The relationship between a translational cognitive measure of negative bias and self-reported psychiatric symptoms in a large online sample

Background

This study builds on prior work developing a measure of negative affective bias as indexed by proportion of mid tones interpreted as high reward ('p(mid as high)') in A) a rat pharmacological model of mood and anxiety disorders (Hales et al., 2016) and B) humans with mood and anxiety disorders relative to healthy controls (Aylward et al., 2019).

Task details

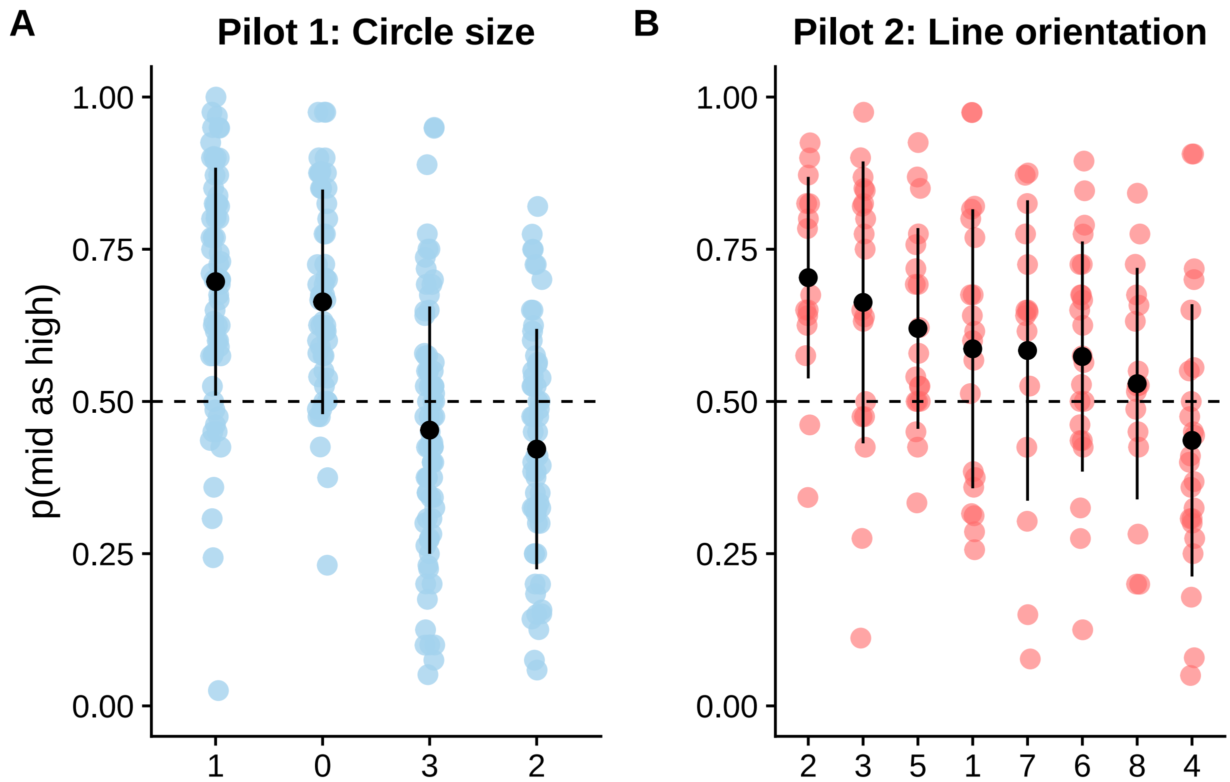
In both cases, the 2-alternative-forced-choice task involved training participants to press a button/lever (left or right) when they heard a tone (high or low) to receive a reward (1 or 3 £/rat pellets). The stimulus-response-outcome contingencies were 100% (but counterbalanced across individuals). Following training, participants were then also played tones of a frequency exactly equidistant between the high and low tones. The primary outcome of interest is the proportion of times the participant pressed the button/lever associated with the high reward outcome for the ambiguous mid tone (referred to as 'p(mid as high)'). Of note, the rat study is a within-subject anxiogenic manipulation, whereas the human study is a case control design. Both A) symptomatic ('Symptom') rats and B) humans both demonstrate significantly increased negative affective bias (i.e. reduced prediction that ambiguous outcomes will lead to higher rewards: 'p(mid as high)') relative to non-symptomatic controls ('HC').

