[scaleReactanceVars]

 scaleReactanceFrame <- scaleReactanceFrame %>%
  rename(
  PR01=PsyReact_01,
  PR02=PsyReact_02,
  PR03=PsyReact_03,
  PR04=PsyReact_04,
  PR05=PsyReact_05,
  PR06=PsyReact_06,
```

```
    PR07=PsyReact_07,
    PR08=PsyReact_08,
    PR09=PsyReact_09,
    PR10=PsyReact_10,
    PR11=PsyReact_11
  )


  scaleReactanceFrame[] <-data.matrix(scaleReactanceFrame)

  head(scaleReactanceFrame)

  scaleReactance_means =summarise_all(scaleReactanceFrame,mean)
  scaleReactanceDF=data.frame(
    scale_mean=t(summarise_all(scaleReactanceFrame,mean)
    ),
    key=names(scaleReactanceFrame))

  scaleReactanceFrame %>%
    keep(is.numeric) %>%
      gather() %>%
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=3) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=5) +
        geom_vline(aes(xintercept =scale_mean),
              scaleReactanceDF,col='red', linetype = "dashed",size=1)
```

```
##   PR01 PR02 PR03 PR04 PR05 PR06 PR07 PR08 PR09 PR10 PR11
## 1    4    4    4    2    4    4    2    2    4    4    4
## 2    2    4    1    3    4    4    2    1    3    2    2
## 3    2    2    3    1    4    2    2    3    4    4    4
## 4    4    1    1    3    4    4    4    2    3    2    3
## 5    1    4    2    2    2    5    5    3    3    4    4
## 6    3    4    3    2    3    3    3    4    4    2    3
```

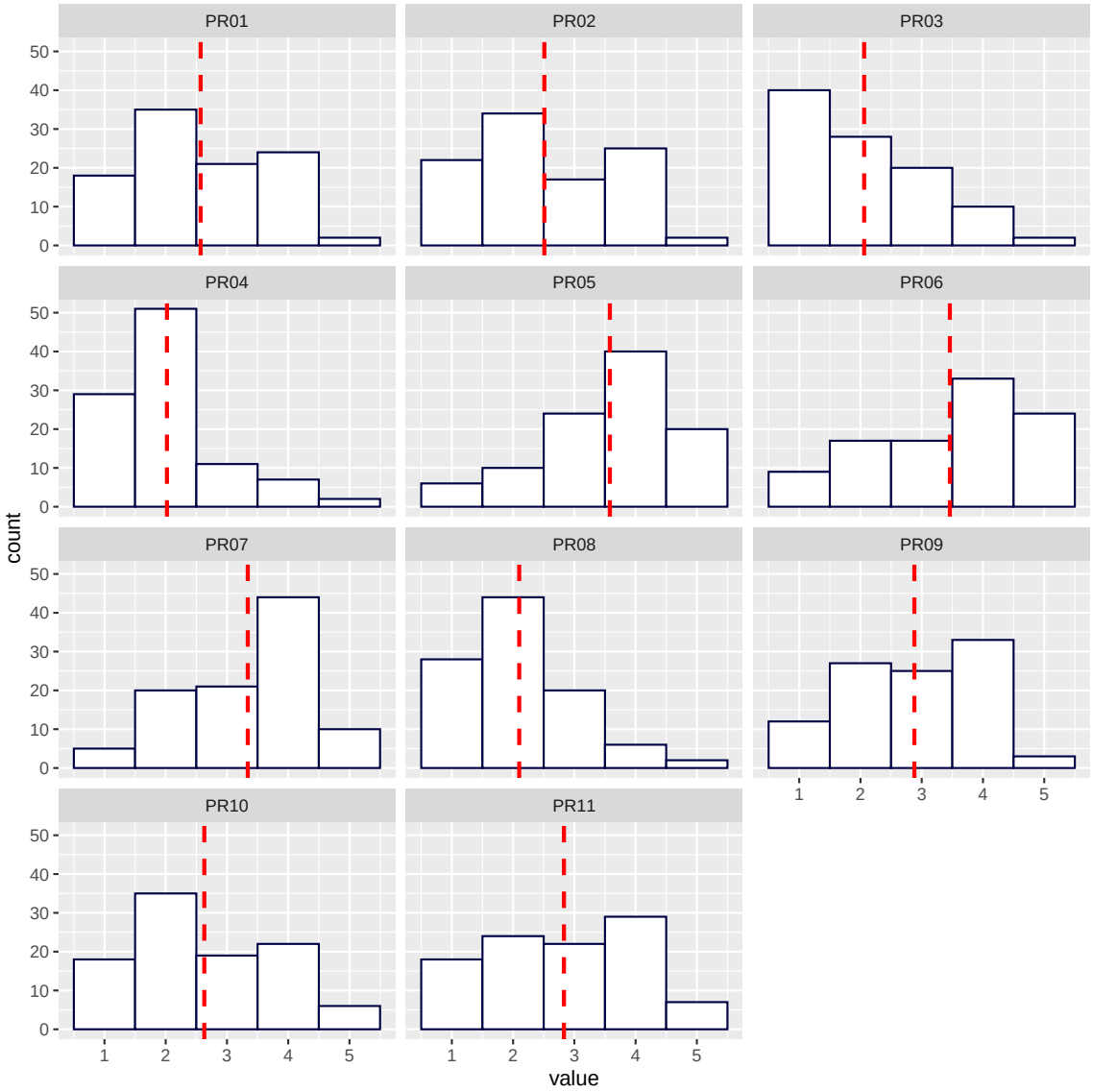

Figure VM1-56

Psychological reactance scale: Item histograms with marked means

VM1-3.2.4 Inter-correlations

```
corPlot(scaleReactanceFrame,numbers=TRUE,diag=FALSE,
main="Brief H-scale",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,cex=1.25,
zlim=c(-0.7,0.7))
```

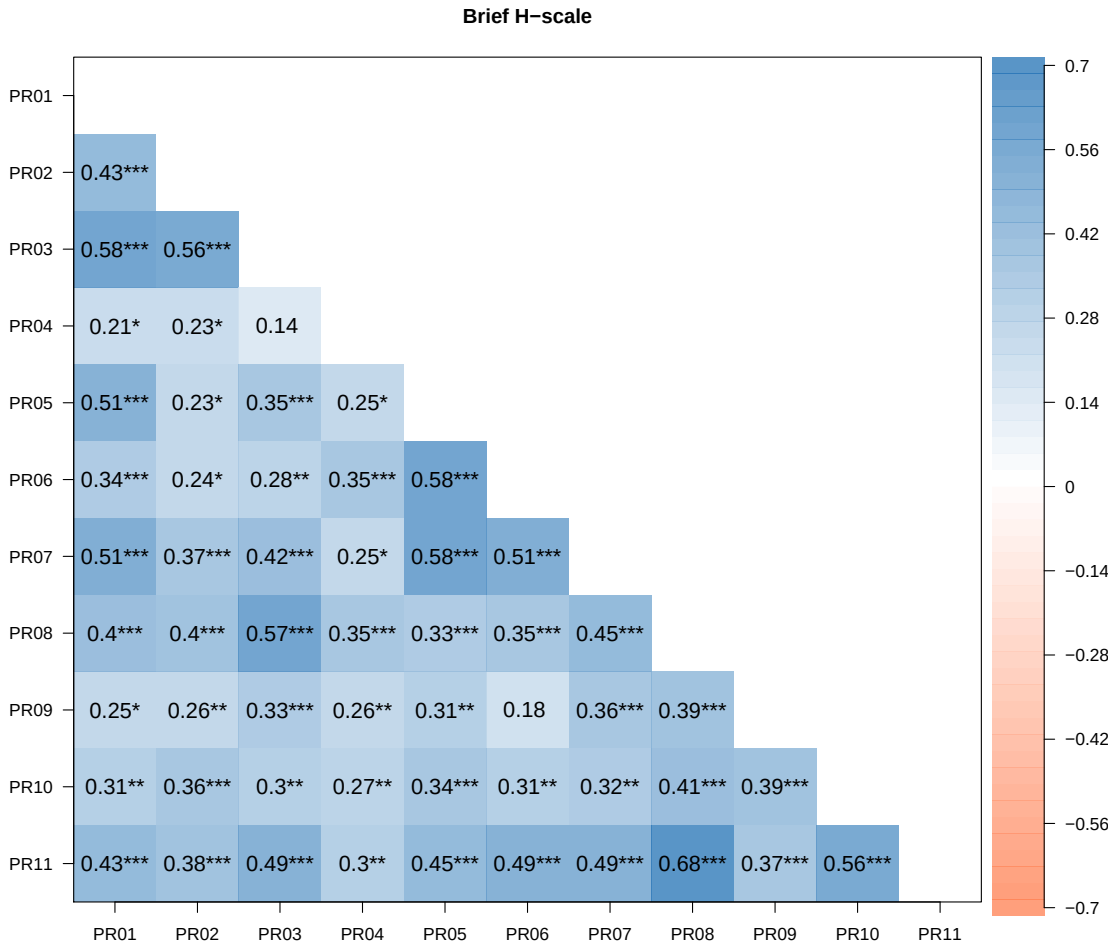

Figure VM1-57
Psychological reactance scale: item inter-correlations

VM1-3.2.5 Scale statistics

```
scoresPR=scoreItems(items=scaleReactanceFrame,
keys=c(1,1,1,1,1,1,1,1,1,1,1))
print(scoresPR)

## Call: scoreItems(keys = c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1), items = scaleReactanceFrame)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.87
##
## Standard errors of unstandardized Alpha:
##       Scale1
## ASE    0.033
##
## Average item correlation:
##           Scale1
## average.r   0.38
##
## Median item correlation:
## Scale1
##   0.36
##
##  Guttman 6* reliability:
##          Scale1
## Lambda.6   0.89
##
## Signal/Noise based upon av.r :
##              Scale1
## Signal/Noise    6.6
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.87
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

summary(scoresPR$scores)

##      Scale1
##  Min.   :1.000
##  1st Qu.:2.341
##  Median :2.818
```

```
##  Mean   :2.725
##  3rd Qu.:3.273
##  Max.   :4.273

head(scoresPR$scores)

##        Scale1
## [1,] 3.454545
## [2,] 2.545455
## [3,] 2.818182
## [4,] 2.818182
## [5,] 3.181818
## [6,] 3.090909
```

VM1-3.3 Oxford Utilitarianism Scale

VM1-3.3.1 Source

This scale is published in Kahane et al. (2018) and contains two subscales: impartial beneficence (OUS-IB, 5items) and instrumental harm (OUS-IH, 4 items). Answers were given on a seven-point scale (scored 1–7): Strongly disagree—Disagree—Somewhat disagree—Neither agree nor disagree—Somewhat agree—Agree—Strongly agree.

VM1-3.3.2 Items

Impartial Beneficence.

- **IB1+**: If the only way to save another person's life during an emergency is to sacrifice one's own leg, then one is morally required to make this sacrifice.
- **IB2+**:From a moral point of view, we should feel obliged to give one of our kidneys to a person with kidney failure since we don't need two kidneys to survive, but really only one to be healthy.
- **IB3+**: From a moral perspective, people should care about the well-being of all human beings on the planet equally; they should not favor the well-being of people who are especially close to them either physically or emotionally.
- **IB4+**: It is just as wrong to fail to help someone as it is to actively harm them yourself
- **IB5+**: It is morally wrong to keep money that one doesn't really need if one can donate it to causes that provide effective help to those who will benefit a great deal.

Instrumental Harm.

- **IH1+**: It is morally right to harm an innocent person if harming them is a necessary means to helping several other innocent people.

- **IH2+**: If the only way to ensure the overall well-being and happiness of the people is through the use of political oppression for a short, limited period, then political oppression should be used.
- **IH3+**: It is permissible to torture an innocent person if this would be necessary to provide information to prevent a bomb going off that would kill hundreds of people.
- **IH4+**: Sometimes it is morally necessary for innocent people to die as collateral damage—if more people are saved overall.

Note[1]

VM1-3.3.3 Item histograms

```
scaleVars <- c("UTIL01_IB01", "UTIL03_IB02", "UTIL01_IB03",
"UTIL07_IB04","UTIL09_IB05","UTIL02_IH01","UTIL01_IH02",
"UTIL06_IH03", "UTIL08_IH04")

scaleFrame <- df[scaleVars]

 scaleFrame <- scaleFrame %>%
  rename(
  IB1p=UTIL01_IB01,
  IB2p=UTIL03_IB02,
  IB3p=UTIL01_IB03,
  IB4p=UTIL07_IB04,
  IB5p=UTIL09_IB05,
  IH1p=UTIL02_IH01,
  IH2p=UTIL01_IH02,
  IH3p=UTIL06_IH03,
  IH4p=UTIL08_IH04
)

scaleFrame[] <-data.matrix(scaleFrame)

scale_mean =summarise_all(scaleFrame,mean)
sdf=data.frame(scale_mean=t(summarise_all(scaleFrame,mean)),
        key=names(scaleFrame))

scaleFrame %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
```

[1] "UTIL01_IB03" should have been named "UTIL05_IB03", and "UTIL01_IH02" should have been named "UTIL04_IH02". Data names are still unique, so this is a merely aesthetic point.

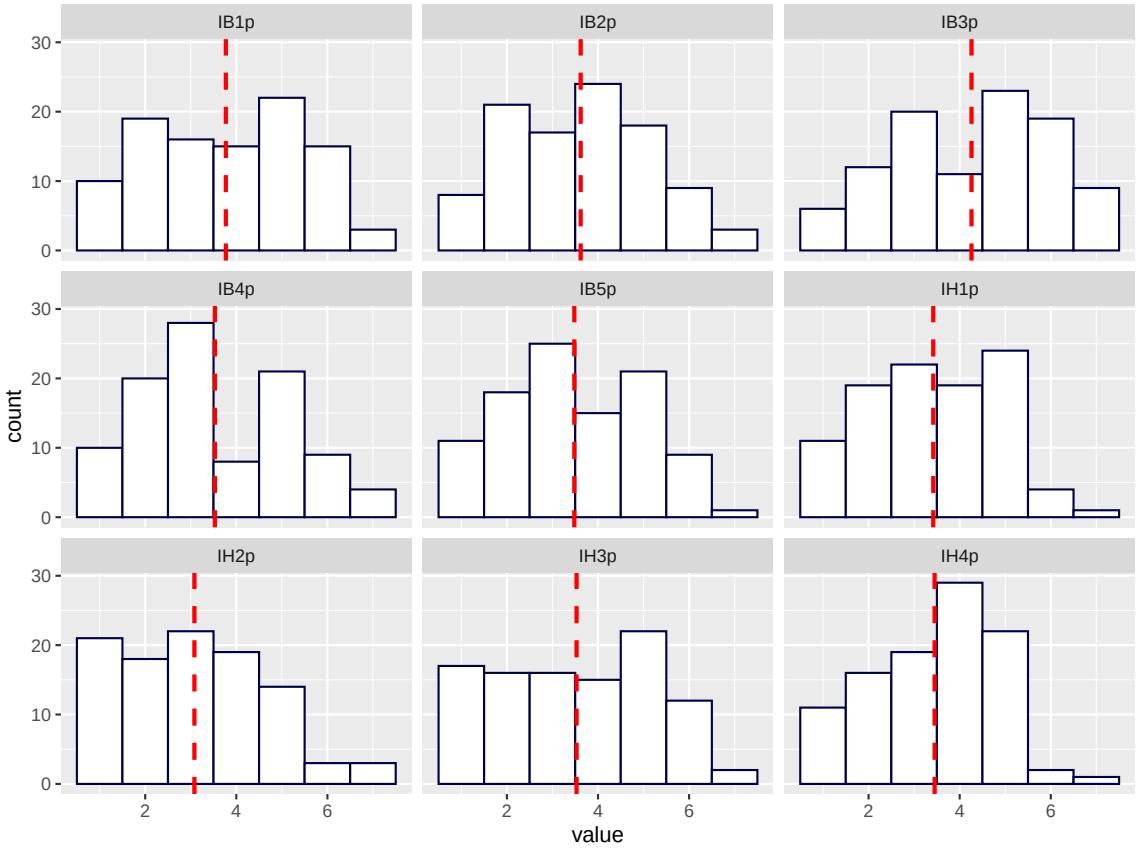

Figure VM1-58
Oxford Utilitarianism Scale: Item histograms with marked means

```
        facet_wrap(~ key, ncol=3) +
        geom_histogram(aes(y =..count..), color="#000044",
               fill="white",bins=7) +
        geom_vline(aes(xintercept =scale_mean),sdf,col='red',
        linetype = "dashed",size=1)
```

VM1-3.3.4 Inter-correlations

```
corPlot(scaleFrame,numbers=TRUE,diag=FALSE,labels=c("IB1+","IB2+",
"IB3+","IB4+","IB5+","IH1+","IH2+","IH3+","IH4+"),
main="Oxford Utilitarianism Scale",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-0.9,0.9))
```

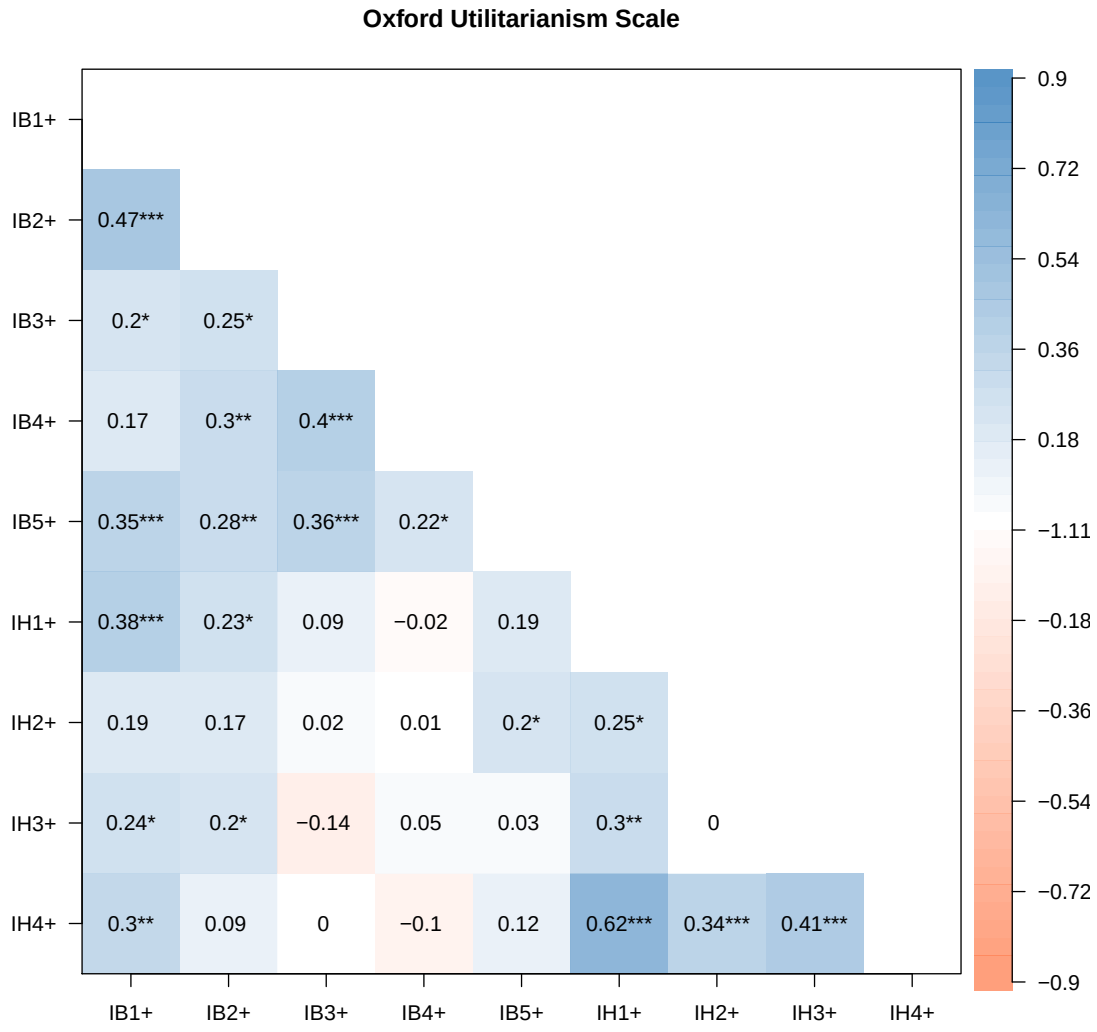

Figure VM1-59
Oxford Utilitarianism Scale

VM1-3.3.5 Scale statistics (for subscales)

```
scaleFrameIB=scaleFrame[1:5]
scaleFrameIH=scaleFrame[6:9]
scaleKeyIB=c(1,1,1,1,1)
scaleIB=scoreItems(keys=scaleKeyIB,
items=scaleFrameIB,totals=FALSE,missing=FALSE)
print(scaleIB)

## Call: scoreItems(keys = scaleKeyIB, items = scaleFrameIB, totals = FALSE,
##     missing = FALSE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.68
##
## Standard errors of unstandardized Alpha:
##       Scale1
## ASE    0.078
##
## Average item correlation:
##           Scale1
## average.r    0.3
##
## Median item correlation:
## Scale1
##   0.29
##
##  Guttman 6* reliability:
##          Scale1
## Lambda.6   0.66
##
## Signal/Noise based upon av.r :
##              Scale1
## Signal/Noise    2.1
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.68
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE
```

```
scaleKeyIH=c(1,1,1,1)
scaleIH=scoreItems(keys=scaleKeyIH,
items =scaleFrameIH,totals=FALSE,missing=FALSE)
print(scaleIH)

## Call: scoreItems(keys = scaleKeyIH, items = scaleFrameIH, totals = FALSE,
##     missing = FALSE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.63
##
## Standard errors of unstandardized Alpha:
##       Scale1
## ASE    0.094
##
## Average item correlation:
##           Scale1
## average.r    0.3
##
## Median item correlation:
## Scale1
##   0.32
##
##  Guttman 6* reliability:
##          Scale1
## Lambda.6   0.62
##
## Signal/Noise based upon av.r :
##              Scale1
## Signal/Noise    1.7
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.63
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

 scoresOUS<-data.frame(scaleIB$scores, scaleIH$scores) %>%
rename(
  scaleOUIB=Scale1,
  scaleOUIH=Scale1.1
```

```
)

 summary(scoresOUS)

##    scaleOUIB       scaleOUIH
##  Min.   :1.000   Min.   :1.000
##  1st Qu.:3.000   1st Qu.:2.688
##  Median :3.800   Median :3.500
##  Mean   :3.732   Mean   :3.370
##  3rd Qu.:4.400   3rd Qu.:4.250
##  Max.   :6.600   Max.   :7.000

 cor(scoresOUS)

##           scaleOUIB scaleOUIH
## scaleOUIB  1.000000  0.240391
## scaleOUIH  0.240391  1.000000

 head(scoresOUS)

##   scaleOUIB scaleOUIH
## 1       3.0      4.50
## 2       5.4      4.50
## 3       4.6      5.25
## 4       5.0      5.00
## 5       3.6      4.00
## 6       4.6      4.00
```

```
   pairs.panels(scoresOUS, smooth = TRUE, scale = FALSE,  digits = 2,
   method="pearson",pch = 20,lm=TRUE,cor=TRUE,jiggle=TRUE,factor=2,
   breaks=40,hist.col="blue",show.points=TRUE,rug=FALSE,
   cex.cor=1,wt=NULL,stars=TRUE,ci=TRUE,alpha=.05)
```

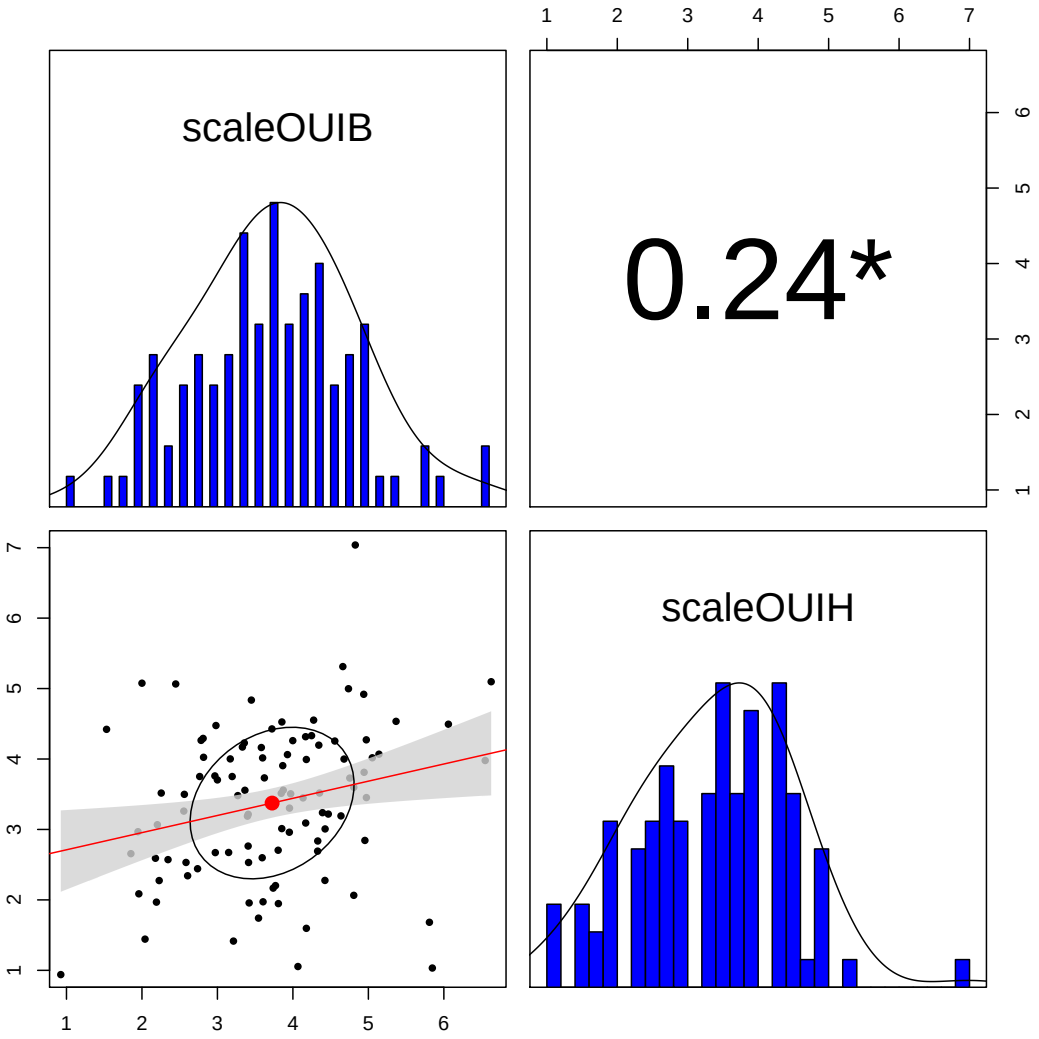

Figure VM1-60
Brief H-scalepairs

VM1-3.3.6 Scale histograms

```
scoresOUS_mean =unlist(summarise_all(scoresOUS,mean))
scalesOUSdf=data.frame(scale_mean=t(summarise_all(scoresOUS,mean)),key=names(scoresOUS))

scoresOUS %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044", fill="white",bins=20) +
  geom_vline(aes(xintercept = scoresOUS_mean),scalesOUSdf,col='red',
  linetype = "dashed",size=1)
```

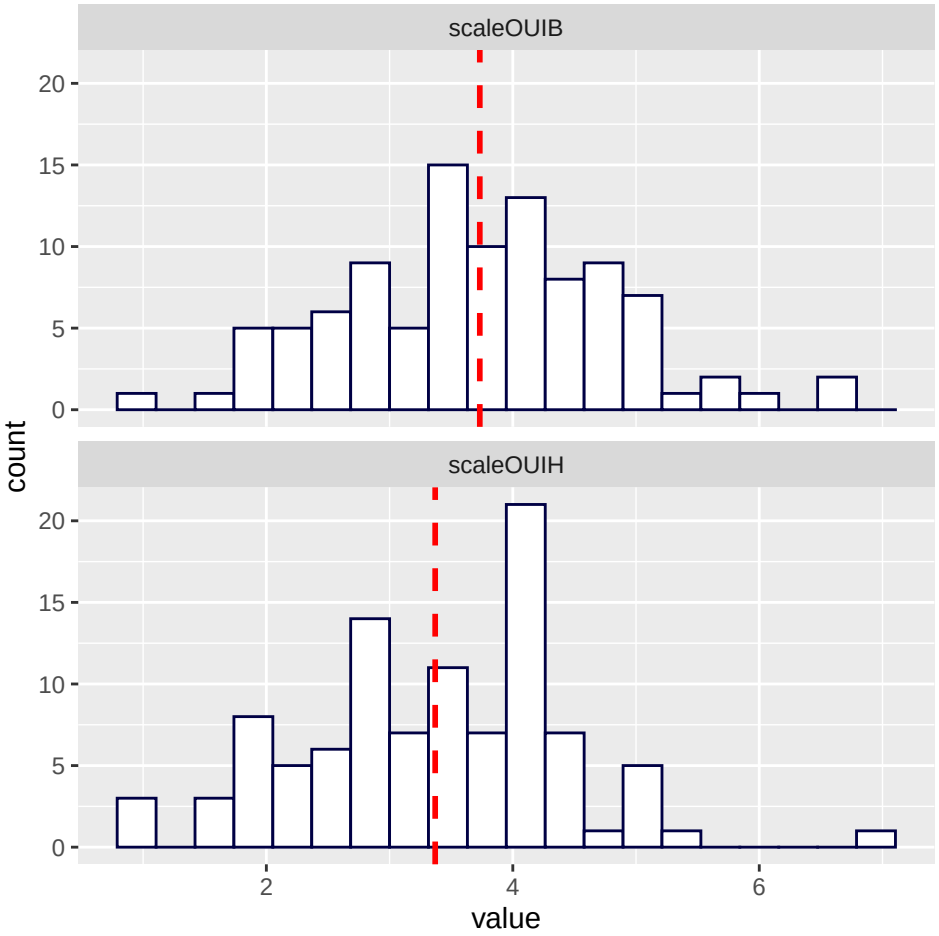

Figure VM1-61
Brief HEXCACO scale: Histogram of subscale values

VM1-3.4 Cognitive Reflection Test (CRT)

VM1-3.4.1 Source

Participants responded to four items measuring cognitive reflection (Frederick, 2005). Three items were taken from the CRTt (Woike, 2019), the final item from the CRT 2 (Thomson & Oppenheimer, 2016).

VM1-3.4.2 Items

- **CRT01**: A golden bat and a golden ball cost $5,000 in total. The bat costs $4,000 more than the ball. How much does the golden ball cost?
- **CRT02**: If it takes 10 machines 10 minutes to make 10 widgets, how long would it take 1,000 machines to make 1,000 widgets?
- **CRT03**: In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 40 days for the patch to cover the entire lake, how long would it take for the patch to cover a quarter of the lake?
- **CRT04**: If you're running a race and you pass the person in second place, what place are you in?

VM1-3.4.3 Item preparation