Next steps

This prior work suggests that this cognitive measure is sensitive to pathological symptoms. We have three objectives for the present study. Firstly we wanted to explore and remove sources of between-subject bias within the task so as to maximise our chances of measuring individual differences in task performance. Secondly, we wanted to explore factors which contribute to individual differences in task performance in a large cross-sectional sample. Specifically, we are interested in which specific psychiatric-relevant symptoms/traits contribute to task performance. Finally, once we identify relevant traits, can we re-capitulate the effect of clinical screening in a large unscreened online sample?

1: Piloting to explore sources of between-subject bias

To speed up data collection and facilitate the collection of larger samples we adapted the task for online use. To this end, we decided to switch the task from the auditory domain (which would require us to check/trust that remote participants could hear the stimuli) to the visual domain. In the first pilot A) we tested N=264 participants in a version of the task which substituted high and low frequency tones of large and small area circles. This lead to four counterbalancing versions (labelled 1-4 below; sorted by level of bias). Following discovery of clear between-subject bias we next tested B) N=158 individuals on a task that involved orientation of a line. Instead of high/low we had vertical/horizontal. The intermediate stimuli were either 45 or 135 degrees, which lead to 8 counterbalancing versions (labelled 1-8 below; sorted by level of bias).




```
##              Df Sum Sq Mean Sq F value Pr(>F)
## group         3  3.964  1.3215   35.28 <2e-16 ***
## Residuals   260  9.739  0.0375
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##           eta.sq eta.sq.part
## group 0.2893019   0.2893019

##              Df Sum Sq Mean Sq F value  Pr(>F)
## group         7  0.929 0.13267   3.077 0.00475 **
## Residuals   143  6.165 0.04311
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##           eta.sq eta.sq.part
## group 0.1309089   0.1309089

##   Tukey multiple comparisons of means
##     95% family-wise confidence level
##
## Fit: aov(formula = Pmid ~ group, data = pilot1cb)
##
## $group
##             diff         lwr        upr     p adj
```

```
## 1-0  0.03319086 -0.05510565  0.1214874 0.7655217
## 2-0 -0.24185068 -0.33400241 -0.1496990 0.0000000
## 3-0 -0.21067170 -0.29843425 -0.1229092 0.0000000
## 2-1 -0.27504154 -0.36251921 -0.1875639 0.0000000
## 3-1 -0.24386256 -0.32670376 -0.1610213 0.0000000
## 3-2  0.03117898 -0.05575969  0.1181177 0.7902342
```

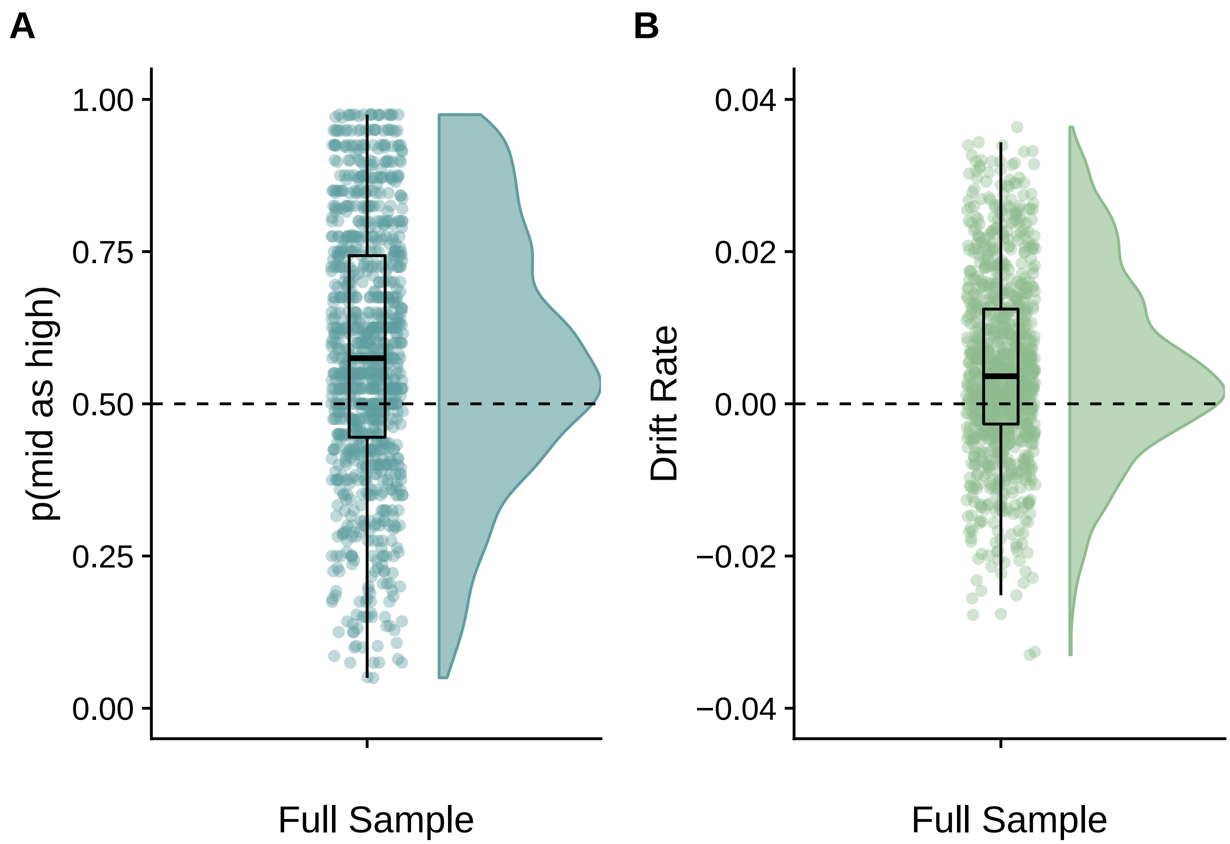
```
##   Tukey multiple comparisons of means
##     95% family-wise confidence level
##
## Fit: aov(formula = Pmid ~ group, data = pilot2cb)
##
## $group
##             diff         lwr         upr     p adj
## 2-1  0.116847213 -0.10133355  0.33502797 0.7205659
## 3-1  0.076216643 -0.12842007  0.28085336 0.9453463
## 4-1 -0.150419157 -0.34381573  0.04297742 0.2529895
## 5-1  0.033392280 -0.17124444  0.23802900 0.9996371
## 6-1 -0.012709407 -0.20800766  0.18258885 0.9999993
## 7-1 -0.002821500 -0.22100226  0.21535926 1.0000000
## 8-1 -0.057236747 -0.27148600  0.15701251 0.9916272
## 3-2 -0.040630570 -0.26125829  0.17999715 0.9991964
## 4-2 -0.267266370 -0.47751061 -0.05702213 0.0034682
## 5-2 -0.083454933 -0.30408266  0.13717279 0.9407917
## 6-2 -0.129556620 -0.34155147  0.08243823 0.5668175
## 7-2 -0.119668713 -0.35291376  0.11357633 0.7624254
## 8-2 -0.174083960 -0.40365562  0.05548770 0.2834033
## 4-3 -0.226635800 -0.42278876 -0.03048284 0.0117584
## 5-3 -0.042824363 -0.25006802  0.16441930 0.9983082
## 6-3 -0.088926050 -0.28695422  0.10910212 0.8642912
## 7-3 -0.079038143 -0.29966587  0.14158958 0.9554490
## 8-3 -0.133453390 -0.35019400  0.08328722 0.5571819
## 5-4  0.183811438 -0.01234152  0.37996440 0.0838114
## 6-4  0.137709750 -0.04868018  0.32409968 0.3158952
## 7-4  0.147597657 -0.06264658  0.35784190 0.3824994
## 8-4  0.093182411 -0.11297903  0.29934385 0.8602737
## 6-5 -0.046101687 -0.24412986  0.15192649 0.9964027
## 7-5 -0.036213780 -0.25684150  0.18441394 0.9996228
## 8-5 -0.090629027 -0.30736963  0.12611158 0.9025639
## 7-6  0.009887907 -0.20210694  0.22188275 0.9999999
## 8-6 -0.044527340 -0.25247376  0.16341908 0.9978766
## 8-7 -0.054415247 -0.28398691  0.17515642 0.9959758
```