```
   scaleVarsCRT <- c("CRT01", "CRT02", "CRT03",
        "CRT04")
   scaleFrameCRT <- df[scaleVarsCRT]

   scaleFrameCRT$CRT01num <-  as.numeric(scaleFrameCRT$CRT01)
   scaleFrameCRT$CRT02num <-  as.numeric(scaleFrameCRT$CRT02)
   scaleFrameCRT$CRT03num <-  as.numeric(scaleFrameCRT$CRT03)
   scaleFrameCRT$CRT04num <-  as.numeric(scaleFrameCRT$CRT04)

scaleFrameCRT = subset(scaleFrameCRT,
       select=-c(CRT01,CRT02,CRT03,CRT04))

   scaleFrameCRT$CRT01cat <- recode(scaleFrameCRT$CRT01num,
          "7"="intuitive","8"="correct", .default="other")
   scaleFrameCRT$CRT02cat <- recode(scaleFrameCRT$CRT02num,
         "5"="intuitive","6"="correct", .default="other")
   scaleFrameCRT$CRT03cat <- recode(scaleFrameCRT$CRT03num,
        "4"="intuitive","7"="correct", .default="other")
   scaleFrameCRT$CRT04cat <- recode(scaleFrameCRT$CRT04num,
       "4"="intuitive","5"="correct", .default="other")

scaleFrameCRT = subset(scaleFrameCRT,
```

```
  select=-c(CRT01num,CRT02num,CRT03num,CRT04num))

  scaleFrameCRT$CRT01int <- recode(scaleFrameCRT$CRT01cat,
      "intuitive"=1, .default=0)
  scaleFrameCRT$CRT02int <- recode(scaleFrameCRT$CRT02cat,
      "intuitive"=1, .default=0)
  scaleFrameCRT$CRT03int <- recode(scaleFrameCRT$CRT03cat,
      "intuitive"=1, .default=0)
  scaleFrameCRT$CRT04int <- recode(scaleFrameCRT$CRT04cat,
      "intuitive"=1, .default=0)

  scaleFrameCRT$CRT01correct <- recode(scaleFrameCRT$CRT01cat,
      "correct"=1, .default=0)
  scaleFrameCRT$CRT02correct <- recode(scaleFrameCRT$CRT02cat,
      "correct"=1, .default=0)
  scaleFrameCRT$CRT03correct <- recode(scaleFrameCRT$CRT03cat,
      "correct"=1, .default=0)
  scaleFrameCRT$CRT04correct <- recode(scaleFrameCRT$CRT04cat,
      "correct"=1, .default=0)

  scaleFrameCRT = subset(scaleFrameCRT,
       select=-c(CRT01cat,CRT02cat,CRT03cat,CRT04cat))

weightsCRT <-list(CRTscore=c("CRT01correct",
       "CRT02correct","CRT03correct","CRT04correct"),
       CRTintuitive=c("CRT01int",
       "CRT02int","CRT03int","CRT04int"))
```

VM1-3.4.4 Item pie charts

```
scaleFrameCRT %>%
 keep(is.numeric) %>%
 gather() %>%
 ggplot(aes(x=0,y=value)) +
 facet_wrap(~ key, ncol=2) +
 geom_bar(stat="identity",width=2,color='blue') +
 coord_polar(theta='y')+
 theme(axis.ticks=element_blank(), axis.title=element_blank(),
 axis.text.y = element_blank(),
 panel.grid  = element_blank(),
 axis.text.x = element_text(size=10,hjust=0))+
 scale_y_continuous(limits=c(0,100))
```

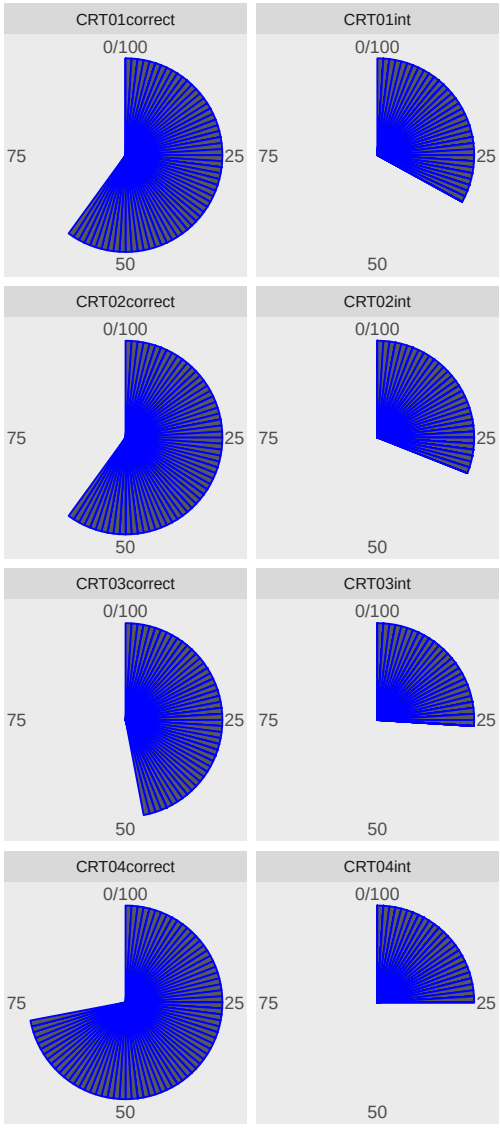

Figure VM1-62
CRT: pie charts of percentages of correct and intuitive answers

VM1-3.4.5 Inter-correlations

```
corPlot(scaleFrameCRT,numbers=TRUE,diag=FALSE,
main="CRT (correct and intuitive)",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-0.95,0.95))
```

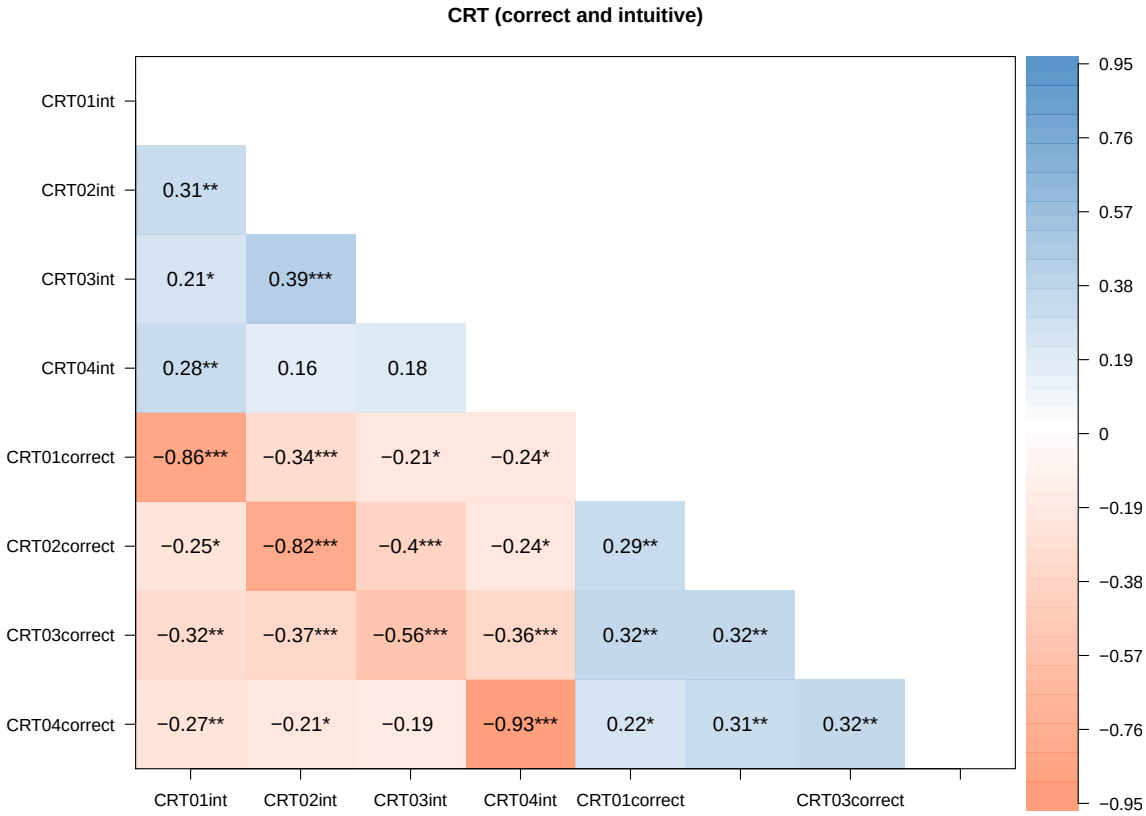

Figure VM1-63
CRT items (scored as correct, intuitive or neither): Inter-correlations

VM1-3.4.6 Scale statistcs (for subscales)

```
scaleCRT=scoreItems(keys=weightsCRT, items =scaleFrameCRT,totals=TRUE)

print(scaleCRT)

## Call: scoreItems(keys = weightsCRT, items = scaleFrameCRT, totals = TRUE)
##
## (Unstandardized) Alpha:
##       CRTscore CRTintuitive
## alpha     0.63         0.58
##
## Standard errors of unstandardized Alpha:
##       CRTscore CRTintuitive
## ASE      0.095          0.1
```

```
##
## Average item correlation:
##           CRTscore CRTintuitive
## average.r      0.3         0.26
##
## Median item correlation:
##     CRTscore CRTintuitive
##         0.31         0.25
##
##  Guttman 6* reliability:
##          CRTscore CRTintuitive
## Lambda.6     0.83         0.82
##
## Signal/Noise based upon av.r :
##              CRTscore CRTintuitive
## Signal/Noise      1.7          1.4
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##              CRTscore CRTintuitive
## CRTscore         0.63        -1.48
## CRTintuitive    -0.90         0.58
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCRT<-data.frame(scaleCRT$scores)
summary(scoresCRT)

##     CRTscore     CRTintuitive
##  Min.   :0.00   Min.   :0.00
##  1st Qu.:1.00   1st Qu.:0.00
##  Median :3.00   Median :1.00
##  Mean   :2.39   Mean   :1.15
##  3rd Qu.:4.00   3rd Qu.:2.00
##  Max.   :4.00   Max.   :4.00

cor(scoresCRT)

##                CRTscore CRTintuitive
## CRTscore      1.0000000   -0.8955171
## CRTintuitive -0.8955171    1.0000000

head(scoresCRT)
```

```
##   CRTscore CRTintuitive
## 1        3            1
## 2        4            0
## 3        4            0
## 4        2            2
## 5        2            1
## 6        3            0
```

```
pairs.panels(scoresCRT, smooth = TRUE, scale = FALSE,  digits = 2,
method="pearson",pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,
factor=1,hist.col="cyan",show.points=TRUE,rug=FALSE,cex.cor=1,
wt=NULL,stars=TRUE,ci=FALSE,alpha=.05)
```

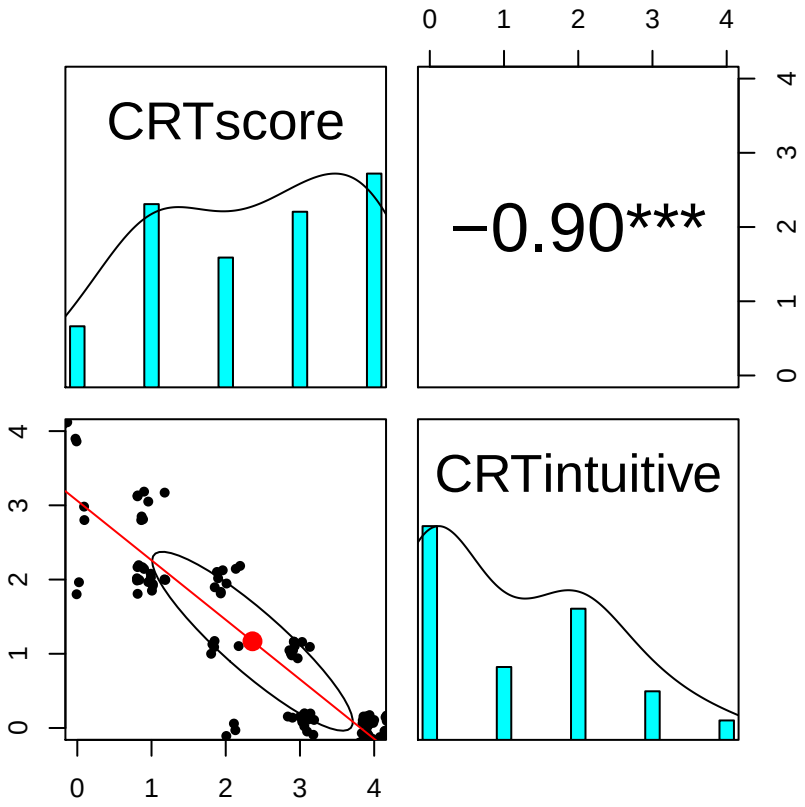

Figure VM1-64
CRT scores: Distribution and inter-correlation of subscale values

Only the CRTscore variable[2] is used for further analysis. Both measures are (as expected) highly correlated, as most incorrect answers are "intuitive" answers.

VM1-3.5 EXP

VM1-3.5.1 Source

This scale was developed by the authors.

VM1-3.5.2 Items

- Imagine that you have one single tennis ball. You double the number of tennis balls you have twenty times in a row. How many tennis balls do you have after this?
- Imagine that there is a pool filled with 100 liters of a chemical. Due to an ongoing reaction, it takes one day for the contents of the pool content to grow by half (as measured at the start of the day). After a full week, how many liters will be in the pool?
- Imagine that there is one alien. After one week this alien splits into five aliens. After the second week each of these five aliens splits into five, which in turn split into five after the third week. The same happens after the fourth and fifth week. How many aliens are there now?
- There is a bottle with a strange liquid. At the beginning of each hour, its volume is measured. The liquid loses exactly 10% of this measured volume at the end of each hour. After 10 hours, what percentage of the liquid is left?

VM1-3.5.3 Item preparation

```
  scaleVarsEXP <- c("EXP01", "EXP02", "EXP03",
  "EXP04")
  scaleFrameEXP <- df[scaleVarsEXP]

  scaleFrameEXP$EXP01num <-  as.numeric(scaleFrameEXP$EXP01)
  scaleFrameEXP$EXP02num <-  as.numeric(scaleFrameEXP$EXP02)
  scaleFrameEXP$EXP03num <-  as.numeric(scaleFrameEXP$EXP03)
  scaleFrameEXP$EXP04num <-  as.numeric(scaleFrameEXP$EXP04)

  scaleFrameEXP = subset(scaleFrameEXP,
select=-c(EXP01,EXP02,EXP03,EXP04))

  scaleFrameEXP$EXP01corW <- recode(scaleFrameEXP$EXP01num,
"10"=1,"9"=0.5,"11"=0.5, .default=0)
  scaleFrameEXP$EXP02corW <- recode(scaleFrameEXP$EXP02num,
```

[2] As in Woike (2019), the average CRT score is higher than in previous samples with traditional participants.

```
  "9"=1,"10"=0.5,"8"=0.5, .default=0)
    scaleFrameEXP$EXP03corW <- recode(scaleFrameEXP$EXP03num,
   "8"=1,"9"=0.5,"7"=0.5, .default=0)
    scaleFrameEXP$EXP04corW <- recode(scaleFrameEXP$EXP04num,
    "5"=1,"6"=0.5,"4"=0.5,  .default=0)

    scaleFrameEXP$EXP01corN <- recode(scaleFrameEXP$EXP01num,
   "10"=1, .default=0)
    scaleFrameEXP$EXP02corN  <- recode(scaleFrameEXP$EXP02num,
   "9"=1, .default=0)
    scaleFrameEXP$EXP03corN  <- recode(scaleFrameEXP$EXP03num,
   "8"=1, .default=0)
    scaleFrameEXP$EXP04corN  <- recode(scaleFrameEXP$EXP04num,
   "5"=1, .default=0)

    scaleFrameEXP = subset(scaleFrameEXP,
    select=-c(EXP01num ,EXP02num ,EXP03num ,EXP04num ))

    weightsEXP <-list(EXPscoreWide=c("EXP01corW",
    "EXP02corW","EXP03corW","EXP04corW"),
    EXPscoreNarrow=c("EXP01corN",
    "EXP02corN","EXP03corN","EXP04corN"))

    summary(scaleFrameEXP)
```

```
##    EXP01corW      EXP02corW      EXP03corW      EXP04corW       EXP01corN
##  Min.   :0.00   Min.   :0.00   Min.   :0.00   Min.   :0.000   Min.   :0.0
##  1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.000   1st Qu.:0.0
##  Median :0.75   Median :0.50   Median :1.00   Median :0.000   Median :0.5
##  Mean   :0.61   Mean   :0.48   Mean   :0.54   Mean   :0.435   Mean   :0.5
##  3rd Qu.:1.00   3rd Qu.:1.00   3rd Qu.:1.00   3rd Qu.:1.000   3rd Qu.:1.0
##  Max.   :1.00   Max.   :1.00   Max.   :1.00   Max.   :1.000   Max.   :1.0
##    EXP02corN      EXP03corN      EXP04corN
##  Min.   :0.00   Min.   :0.00   Min.   :0.00
##  1st Qu.:0.00   1st Qu.:0.00   1st Qu.:0.00
##  Median :0.00   Median :1.00   Median :0.00
##  Mean   :0.34   Mean   :0.51   Mean   :0.38
##  3rd Qu.:1.00   3rd Qu.:1.00   3rd Qu.:1.00
##  Max.   :1.00   Max.   :1.00   Max.   :1.00
```

VM1-3.5.4 Item histograms

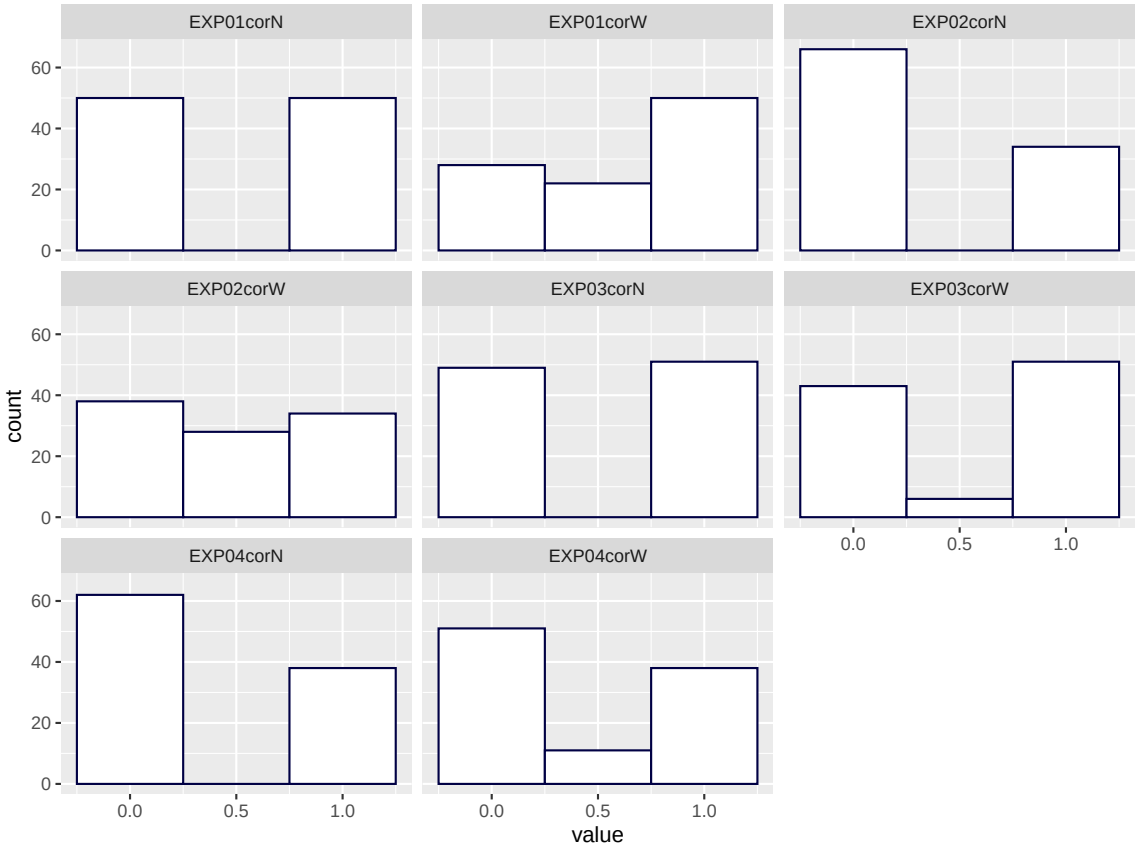

Figure VM1-65
Exponential calculation scale (EXP): Item histograms with marked means

```
scale_meanEXP =summarise_all(scaleFrameEXP,mean)
EXPdf=data.frame(scale_mean=t(summarise_all(scaleFrameEXP,mean)),
        key=names(scaleFrameEXP))

scaleFrameEXP %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=3) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=3)
```

VM1-3.5.5 Inter-correlations

```
corPlot(scaleFrameEXP,numbers=TRUE,diag=FALSE,
main="EXP (wide and narrow)",stars=TRUE,upper=FALSE,
```

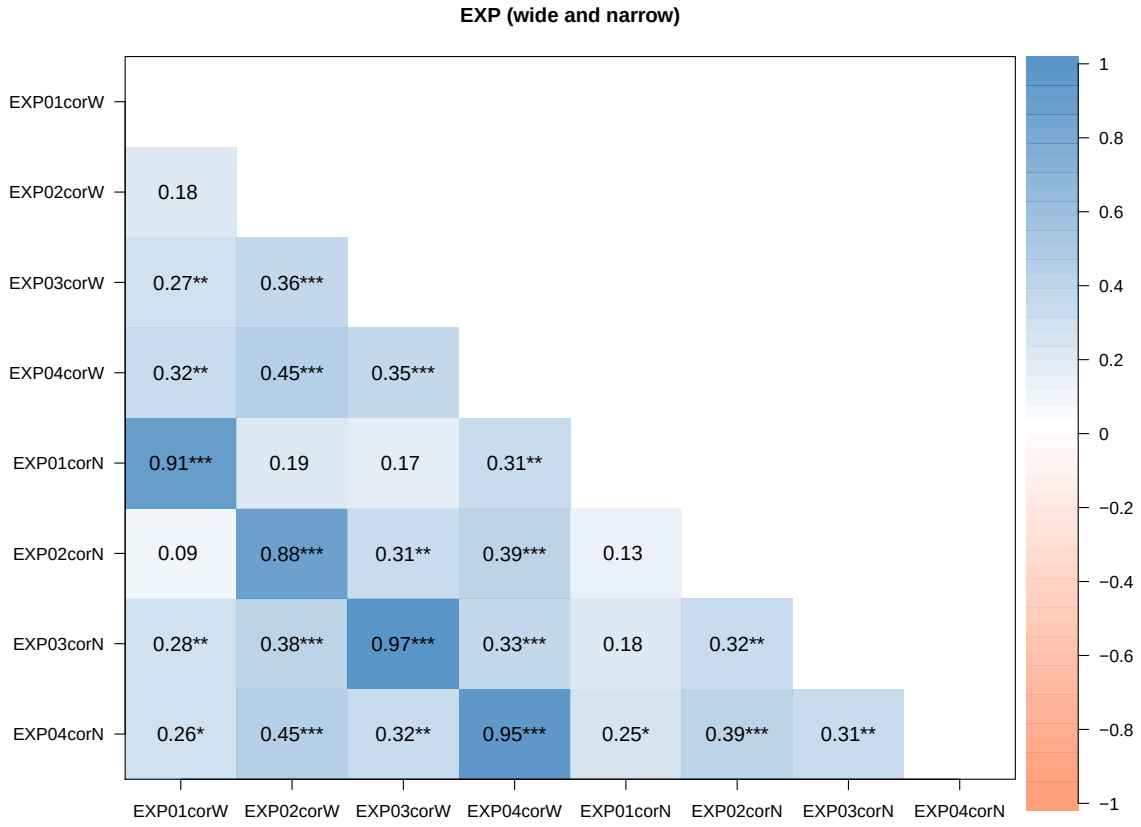

Figure VM1-66
EXP items (scored as wide or narrow): Inter-correlations

```
  cuts=c(.001,.01,.05),gr=palette2,
  zlim=c(-1,1))
```

VM1-3.5.6 Scale statistcs (for subscales)

```
 scaleEXP=scoreItems(keys=weightsEXP, items =scaleFrameEXP,totals=TRUE)

 print(scaleEXP)

## Call: scoreItems(keys = weightsEXP, items = scaleFrameEXP, totals = TRUE)
##
## (Unstandardized) Alpha:
##       EXPscoreWide EXPscoreNarrow
## alpha         0.66           0.59
```

```
##
## Standard errors of unstandardized Alpha:
##       EXPscoreWide EXPscoreNarrow
## ASE          0.091            0.1
##
## Average item correlation:
##           EXPscoreWide EXPscoreNarrow
## average.r         0.32           0.26
##
## Median item correlation:
##   EXPscoreWide EXPscoreNarrow
##           0.34           0.28
##
##  Guttman 6* reliability:
##          EXPscoreWide EXPscoreNarrow
## Lambda.6         0.94           0.93
##
## Signal/Noise based upon av.r :
##              EXPscoreWide EXPscoreNarrow
## Signal/Noise          1.9            1.4
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##                EXPscoreWide EXPscoreNarrow
## EXPscoreWide           0.66           1.54
## EXPscoreNarrow         0.96           0.59
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresEXP<-data.frame(scaleEXP$scores)
summary(scoresEXP)

##   EXPscoreWide   EXPscoreNarrow
##  Min.   :0.000   Min.   :0.00
##  1st Qu.:1.000   1st Qu.:1.00
##  Median :2.000   Median :2.00
##  Mean   :2.065   Mean   :1.73
##  3rd Qu.:3.000   3rd Qu.:3.00
##  Max.   :4.000   Max.   :4.00

cor(scoresEXP)

##                EXPscoreWide EXPscoreNarrow
```

```
## EXPscoreWide      1.0000000      0.9568098
## EXPscoreNarrow    0.9568098      1.0000000

head(scoresEXP)

##   EXPscoreWide EXPscoreNarrow
## 1          3.5              3
## 2          3.0              3
## 3          3.0              3
## 4          0.0              0
## 5          2.0              2
## 6          1.0              0
```

```
pairs.panels(scoresEXP, smooth = TRUE, scale = FALSE,  digits = 2,
method="pearson",pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,
factor=1,hist.col="cyan",show.points=TRUE,rug=FALSE,cex.cor=1,
wt=NULL,stars=TRUE,ci=FALSE,alpha=.05)
```

Only the wide version of the scale in analysed, from here on.

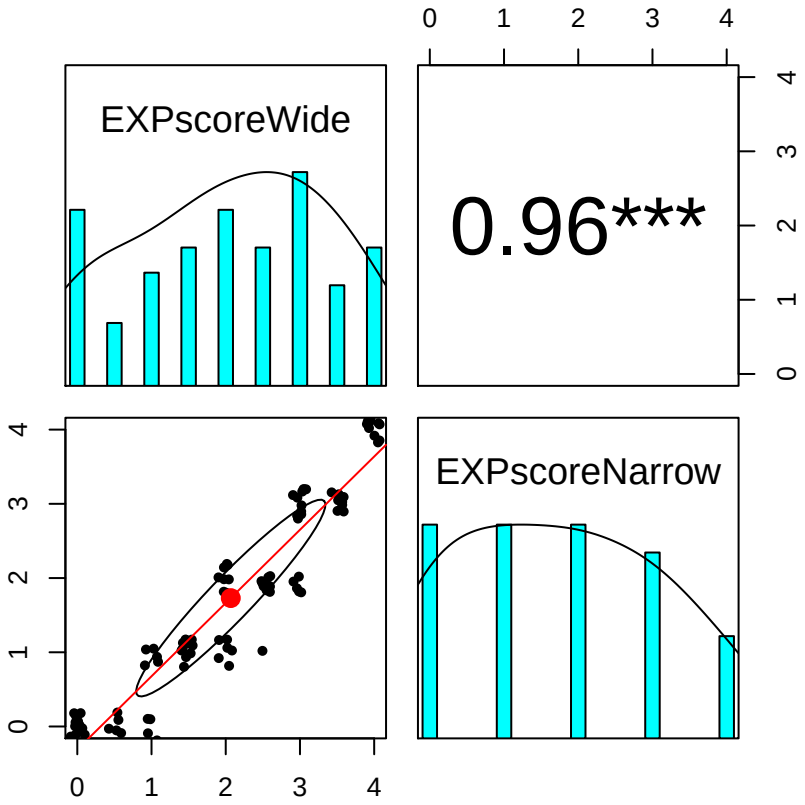

Figure VM1-67
EXP scores: Distribution and inter-correlation of subscale values

VM1-3.6 BNT

VM1-3.6.1 Source

The four numeracy items comprising the Berlin numeracy test (Cokely et al., 2012) were included in the survey.

VM1-3.6.2 Items

- Imagine we are throwing a five-sided die 50 times. On average, out of these 50 throws how many times would this five-sided die show an odd number (1, 3 or 5)?

- Out of 1,000 people in a small town 500 are members of a choir. Out of these 500 members in the choir 100 are men. Out of the 500 inhabitants that are not in the choir 300 are men. What is the probability that a randomly drawn man is a member of the choir?

- Imagine we are throwing a loaded die (6 sides). The probability that the die shows a 6 is twice as high as the probability of each of the other numbers. On average, out of these 70 throws, how many times would the die show the number 6?
- In a forest 20% of mushrooms are red, 50% brown and 30% white. A red mushroom is poisonous with a probability of 20%. A mushroom that is not red is poisonous with a probability of 5%. What is the probability that a poisonous mushroom in the forest is red?

VM1-3.6.3 Item preparation

```
scaleVarsBNT <- c("BNT01", "BNT02", "BNT03",
     "BNT04")
scaleFrameBNT <- df[scaleVarsBNT]

scaleFrameBNT$BNT01num <-  as.numeric(scaleFrameBNT$BNT01)
scaleFrameBNT$BNT02num <-  as.numeric(scaleFrameBNT$BNT02)
scaleFrameBNT$BNT03num <-  as.numeric(scaleFrameBNT$BNT03)
scaleFrameBNT$BNT04num <-  as.numeric(scaleFrameBNT$BNT04)

scaleFrameBNT = subset(scaleFrameBNT,
    select=-c(BNT01,BNT02,BNT03,BNT04))

 scaleFrameBNT$BNT01cor <- recode(scaleFrameBNT$BNT01num,
    "6"=1, .default=0)
scaleFrameBNT$BNT02cor  <- recode(scaleFrameBNT$BNT02num,
    "8"=1, .default=0)
scaleFrameBNT$BNT03cor  <- recode(scaleFrameBNT$BNT03num,
    "8"=1, .default=0)
scaleFrameBNT$BNT04cor  <- recode(scaleFrameBNT$BNT04num,
    "8"=1, .default=0)

scaleFrameBNT = subset(scaleFrameBNT,
     select=-c(BNT01num ,BNT02num ,BNT03num ,BNT04num ))

weightsBNT <-list(BNTscorBNT=c("BNT01cor",
     "BNT02cor","BNT03cor","BNT04cor"))

summary(scaleFrameBNT)
```

```
##     BNT01cor       BNT02cor       BNT03cor       BNT04cor
##  Min.   :0.0   Min.   :0.0   Min.   :0.00   Min.   :0.00
##  1st Qu.:1.0   1st Qu.:0.0   1st Qu.:0.00   1st Qu.:0.00
##  Median :1.0   Median :0.5   Median :0.00   Median :0.00
##  Mean   :0.8   Mean   :0.5   Mean   :0.28   Mean   :0.21
```