Interpretation

Both tasks demonstrate clear sources of between-subject bias. In short, individuals demonstrated 'higher' bias when large (or vertical) stimuli were paired with large rewards on the right hand side. These reflect pre-potent biases (e.g. bigger things usually cost more and in latinate languages we read from left to right etc.). Smaller biases were observed when the stimulus-response-outcome contingencies were incongruent with these pre-potent biases. These biases add to the noise in within-subject or case-control designs, but effects can still be observed over and above these effects. Unfortunately if we care about within-subject differences in a cross-sectional design we have to remove this. We decided to restrict further testing to the intermediate bias scores on pilot 2 (counterbalancing 1 and 7). Thus we would need to control for counterbalancing but would only have two groups (rather than 8). Of note, we chose pilot 2 design rather than pilot 1 because a circle has both area and diameter that a participant may attend to, whereas there is only one interpretation of line orientation.

2: Exploring contributors to bias in cross-sectional data

We next collected data from N=1066 using counterbalancing 1 and 7 from pilot 2. As in the pilot the full sample demonstrate a) affective bias (p(mid) as high) and d) drift rate that are significantly biased towards highest reward (see results of one sample t-tests below figure). Drift rate is a parameter from a 'drift diffusion model' of decision making that we discussed in Aylward et al. 2019. The effects are strongly correlated with p(mid as high), but presented for completeness. Since the internal reliability of a measure puts an upper limit on relationship between that measure and other measures we also determined the split-half reliability (for 100000 random splits) of individual's responses to the 40 ambigous trials.




```
##
##  One Sample t-test
##
## data:  combineditemdata$propmedhigh
## t = 12.089, df = 993, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0.5
## 95 percent confidence interval:
##  0.5671525 0.5931778
## sample estimates:
## mean of x
## 0.5801652
```

```
##
##  One Sample t-test
##
## data:  combineditemdata$driftrate
## t = 12.113, df = 993, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  0.003843921 0.005330160
## sample estimates:
##  mean of x
## 0.00458704
```

	mean	std	lower range	upper range
Age	34	10	18	76
Ravens	4	3	0	12
OCIR	42	18	18	90
SZ	16	9	0	51
BDI	15	12	0	56
STAI	45	12	20	78

```
## Split half reliabilities
## Call: splitHalf(r = dataforsh, raw = T, brute = FALSE, n.sample = 1e+05,
##     covar = FALSE, check.keys = TRUE, key = NULL, ci = 0.05,
##     use = "pairwise")
##
## Maximum split half reliability (lambda 4) =  0.94
## Guttman lambda 6                          =  0.92
## Average split half reliability            =  0.91
## Guttman lambda 3 (alpha)                  =  0.91
## Minimum split half reliability  (beta)    =  0.86
## Average interitem r =  0.21  with median =  0.21
##                                              2.5% 50% 97.5%
##  Quantiles of split half reliability      =  0.9 0.92 0.93
```

Simple Linear Regression of measures

To explore the impact of trait/demographic measures on task performance we next ran a linear regression (using Robust ML estimator for consistency with SEM below) to predict p(mid as high)('propmedhigh' variable). The variables we included are:

- Spreadsheet (categorical): represents the counterbalancing condition
- Ravens (continuous): IQ measure (visual matrices)
- Age (continuous): years old
- BDI (continuous): Beck depression inventory (suicide question removed)
- STAI2 (continuous): Spielberger Trait Anxiety
- OCIR (continuous): Obsessive-Compulsive Inventory (Revised)
- SZ (continuous): Schizotypal short scale
- September1.April2 (categorical): Two batches of data
- TakeDrugs (categorical): Current use of psychoactive compounds
- GenderMF (categorical): Self-reported gender
- CurrentMH (categorical): Are you suffering from current mental health problems?

```r
NegBiasmodel.1 <- 'propmedhigh ~ GenderMF + Age + Ravens + spreadsheet +BDI + STAI2 + SZ + OCIR'
NegBiasmodel.2 <- 'driftrate ~ GenderMF + Age + Ravens + spreadsheet +BDI + STAI2 + SZ + OCIR'


fit1 <- sem(NegBiasmodel.1, data=combineditemdata, meanstructure=TRUE,  estimator = "MLR")
fit2 <- sem(NegBiasmodel.2, data=combineditemdata, meanstructure=TRUE,  estimator = "MLR")


summary(fit1, standardized=TRUE, rsquare=T, fit.measures=F)
```

```
## lavaan 0.6-3 ended normally after 59 iterations
##
##   Optimization method                           NLMINB
##   Number of free parameters                         10
##
##                                                   Used       Total
##   Number of observations                           990        1066
##
##   Estimator                                         ML      Robust
##   Model Fit Test Statistic                       0.000       0.000
##   Degrees of freedom                                 0           0
##   Minimum Function Value               0.0000000000000
##   Scaling correction factor                                     NA
##     for the Yuan-Bentler correction (Mplus variant)
##
## Parameter Estimates:
##
##   Information                                 Observed
##   Observed information based on                Hessian
##   Standard Errors                   Robust.huber.white
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   propmedhigh ~
##     GenderMF         -0.005    0.013   -0.390    0.697   -0.005   -0.012
##     Age              -0.002    0.001   -3.822    0.000   -0.002   -0.120
##     Ravens            0.010    0.002    4.323    0.000    0.010    0.144
##     spreadsheet       0.006    0.002    2.744    0.006    0.006    0.085
##     BDI              -0.002    0.001   -2.373    0.018   -0.002   -0.121
##     STAI2             0.001    0.001    0.789    0.430    0.001    0.037
##     SZ               -0.001    0.001   -1.145    0.252   -0.001   -0.056
##     OCIR              0.000    0.001    0.087    0.931    0.000    0.004
##
## Intercepts:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .propmedhigh       0.663    0.042   15.791    0.000    0.663    3.166
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .propmedhigh       0.041    0.002   24.796    0.000    0.041    0.943
##
## R-Square:
##                    Estimate
```

```
##     propmedhigh       0.057
```

```
summary(fit2, standardized=TRUE, rsquare=T, fit.measures=F)
```