```
##  3rd Qu.:1.0   3rd Qu.:1.0   3rd Qu.:1.00   3rd Qu.:0.00
##  Max.   :1.0   Max.   :1.0   Max.   :1.00   Max.   :1.00
```

VM1-3.6.4 Item histograms

```
scale_meanBNT =summarise_all(scaleFrameBNT,mean)
BNTdf=data.frame(scale_mean=t(summarise_all(scaleFrameBNT,mean)),
        key=names(scaleFrameBNT))

scaleFrameBNT %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=2) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=2)
```

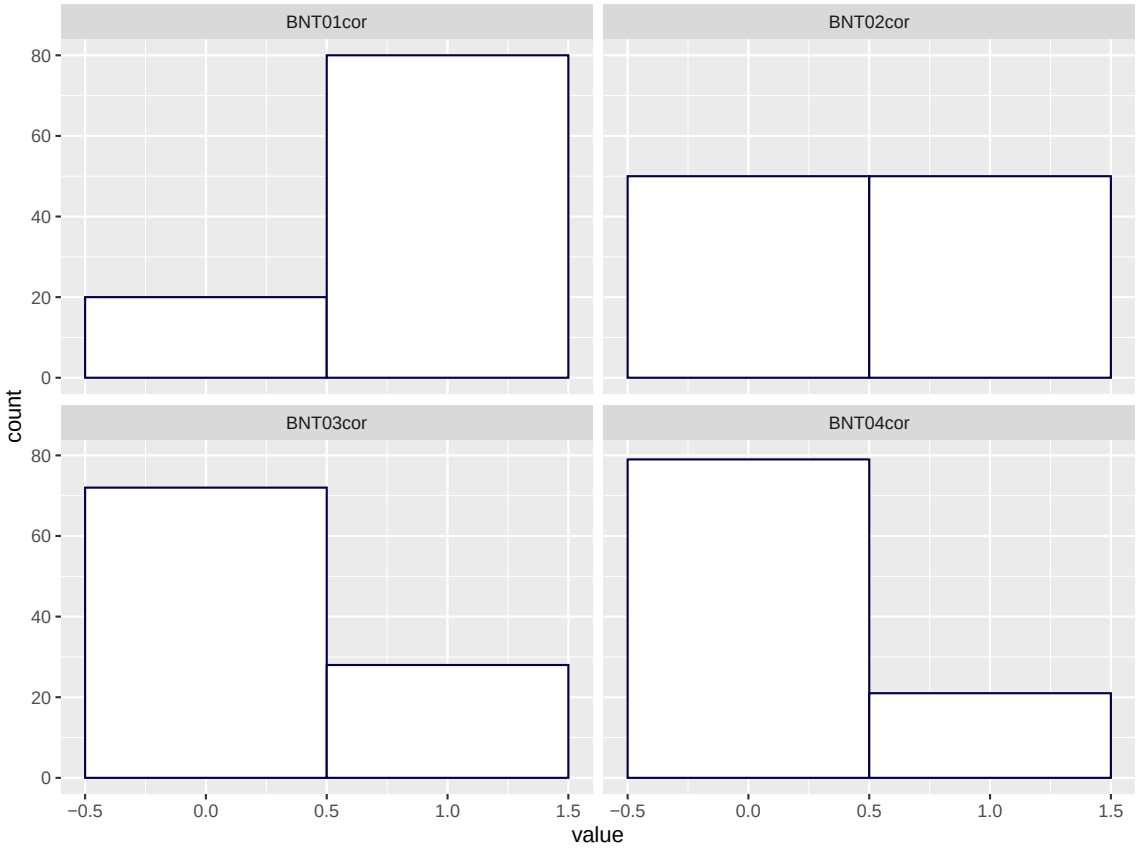

Figure VM1-68
Berlin numeracy test: Item histograms with marked means

VM1-3.6.5 Inter-correlations

```
corPlot(scaleFrameBNT,numbers=TRUE,diag=FALSE,
main="BNT",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

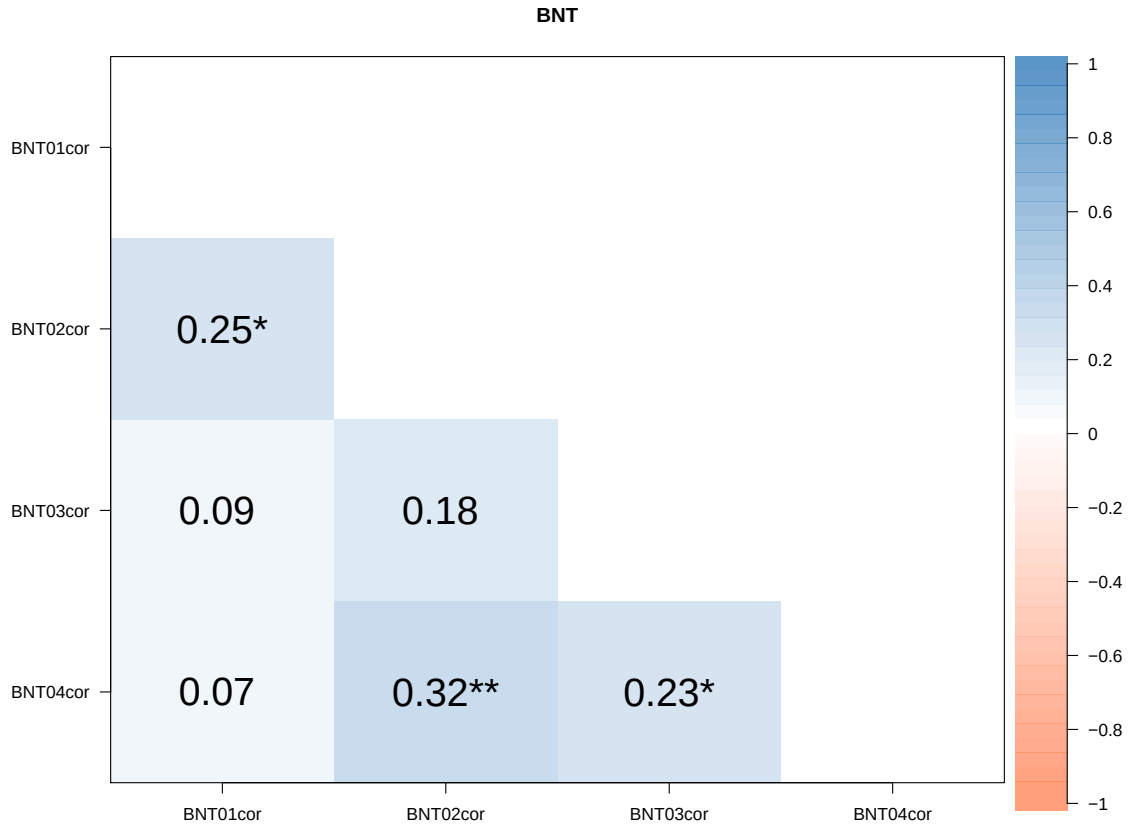

Figure VM1-69
BNT items: Inter-correlations

VM1-3.6.6 Scale statistcs (for subscales)

```
scaleBNT=scoreItems(keys=weightsBNT, items =scaleFrameBNT,totals=TRUE)

print(scaleBNT)

## Call: scoreItems(keys = weightsBNT, items = scaleFrameBNT, totals = TRUE)
##
## (Unstandardized) Alpha:
##       BNTscorBNT
## alpha       0.49
##
## Standard errors of unstandardized Alpha:
##       BNTscorBNT
## ASE         0.11
```

```
##
## Average item correlation:
##           BNTscorBNT
## average.r       0.19
##
## Median item correlation:
## BNTscorBNT
##        0.2
##
##  Guttman 6* reliability:
##          BNTscorBNT
## Lambda.6       0.44
##
## Signal/Noise based upon av.r :
##              BNTscorBNT
## Signal/Noise       0.95
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##            BNTscorBNT
## BNTscorBNT       0.49
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresBNT<-data.frame(scaleBNT$scores)
summary(scoresBNT)

##    BNTscorBNT
##  Min.   :0.00
##  1st Qu.:1.00
##  Median :2.00
##  Mean   :1.79
##  3rd Qu.:3.00
##  Max.   :4.00

cor(scoresBNT)

##            BNTscorBNT
## BNTscorBNT          1

head(scoresBNT)

##   BNTscorBNT
## 1          3
```

```
## 2          4
## 3          3
## 4          1
## 5          2
## 6          3
```

```
scoresBNT_mean =unlist(summarise_all(scoresBNT,mean))
scalesBNTDF=data.frame(scale_mean=summarise_all(scoresBNT,mean),
        key=names(scoresBNT))

scoresBNT %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
        fill="white",bins=20) +
  geom_vline(aes(xintercept = scoresBNT_mean),
   scalesBNTDF,col='red', linetype = "dashed",size=1)
```

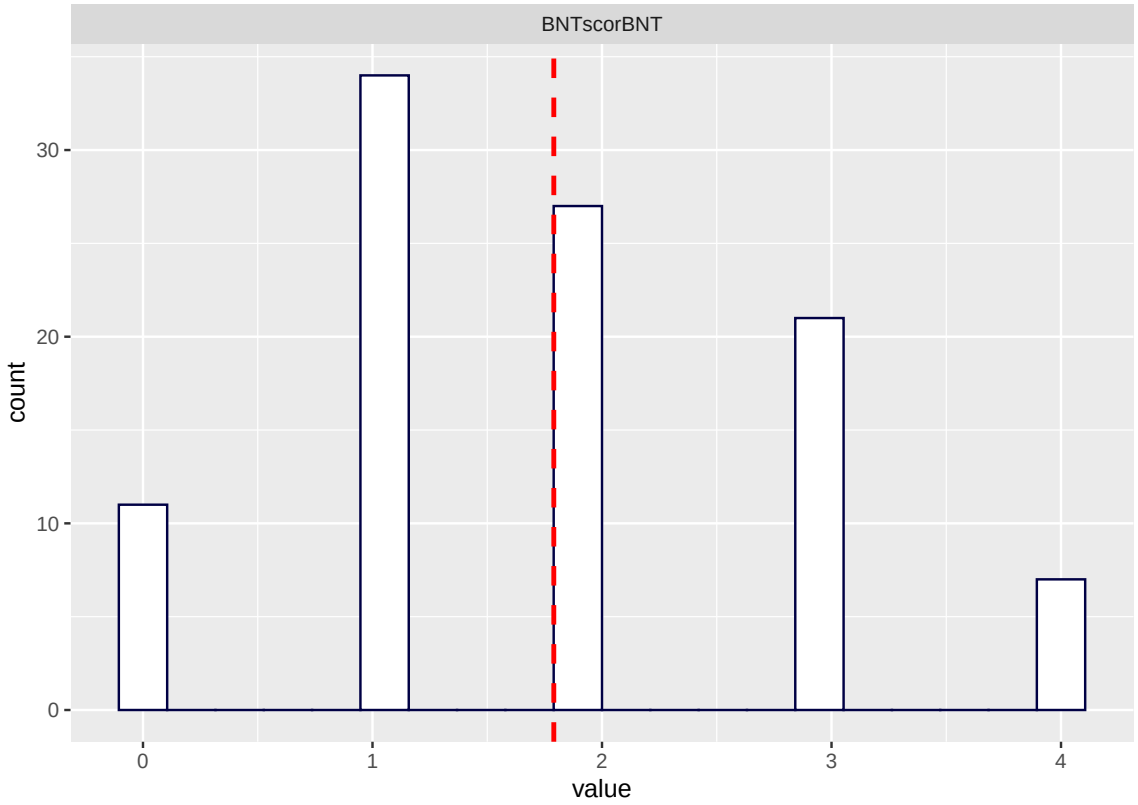

Figure VM1-70
BNT: histogram of scores

VM1-3.7 Subjective Numeracy

VM1-3.7.1 Source

A very brief, three-item measure of subjective numeracy (McNaughton et al., 2015) was administered.

VM1-3.7.2 Items

Items were scored on different scales with the same number range between 1–6, hihger numbers indicating higher subjective numeracy.

- How good are you at working with fractions?
- How good are you at figuring out how much a shirt will cost if it is 25% off?
- How **often** do you find numerical information to be useful?

VM1-3.7.3 Item preparation

```
scaleVarsSN <- c("SN01", "SN02", "SN03")
scaleFrameSN <- df[scaleVarsSN]

scaleFrameSN$SN01 <-  as.numeric(scaleFrameSN$SN01)
scaleFrameSN$SN02  <-  as.numeric(scaleFrameSN$SN02)
scaleFrameSN$SN03  <-  as.numeric(scaleFrameSN$SN03)

summary(scaleFrameSN)

##       SN01            SN02            SN03
##  Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:2.00   1st Qu.:4.00   1st Qu.:4.75
##  Median :4.00   Median :5.00   Median :5.00
##  Mean   :3.72   Mean   :4.71   Mean   :4.93
##  3rd Qu.:5.00   3rd Qu.:6.00   3rd Qu.:6.00
##  Max.   :6.00   Max.   :6.00   Max.   :6.00
```

VM1-3.7.4 Item histograms

```
  scale_meanSN =summarise_all(scaleFrameSN,mean)
  SNdf=data.frame(scale_mean=summarise_all(scaleFrameSN,mean),
          key=names(scaleFrameSN))

  scaleFrameSN %>%
    keep(is.numeric) %>%
      gather() %>%
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=1) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=6)
```

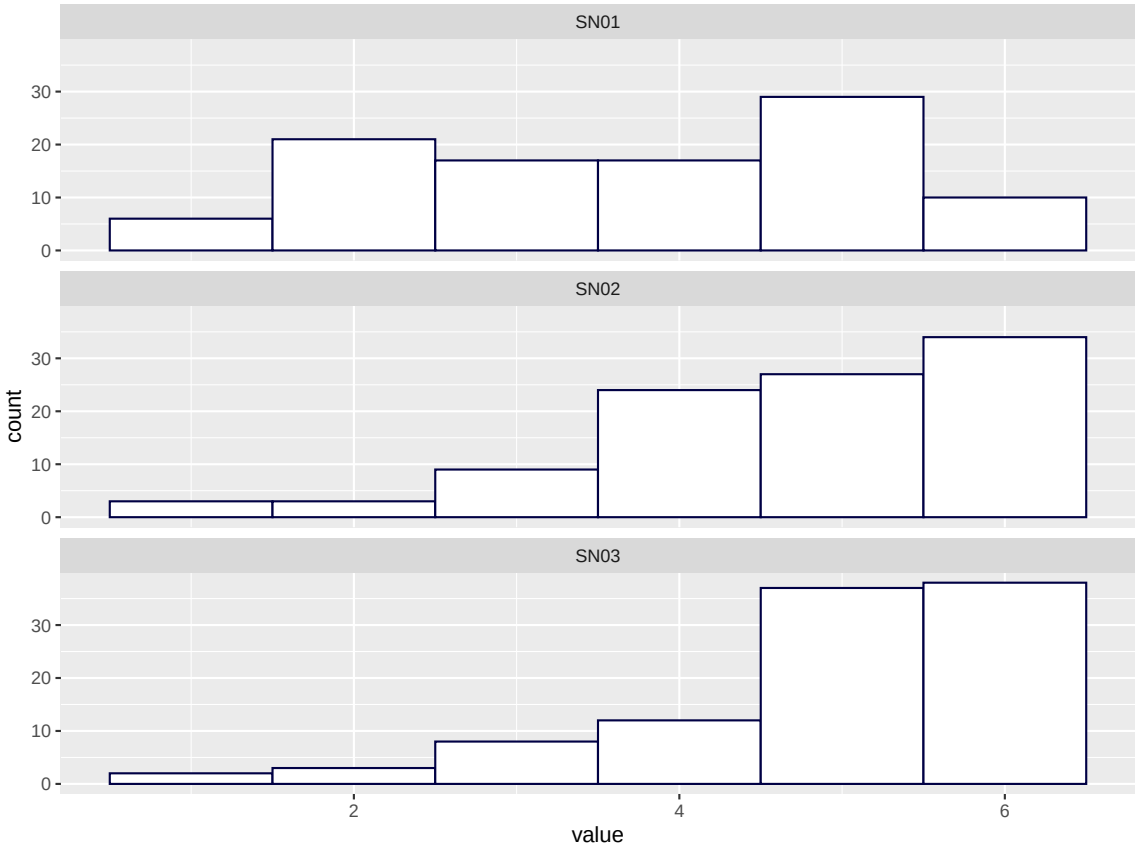

Figure VM1-71
Subjecitve numeracy: Item histograms with marked means

VM1-3.7.5 Inter-correlations

```
corPlot(scaleFrameSN,numbers=TRUE,diag=FALSE,
main="SN",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

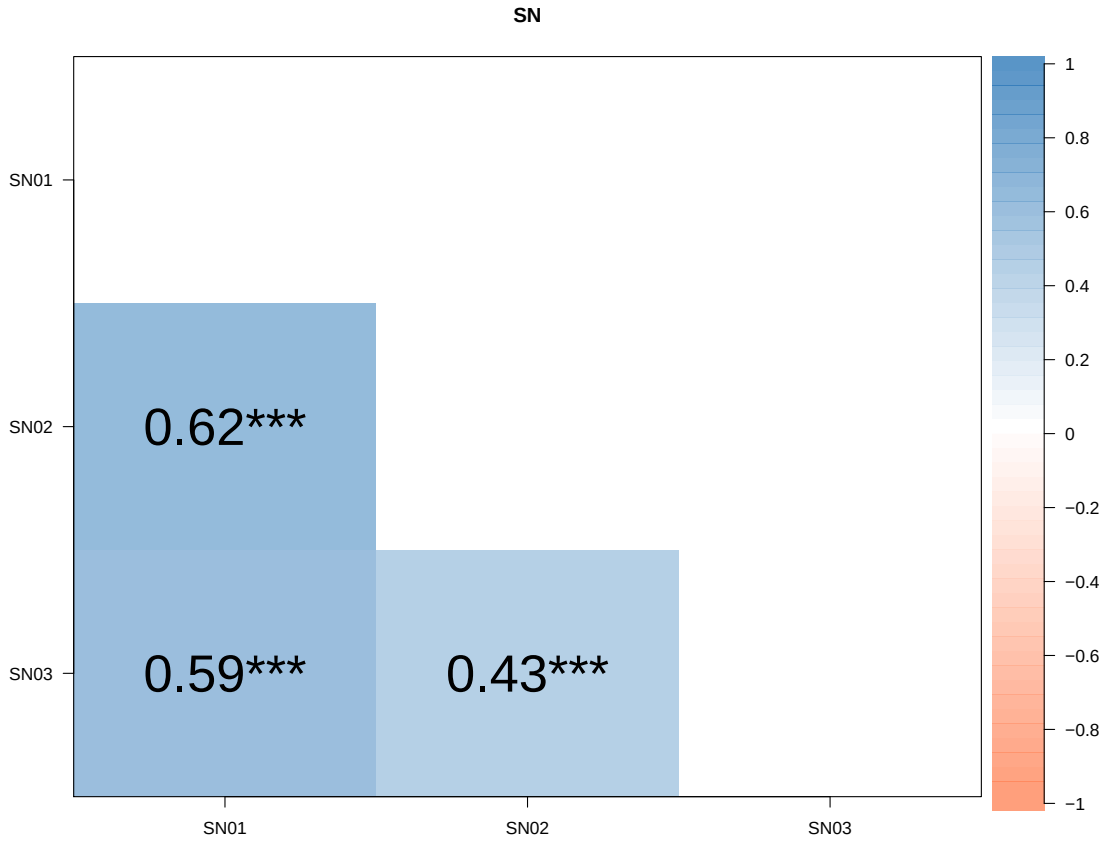

Figure VM1-72
SN items: Inter-correlations

VM1-3.7.6 Scale statistics (for subscales)

```
scaleSN=scoreItems(keys=c(1,1,1), items =scaleFrameSN,totals=FALSE)

print(scaleSN)

## Call: scoreItems(keys = c(1, 1, 1), items = scaleFrameSN, totals = FALSE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.78
##
## Standard errors of unstandardized Alpha:
##       Scale1
## ASE    0.091
```

```
##
## Average item correlation:
##           Scale1
## average.r   0.55
##
## Median item correlation:
## Scale1
##   0.59
##
##  Guttman 6* reliability:
##          Scale1
## Lambda.6   0.73
##
## Signal/Noise based upon av.r :
##              Scale1
## Signal/Noise    3.6
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.78
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresSN<-data.frame(scaleSN$scores)
summary(scoresSN)

##      Scale1
##  Min.   :1.333
##  1st Qu.:3.667
##  Median :4.667
##  Mean   :4.453
##  3rd Qu.:5.333
##  Max.   :6.000

head(scoresSN)

##     Scale1
## 1 5.666667
## 2 5.000000
## 3 5.000000
## 4 4.333333
## 5 5.333333
## 6 4.666667
```

```
scoresSN_mean =unlist(summarise_all(scoresSN,mean))
scalesSNDF=data.frame(scale_mean=summarise_all(scoresSN,mean),
                      key=names(scoresSN))

scoresSN %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scoresSN_mean),
             scalesSNDF,col='red', linetype = "dashed",size=1)
```

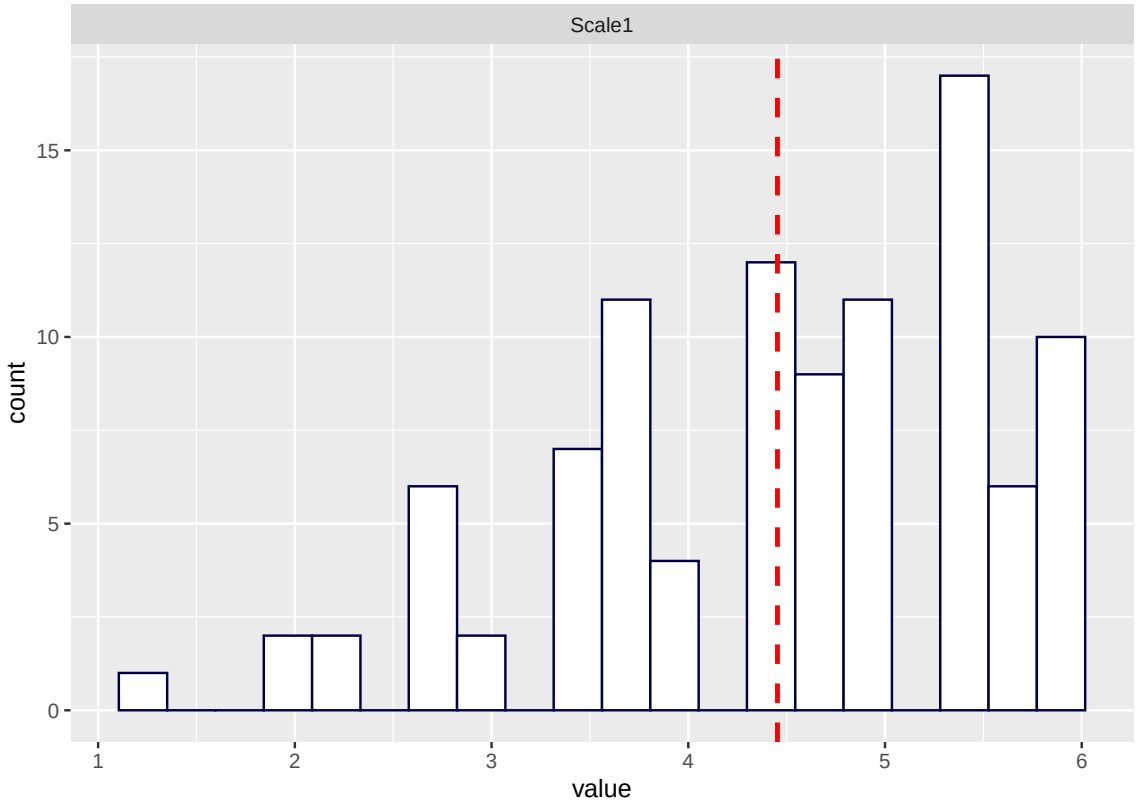

Figure VM1-73
SN: histogram of scores

VM1-3.8 Dark Core

VM1-3.8.1 Source

A 16-item short measure of the dark core of personality (Moshagen et al., 2019) was part of the survey.

VM1-3.8.2 Items

Items were presented in a matrix and answered on a five-point scale: Strongly Disagree—Disagree—Neutral—Agree—Strongly Agree; plus and minus in brackets represents the direction of the item.

- **DC01-**: It is hard for me to see someone suffering.
- **DC02+**: Payback needs to be quick and nasty.
- **DC03-**: All in all, it is better to be humble and honest than important and dishonest.
- **DC04+**: My own pleasure is all that matters.
- **DC05-**: I cannot imagine how being mean to others could ever be exciting.
- **DC06+**: People who get mistreated have usually done something to bring it on themselves.
- **DC07-**: Hurting people would make me very uncomfortable.
- **DC08+**: It's wise to keep track of information that you can use against people later.
- **DC09-**: I feel sorry if things I do upset people.
- **DC10+**: People who mess with me always regret it.
- **DC11+**: Why should I care about other people, when no one cares about me?
- **DC12+**: I would like to make some people suffer, even if it meant that I would go to hell with them.
- **DC13-**: Most people deserve respect.
- **DC14-**: I make a point of trying not to hurt others in pursuit of my goals.
- **DC15+**: I would be willing to take a punch if it meant that someone I did not like would receive two punches.
- **DC16-**: I avoid humiliating others.

VM1-3.8.3 Item preparation

```
scaleVarsDC <- c("DarkCore01", "DarkCore02", "DarkCore03", "DarkCore04",
"DarkCore05", "DarkCore06", "DarkCore07", "DarkCore08",
"DarkCore09", "DarkCore10","DarkCore11", "DarkCore12",
"DarkCore13", "DarkCore14", "DarkCore15","DarkCore16")
scaleFrameDC <- df[scaleVarsDC]

  scaleFrameDC <- scaleFrameDC %>%
rename(
DC01n=DarkCore01,DC02p=DarkCore02,DC03n=DarkCore03,DC04p=DarkCore04,
DC05n=DarkCore05,DC06p=DarkCore06,DC07n=DarkCore07,DC08p=DarkCore08,
DC09n=DarkCore09,DC10p=DarkCore10,DC11p=DarkCore11,DC12p=DarkCore12,
DC13n=DarkCore13,DC14n=DarkCore14,DC15p=DarkCore15,DC16n=DarkCore16
  )
 scaleFrameDC[] <-data.matrix(scaleFrameDC)

 weightsDC <-list(scaleDC=c("-DC01n","DC02p","-DC03n","DC04p",
 "-DC05n","DC06p","-DC07n","DC08p","-DC09n","DC10p",
  "DC11p","DC12p","-DC13n","-DC14n","DC15p","-DC16n")
 )

 summary(scaleFrameDC)
```

```
##      DC01n           DC02p           DC03n           DC04p           DC05n
##  Min.   :1.00   Min.   :1.00   Min.   :3.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:4.00   1st Qu.:1.00   1st Qu.:4.00   1st Qu.:1.00   1st Qu.:3.75
##  Median :4.00   Median :2.00   Median :4.00   Median :2.00   Median :4.00
##  Mean   :3.89   Mean   :1.93   Mean   :4.39   Mean   :1.98   Mean   :3.96
##  3rd Qu.:4.25   3rd Qu.:2.00   3rd Qu.:5.00   3rd Qu.:2.00   3rd Qu.:5.00
##  Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :5.00
##      DC06p           DC07n           DC08p           DC09n          DC10p
##  Min.   :1.00   Min.   :2.00   Min.   :1.00   Min.   :2.0   Min.   :1.00
##  1st Qu.:1.00   1st Qu.:4.00   1st Qu.:2.00   1st Qu.:4.0   1st Qu.:2.00
##  Median :2.00   Median :5.00   Median :2.50   Median :4.0   Median :2.00
##  Mean   :1.87   Mean   :4.47   Mean   :2.64   Mean   :4.2   Mean   :2.29
##  3rd Qu.:2.00   3rd Qu.:5.00   3rd Qu.:3.00   3rd Qu.:5.0   3rd Qu.:3.00
##  Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :5.0   Max.   :4.00
##      DC11p           DC12p           DC13n           DC14n          DC15p
##  Min.   :1.00   Min.   :1.00   Min.   :2.00   Min.   :1.00   Min.   :1
##  1st Qu.:1.00   1st Qu.:1.00   1st Qu.:4.00   1st Qu.:4.00   1st Qu.:1
##  Median :2.00   Median :1.00   Median :4.00   Median :4.00   Median :2
##  Mean   :1.88   Mean   :1.55   Mean   :4.15   Mean   :4.27   Mean   :2
##  3rd Qu.:2.00   3rd Qu.:2.00   3rd Qu.:5.00   3rd Qu.:5.00   3rd Qu.:3
##  Max.   :5.00   Max.   :4.00   Max.   :5.00   Max.   :5.00   Max.   :5
##      DC16n
##  Min.   :1.0
```

```
##  1st Qu.:4.0
##  Median :4.0
##  Mean   :4.3
##  3rd Qu.:5.0
##  Max.   :5.0
```

VM1-3.8.4 Item histograms