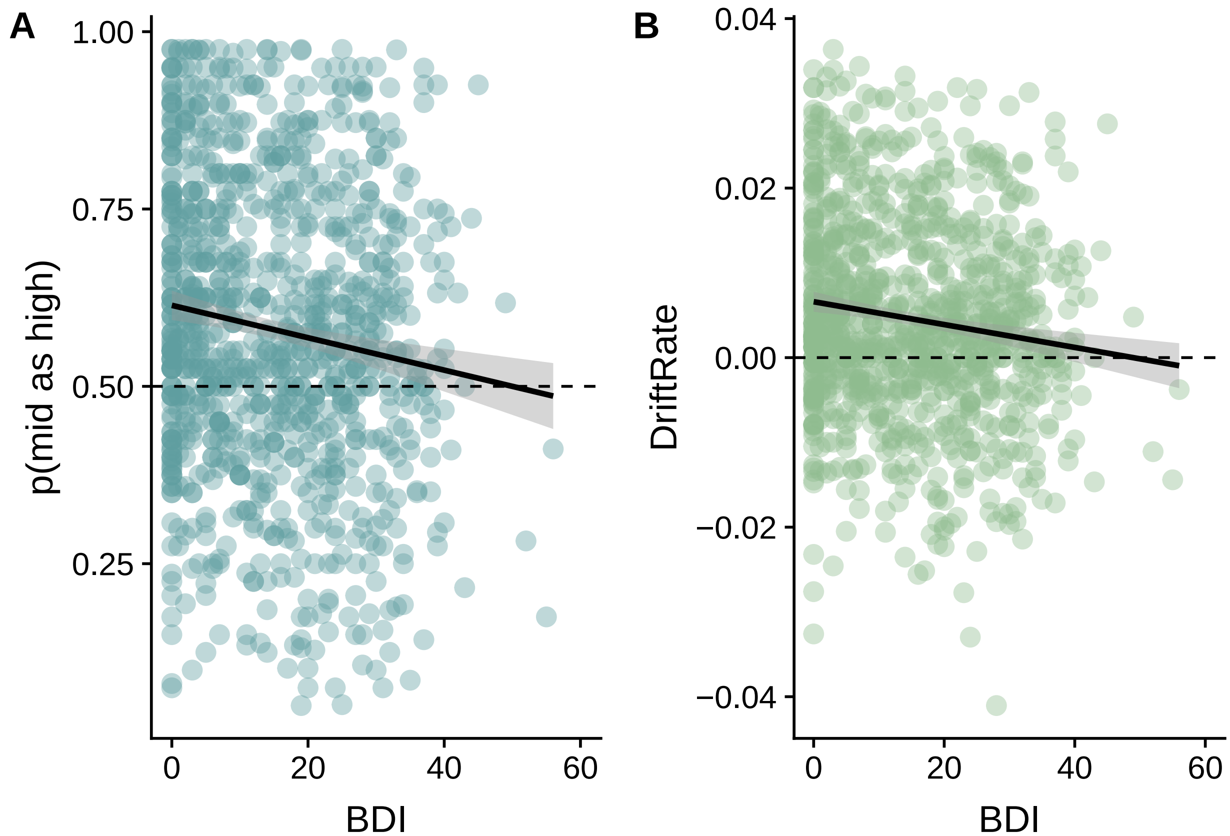
```
## lavaan 0.6-3 ended normally after 124 iterations
##
##   Optimization method                           NLMINB
##   Number of free parameters                         10
##
##                                                   Used       Total
##   Number of observations                           990        1066
##
##   Estimator                                         ML      Robust
##   Model Fit Test Statistic                       0.000       0.000
##   Degrees of freedom                                 0           0
##   Scaling correction factor                                     NA
##     for the Yuan-Bentler correction (Mplus variant)
##
## Parameter Estimates:
##
##   Information                                 Observed
##   Observed information based on                Hessian
##   Standard Errors                   Robust.huber.white
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   driftrate ~
##     GenderMF         -0.000    0.001   -0.421    0.674   -0.000   -0.013
##     Age              -0.000    0.000   -3.611    0.000   -0.000   -0.113
##     Ravens            0.001    0.000    4.348    0.000    0.001    0.146
##     spreadsheet       0.000    0.000    2.766    0.006    0.000    0.086
##     BDI              -0.000    0.000   -2.533    0.011   -0.000   -0.127
##     STAI2             0.000    0.000    0.876    0.381    0.000    0.040
##     SZ               -0.000    0.000   -1.355    0.175   -0.000   -0.066
##     OCIR              0.000    0.000    0.392    0.695    0.000    0.018
##
## Intercepts:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .driftrate         0.009    0.002    3.707    0.000    0.009    0.740
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .driftrate         0.000    0.000   21.371    0.000    0.000    0.943
##
## R-Square:
##                    Estimate
##     driftrate         0.057
```

Interpretation

Affective bias and drift rate are both significantly influenced by IQ, Age, BDI and counterbalancing only. Thus of mental health relevant symptoms, task performance appears to be more driven by depresson than anxiety, OCD, or psychosis related traits.

Correlation between task performance and depression symptoms

To illustrate the effect of depression in the regression we plot the correlation between BDI and pmidhigh/drift rate in raw scores. Consistent with our prior work, increased depression is associated with reduced p(mid as high)(i.e. increased negative bias).




```
##
##  Pearson's product-moment correlation
##
## data:  combineditemdata$BDI and combineditemdata$propmedhigh
## t = -4.1239, df = 992, p-value = 4.036e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.19046936 -0.06819752
## sample estimates:
##       cor
## -0.129827
```

```
##
##  Pearson's product-moment correlation
##
## data:  combineditemdata$BDI and combineditemdata$driftrate
## t = -4.2639, df = 992, p-value = 2.2e-05
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.19471183 -0.07258157
```

```
## sample estimates:
##        cor
## -0.1341561
```

Exploring latent variable structure of the Questionnaires

The linear regression assumes that the summary scores of the questionnaires represent discrete categories. However, it is possible that effects are driven by a generic 'mental ill health' factor (sometimes referred to as a P factor model). Or, some questionnaires (e.g. BDI and trait anxiety, which are usually highly correlated) actually meausure a single latent 'negative affect' factor. To test for these possibilities we explore four confirmatory factor analyses feeding the individual items from the questionnaires into 1-4 latent factors. The 4 latent factor CFA represents the items feeding into the original questionnaires.

```
###Testing different measurement models

pFactor1<-'#specifying measurement model

P   =~ BDI_Appetite_quantised   +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised   +
        STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
```

```
    STAI2_Tension_quantised +
    STAI2_Thoughts_quantised +
    STAI2_UnimportantThought_quantised +
    STAI2_Worry_quantised +
   OCIR_14_quantised    +
   OCIR_15_quantised    +
   OCIR_16_quantised    +
   OCIR_17_quantised    +
   OCIR_18_quantised    +
   OCIR_2_quantised +
   OCIR_3_quantised +
   OCIR_4_quantised +
   OCIR_5_quantised +
   OCIR_6_quantised +
   OCIR_7_quantised +
   OCIR_8_quantised +
   OCIR_9_quantised +
   OCIR_1_quantised +
   OCIR_10_quantised    +
   OCIR_11_quantised    +
   OCIR_12_quantised    +
   OCIR_13_quantised  +
  SZ_1_quantised    +
  SZ_10_quantised   +
  SZ_11_quantised +
  SZ_12_quantised +
  SZ_13_quantised +
  SZ_14_quantised +
  SZ_15_quantised +
  SZ_16_quantised +
  SZ_17_quantised +
  SZ_18_quantised +
  SZ_19_quantised +
  SZ_2_quantised +
  SZ_20_quantised +
  SZ_21_quantised +
  SZ_22_quantised +
  SZ_23_quantised +
  SZ_24_quantised +
  SZ_25_quantised +
  SZ_26_quantised +
  SZ_27_quantised +
  SZ_28_quantised +
  SZ_29_quantised +
  SZ_3_quantised +
  SZ_30_quantised +
  SZ_31_quantised +
  SZ_32_quantised +
  SZ_33_quantised +
  SZ_34_quantised +
  SZ_35_quantised +
  SZ_36_quantised +
  SZ_37_quantised +
```

```
      SZ_38_quantised +
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised
'

BiFactor2<-'#specifying measurement model