```
DCdf=data.frame(scale_mean=t(summarise_all(scaleFrameDC,mean)),
        key=names(scaleFrameDC))

scaleFrameDC %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=4) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=6)+
       geom_vline(aes(xintercept =scale_mean),DCdf,col='red',
       linetype = "dashed",size=1)
```

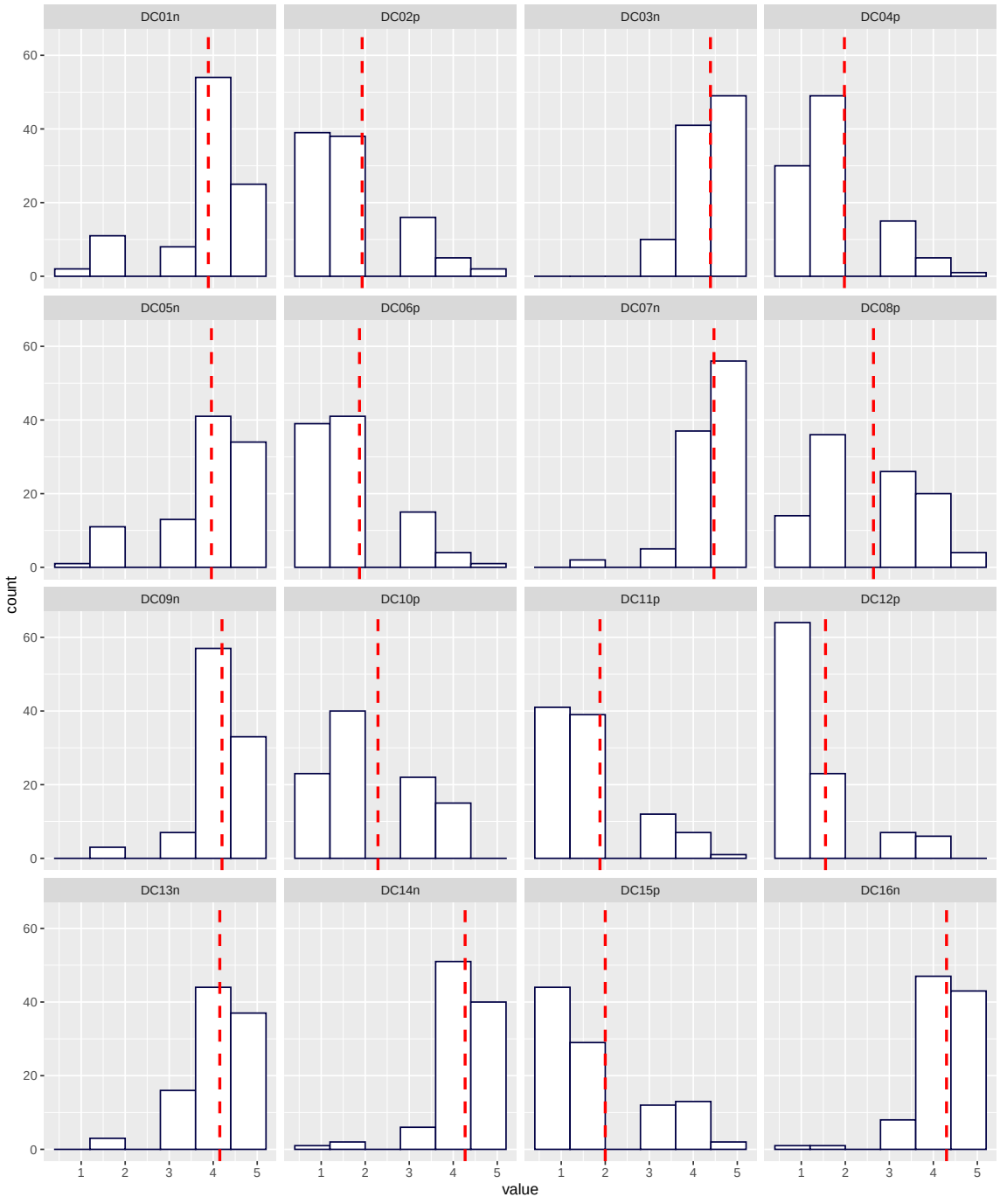

Figure VM1-74

Dark Core Scale: Item histograms with marked means

VM1-3.8.5 Inter-correlations

```
corPlot(scaleFrameDC,numbers=TRUE,diag=FALSE,
main="SN",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

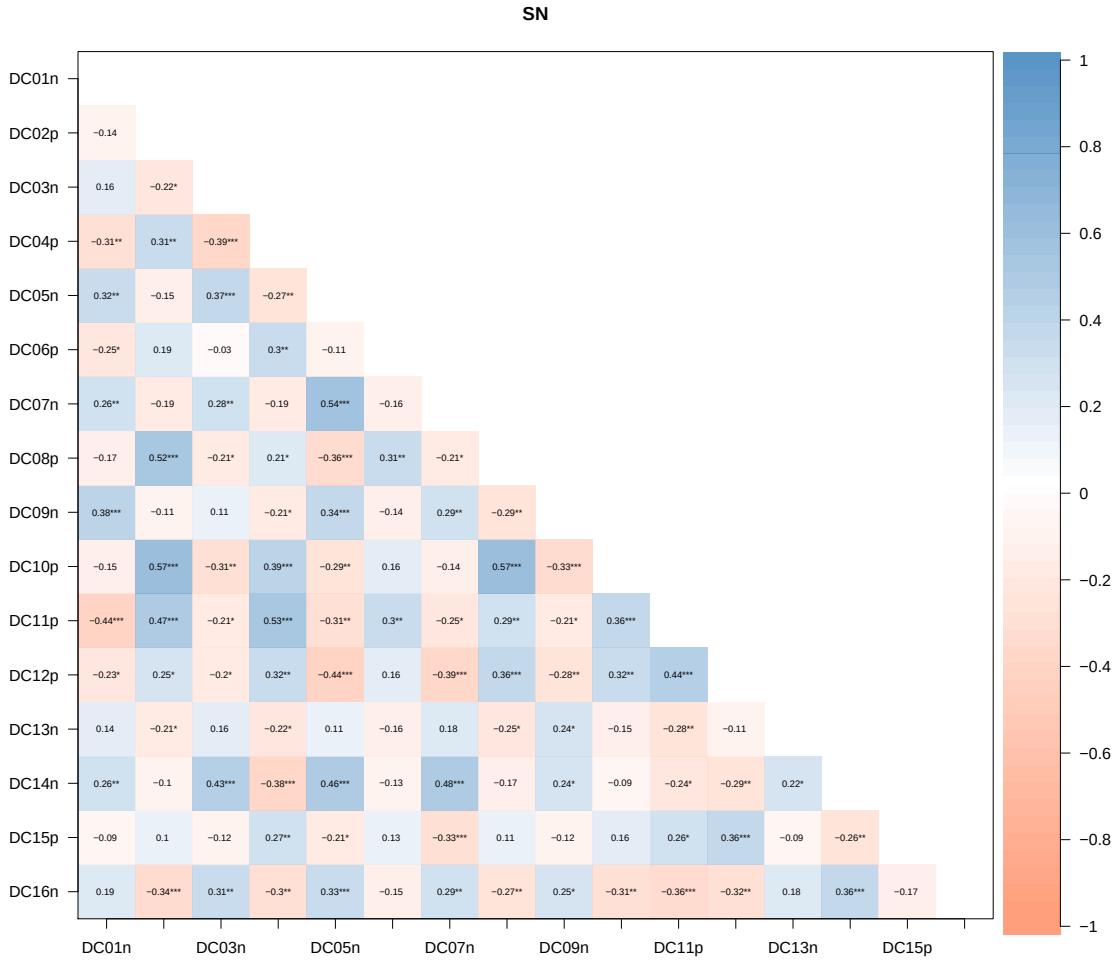

Figure VM1-75
SN items: Inter-correlations

VM1-3.8.6 Scale statistics (for subscales)

```
scaleDC=scoreItems(keys=weightsDC, items =scaleFrameDC,totals=FALSE)

print(scaleDC)

## Call: scoreItems(keys = weightsDC, items = scaleFrameDC, totals = FALSE)
##
## (Unstandardized) Alpha:
##       scaleDC
## alpha    0.84
##
```

```
## Standard errors of unstandardized Alpha:
##       scaleDC
## ASE     0.032
##
## Average item correlation:
##           scaleDC
## average.r    0.25
##
## Median item correlation:
## scaleDC
##    0.25
##
##  Guttman 6* reliability:
##          scaleDC
## Lambda.6    0.88
##
## Signal/Noise based upon av.r :
##              scaleDC
## Signal/Noise     5.4
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##         scaleDC
## scaleDC    0.84
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresDC<-data.frame(scaleDC$scores)
summary(scoresDC)

##     scaleDC
##  Min.   :1.000
##  1st Qu.:1.500
##  Median :1.906
##  Mean   :1.907
##  3rd Qu.:2.188
##  Max.   :3.312

head(scoresDC)

##   scaleDC
## 1  2.1250
## 2  1.7500
```

```
## 3  1.8125
## 4  1.2500
## 5  2.5000
## 6  2.8125
```

```
scoresDC_mean =unlist(summarise_all(scoresDC,mean))
scalesDCDF=data.frame(scale_mean=summarise_all(scoresDC,mean),
                      key=names(scoresDC))

scoresDC %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scoresDC_mean),
             scalesDCDF,col='red', linetype = "dashed",size=1)
```

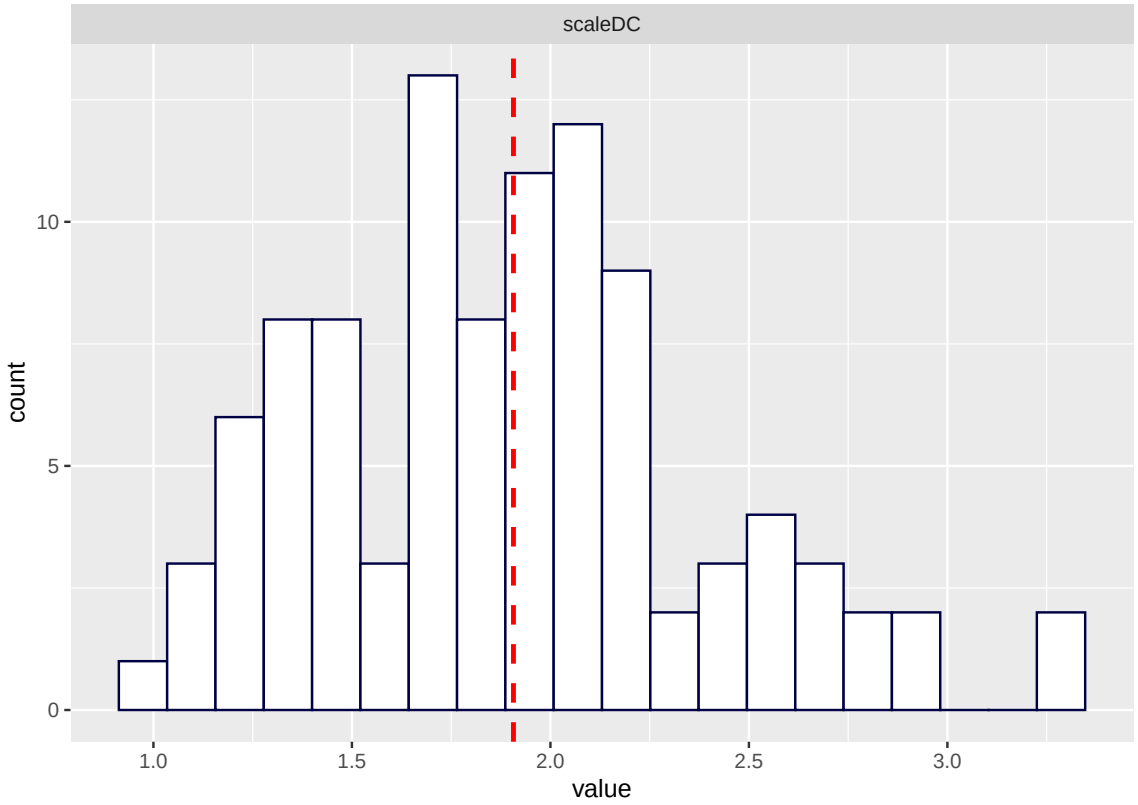

Figure VM1-76
SN: histogram of scores

VM1-3.9 Climate Change Skepticism

VM1-3.9.1 Source

Climate change skepticism was measured with five items taken from Lewandowsky et al. (2015) and one from Lewandowsky et al. (2013).

VM1-3.9.2 Items

Items were presented in a matrix and answered on a five-point scale (1–5): Strongly disagree—Disagree—Neutral—Agree—Strongly agree.

- **CC1+**: I believe that the climate is always changing and what we are currently observing is just natural fluctuation.
- **CC2-**: I believe that most of the warming over the last 50 years is due to the increase in greenhouse gas concentrations.
- **CC3-**: I believe that the burning of fossil fuels over the last 50 years has caused serious damage to the planet's climate.
- **CC4-**: Human CO2 emissions cause climate change.

- **CC5+**: Humans are too insignificant to have an appreciable impact on global temperature.
- **CC6+**: The claim that the climate is changing due to emissions from fossil fuels is a hoax perpetrated by corrupt scientists who want to spend more taxpayer money on climate research.

VM1-3.9.3 Item preparation

```
    scaleVarsCC <- c("ClimCh1", "ClimCh2", "ClimCh3", "ClimCh4", "ClimCh5",
     "ClimCh6")

    scaleFrameCC <- df[scaleVarsCC]

  scaleFrameCC <- scaleFrameCC %>%
    rename(
    CC1p=ClimCh1,CC2n=ClimCh2,CC3n=ClimCh3,CC4n=ClimCh4,
    CC5p=ClimCh5,CC6p=ClimCh6  )

    scaleFrameCC[] <-data.matrix(scaleFrameCC)

 weightsCC <-list(sclClimSkept=c("CC1p","-CC2n","-CC3n","-CC4n",
 "CC5p","CC6p")
 )

 summary(scaleFrameCC)
```

```
##       CC1p           CC2n           CC3n           CC4n           CC5p
##  Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:1.00   1st Qu.:4.00   1st Qu.:4.00   1st Qu.:4.00   1st Qu.:1.00
##  Median :2.00   Median :4.00   Median :5.00   Median :4.00   Median :1.00
##  Mean   :2.09   Mean   :4.12   Mean   :4.32   Mean   :4.09   Mean   :1.61
##  3rd Qu.:3.00   3rd Qu.:5.00   3rd Qu.:5.00   3rd Qu.:5.00   3rd Qu.:2.00
##  Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :5.00   Max.   :5.00
##       CC6p
##  Min.   :1.00
##  1st Qu.:1.00
##  Median :1.00
##  Mean   :1.53
##  3rd Qu.:2.00
##  Max.   :5.00
```

VM1-3.9.4 Item histograms

```
CCdf=data.frame(scale_mean=t(summarise_all(scaleFrameCC,mean)),
        key=names(scaleFrameCC))

scaleFrameCC %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=3) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=5)+
       geom_vline(aes(xintercept =scale_mean),CCdf,col='red',
       linetype = "dashed",size=1)
```

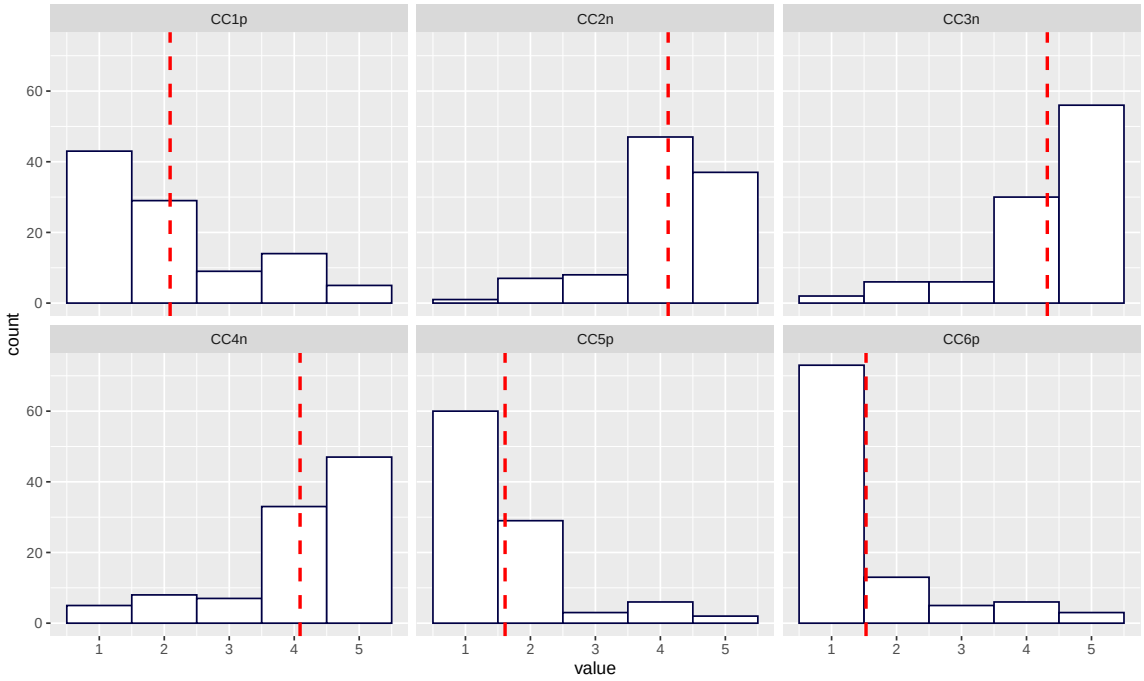

Figure VM1-77
Climate change skepticism: Item histograms with marked means

VM1-3.9.5 Inter-correlations

```
corPlot(scaleFrameCC,numbers=TRUE,diag=FALSE,
main="CC",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

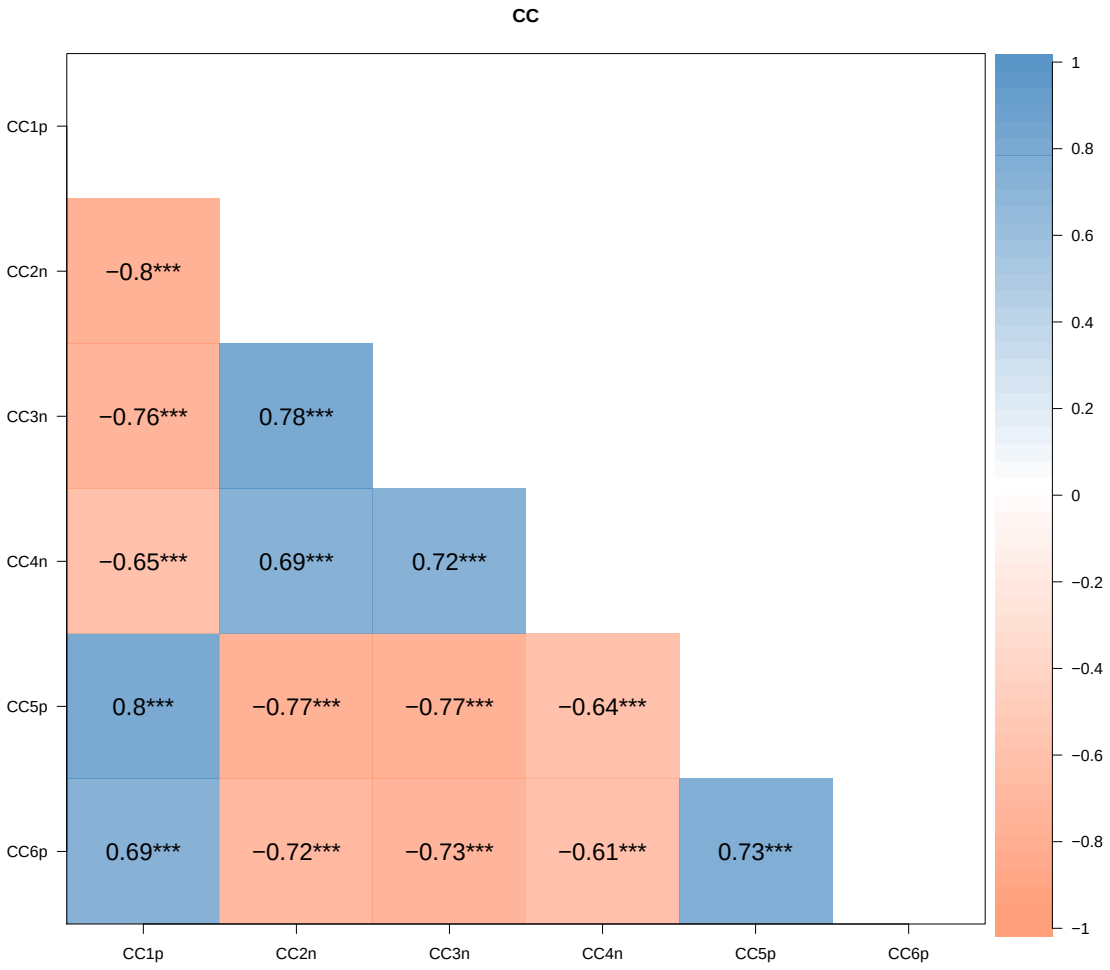

Figure VM1-78
Climate change skepticism items: Inter-correlations

VM1-3.9.6 Scale statistics (for subscales)

```
scaleCC=scoreItems(keys=weightsCC, items =scaleFrameCC,totals=FALSE)

print(scaleCC)

## Call: scoreItems(keys = weightsCC, items = scaleFrameCC, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclClimSkept
## alpha         0.94
##
```

```
## Standard errors of unstandardized Alpha:
##       sclClimSkept
## ASE          0.036
##
## Average item correlation:
##           sclClimSkept
## average.r         0.71
##
## Median item correlation:
## sclClimSkept
##         0.73
##
##  Guttman 6* reliability:
##          sclClimSkept
## Lambda.6         0.93
##
## Signal/Noise based upon av.r :
##              sclClimSkept
## Signal/Noise           15
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##              sclClimSkept
## sclClimSkept         0.94
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCC<-data.frame(scaleCC$scores)
summary(scoresCC)

##   sclClimSkept
##  Min.   :1.000
##  1st Qu.:1.000
##  Median :1.500
##  Mean   :1.783
##  3rd Qu.:2.000
##  Max.   :4.833

head(scoresCC)

##   sclClimSkept
## 1     1.000000
## 2     1.333333
```

```
## 3     1.833333
## 4     1.000000
## 5     1.333333
## 6     2.666667
```

```
scalesCC=data.frame(scale_mean=t(summarise_all(scoresCC,mean)),
                    key=names(scoresCC))

scoresCC %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCC,col='red', linetype = "dashed",size=1)
```

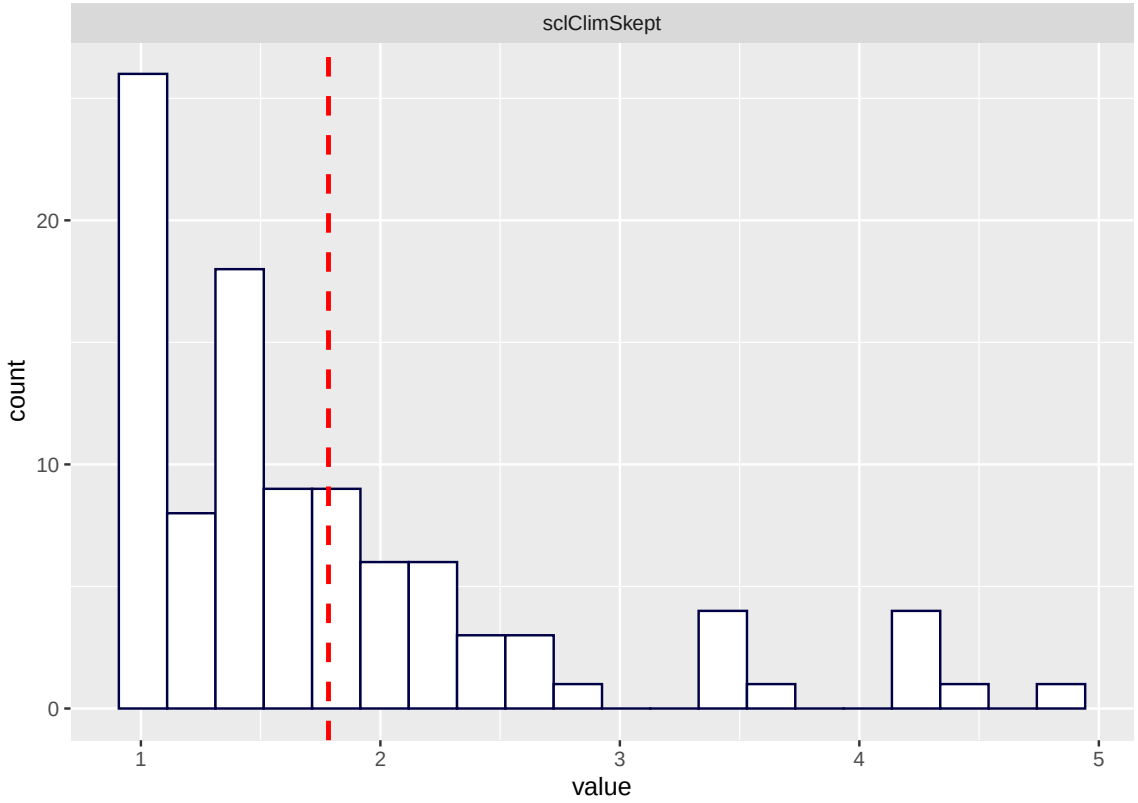

Figure VM1-79
Climate change skepticism: histogram of scores

VM1-3.10 Social and Economic Conservatism Scale

VM1-3.10.1 Source

The Social and Economic Conservatism Scale (Everett, 2013) consists of 12 items in 2 subscales.

VM1-3.10.2 Items

Responses were given on slider scales from very negative (-100) to very positive (+100).[3]

- **SC01-**: Right to abortion
- **EC01-**: Welfare benefits
- **EC02+**: Limited government
- **SC02+**: Military and national security
- **SC03+**: Religion
- **EC03+**: Gun ownership
- **SC04+**: Traditional marriage
- **SC05+**: Traditional values
- **EC04+**: Fiscal responsibility
- **EC05+**: Business
- **SC06+**: The family unit
- **SC07+**: Patriotism

VM1-3.10.3 Item preparation

```
    scaleVarsSECS <- c("SECScale_1", "SECScale_2", "SECScale_5",
    "SECScale_6", "SECScale_7", "SECScale_8", "SECScale_9",
    "SECScale_10", "SECScale_11", "SECScale_12","SECScale_13",
    "SECScale_14")

    scaleFrameSECS <- df[scaleVarsSECS]

  scaleFrameSECS <- scaleFrameSECS %>%
    rename(
```

[3]There is a gap in the numbering of the original items, which is due to two items deleted in Qualtrics before the survey started: Those were items used in the original SECS-version that were later deleted from the scale, as described in Everett (2013).

```
    SC01n=SECScale_1,EC01n=SECScale_2,EC02p=SECScale_5,SC02p=SECScale_6,
    SC03p=SECScale_7,EC03p=SECScale_8,SC04p=SECScale_9,SC05p=SECScale_10,
    EC04p=SECScale_11,EC05p=SECScale_12,SC06p=SECScale_13,SC07p=SECScale_14
  )

    scaleFrameSECS[] <-data.matrix(scaleFrameSECS)

 weightsSECS <-list(sclConsALL=c("-SC01n","-SC02p","EC02p","SC02p","SC03p",
 "EC03p","SC04p", "SC05p","EC04p","EC05p","SC06p","SC07p") ,
  sclConsSoc=c("-SC01n","SC02p","SC03p","SC04p","SC05p","SC06p","SC07p"),
    sclConsEcon=c("-EC01n","EC02p","EC03p","EC04p","EC05p")
 )

 summary(scaleFrameSECS)
```

```
##      SC01n              EC01n              EC02p              SC02p
##  Min.   :-100.00   Min.   :-100.00   Min.   :-100.00   Min.   :-100.00
##  1st Qu.:   3.75   1st Qu.:  14.75   1st Qu.: -20.00   1st Qu.: -40.25
##  Median :  82.00   Median :  50.00   Median :  20.00   Median :  10.50
##  Mean   :  49.69   Mean   :  41.67   Mean   :  14.94   Mean   :   5.71
##  3rd Qu.: 100.00   3rd Qu.:  80.00   3rd Qu.:  50.00   3rd Qu.:  49.25
##  Max.   : 100.00   Max.   : 100.00   Max.   : 100.00   Max.   : 100.00
##      SC03p              EC03p              SC04p              SC05p
##  Min.   :-100.00   Min.   :-100.00   Min.   :-100.00   Min.   :-100.00
##  1st Qu.: -50.00   1st Qu.: -80.00   1st Qu.: -36.00   1st Qu.: -59.25
##  Median :   0.00   Median :  -5.00   Median :   8.50   Median :   0.00
##  Mean   :  -8.40   Mean   : -10.90   Mean   :   6.79   Mean   :  -0.34
##  3rd Qu.:  25.75   3rd Qu.:  49.25   3rd Qu.:  52.25   3rd Qu.:  64.25
##  Max.   : 100.00   Max.   : 100.00   Max.   : 100.00   Max.   : 100.00
##      EC04p              EC05p              SC06p              SC07p
##  Min.   :-100.00   Min.   : -95.00   Min.   :-100.00   Min.   :-100.00
##  1st Qu.:   3.00   1st Qu.:   0.00   1st Qu.:   5.25   1st Qu.: -32.00
##  Median :  49.00   Median :  29.50   Median :  41.00   Median :   8.50
##  Mean   :  38.74   Mean   :  27.87   Mean   :  38.59   Mean   :   6.76
##  3rd Qu.:  71.00   3rd Qu.:  54.50   3rd Qu.:  85.00   3rd Qu.:  44.00
##  Max.   : 100.00   Max.   : 100.00   Max.   : 100.00   Max.   : 100.00
```

VM1-3.10.4 Item histograms

```
 SECSdf=data.frame(scale_mean=t(summarise_all(scaleFrameSECS,mean)),
         key=names(scaleFrameSECS))

 scaleFrameSECS %>%
   keep(is.numeric) %>%
```

```
      gather() %>%
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=4) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=20)+
         geom_vline(aes(xintercept =scale_mean),SECSdf,col='red',
         linetype = "dashed",size=1)
```

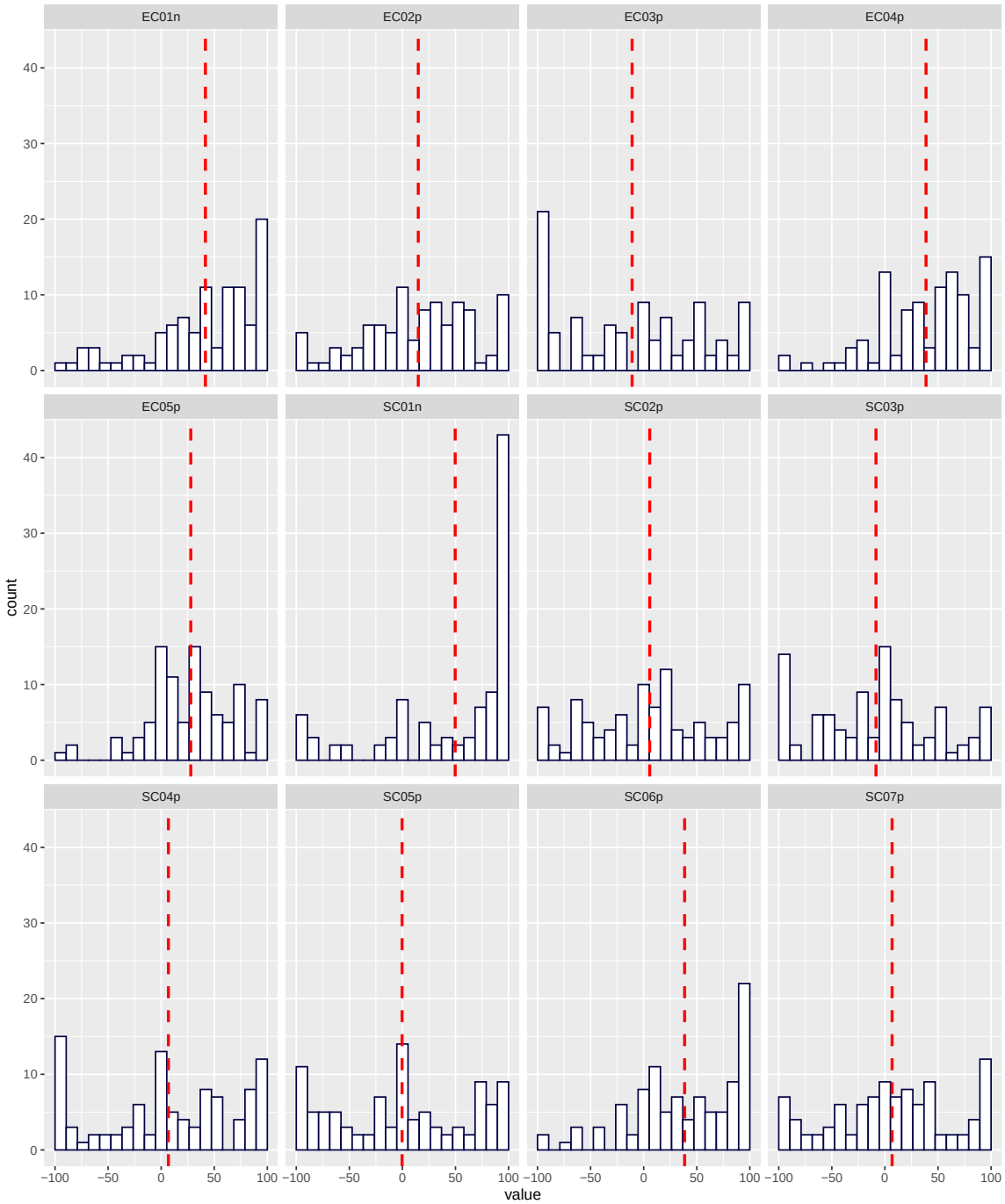

Figure VM1-80

Social and economic conseervatism scales: Item histograms with marked means

VM1-3.10.5 Inter-correlations

```
corPlot(scaleFrameSECS,numbers=TRUE,diag=FALSE,
main="SECS",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

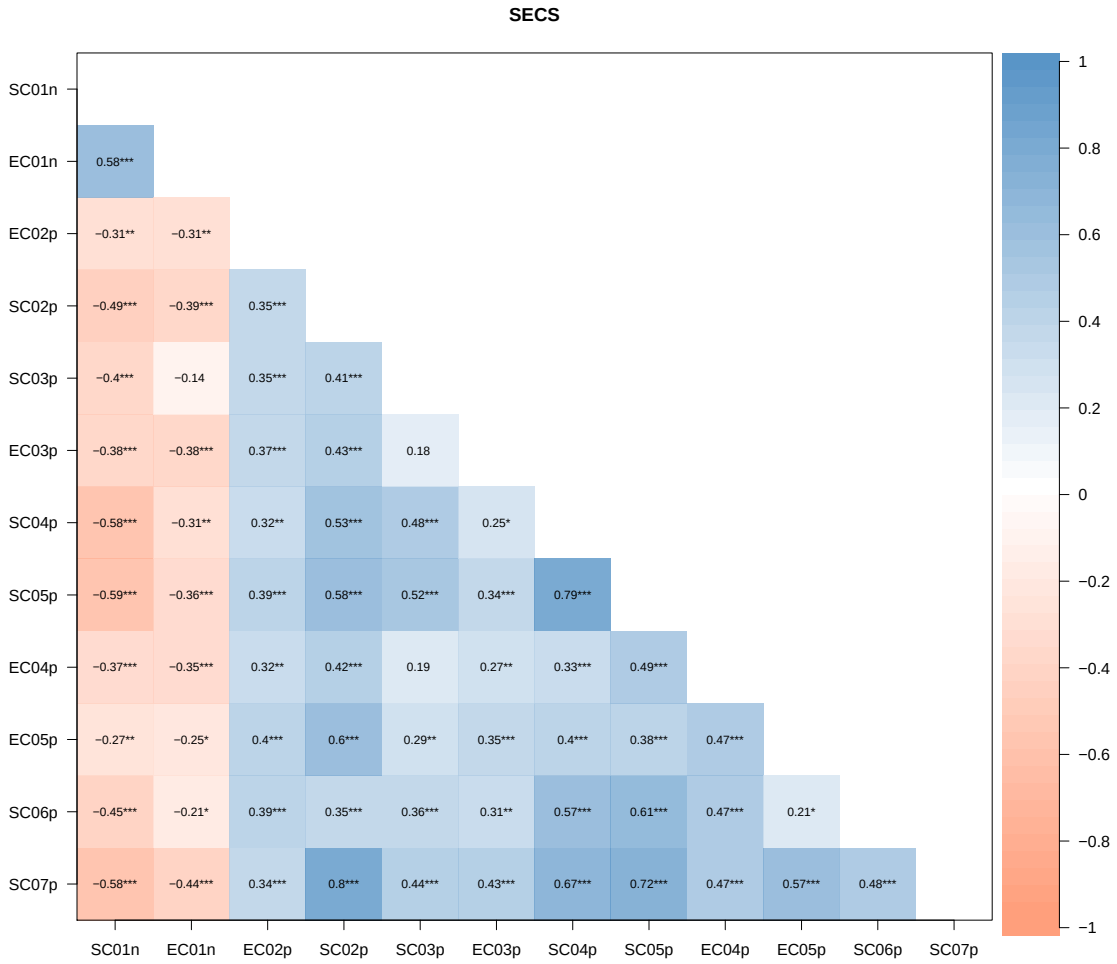

Figure VM1-81
SECS items: Inter-correlations

VM1-3.10.6 Scale statistics (for subscales)

```
 scaleSECS=scoreItems(keys=weightsSECS, items =scaleFrameSECS,totals=FALSE)

## Number of categories should be increased  in order to count frequencies.

 print(scaleSECS)

## Call: scoreItems(keys = weightsSECS, items = scaleFrameSECS, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclConsALL sclConsSoc sclConsEcon
## alpha       0.89       0.89        0.71
##
## Standard errors of unstandardized Alpha:
##       sclConsALL sclConsSoc sclConsEcon
## ASE        0.029      0.038       0.074
##
## Average item correlation:
##           sclConsALL sclConsSoc sclConsEcon
## average.r       0.43       0.55        0.33
##
## Median item correlation:
##  sclConsALL  sclConsSoc sclConsEcon
##        0.40        0.53        0.35
##
##  Guttman 6* reliability:
##          sclConsALL sclConsSoc sclConsEcon
## Lambda.6       0.92       0.91        0.74
##
## Signal/Noise based upon av.r :
##              sclConsALL sclConsSoc sclConsEcon
## Signal/Noise        8.3        8.4         2.5
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##             sclConsALL sclConsSoc sclConsEcon
## sclConsALL        0.89       1.08        1.03
## sclConsSoc        0.97       0.89        0.83
## sclConsEcon       0.82       0.66        0.71
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresSECS<-data.frame(scaleSECS$scores)
summary(scoresSECS)
```

```
##    sclConsALL        sclConsSoc         sclConsEcon
##  Min.   :-78.727   Min.   :-85.57143   Min.   :-83.600
##  1st Qu.:-21.886   1st Qu.:-37.25000   1st Qu.:-16.850
##  Median :  4.636   Median : -1.57143   Median :  3.500
##  Mean   :  6.370   Mean   : -0.08286   Mean   :  5.796
##  3rd Qu.: 31.727   3rd Qu.: 37.75000   3rd Qu.: 31.050
##  Max.   :100.000   Max.   :100.00000   Max.   : 94.000

head(scoresSECS)

##   sclConsALL sclConsSoc sclConsEcon
## 1  -2.727273 -38.000000        31.2
## 2  15.909091  14.857143         5.4
## 3  12.272727  15.714286        -7.0
## 4  20.454545   8.571429        19.6
## 5 -55.181818 -76.714286       -23.4
## 6 -11.636364 -15.142857        -5.8
```

```
pairs.panels(scoresSECS, smooth = TRUE, scale = FALSE,  digits = 2,
method="pearson",pch = 20, lm=TRUE,cor=TRUE,jiggle=TRUE,factor=1,
hist.col="cyan",show.points=FALSE,rug=FALSE,cex.cor=1,wt=NULL,
stars=TRUE,ci=FALSE,alpha=.05)
```

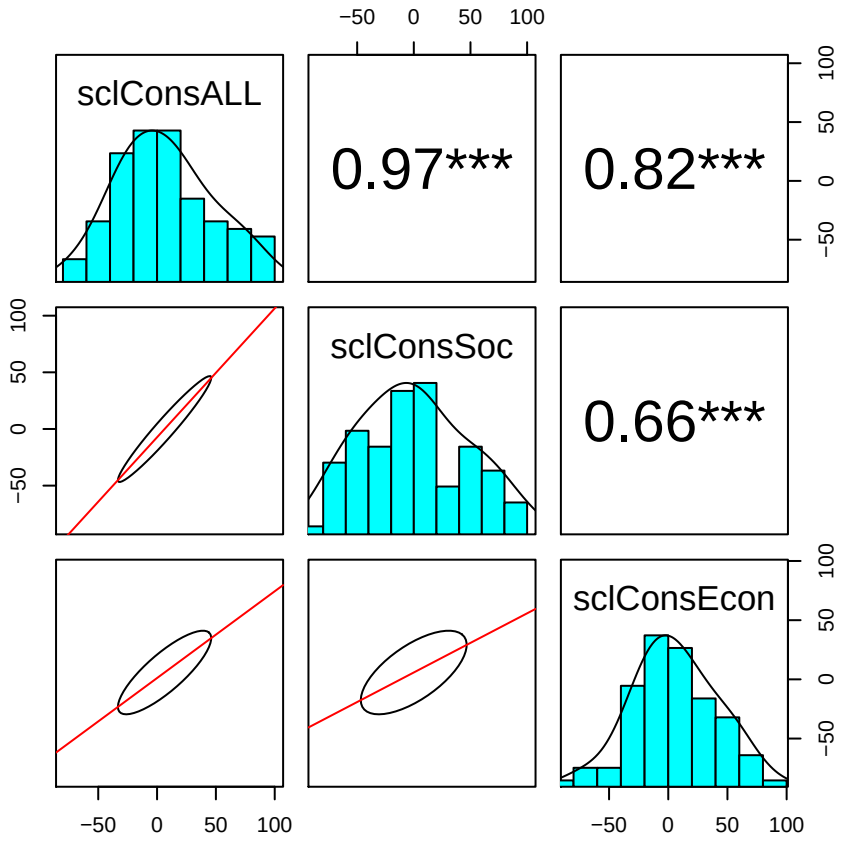

Figure VM1-82
SECS scores: Distribution and inter-correlation of subscale values

VM1-3.11 Social Value Orientation

VM1-3.11.1 Source

Participants completed the six-item version of the ring measure of social value orientation (Murphy et al., 2011).

VM1-3.11.2 Item preparation

```
 scaleVarsSVO <- c("SVO1_1", "SVO2_1", "SVO3_1",
"SVO4_1", "SVO5_1","SVO6_1" )

scaleFrameSVO <- df[scaleVarsSVO]

scaleFrameSVO$SVO1_1 <-  as.numeric(scaleFrameSVO$SVO1_1)
scaleFrameSVO$SVO2_1 <-  as.numeric(scaleFrameSVO$SVO2_1)
```

```
 scaleFrameSVO$SVO3_1 <-  as.numeric(scaleFrameSVO$SVO3_1)
 scaleFrameSVO$SVO4_1 <-  as.numeric(scaleFrameSVO$SVO4_1)
 scaleFrameSVO$SVO5_1 <-  as.numeric(scaleFrameSVO$SVO5_1)
 scaleFrameSVO$SVO6_1 <-  as.numeric(scaleFrameSVO$SVO6_1)

 scaleFrameSVO$SVO1self <- recode(scaleFrameSVO$SVO1_1,
     .default=85)
 scaleFrameSVO$SVO1other <- recode(scaleFrameSVO$SVO1_1,
     "1"=85,"2"=76,"3"=68,"4"=59,"5"=50, "6"=41,"7"=33,
     "8"=24,"9"=15)

 scaleFrameSVO$SVO2self <- recode(scaleFrameSVO$SVO2_1,
    "1"=85,"2"=87,"3"=89,"4"=91,"5"=93,"6"=94,"7"=96,
    "8"=98,"9"=100)
 scaleFrameSVO$SVO2other <- recode(scaleFrameSVO$SVO2_1,
     "1"=15,"2"=19,"3"=24,"4"=28,"5"=33, "6"=37,"7"=41,
     "8"=46,"9"=50)

scaleFrameSVO$SVO3self <- recode(scaleFrameSVO$SVO3_1,
    "1"=50,"2"=54,"3"=59,"4"=63,"5"=68,"6"=72,"7"=76,
    "8"=81,"9"=85)
 scaleFrameSVO$SVO3other <- recode(scaleFrameSVO$SVO3_1,
     "1"=100,"2"=98,"3"=96,"4"=94,"5"=93, "6"=91,"7"=89,
     "8"=87,"9"=85)

scaleFrameSVO$SVO4self <- recode(scaleFrameSVO$SVO4_1,
    "1"=50,"2"=54,"3"=59,"4"=63,"5"=68,"6"=72,"7"=76,
    "8"=81,"9"=85)
 scaleFrameSVO$SVO4other <- recode(scaleFrameSVO$SVO4_1,
     "1"=100,"2"=89,"3"=79,"4"=68,"5"=58, "6"=47,"7"=36,
     "8"=26,"9"=15)

 scaleFrameSVO$SVO5self <- recode(scaleFrameSVO$SVO5_1,
    "1"=100,"2"=94,"3"=88,"4"=81,"5"=75,"6"=69,"7"=63,
    "8"=56,"9"=50)
 scaleFrameSVO$SVO5other <- recode(scaleFrameSVO$SVO5_1,
     "1"=50,"2"=56,"3"=63,"4"=69,"5"=75, "6"=81,"7"=88,
     "8"=94,"9"=100)

 scaleFrameSVO$SVO6self <- recode(scaleFrameSVO$SVO6_1,
    "1"=100,"2"=98,"3"=96,"4"=94,"5"=93,"6"=91,"7"=89,
    "8"=87,"9"=85)
 scaleFrameSVO$SVO6other <- recode(scaleFrameSVO$SVO6_1,
     "1"=50,"2"=54,"3"=59,"4"=63,"5"=68, "6"=72,"7"=76,
```

```
        "8"=81,"9"=85)

    scaleFrameSVO = subset(scaleFrameSVO,
        select=-c(SVO1_1,SVO2_1,SVO3_1,SVO4_1,SVO5_1,SVO6_1)
        )

    scaleFrameSVO[] <-data.matrix(scaleFrameSVO)



 summary(scaleFrameSVO)
```

```
##     SVO1self    SVO1other        SVO2self       SVO2other        SVO3self
##  Min.   :85   Min.   :15.00   Min.   : 85.0   Min.   :15.00   Min.   :50.00
##  1st Qu.:85   1st Qu.:85.00   1st Qu.:100.0   1st Qu.:50.00   1st Qu.:85.00
##  Median :85   Median :85.00   Median :100.0   Median :50.00   Median :85.00
##  Mean   :85   Mean   :81.68   Mean   : 99.4   Mean   :48.61   Mean   :81.99
##  3rd Qu.:85   3rd Qu.:85.00   3rd Qu.:100.0   3rd Qu.:50.00   3rd Qu.:85.00
##  Max.   :85   Max.   :85.00   Max.   :100.0   Max.   :50.00   Max.   :85.00
##    SVO3other        SVO4self       SVO4other         SVO5self
##  Min.   : 85.0   Min.   :50.00   Min.   : 15.00   Min.   : 50.00
##  1st Qu.: 85.0   1st Qu.:63.00   1st Qu.: 36.00   1st Qu.: 75.00
##  Median : 85.0   Median :68.00   Median : 58.00   Median : 75.00
##  Mean   : 86.3   Mean   :68.54   Mean   : 55.24   Mean   : 83.34
##  3rd Qu.: 85.0   3rd Qu.:76.00   3rd Qu.: 68.00   3rd Qu.:100.00
##  Max.   :100.0   Max.   :85.00   Max.   :100.00   Max.   :100.00
##    SVO5other         SVO6self        SVO6other
##  Min.   : 50.00   Min.   : 85.00   Min.   :50.00
##  1st Qu.: 50.00   1st Qu.: 85.00   1st Qu.:63.00
##  Median : 75.00   Median : 85.00   Median :85.00
##  Mean   : 66.72   Mean   : 88.86   Mean   :75.99
##  3rd Qu.: 75.00   3rd Qu.: 94.00   3rd Qu.:85.00
##  Max.   :100.00   Max.   :100.00   Max.   :85.00
```

```
#"SVO1self" has no variance (everyone chose 85)

 weightsSVO <-list(sclSVOself=c("SVO2self","SVO3self",
        "SVO4self","SVO5self","SVO6self"),
     sclSVOother=c("SVO1other","SVO2other","SVO3other","SVO4other",
        "SVO5other","SVO6other")
 )
```

VM1-3.11.3 Item histograms

```
SVOdf=data.frame(scale_mean=t(summarise_all(scaleFrameSVO,mean)),
        key=names(scaleFrameSVO))

scaleFrameSVO %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=4) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=20)+
       geom_vline(aes(xintercept =scale_mean),SVOdf,col='red',
       linetype = "dashed",size=1)
```

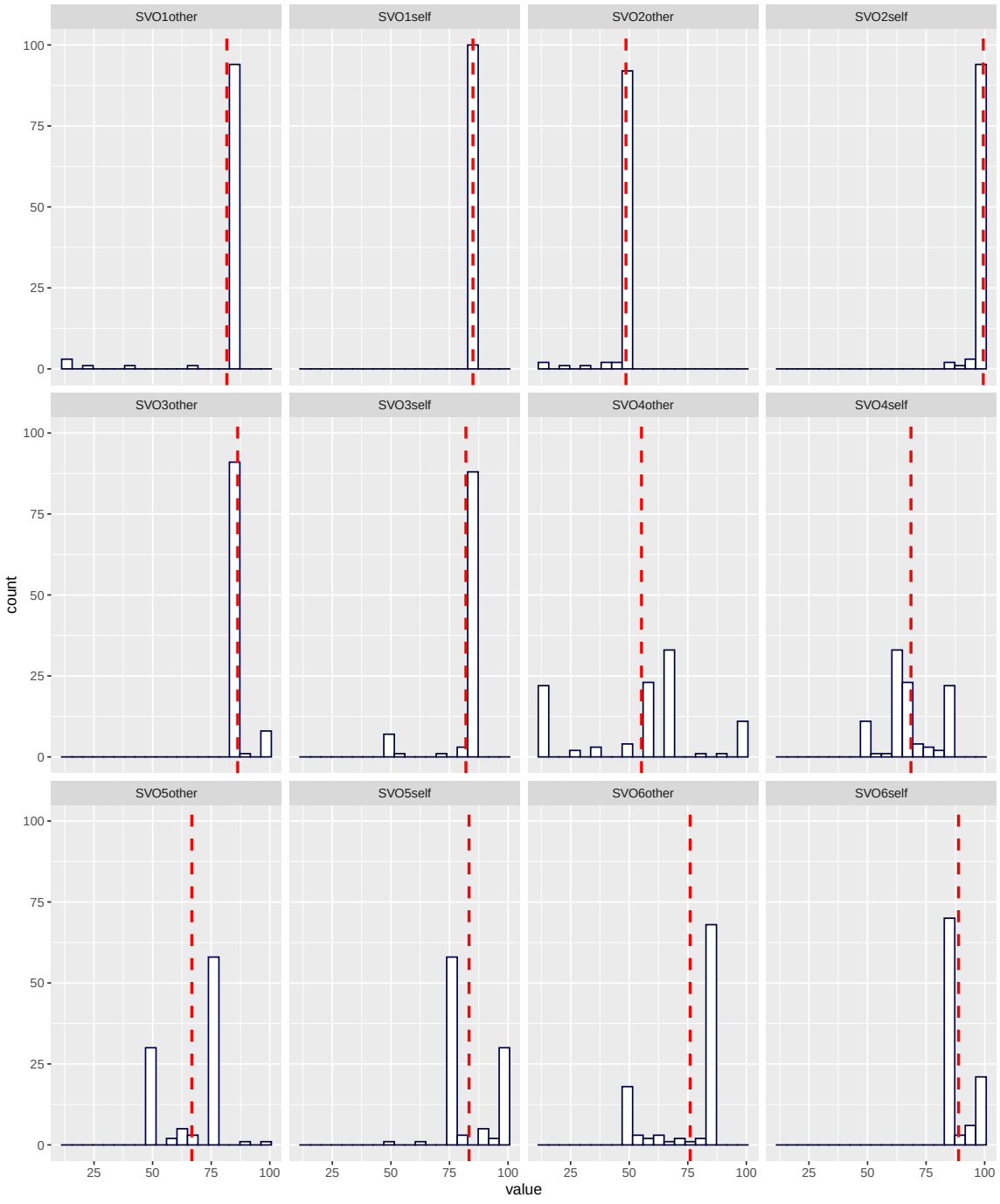

Figure VM1-83

Social value orientation: Item histograms with marked means

VM1-3.11.4 Scale statistics (for subscales)

```
 meanSVOinc=scoreItems(keys=weightsSVO, items =scaleFrameSVO,totals=FALSE)

## Number of categories should be increased  in order to count frequencies.

 sumSVOscores=meanSVOinc$scores
 # 85 was deleted due to lack of variance and is artificially added again
 meanSVOself=5/6*sumSVOscores[,1]+1/6*85
 meanSVOother=sumSVOscores[,2]
 angleSVO=atan(   (meanSVOother -50) / (meanSVOself-50) )* 90/ 1.57079632679

 scoresSVO<-data.frame(angleSVO)
 summary(angleSVO)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  -7.815  22.281  34.875  29.015  37.482  53.366

 head(angleSVO)

##         1         2         3         4         5         6
##  7.815294 45.000000 52.331115 37.313278 -7.815294 34.875328
```

```
scalesSVO=data.frame(scale_mean=t(summarise_all(scoresSVO,mean)),
                     key=names(scoresSVO))

scoresSVO %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=100) +
  geom_vline(aes(xintercept = scale_mean),
             scalesSVO,col='red', linetype = "dashed",size=1)+
  xlim(-30, 70)+
  annotate("segment", x = 57.15, xend = 57.15, y = 0, yend = 28,
  colour = "blue")          +
  annotate("segment", x = 22.45, xend = 22.45, y = 0, yend = 28,
  colour = "blue")          +
  annotate("segment", x = -12.04, xend = -12.04, y = 0, yend = 28,
  colour = "blue")    +
  annotate(geom = "text", x = -22.5, y = 28, label = "Competitive",
  color = "black") +
  annotate(geom = "text", x = 5, y = 28, label = "Individualistic",
```

```
  color = "black")  +
  annotate(geom = "text", x = 37.5, y = 28, label = "Prosocial",
  color = "black") +
  annotate(geom = "text", x = 67.5, y = 28, label = "Altruistic",
  color = "black")

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

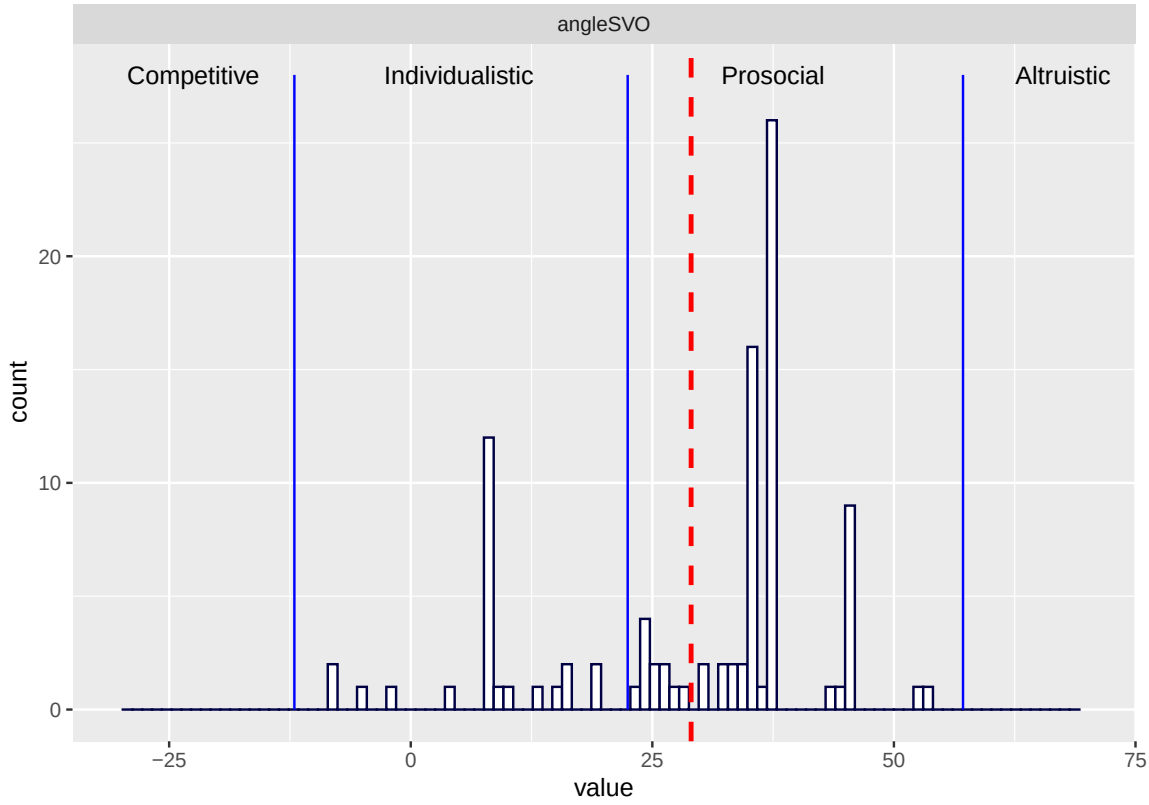

Figure VM1-84
SVO: histogram of scores

VM1-3.12 COV-Worries

VM1-3.12.1 Items

Items were answered on a scale from 0 (not worried at all) to 10 (extremely worried).

- **CVW1+**: How worried are you about consequences of COVID-19 for your health on a scale from 0 (not worried at all) to 10 (extremely worried)?
- **CVW2+**: How worried are you about consequences of COVID-19 for your finances?
- **CVW3+**: How worried are you about consequences of COVID-19 for other people?

- **CVW4+**: How worried are you about consequences of COVID-19 for the economy?
- **CVW5+**: How worried are you about consequences of COVID-19 for our democracy?

VM1-3.12.2 Item preparation

```
    scaleVarsCVW <- c("COV_WORyoursel", "COV_WORfinancial",
    "COV_WORotherpeople","COV_WOReconomy", "COV_WORDemocracy" )

   scaleFrameCVW <- df[scaleVarsCVW]

 scaleFrameCVW <- scaleFrameCVW %>%
   rename(
   CVW1=COV_WORyoursel,CVW2=COV_WORfinancial,
   CVW3=COV_WORotherpeople,CVW4=COV_WOReconomy,CVW5=COV_WORDemocracy )

   scaleFrameCVW[] <-data.matrix(scaleFrameCVW)

weightsCVW <-list(sclCOVWorry=c("CVW1","CVW2","CVW3","CVW4","CVW5")
)

summary(scaleFrameCVW)
```

```
##       CVW1            CVW2            CVW3            CVW4
##  Min.   : 1.00   Min.   : 1.00   Min.   : 1.00   Min.   : 1.00
##  1st Qu.: 3.00   1st Qu.: 5.00   1st Qu.: 7.00   1st Qu.: 7.00
##  Median : 6.50   Median : 7.00   Median : 9.00   Median : 9.00
##  Mean   : 6.11   Mean   : 6.69   Mean   : 8.33   Mean   : 8.36
##  3rd Qu.: 8.25   3rd Qu.: 9.00   3rd Qu.:10.00   3rd Qu.:10.00
##  Max.   :11.00   Max.   :11.00   Max.   :11.00   Max.   :11.00
##       CVW5
##  Min.   : 1.00
##  1st Qu.: 5.00
##  Median : 7.00
##  Mean   : 7.02
##  3rd Qu.: 9.00
##  Max.   :11.00
```

VM1-3.12.3 Item histograms

```
 CVWdf=data.frame(scale_mean=t(summarise_all(scaleFrameCVW,mean)),
         key=names(scaleFrameCVW))

 scaleFrameCVW %>%
```

```
    keep(is.numeric) %>%
      gather() %>%
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=3) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=11)+
         geom_vline(aes(xintercept =scale_mean),CVWdf,col='red',
         linetype = "dashed",size=1)
```

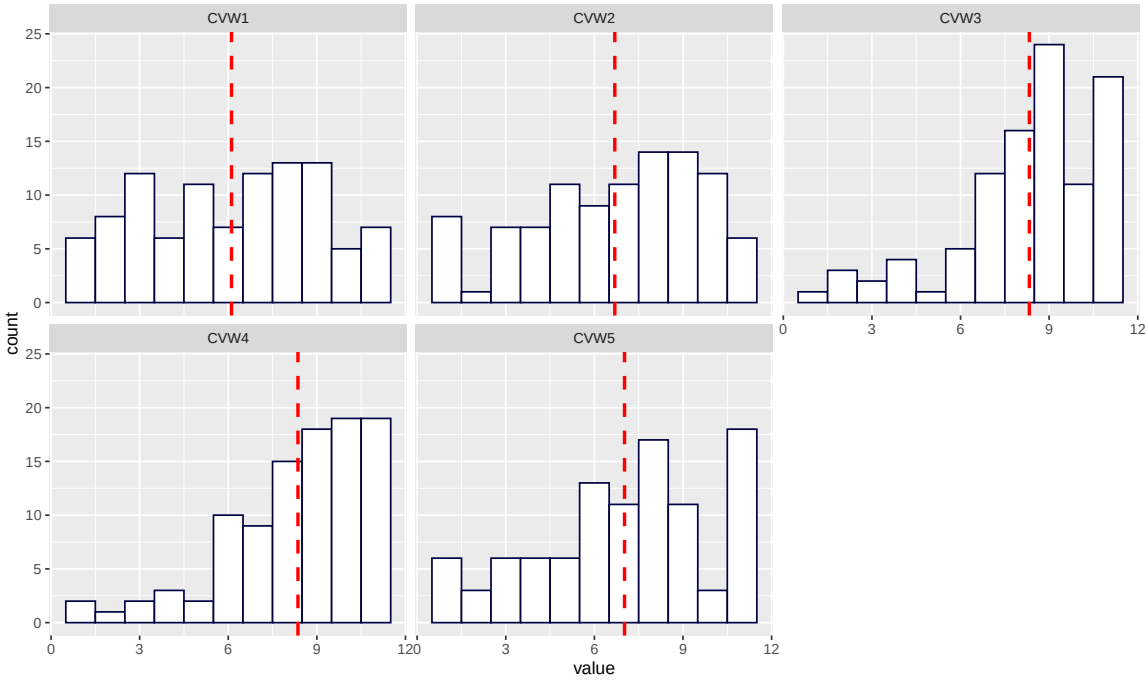

Figure VM1-85
COV-Worries: Item histograms with marked means

VM1-3.12.4 Inter-correlations

```
corPlot(scaleFrameCVW,numbers=TRUE,diag=FALSE,
main="CVW",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

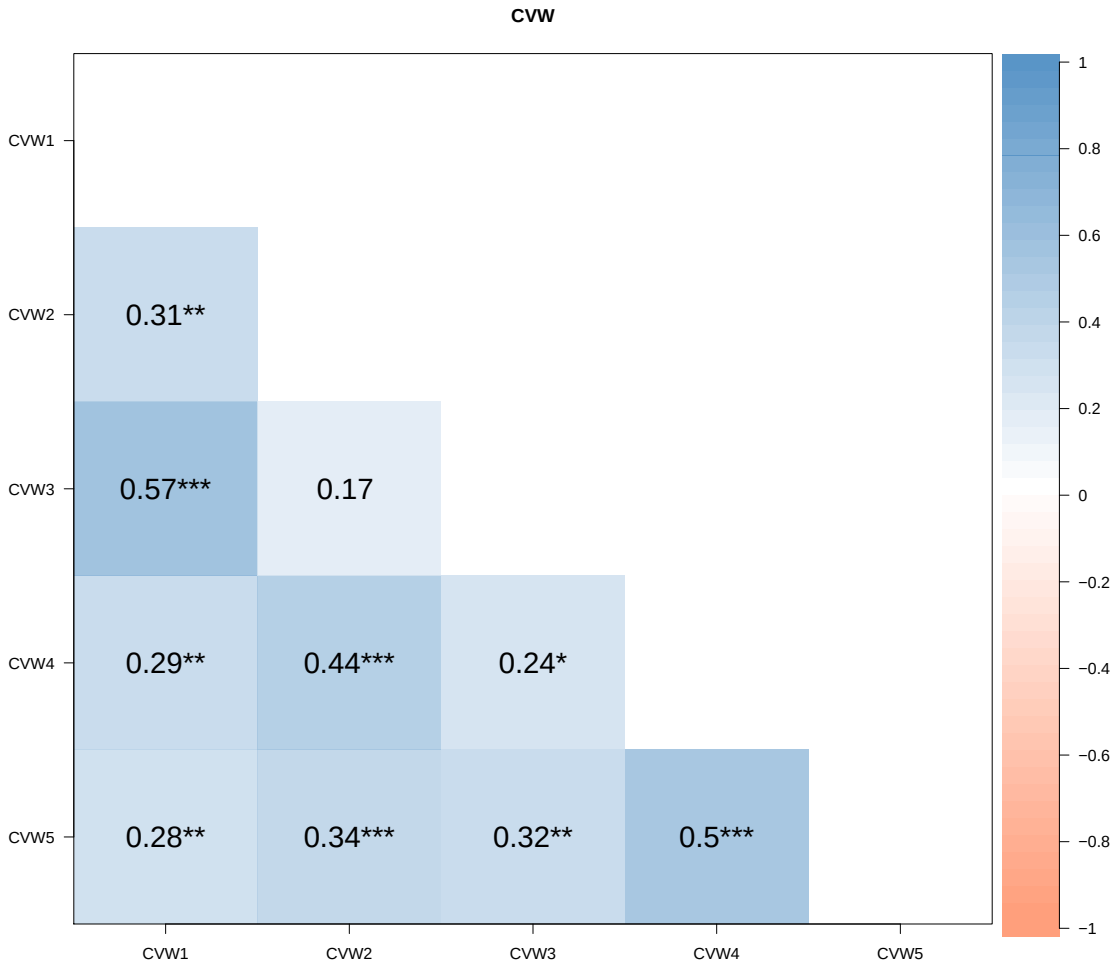

Figure VM1-86
COV-Worries items: Inter-correlations

VM1-3.12.5 Scale statistics (for subscales)

```
scaleCVW=scoreItems(keys=weightsCVW, items =scaleFrameCVW,totals=FALSE)

## Number of categories should be increased  in order to count frequencies.

print(scaleCVW)

## Call: scoreItems(keys = weightsCVW, items = scaleFrameCVW, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclCOVWorry
## alpha        0.72
```

```
##
## Standard errors of unstandardized Alpha:
##       sclCOVWorry
## ASE         0.073
##
## Average item correlation:
##           sclCOVWorry
## average.r        0.34
##
## Median item correlation:
## sclCOVWorry
##        0.32
##
##  Guttman 6* reliability:
##          sclCOVWorry
## Lambda.6        0.71
##
## Signal/Noise based upon av.r :
##              sclCOVWorry
## Signal/Noise         2.6
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##             sclCOVWorry
## sclCOVWorry        0.72
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCVW<-data.frame(scaleCVW$scores)
summary(scoresCVW)

##   sclCOVWorry
##  Min.   : 1.600
##  1st Qu.: 6.400
##  Median : 7.400
##  Mean   : 7.302
##  3rd Qu.: 8.450
##  Max.   :11.000

head(scoresCVW)

##   sclCOVWorry
## 1         7.4
```

```
## 2         5.0
## 3         5.6
## 4         7.4
## 5         8.0
## 6         8.0
```

```
scalesCVW=data.frame(scale_mean=t(summarise_all(scoresCVW,mean)),
                     key=names(scoresCVW))

scoresCVW %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCVW,col='red', linetype = "dashed",size=1)
```

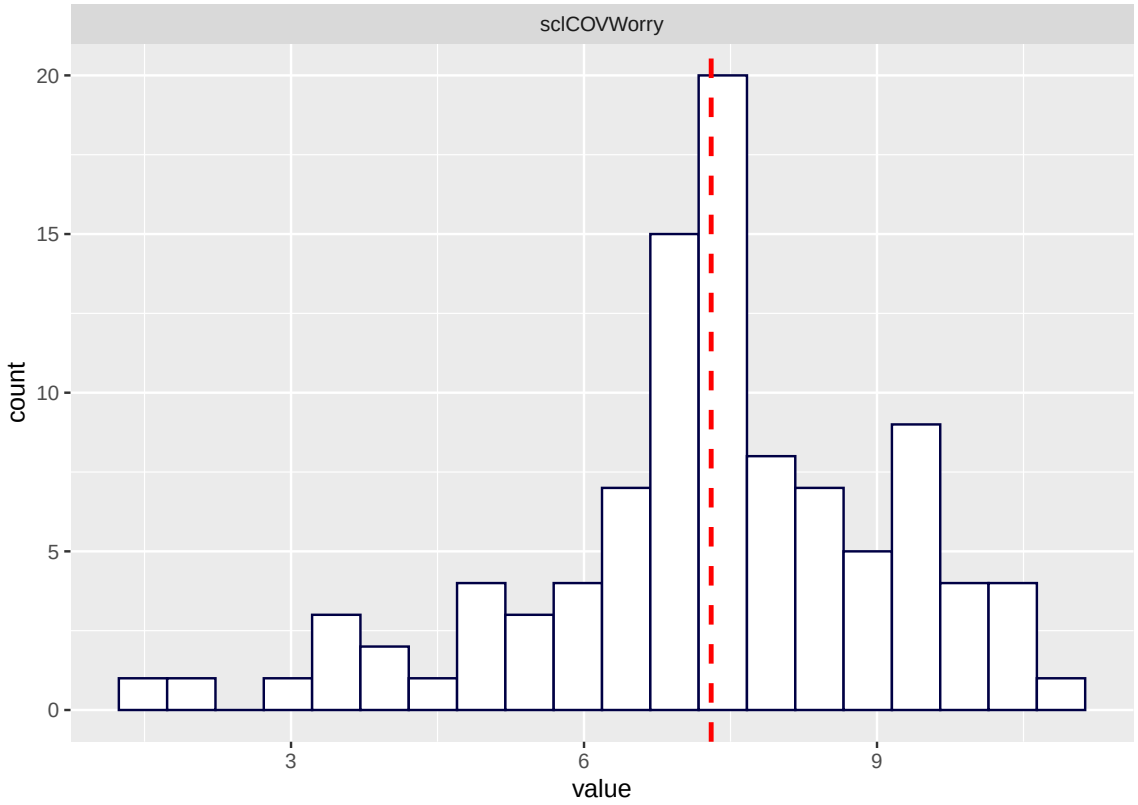

Figure VM1-87
COV-Worries: histogram of scores

VM1-3.13 COV-Compliance

VM1-3.13.1 Items

Responses were given in a scale from 0–10, with higher numbers indicating higher willingness or following more closely.

- **CVCP1+**: Compared to other people who are similar to you in age and live in your area, do you follow guidelines (such as social distancing) more closely or less closely than others do?
- **CVCP2+**: Compared to other people in your region are you more willing or less willing to wear a protective mask?
- **CVCP1-**: Compared to other people in your region are you more willing or less willing to break rules to meet other people in person?

VM1-3.13.2 Item preparation

```
    scaleVarsCVCP <- c("COV_guidelines", "COV_mask", "COV_meet" )

   scaleFrameCVCP <- df[scaleVarsCVCP]

 scaleFrameCVCP <- scaleFrameCVCP %>%
   rename(
   CVCP1p=COV_guidelines,CVCP2p=COV_mask,CVCP3n=COV_meet
   )

   scaleFrameCVCP[] <-data.matrix(scaleFrameCVCP)

weightsCVCP <-list(sclCompliance=c("CVCP1p","CVCP2p","-CVCP3n")
)

summary(scaleFrameCVCP)
```

```
##      CVCP1p          CVCP2p          CVCP3n
##  Min.   : 4.00   Min.   : 1.00   Min.   : 1.0
##  1st Qu.: 8.00   1st Qu.: 7.00   1st Qu.: 1.0
##  Median : 9.00   Median : 9.00   Median : 3.0
##  Mean   : 8.97   Mean   : 8.85   Mean   : 3.4
##  3rd Qu.:10.00   3rd Qu.:11.00   3rd Qu.: 5.0
##  Max.   :11.00   Max.   :11.00   Max.   :11.0
```

VM1-3.13.3 Item histograms

```
 CVCPdf=data.frame(scale_mean=t(summarise_all(scaleFrameCVCP,mean)),
         key=names(scaleFrameCVCP))

 scaleFrameCVCP %>%
   keep(is.numeric) %>%
     gather() %>%
       ggplot(aes(value)) +
        facet_wrap(~ key, ncol=3) +
        geom_histogram(aes(y =..count..), color="#000044",
               fill="white",bins=11)+
        geom_vline(aes(xintercept =scale_mean),CVCPdf,col='red',
        linetype = "dashed",size=1)
```

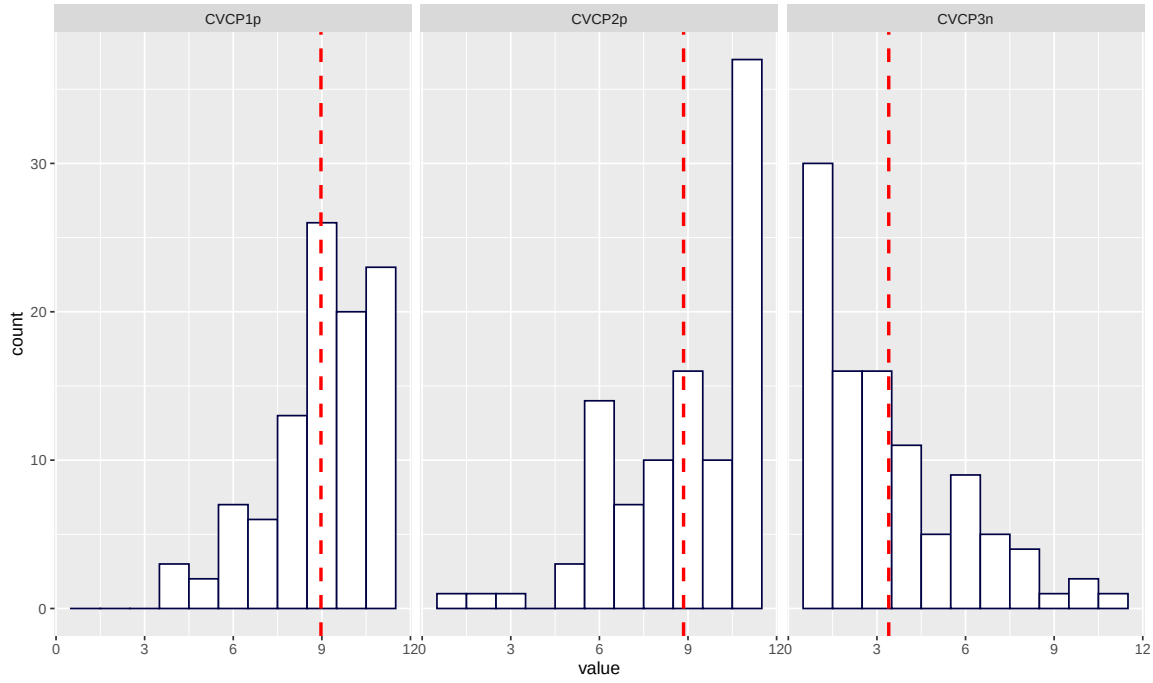

Figure VM1-88
COV-Compliance: Item histograms with marked means

VM1-3.13.4 Inter-correlations

```
corPlot(scaleFrameCVCP,numbers=TRUE,diag=FALSE,
main="CVCP",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

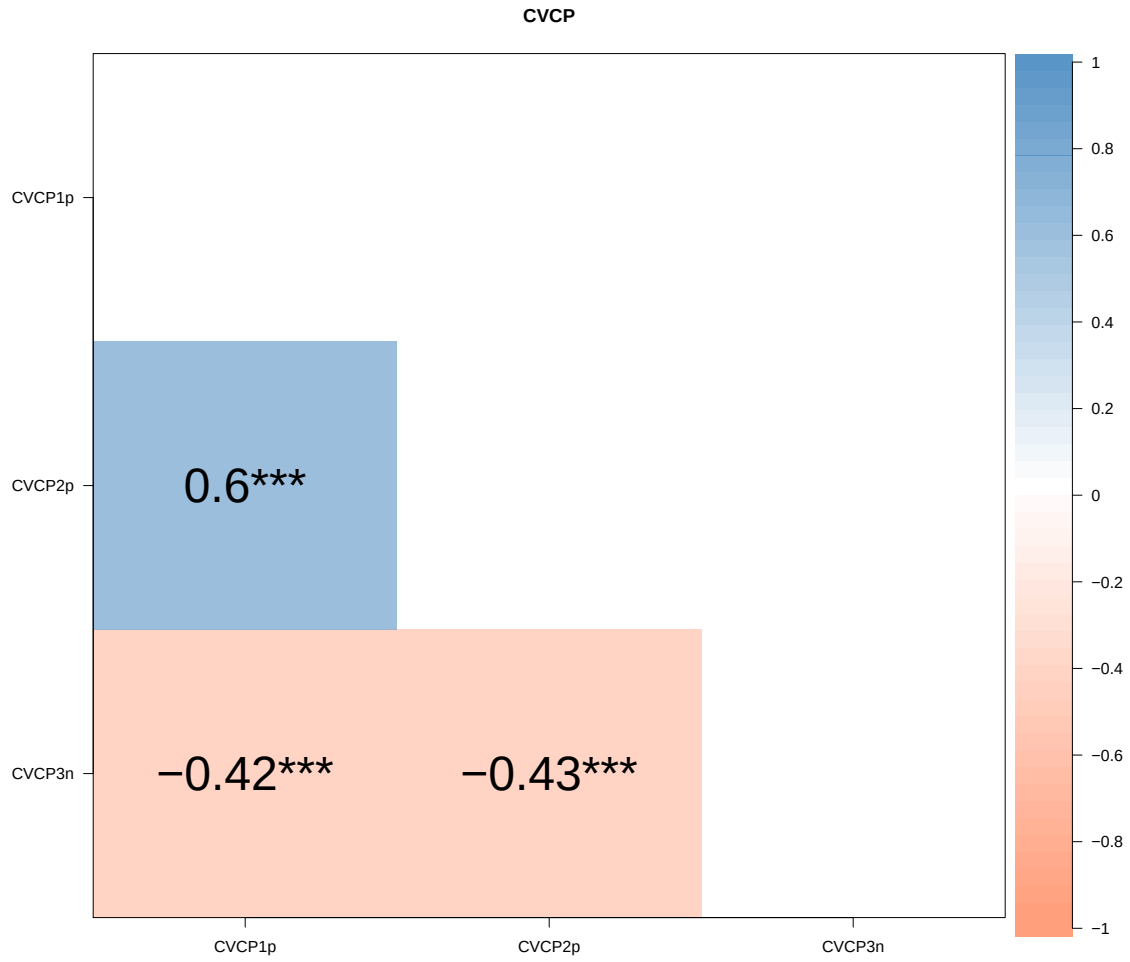

Figure VM1-89
COV-Compliance items: Inter-correlations

VM1-3.13.5 Scale statistics (for subscales)

```
scaleCVCP=scoreItems(keys=weightsCVCP, items =scaleFrameCVCP,
totals=FALSE)

## Number of categories should be increased  in order to count frequencies.

print(scaleCVCP)

## Call: scoreItems(keys = weightsCVCP, items = scaleFrameCVCP, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclCompliance
```

```
## alpha          0.72
##
## Standard errors of unstandardized Alpha:
##       sclCompliance
## ASE             0.1
##
## Average item correlation:
##           sclCompliance
## average.r          0.46
##
## Median item correlation:
## sclCompliance
##          0.43
##
##  Guttman 6* reliability:
##          sclCompliance
## Lambda.6          0.65
##
## Signal/Noise based upon av.r :
##              sclCompliance
## Signal/Noise           2.6
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##               sclCompliance
## sclCompliance          0.72
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCVCP<-data.frame(scaleCVCP$scores)
summary(scoresCVCP)

##  sclCompliance
##  Min.   : 2.333
##  1st Qu.: 7.667
##  Median : 9.000
##  Mean   : 8.807
##  3rd Qu.:10.333
##  Max.   :11.000

head(scoresCVCP)

##   sclCompliance
```

```
## 1      9.666667
## 2      9.000000
## 3     10.666667
## 4     11.000000
## 5      9.333333
## 6      7.666667
```

```
scalesCVCP=data.frame(scale_mean=t(summarise_all(scoresCVCP,mean)),
                      key=names(scoresCVCP))

scoresCVCP %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCVCP,col='red', linetype = "dashed",size=1)
```

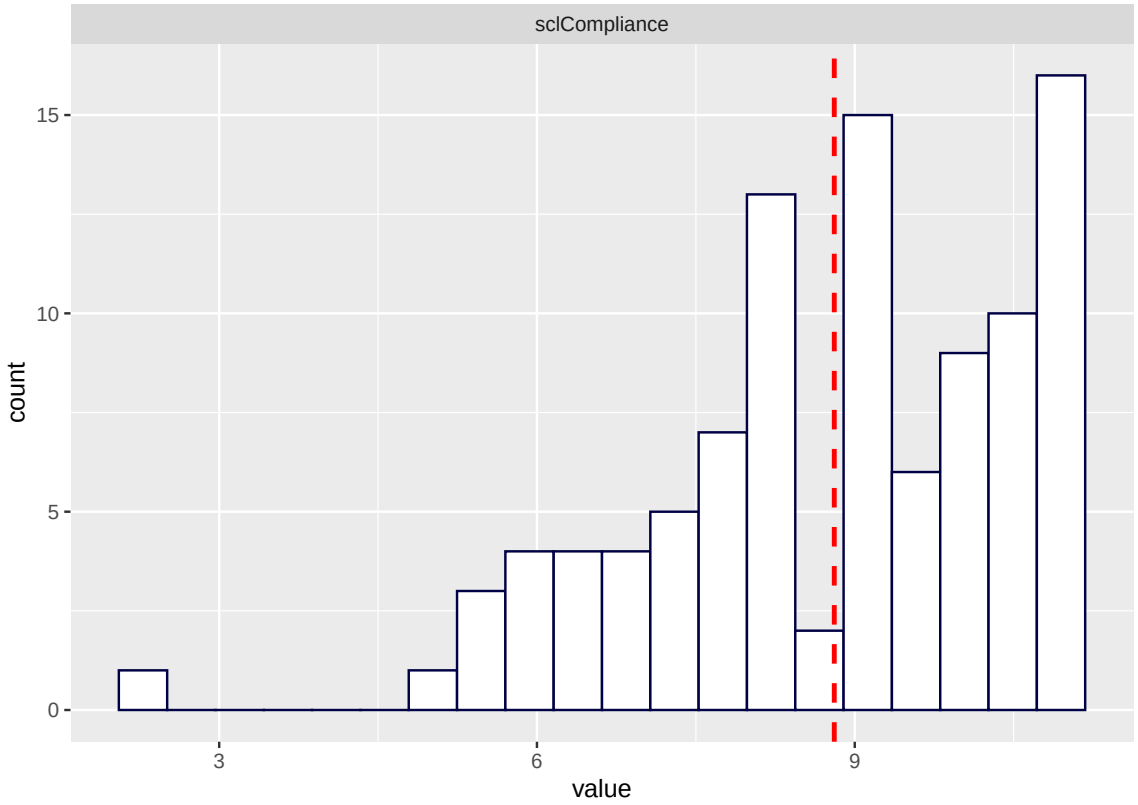

Figure VM1-90
COV-Compliance: histogram of scores

VM1-3.14 COV-Social Distancing

VM1-3.14.1 Items

Items were answered on a six-point scale (1–6): Strongly disagree—Disagree—Slightly disagree—-Slightly agree—Agree—Strongly agree.

- **CVSD1-**: People need to demonstrate against the current restrictions of liberties such as enforced social distancing.
- **CVSD2-**: Social distancing is mainly driven by personal fear.
- **CVSD3+**: Social distancing helps to protect others.
- **CVSD4-**: Social distancing is driven by political agendas.
- **CVSD5+**: Social distancing as a prevention measure is backed up by science.
- **CVSD6-**: Social distancing is a useless tool against the novel coronavirus.

VM1-3.14.2 Item preparation

```
    scaleVarsCVSD <- c("COV_distancing_1", "COV_distancing_2",
    "COV_distancing_3","COV_distancing_4", "COV_distancing_5",
    "COV_distancing_6" )

   scaleFrameCVSD <- df[scaleVarsCVSD]

 scaleFrameCVSD <- scaleFrameCVSD %>%
   rename(
   CVSD1n=COV_distancing_1,CVSD2n=COV_distancing_2,CVSD3p=COV_distancing_3,
   CVSD4n=COV_distancing_4,CVSD5p=COV_distancing_5,CVSD6n=COV_distancing_6)

   scaleFrameCVSD[] <-data.matrix(scaleFrameCVSD)

weightsCVSD <-list(sclCOVSocDist=c("-CVSD1n","-CVSD2n","CVSD3p",
"-CVSD4n","CVSD5p","-CVSD6n")
)

summary(scaleFrameCVSD)
```

```
##      CVSD1n          CVSD2n          CVSD3p          CVSD4n          CVSD5p
##  Min.   :1.00   Min.   :1.0   Min.   :2.00   Min.   :1.00   Min.   :2.00
##  1st Qu.:1.00   1st Qu.:1.0   1st Qu.:5.00   1st Qu.:1.00   1st Qu.:5.00
##  Median :1.00   Median :1.0   Median :6.00   Median :1.00   Median :6.00
##  Mean   :1.73   Mean   :1.8   Mean   :5.53   Mean   :1.86   Mean   :5.32
##  3rd Qu.:2.00   3rd Qu.:2.0   3rd Qu.:6.00   3rd Qu.:2.00   3rd Qu.:6.00
##  Max.   :6.00   Max.   :6.0   Max.   :6.00   Max.   :6.00   Max.   :6.00
##      CVSD6n
##  Min.   :1.00
##  1st Qu.:1.00
##  Median :1.00
##  Mean   :1.63
##  3rd Qu.:2.00
##  Max.   :6.00
```

VM1-3.14.3 Item histograms

```
 CVSDdf=data.frame(scale_mean=t(summarise_all(scaleFrameCVSD,mean)),
         key=names(scaleFrameCVSD))

 scaleFrameCVSD %>%
   keep(is.numeric) %>%
     gather() %>%
```

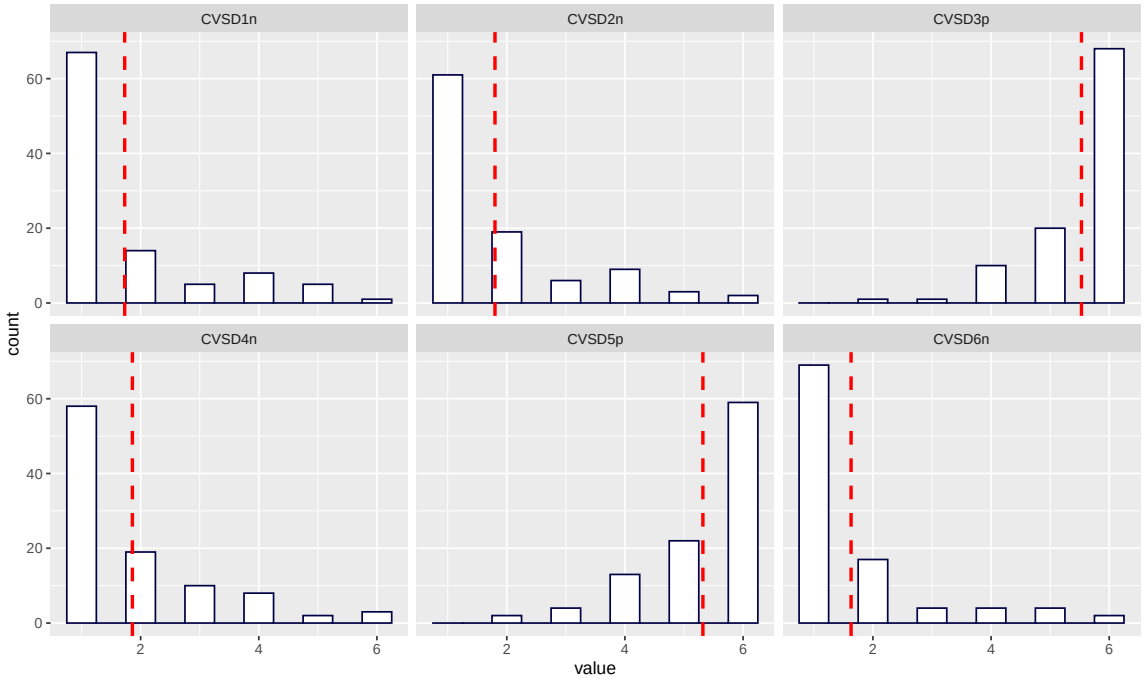

Figure VM1-91
COV-Social Distancing: Item histograms with marked means

```
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=3) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=11)+
         geom_vline(aes(xintercept =scale_mean),CVSDdf,col='red',
          linetype = "dashed",size=1)
```

VM1-3.14.4 Inter-correlations

```
corPlot(scaleFrameCVSD,numbers=TRUE,diag=FALSE,
main="CVSD",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

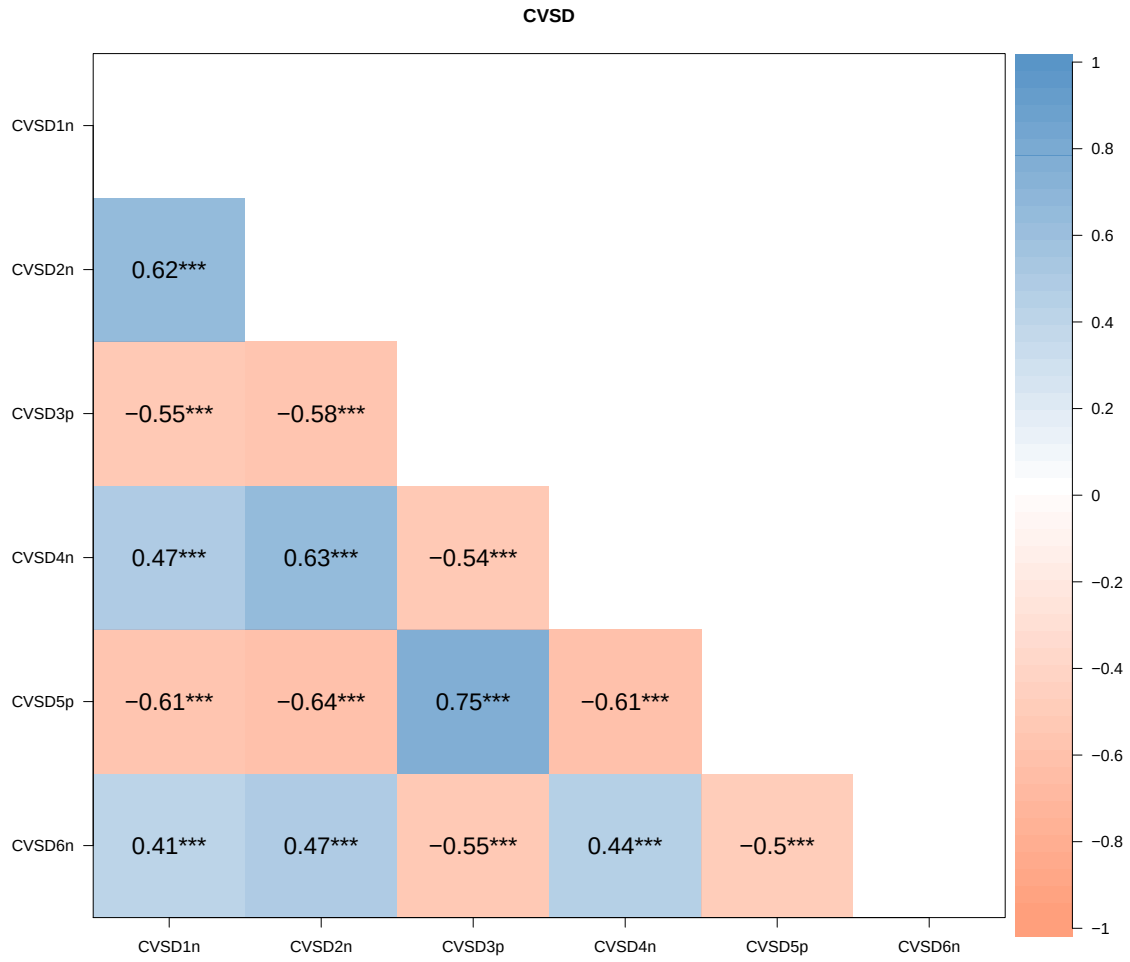

Figure VM1-92
COV-Social Distancing items: Inter-correlations

VM1-3.14.5 Scale statistics (for subscales)

```
 scaleCVSD=scoreItems(keys=weightsCVSD, items =scaleFrameCVSD,totals=FALSE)

print(scaleCVSD)

## Call: scoreItems(keys = weightsCVSD, items = scaleFrameCVSD, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclCOVSocDist
## alpha          0.87
##
```

```
## Standard errors of unstandardized Alpha:
##       sclCOVSocDist
## ASE           0.045
##
## Average item correlation:
##           sclCOVSocDist
## average.r          0.53
##
## Median item correlation:
## sclCOVSocDist
##          0.55
##
##  Guttman 6* reliability:
##          sclCOVSocDist
## Lambda.6          0.86
##
## Signal/Noise based upon av.r :
##              sclCOVSocDist
## Signal/Noise           6.8
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##               sclCOVSocDist
## sclCOVSocDist          0.87
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCVSD<-data.frame(scaleCVSD$scores)
summary(scoresCVSD)

##  sclCOVSocDist
##  Min.   :2.500
##  1st Qu.:4.958
##  Median :5.667
##  Mean   :5.305
##  3rd Qu.:6.000
##  Max.   :6.000

head(scoresCVSD)

##   sclCOVSocDist
## 1      6.000000
## 2      5.500000
```

```
## 3      4.500000
## 4      4.000000
## 5      6.000000
## 6      3.833333
```

```
scalesCVSD=data.frame(scale_mean=t(summarise_all(scoresCVSD,mean)),
                      key=names(scoresCVSD))

scoresCVSD %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCVSD,col='red', linetype = "dashed",size=1)
```

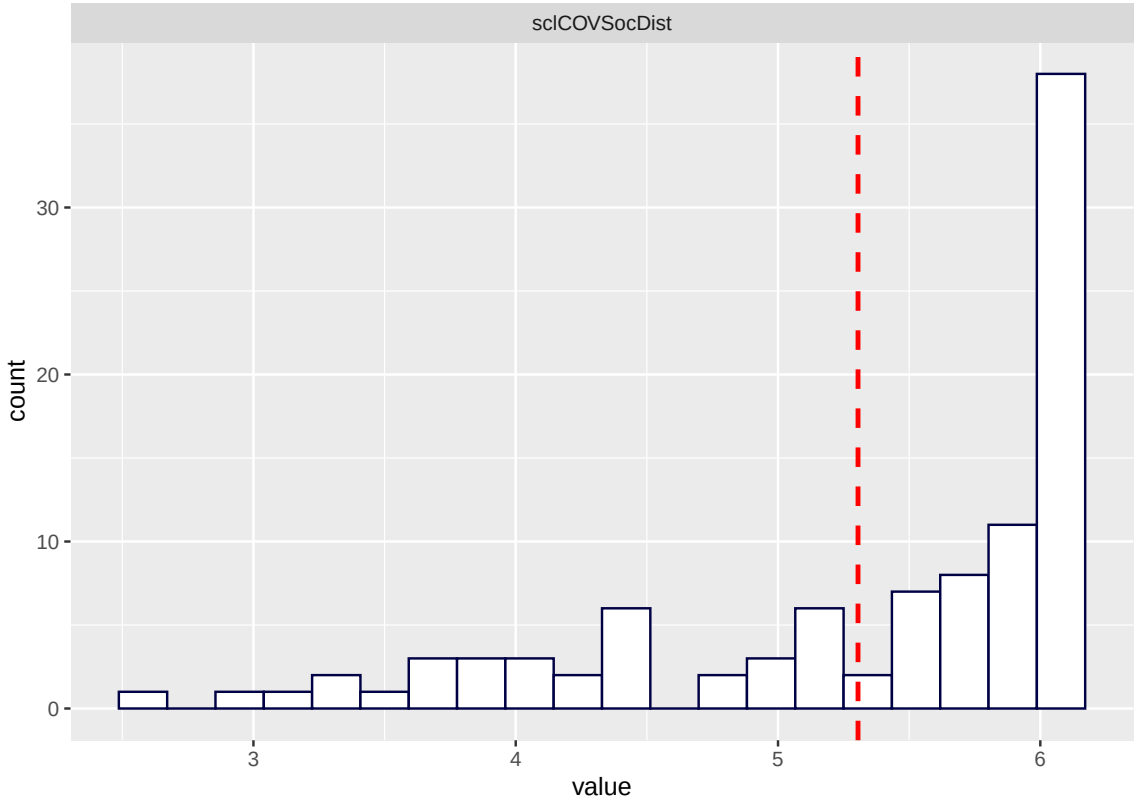

Figure VM1-93
COV-Social Distancing: histogram of scores

VM1-3.15 COV-Misinformation

VM1-3.15.1 Source

Some of the items (CVMI01+, CVMI03+) were taken from Pennycook et al. (2020). Another item (CVMI04+) was taken from Geldsetzer (2020), the item asking for risk groups (CVMI07-) were inspired by this source.

VM1-3.15.2 Items

Items[4] were presented answered on a six-point scale (1–6): Extremely unlikely—Moderately unlikely—-Slightly unlikely—Slightly likely—Moderately likely—Extremely likely.

- **CVMI01+**: The seasonal flu is just as dangerous as COVID-19.
- **CVMI02+**: Warm weather effectively stops COVID-19 from spreading.
- **CVMI03+**: A cure for COVID-19 has already been discovered but is being suppressed by people who want the pandemic to continue.
- **CVMI04+**: The current coronavirus is a bioweapon developed by a government or a terrorist organization.
- **CVMI05+**: Most people are immune to COVID-19.
- **CVMI06+**: The United States has tested a larger percentage of its population than any other country has.
- **CVMI07-**: People above the age of 60 are at a higher risk from COVID-19.
- **CVMI08-**: There is no vaccine against COVID-19.
- **CVMI09+**: The US has a lower absolute number of COVID-19-related deaths than many European countries.
- **CVMI10+**: God has sent COVID-19 to punish sinners.

VM1-3.15.3 Item preparation

[4]Two items in the question block were not used for scale construction, as they were conceptually distinct. These are: "The health of the economy is more important than the health of a small minority of vulnerable people." and "Lockdowns cause more harm than benefit." These issues are taken up in a a different scale. Three more items were taken out, because the items showed low correlations with the scale. The misunderstanding for these items was more due to a discrepancy with medical facts, but not a motivated misunderstanding. These items are "Children are at a higher risk from COVID-19" (a companion item to CVMI07-), "It is not possible to contract COVID-19 if I always stay away six feet from others.", and "Doctors prescribe antibiotics to kill viruses." The last item was taken from the science knowledge test in Pennycook et al. (2020). These items are presented in the preceding section.

```
    scaleVarsCVMI <- c("COV_statem1_1", "COV_statem1_2", "COV_statem1_3",
   "COV_statem1_4", "COV_statem1_5","COV_statem1_6",
   "COV_statem1_8","COV_statem2_1","COV_statem2_2","COV_statem2_5")

   scaleFrameCVMI <- df[scaleVarsCVMI]

 scaleFrameCVMI  <- scaleFrameCVMI  %>%
   rename(
   CVMI01p = COV_statem1_1, CVMI02p = COV_statem1_2, CVMI03p = COV_statem1_3,
   CVMI04p = COV_statem1_4, CVMI05p = COV_statem1_5, CVMI06p = COV_statem1_6,
   CVMI07n = COV_statem1_8, CVMI08n = COV_statem2_1, CVMI09p = COV_statem2_2,
   CVMI10p = COV_statem2_5 )

   scaleFrameCVMI[] <-data.matrix(scaleFrameCVMI)

weightsCVMI <-list(sclMisinform=c("CVMI01p",
"CVMI02p","CVMI03p","CVMI04p",
"CVMI05p", "CVMI06p","-CVMI07n",
"-CVMI08n", "CVMI09p", "CVMI10p" )
)

summary(scaleFrameCVMI)
```

```
##     CVMI01p         CVMI02p         CVMI03p         CVMI04p         CVMI05p
##  Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00
##  Median :2.00   Median :2.00   Median :1.00   Median :1.00   Median :1.00
##  Mean   :2.06   Mean   :2.11   Mean   :1.61   Mean   :1.85   Mean   :1.61
##  3rd Qu.:3.00   3rd Qu.:3.00   3rd Qu.:2.00   3rd Qu.:2.00   3rd Qu.:2.00
##  Max.   :6.00   Max.   :5.00   Max.   :6.00   Max.   :6.00   Max.   :4.00
##     CVMI06p         CVMI07n         CVMI08n         CVMI09p         CVMI10p
##  Min.   :1.00   Min.   :4.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:1.00   1st Qu.:5.00   1st Qu.:4.00   1st Qu.:1.00   1st Qu.:1.00
##  Median :1.00   Median :6.00   Median :5.50   Median :1.00   Median :1.00
##  Mean   :2.25   Mean   :5.69   Mean   :4.92   Mean   :1.93   Mean   :1.21
##  3rd Qu.:4.00   3rd Qu.:6.00   3rd Qu.:6.00   3rd Qu.:3.00   3rd Qu.:1.00
##  Max.   :6.00   Max.   :6.00   Max.   :6.00   Max.   :5.00   Max.   :5.00
```

VM1-3.15.4 Item histograms

```
 CVMIdf=data.frame(scale_mean=t(summarise_all(scaleFrameCVMI,mean)),
         key=names(scaleFrameCVMI))

 scaleFrameCVMI %>%
```

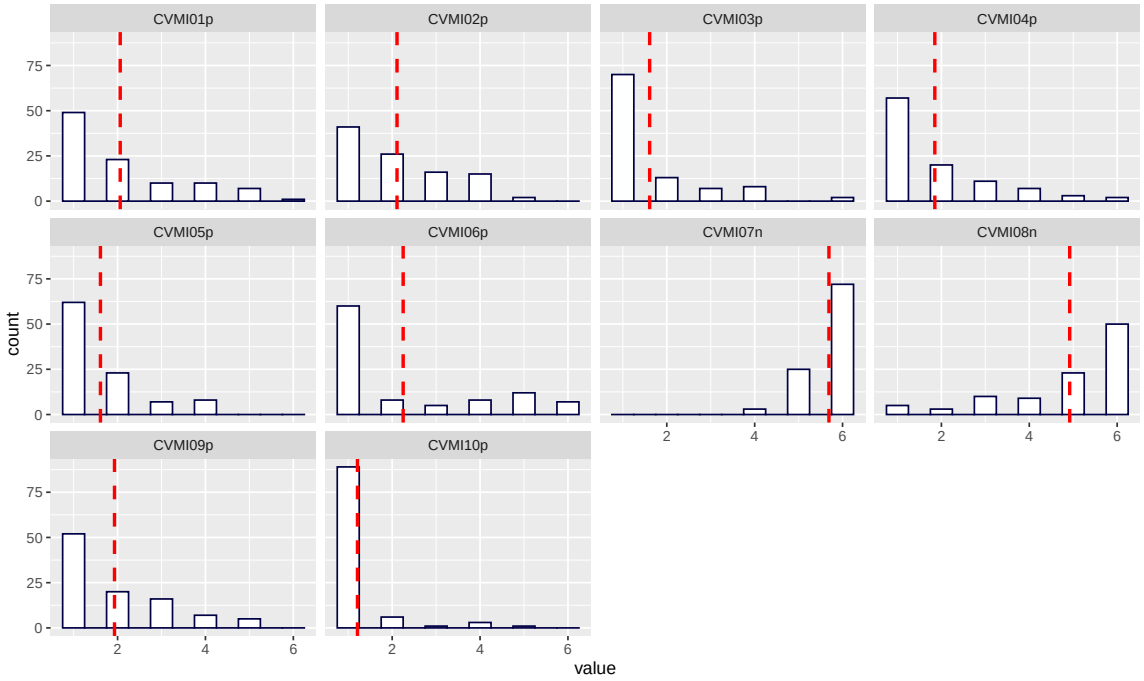

Figure VM1-94
COV-Misinformation: Item histograms with marked means

```
    keep(is.numeric) %>%
      gather() %>%
        ggplot(aes(value)) +
         facet_wrap(~ key, ncol=4) +
         geom_histogram(aes(y =..count..), color="#000044",
                fill="white",bins=11)+
         geom_vline(aes(xintercept =scale_mean),CVMIdf,col='red', linetype = "dashed",size=
```

VM1-3.15.5 Inter-correlations

```
corPlot(scaleFrameCVMI,numbers=TRUE,diag=FALSE,
main="CVMI",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

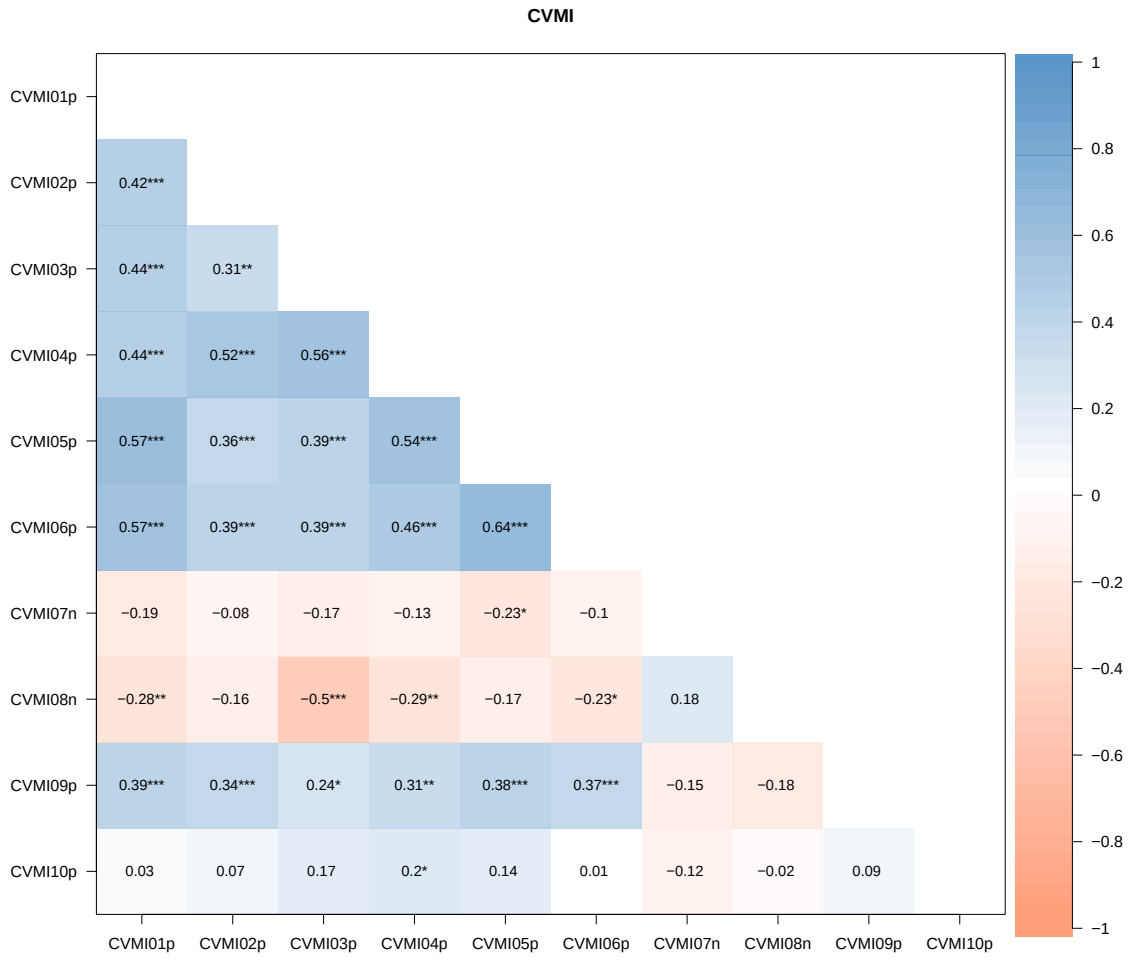

Figure VM1-95
COV-Misinformation: Inter-correlations

VM1-3.15.6 Scale statistics (for subscales)

```
scaleCVMI=scoreItems(keys=weightsCVMI, items =scaleFrameCVMI,totals=FALSE)

print(scaleCVMI)

## Call: scoreItems(keys = weightsCVMI, items = scaleFrameCVMI, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclMisinform
## alpha         0.81
##
```

```
## Standard errors of unstandardized Alpha:
##       sclMisinform
## ASE          0.043
##
## Average item correlation:
##           sclMisinform
## average.r          0.3
##
## Median item correlation:
## sclMisinform
##         0.28
##
##  Guttman 6* reliability:
##          sclMisinform
## Lambda.6         0.84
##
## Signal/Noise based upon av.r :
##              sclMisinform
## Signal/Noise          4.2
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##              sclMisinform
## sclMisinform         0.81
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCVMI<-data.frame(scaleCVMI$scores)
summary(scoresCVMI)

##   sclMisinform
##  Min.   :1.000
##  1st Qu.:1.200
##  Median :1.650
##  Mean   :1.802
##  3rd Qu.:2.200
##  Max.   :4.200

head(scoresCVMI)

##   sclMisinform
## 1          1.0
## 2          1.5
```

```
## 3          2.3
## 4          3.0
## 5          1.0
## 6          1.5
```

```
scalesCVMI=data.frame(scale_mean=t(summarise_all(scoresCVMI,mean)),
                      key=names(scoresCVMI))

scoresCVMI %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCVMI,col='red', linetype = "dashed",size=1)
```

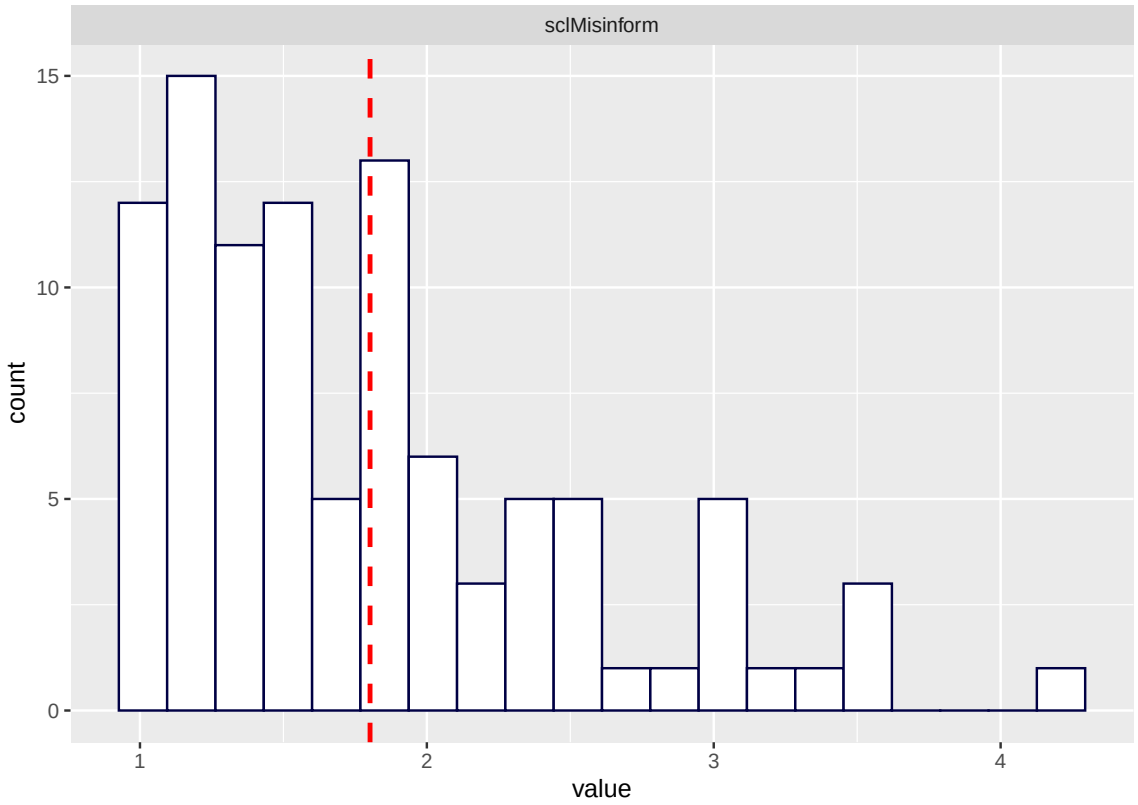

Figure VM1-96
COV-Misinformation: histogram of scores

VM1-3.16 COV-Tradeoffs

VM1-3.16.1 Items

Items were answered on a six-point scale (1–6): Strongly disagree— Disagree— Slightly disagree—Slightly agree—Agree—Strongly agree.

- **CVTO1**: We need to accept that some members of vulnerable populations will die so that we can live our lives without severe restrictions.
- **CVTO2**: We need to accept that some members of vulnerable populations will die so that we can attend large sports events again.
- **CVTO3**: We need to accept that some members of vulnerable populations will die so that children can attend school again.
- **CVTO4**: We need to accept that some members of vulnerable populations will die so that we can quickly return to work again.
- **CVTO5**: We need to accept that some members of vulnerable populations will die so that we can go on vacation again.
- **CVTO6**: We need to accept that some members of vulnerable populations will die so that we do not lose too many jobs.

VM1-3.16.2 Item preparation

```
    scaleVarsCVTO <- c("COV_tradeoffs_1", "COV_tradeoffs_2", "COV_tradeoffs_3",
   "COV_tradeoffs_4", "COV_tradeoffs_5", "COV_tradeoffs_6" )

   scaleFrameCVTO <- df[scaleVarsCVTO]

 scaleFrameCVTO <- scaleFrameCVTO %>%
   rename(
   CVTO1=COV_tradeoffs_1,CVTO2=COV_tradeoffs_2,CVTO3=COV_tradeoffs_3,
   CVTO4=COV_tradeoffs_4,CVTO5=COV_tradeoffs_5, CVTO6=COV_tradeoffs_6 )

   scaleFrameCVTO[] <-data.matrix(scaleFrameCVTO)

weightsCVTO <-list(sclClimSkept=c("CVTO1","CVTO2","CVTO3","CVTO4","CVTO5","CVTO6")
)

summary(scaleFrameCVTO)
```

```
##      CVTO1           CVTO2           CVTO3           CVTO4           CVTO5
##  Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00   1st Qu.:1.00
##  Median :1.50   Median :1.00   Median :2.00   Median :1.00   Median :1.00
```

```
##  Mean   :2.06   Mean   :1.39   Mean   :2.18   Mean   :2.11   Mean   :1.52
##  3rd Qu.:3.00   3rd Qu.:1.00   3rd Qu.:3.00   3rd Qu.:3.00   3rd Qu.:2.00
##  Max.   :6.00   Max.   :6.00   Max.   :6.00   Max.   :6.00   Max.   :6.00
##      CVTO6
##  Min.   :1.00
##  1st Qu.:1.00
##  Median :2.00
##  Mean   :2.33
##  3rd Qu.:4.00
##  Max.   :6.00
```

VM1-3.16.3 Item histograms

```
CVTOdf=data.frame(scale_mean=t(summarise_all(scaleFrameCVTO,mean)),
        key=names(scaleFrameCVTO))

scaleFrameCVTO %>%
  keep(is.numeric) %>%
    gather() %>%
      ggplot(aes(value)) +
       facet_wrap(~ key, ncol=3) +
       geom_histogram(aes(y =..count..), color="#000044",
              fill="white",bins=6)+
       geom_vline(aes(xintercept =scale_mean),CVTOdf,col='red',
       linetype = "dashed",size=1)
```

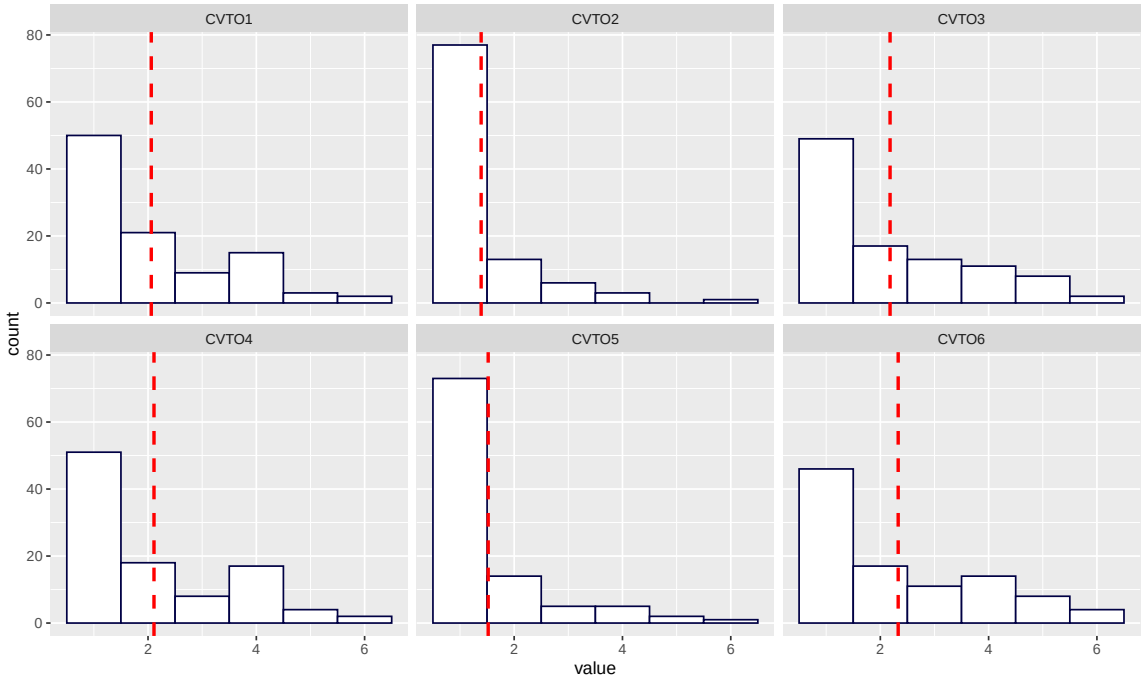

Figure VM1-97
COV-Tradeoffs: Item histograms with marked means

VM1-3.16.4 Inter-correlations

```
corPlot(scaleFrameCVTO,numbers=TRUE,diag=FALSE,
main="CVTO",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

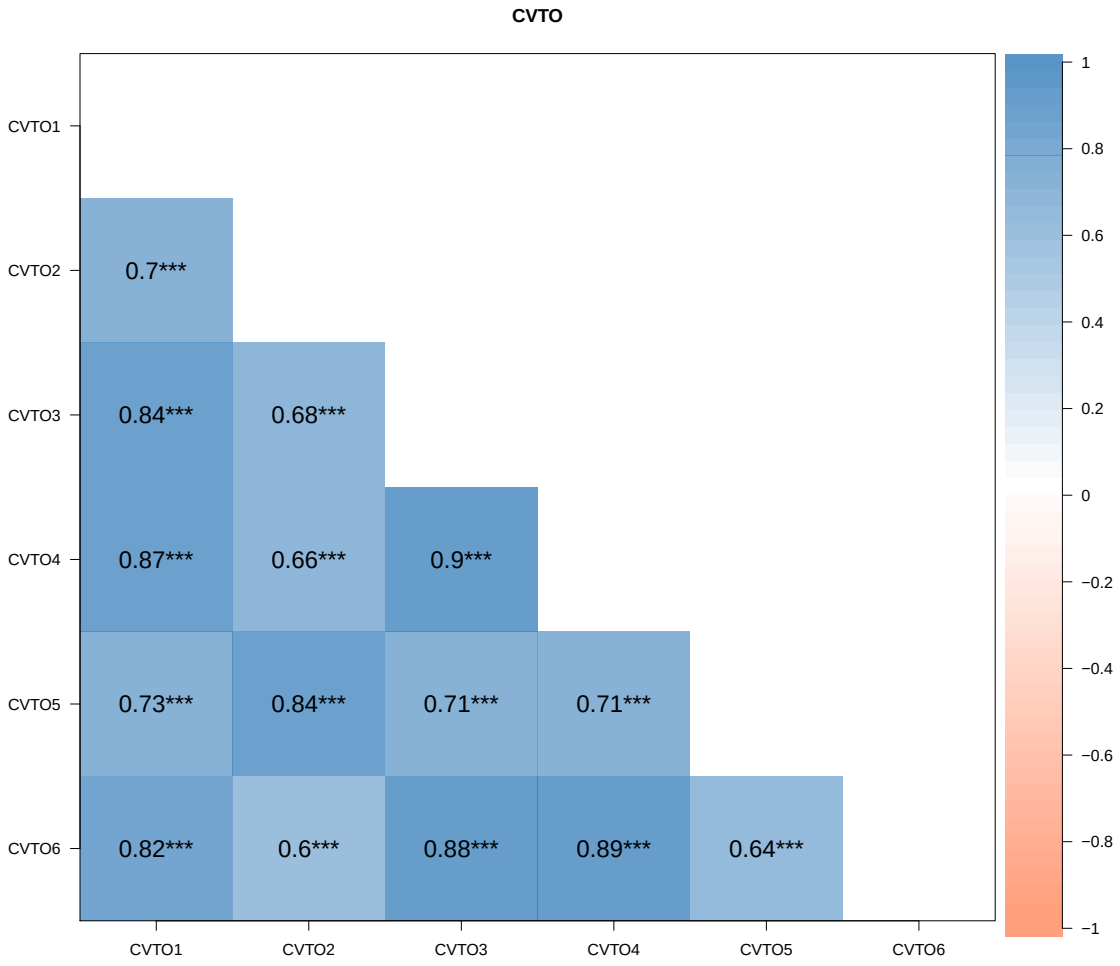

Figure VM1-98
COV-Tradeoffs items: Inter-correlations

VM1-3.16.5 Scale statistics (for subscales)

```
   scaleCVTO=scoreItems(keys=weightsCVTO, items =scaleFrameCVTO,totals=FALSE)

 print(scaleCVTO)

## Call: scoreItems(keys = weightsCVTO, items = scaleFrameCVTO, totals = FALSE)
##
## (Unstandardized) Alpha:
##       sclClimSkept
## alpha         0.95
##
```

```
## Standard errors of unstandardized Alpha:
##       sclClimSkept
## ASE          0.034
##
## Average item correlation:
##           sclClimSkept
## average.r         0.75
##
## Median item correlation:
## sclClimSkept
##         0.73
##
##  Guttman 6* reliability:
##          sclClimSkept
## Lambda.6         0.96
##
## Signal/Noise based upon av.r :
##              sclClimSkept
## Signal/Noise           18
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##              sclClimSkept
## sclClimSkept         0.95
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresCVTO<-data.frame(scaleCVTO$scores)
summary(scoresCVTO)

##   sclClimSkept
##  Min.   :1.000
##  1st Qu.:1.000
##  Median :1.417
##  Mean   :1.932
##  3rd Qu.:2.708
##  Max.   :6.000

head(scoresCVTO)

##   sclClimSkept
## 1     1.000000
## 2     2.166667
```

```
## 3     2.000000
## 4     1.000000
## 5     1.000000
## 6     3.833333
```

```
scalesCVTO=data.frame(scale_mean=t(summarise_all(scoresCVTO,mean)),
                      key=names(scoresCVTO))

scoresCVTO %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=20) +
  geom_vline(aes(xintercept = scale_mean),
             scalesCVTO,col='red', linetype = "dashed",size=1)
```

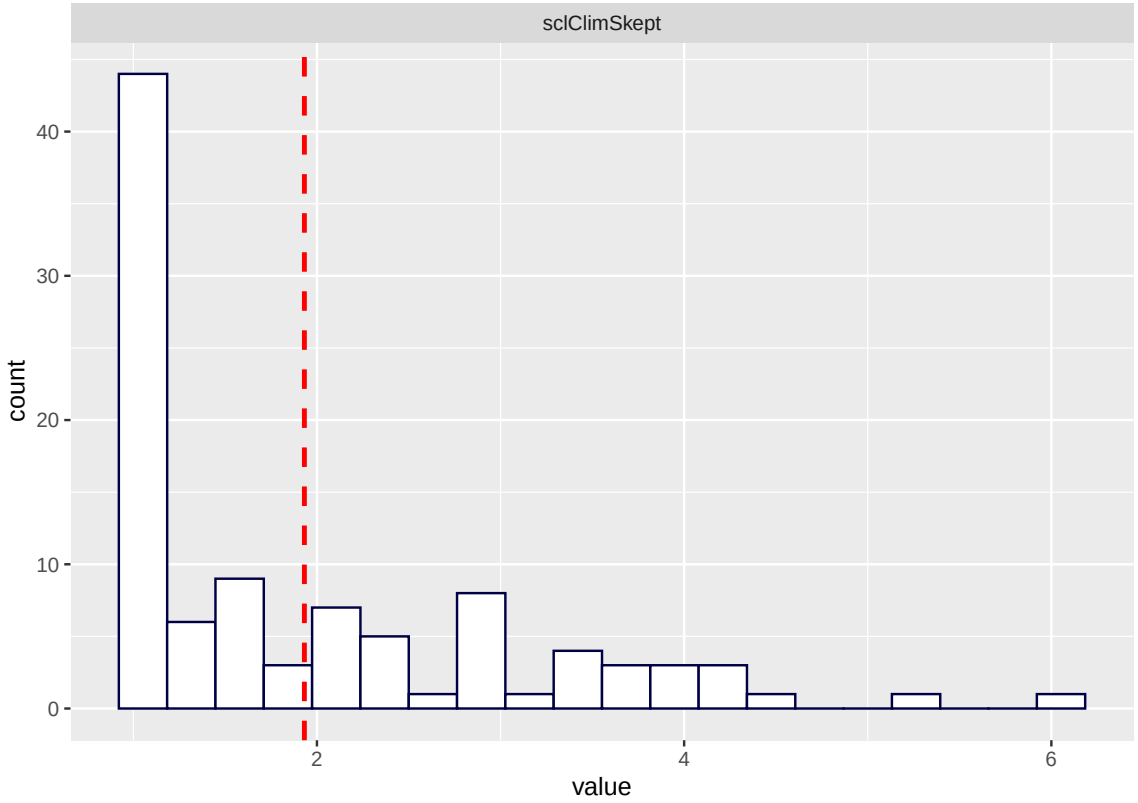

Figure VM1-99
COV-Tradeoffs: histogram of scores

VM1-3.17 Dice game

VM1-3.17.1 Source

Participants completed 15 rounds of a computerized version of the dice game introduced in Kanngiesser et al. (2020). Each dice choice is considered as an item of the scale.

VM1-3.17.2 Items

Each item is a choice between 16 dice. The expected average choice is 3.5, and we deduct 3.5 from each dice result (which amounts to 52.5 total points) to attain a measure of over-reporting and dishonesty. The variables are saved as embedded variables in Qualtrics, as the task is generated by JavaScript and does not use standard Qualtrics elements.

VM1-3.17.3 Item preparation

```
    scaleVarsDICE <- c("prom1Eyes", "prom2Eyes", "prom3Eyes",
  "prom4Eyes", "prom5Eyes", "prom6Eyes", "prom7Eyes",
  "prom8Eyes", "prom9Eyes", "prom10Eyes", "prom11Eyes",
  "prom12Eyes", "prom13Eyes", "prom14Eyes", "prom15Eyes")

 scaleFrameDICE <- df[scaleVarsDICE]

 scaleFrameDICE <- scaleFrameDICE %>%
   rename(
   DIE01=prom1Eyes,DIE02=prom2Eyes,DIE03=prom3Eyes,
   DIE04=prom4Eyes,DIE05=prom5Eyes,DIE06=prom6Eyes,
   DIE07=prom7Eyes,DIE08=prom8Eyes,DIE09=prom9Eyes,
   DIE10=prom10Eyes,DIE11=prom11Eyes,DIE12=prom12Eyes,
   DIE13=prom13Eyes,DIE14=prom14Eyes,DIE15=prom15Eyes
   )

   scaleFrameDICE[] <-data.matrix(scaleFrameDICE)

summary(scaleFrameDICE)
```

```
##      DIE01           DIE02           DIE03           DIE04           DIE05
##  Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:3.00   1st Qu.:2.00   1st Qu.:2.00   1st Qu.:3.00   1st Qu.:2.00
##  Median :5.00   Median :4.00   Median :4.00   Median :4.00   Median :4.00
##  Mean   :4.25   Mean   :3.89   Mean   :3.87   Mean   :4.05   Mean   :3.71
##  3rd Qu.:6.00   3rd Qu.:6.00   3rd Qu.:6.00   3rd Qu.:6.00   3rd Qu.:5.00
##  Max.   :6.00   Max.   :6.00   Max.   :6.00   Max.   :6.00   Max.   :6.00
##      DIE06           DIE07          DIE08           DIE09           DIE10
##  Min.   :1.00   Min.   :1   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:2.00   1st Qu.:3   1st Qu.:2.00   1st Qu.:3.00   1st Qu.:2.00
```

```
##  Median :4.00   Median :4   Median :4.00   Median :4.00   Median :4.00
##  Mean   :3.92   Mean   :4   Mean   :3.77   Mean   :4.12   Mean   :3.96
##  3rd Qu.:6.00   3rd Qu.:6   3rd Qu.:5.00   3rd Qu.:6.00   3rd Qu.:6.00
##  Max.   :6.00   Max.   :6   Max.   :6.00   Max.   :6.00   Max.   :6.00
##      DIE11          DIE12          DIE13          DIE14          DIE15
##  Min.   :1.00   Min.   :1.0   Min.   :1.00   Min.   :1.00   Min.   :1.00
##  1st Qu.:2.00   1st Qu.:3.0   1st Qu.:3.00   1st Qu.:2.00   1st Qu.:2.00
##  Median :4.00   Median :4.0   Median :4.00   Median :5.00   Median :4.00
##  Mean   :3.99   Mean   :3.9   Mean   :3.96   Mean   :4.03   Mean   :3.77
##  3rd Qu.:6.00   3rd Qu.:5.0   3rd Qu.:5.25   3rd Qu.:6.00   3rd Qu.:6.00
##  Max.   :6.00   Max.   :6.0   Max.   :6.00   Max.   :6.00   Max.   :6.00
```

VM1-3.17.4 Item histograms

```
DICEdf=data.frame(scale_mean=t(summarise_all(scaleFrameDICE,mean)),
         key=names(scaleFrameDICE))

 scaleFrameDICE %>%
   keep(is.numeric) %>%
     gather() %>%
       ggplot(aes(value)) +
        facet_wrap(~ key, ncol=4) +
        geom_histogram(aes(y =..count..), color="#000044",
               fill="white",bins=6)+
        geom_vline(aes(xintercept =scale_mean),DICEdf,col='red',
        linetype = "dashed",size=1) +
        annotate("segment", x = 1, xend = 6, y = 100/6, yend = 100/6,
              colour = "green")
```

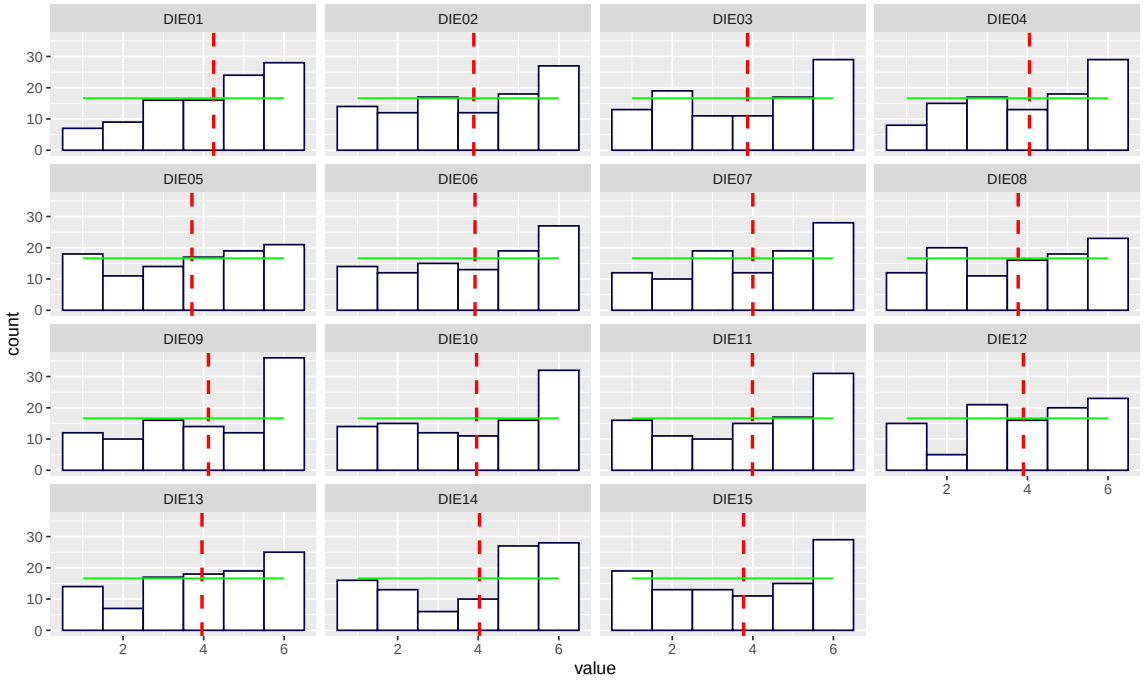

Figure VM1-100
Dice game: Item histograms with marked means

VM1-3.17.5 Inter-correlations

```
corPlot(scaleFrameDICE,numbers=TRUE,diag=FALSE,
main="CVTO",stars=TRUE,upper=FALSE,
cuts=c(.001,.01,.05),gr=palette2,
zlim=c(-1,1))
```

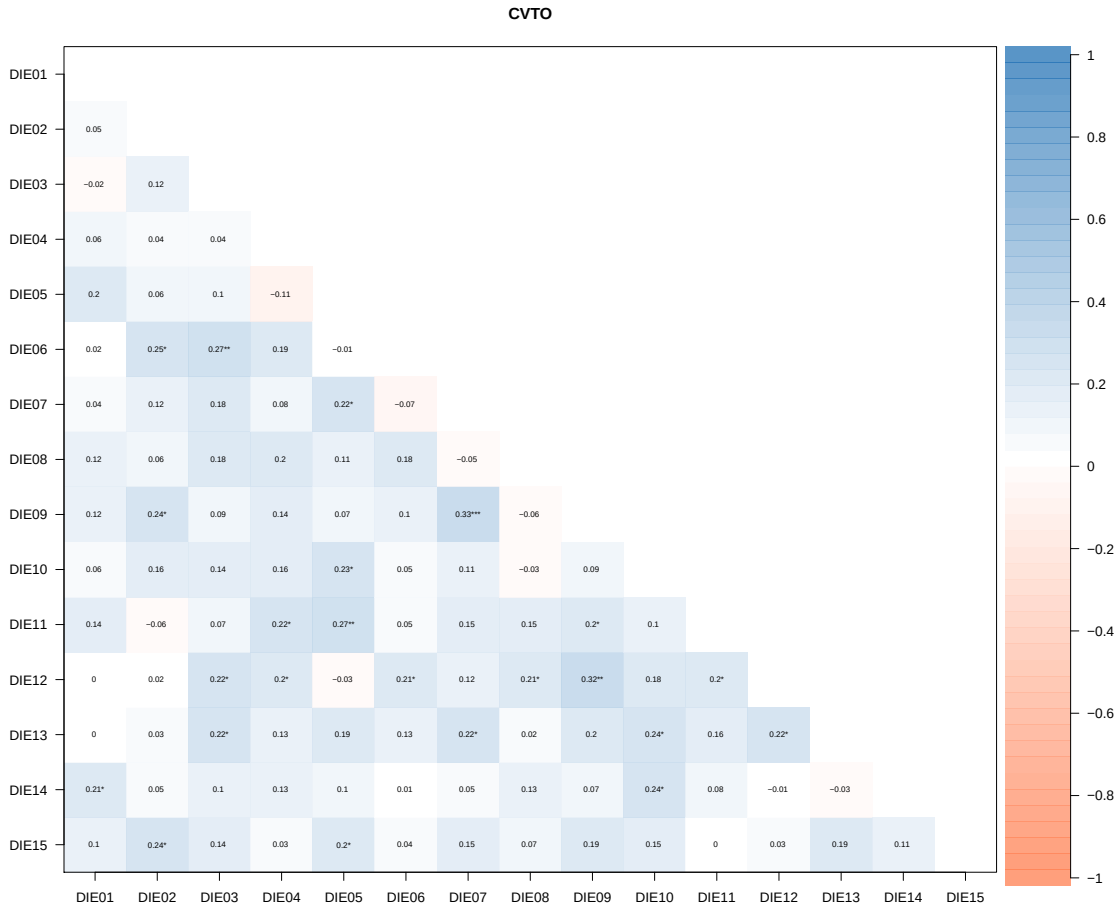

Figure VM1-101
Dice game: Inter-correlations

VM1-3.17.6 Scale statistics

```
scaleDICE=scoreItems(keys=c(1,1,1,1,1,1,1,1,1,1,1,1,1,1,1),
items =scaleFrameDICE,totals=TRUE)

print(scaleDICE)

## Call: scoreItems(keys = c(1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
##     1), items = scaleFrameDICE, totals = TRUE)
##
## (Unstandardized) Alpha:
##       Scale1
## alpha   0.66
##
```

```
## Standard errors of unstandardized Alpha:
##       Scale1
## ASE    0.058
##
## Average item correlation:
##           Scale1
## average.r   0.12
##
## Median item correlation:
## Scale1
##   0.12
##
##  Guttman 6* reliability:
##          Scale1
## Lambda.6    0.7
##
## Signal/Noise based upon av.r :
##              Scale1
## Signal/Noise      2
##
## Scale intercorrelations corrected for attenuation
##  raw correlations below the diagonal, alpha on the diagonal
##  corrected correlations above the diagonal:
##        Scale1
## Scale1   0.66
##
##  In order to see the item by scale loadings and frequency counts of the data
##  print with the short option = FALSE

scoresDICE<-data.frame(scaleDICE$scores-52.5)
summary(scoresDICE)

##      Scale1
##  Min.   :-16.50
##  1st Qu.: -0.50
##  Median :  4.50
##  Mean   :  6.69
##  3rd Qu.: 10.50
##  Max.   : 37.50

head(scoresDICE)

##   Scale1
## 1    3.5
## 2   -2.5
```

```
## 3  -11.5
## 4    3.5
## 5   14.5
## 6    6.5
```

```
scalesDICE=data.frame(scale_mean=t(summarise_all(scoresDICE,mean)),
                      key=names(scoresDICE))

scoresDICE %>%
  keep(is.numeric) %>%
  gather() %>%
  ggplot(aes(value)) +
  facet_wrap(~ key, ncol=1) +
  geom_histogram(aes(y =..count..), color="#000044",
                 fill="white",bins=80) +
  geom_vline(aes(xintercept = scale_mean),
             scalesDICE,col='red', linetype = "dashed",size=1)
```

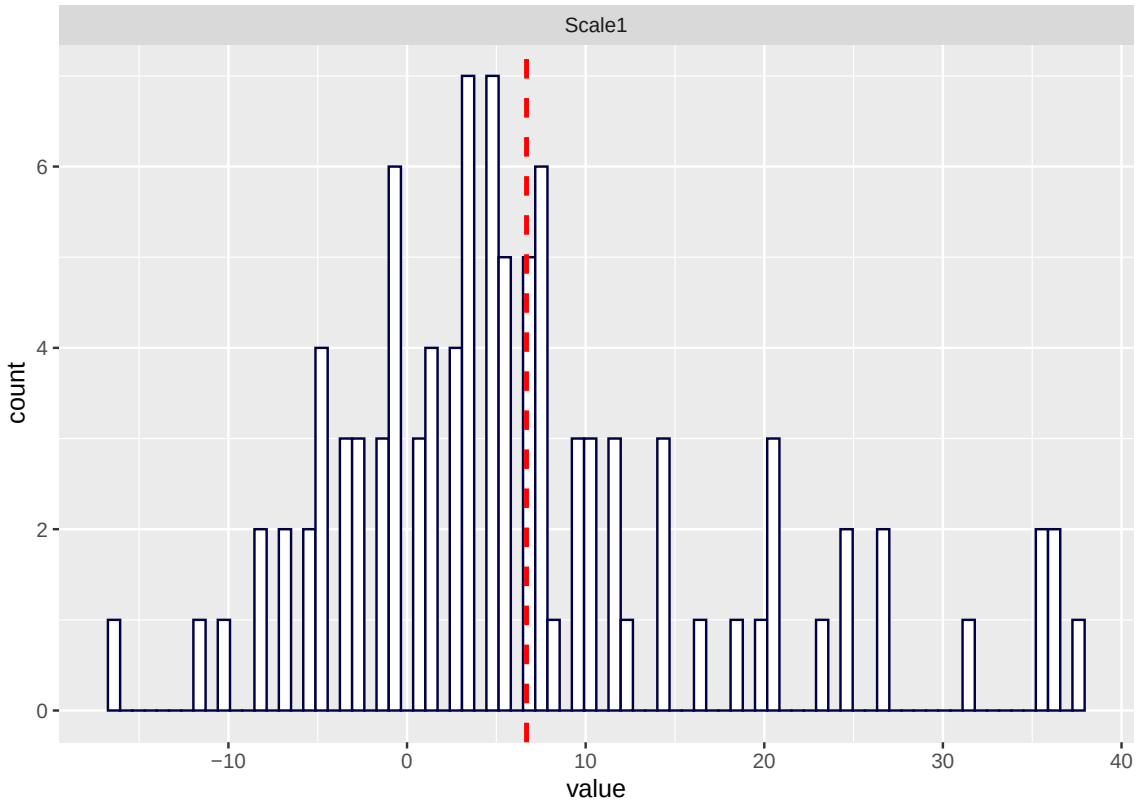

Figure VM1-102
Dice game: histogram of scores

VM1-4 Qualitative Data

VM1-4.1 Game Strategy

PostTGstrategy

- I wanted to maximize points in case I was blue at the end.
- I picked the risky actions at the start of the game in order to built up more points as there is a lower amount of purple players but as the game continue it was safer to pick the less risky options (8 pt as opposed to 40 pt) since it's likely that the number of purple players would increase as well. Due to the risk of turning purple, it was more important to me to aim for lower pts than to risk losing all pts.
- I wanted to avoid becoming purple, but I also wanted to earn points. I had no idea what color I was and did not have enough information to make a really informed choice. So, I went back and forth between different choices and really just hoped I stayed blue.
- My strategy was to be a big cautious and to pick my spots for when I wanted to gamble a bit. Overall, I was pretty hesitant all game.
- I picked H most times, but also threw in random G's just to decrease the chance to turn colors.
- In the beginning, not a lot of people were purple so I chose the higher risk option (H). Later on, I played it safe and stayed with option G throughout the duration to earn a possible bonus.
- Extremely conservative, taking the minimal risk of converting.
- I always chose H because it was the highest potential payoff.
- I tried to minimize other peoples risk by almost always choosing G. My goal was to make a little bonus, but you can't make any if your purple. If many of the 100 people chose to be selfish, or try to profit as much as possible, I imagine a lot of people are now purple.
- I would try to keep it safe by choosing 8 then go for 40 when it felt right.
- I stuck with the safest option always, for fear of turning purple.
- I would describe my strategy as similar to any ambitious player. The beginning half is about getting as much points as possible because it's unlikely you will get a purple player. The end, if you are still blue, then you would to mix it up so that you are still making points but lowering your risk to 15% since it's a mix of G & H
- I wanted as many points as possible. I didn't expect to be blue at the end of the game, so on the off chance that I am, I want the payout to be as large as possible.
- I chose based on instinct. I follow my gut and if it led me astray, then so be it.

- I hoped to high roll the whole game and get lucky.
- I switched between picking H and G to even out my playing field, I wanted the most bonus money but also didn't want to end up being purple so I took risks when needed
- low risk- behaving as if i were blue from the get-go and giving myself the best possibility of surviving as blue. as a blue, i do not change others, and hopefully we can all survive with some amount of bounty. but i knwo i cannot control chmace, nor can i control other people's strategies or their motivations. but i play to do as little harm as possible.
- at first i wanted to choose "H" every time because it was more exciting and this is just a game. but then i thought about it as a more real world situation, and then realized it was real world because some people were going to get paid and some people were not- so i started going with "G" repeatedly because everyone getting a little i guess is better than a few getting more- although much less exciting or enjoyable to play.

VM1-4.2 Seen similarities

- nothing i can think of really. maybe playing low stakes gambling and playing safe to survive rounds
- Reminds me of socio-economic inequality. Sometimes people take risks that make everyone else worse off.
- Luck based games such as Roulette.
- This game actually reminds me of a class procedure I did in school- everyone had a cup of water, and walked around the room pouring some of their water into someone else's cup. The cups of water were to represent STDs, and how they spread- so we had basically infected other people, which is similar to how the purples turn the blue a different color.
- It feels like an iterative version of a prisoner's dilemma game.
- Nothing I've encountered, at least?
- There was a game show I watched in a statistics class in high school where two players had to chose an option, and if they both chose the same option they would either lose or gain money.
- It reminded me of a game show. Some people could have gotten greedy and lost their whole bonus, instead of taking what was given to them.
- I guess it sort of reminded me of STDs, that risky behavior increases infection rate
- It reminds me of "faith" based games were a group of people have to trust one another not to screw each other up.

Parallels to COVID-19 (or viruses, in general) were identified spontaneously by 19 participants. The following are examples for these statements

- This reminds me of current stay at home/social distancing decisions now.
- COVID-19, people not social distancing and could infect other people.
- COVID-19 and Social Distancing. In a blue and purple pairing, if both choose G there is less likely to be a spread of purple. If one chooses G and the other H, then there's still a chance of spread but less of it. If both choose H, the risk is highest.
- It reminds me of real life and people going out to buy things during the pandemic.
- It reminds me of how a virus spreads. In other words, a pandemic similar to the one we are currently experiencing; with some acting responsibly, and others out of avarice.
- Reminds me a little of punnett squares in biology. Also reminds me of the contamination graphs and statistics I've seen regarding COVID-19. If two folks are both wearing a mask and neither one is infected no one will get the virus, if one is and one isnt but only one is wearing a mask they will be protected but if in that same sutuation they were both wearing masks but still coming into contact the liklihood of contagiousness is lower
- Social distancing. Making choices that benefit the collective vs the individual.
- Coronavirus. Dangerous behaviors not only increase the chances of that individual being infected, but also increase the rate of infection within the entire community. So it ultimately is self-defeating.
- The idea that some people have an "every man for himself" mentality and will take more risk/put others at risk more specifically with regard to Covid-19.
- The spread of Covid-19, or any other infectious disease for that matter.
- the way that you turn from blue to purple kind of reminds me of the way infection can work (have been thinking about the passing of germs/illness because of the pandemic)

VM1-4.3 Messages

VM1-4.4 General comments

- I would love to see the results of this game!
- i was nervous about being 'turned' purple. and not knowing. and how many people did i turn purple by accident.
- Honestly I think hardly anyone actually got a bonus. People are just not safe.
- I think the concept was really cool, and well executed
- Lots of instructions but I played mostly like I had assumed I wasn't going to win. Which is actually really interesting because I do believe with the current measures I'm taking my outlook for not getting covid 19 is higher than the liklihood I'd end the game as a blue player.

Example	Message to G-players	Message to H-players
1	Risk averse.	Not risk averse.
2	Good job, at least they were worried about other players.	Greed isn't everything but we are all humans.
3	Thank you for choosing the option that benefitted everybody!	Be careful not to get too greedy - the chances of losing the entire bonus grow much faster than you might think!
4	Smart people who don't take unnecessary risks	People that don't care about how risky something is.
5	You went pretty safe huh	Going for the best bonus just like me
6	I appreciate your consideration, we have the same value.	If you didn't change to purple , good for you.
7	Playing it safe - it makes sense to me.	Risky and could mess up other peoples chances of staying blue, but could also potentially get you a lot of bonus money.
8	Thank you, you minimized everyone's risk.	You increased the risk for everyone. The extra bonus might not have been the worth of risk of losing all of it
9	You are very conservative and probably nice. I think we may have a lot in common.	You are very bold. That's admirable (at best), but I probably wouldn't depend on you as a friend.
10	They chose the less risky option and so they're smart.	They're risk-takers and gamblers, so they can't be upset if they turned up purple at the end.
11	It's a decent strategy	They are braver than I was.
12	Thanks!	You are only fighting against and defeating yourself.
13	Are you not worried about money?	You clearly wanted to max out on potential
14	This seems smarter but you never know how other people are reacting.	Everybody want's more don't feel bad.

- I think this game is interesting, and is actually kind of fun.
- I think this is a very nice way of showing people how their selfish actions can affect others, and would be useful for a lot of people to learn!
- Not really, it was mostly nerve wrecking if i thought too much about it. I went with my gut feeling. There might be a high probability that I'm a purple player, but at least I enjoyed the game. Sort of how life is: you should enjoy as much of it as you can. Take risks. No one gets out alive anyway. Also I wish you all good luck with the study and stay safe!
- The strategy was a lot of fun , and it is the ultimate risk/reward game which I found appealing.
- It was fun and challenging and interesting to try to strategize.

VM1-4.5 COVID-19 comments

- I am following orders and doing my part, but I do think it is not as severe as they say. I think it is doing more harm to the economy than anything.
- It has been very difficult for me any family. I have experienced a great amount of anxiety and social isolation which has been tough and the financial impact has been devastating.
- i just want it to go away
- There is nothing more important than limiting the number of death. Rushing to reopen the economy is just going to create disasters. With the current federal government failing to take the lead, the cases in the reopened areas for sure will increase.
- Just that this seems like a long term thing. It's like Nature is rebelling and to this day there is no end in sight. Everyone should stay safe and practice social distancing.
- First it was flatten the curve now its wait for a cure to end the lockdown....no proof we will ever have a cure
- We have lost so many people because of the stupidity and narcissism of the current occupant of the white house.
- I would only add that I think it should be science - not politics or economic concerns - that dictate reopening.
- Though I have not been tested yet it is likely that I have COVID as two of the people I am currently living with tested positive
- I just want to stay healthy, man.
- The world copied my isolated OCD lifestyle.

- I think the people who refuse to socially distance are very selfish and need to learn how to be more comfortable by themselves at home. There are many people who live at home alone and have been doing so for many years. It isn't as hard as they make it out to be. We must continue this for the sake of our friends and family and their health. I live with people who are high risk and I don't want to hurt them just because some selfish idiot can go out and party.
- In my opinion, the media overblew the COVID-19 crisis.
- Horrible mess that has confirmed many of my worst fears about the human species.
- I'm shocked at how quickly it became a political football. I knew that we were a nation divided, but I didn't think people would be so willing to cause actual deaths in order to score political points.
- Our state opened way too early and the average person doesn't have enough money to choose not to work, the poor are being sacrificed so the rich can get fancy meals and haircuts. They don't care about us.
- Go research how hydroxychloroquine and zinc work well against COVID-19 and how it was suggested by the President back in April and how well its doing in some countries (like France)
- I started out very afraid and over time feel more numb about it. It's hard to know what's true with so many opposing views flooding the media. I cannot stay home forever. We wear masks, use sanitizer and remain socially distant.
- Yes. I believe that the virus ran through the USA starting back in November. Many people had horrific flu during that time that may have been the virus. I believe there is now herd immunity. I believe the virus is mainly a powerful pneumonia. People who are bedridden, obese, move very slowly, have pre existing conditions are more likely to die from pneumonia. I do believe the virus is man made. I believe humans do have healthy immune systems generally speaking and so can get over the virus and survive. I believe the virus heavily favors men over women. I don't believe families with children should struggle to survive , having lost jobs, income and ability to feed themselves, so that very elderly patients who are going to die anyway, should live. The human condition itself is fatal. No one gets out alive. It has always been survival of the fittest on this planet and that remains the same as long as we live here. I doubt very much that elderly grandparents want society to crash and a depression ensue so they can live longer. Too many virus death statistics are skewed. Roy Horn is said to have died from the virus. He was MAULED by a tiger 17 years ago. The attack severed Horn's spine, drained his blood, and severely injured other parts of his body, permanently impairing his motor and verbal abilities. He also had a stroke either before or after Montecore dragged him offstage. He was 75 years old when he finally died. He most likely was bedridden and the pneumonia part of the virus killed him. Pneumonia deaths are the leading cause of death for nursing home, elderly and people with preexisting debilitating conditions. To lock down the entire world for a virulent for of pneumonia is idiotic. We are living in an idiocracy now, with the world dumbed

down by the internet. Finally I don't think the constitution was written with an exemption for illness or bad germs. Men do not belong locked at home. Since men are the main targets and old men, let them take their chances out in the world. Perhaps, if we must, keep women and children home and of course old and infirm people but let the healthy men out. Oh and as a side point remember when they said masks wouldn't help and now they are mandating them? Yeah, I don't trust anything the media or people with a vested interest in vaccines have to say. When hospitals make more per covid patient than for regular pneumonia patients, and hospitals can make no money from elective surgeries then hospitals are incentivized to diagnize covid over any other diagnose and put people on ventilators. Money talks, in all walks of life. We never did see people falling on their faces, as we saw in Chinese video's. Wonder why. The local homeless population is doing well and have added more tents to the local tent city at my nearby park. They do not wear masks, gloves or obviously wash much. They have no problem begging on the local street corners as usual and many of these are old men, or unhealthy looking drug addicts. Their immune systems must be protecting them. So I use my own discerning abilities to decide for myself, if I should go outside and wear a mask etc.

- i just dont know whether quarantining and social distancing is effective enough to out-ways the cons of not working/socializing. I also dont like how certain videos are being taken down by youtube/facebook- the more open the discussions the better i feel. im not heartless or a trump supporter- i understand its devastating to older folks and people with weakened immune systems- but i do think the pandemic fire is being stoked by the media- i dont think its as harmful as theyre saying... i dont know.

- I've seen people online spreading pseudoscience and people who completely lack empathy. The opposite is also true, but I wish there were less people out there that were willfully ignorant or uncaring of hurting others. And besides, if we protect others then we should hope that they would do the same for us so that it is a net gain to all of our safety. To think that you should only protect your own and to hell with other people only puts that individual at a higher risk of contracting the disease if everyone thought that way. It's intellectually bankrupt in my opinion. I don't think there is much we can do other than wait patiently for a vaccine, economy be damned.

VM1-4.6 Final

- thought it was really different and fun and paid well

- Pretty fun and not too long.

- that was long. i don't like math. thank you. goodnight.

- The survey has a lot of question that I had to think about. It was fun to do and made me further question my morals between different topics.

- I'd love to see the overall game results

- It was both weird at times, and eye-opening at times. I had to look at myself in ways I've never considered. The survey worked well from a technical standpoint and I had no issues. Well done!
- I feel incredibly sad. I'm worried for my family and I hate our government. The handful of people there actually fighting for us are demonized/ My own mother posts those stupid articles. Billionaires are making record profits and wont pay their workers' sick leave. I'm angry. No one understands what's right and wrong anymore.
- Hope your staying healthy and have a wonderful day!

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