ANXDEP =~ BDI_Appetite_quantised    +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised   +
        STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
        STAI2_Tension_quantised +
        STAI2_Thoughts_quantised +
```

```
        STAI2_UnimportantThought_quantised +
        STAI2_Worry_quantised

OTH =~ OCIR_14_quantised    +
       OCIR_15_quantised    +
       OCIR_16_quantised    +
       OCIR_17_quantised    +
       OCIR_18_quantised    +
       OCIR_2_quantised +
       OCIR_3_quantised +
       OCIR_4_quantised +
       OCIR_5_quantised +
       OCIR_6_quantised +
       OCIR_7_quantised +
       OCIR_8_quantised +
       OCIR_9_quantised +
       OCIR_1_quantised +
       OCIR_10_quantised    +
       OCIR_11_quantised    +
       OCIR_12_quantised    +
       OCIR_13_quantised  +
      SZ_1_quantised    +
      SZ_10_quantised   +
      SZ_11_quantised +
      SZ_12_quantised +
      SZ_13_quantised +
      SZ_14_quantised +
      SZ_15_quantised +
      SZ_16_quantised +
      SZ_17_quantised +
      SZ_18_quantised +
      SZ_19_quantised +
      SZ_2_quantised +
      SZ_20_quantised +
      SZ_21_quantised +
      SZ_22_quantised +
      SZ_23_quantised +
      SZ_24_quantised +
      SZ_25_quantised +
      SZ_26_quantised +
      SZ_27_quantised +
      SZ_28_quantised +
      SZ_29_quantised +
      SZ_3_quantised +
      SZ_30_quantised +
      SZ_31_quantised +
      SZ_32_quantised +
      SZ_33_quantised +
      SZ_34_quantised +
      SZ_35_quantised +
      SZ_36_quantised +
      SZ_37_quantised +
      SZ_38_quantised +
```

```
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised
'

TriFactor3<-'#specifying measurement model

ANXDEP =~ BDI_Appetite_quantised    +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised   +
        STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
        STAI2_Tension_quantised +
        STAI2_Thoughts_quantised +
        STAI2_UnimportantThought_quantised +
```

```
        STAI2_Worry_quantised

OCD =~ OCIR_14_quantised    +
       OCIR_15_quantised    +
       OCIR_16_quantised    +
       OCIR_17_quantised    +
       OCIR_18_quantised    +
       OCIR_2_quantised +
       OCIR_3_quantised +
       OCIR_4_quantised +
       OCIR_5_quantised +
       OCIR_6_quantised +
       OCIR_7_quantised +
       OCIR_8_quantised +
       OCIR_9_quantised +
       OCIR_1_quantised +
       OCIR_10_quantised    +
       OCIR_11_quantised    +
       OCIR_12_quantised    +
       OCIR_13_quantised

SZ =~ SZ_1_quantised    +
      SZ_10_quantised   +
      SZ_11_quantised +
      SZ_12_quantised +
      SZ_13_quantised +
      SZ_14_quantised +
      SZ_15_quantised +
      SZ_16_quantised +
      SZ_17_quantised +
      SZ_18_quantised +
      SZ_19_quantised +
      SZ_2_quantised +
      SZ_20_quantised +
      SZ_21_quantised +
      SZ_22_quantised +
      SZ_23_quantised +
      SZ_24_quantised +
      SZ_25_quantised +
      SZ_26_quantised +
      SZ_27_quantised +
      SZ_28_quantised +
      SZ_29_quantised +
      SZ_3_quantised +
      SZ_30_quantised +
      SZ_31_quantised +
      SZ_32_quantised +
      SZ_33_quantised +
      SZ_34_quantised +
      SZ_35_quantised +
      SZ_36_quantised +
      SZ_37_quantised +
      SZ_38_quantised +
```

```
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised
'
Quaires4 <-'#specifying measurement model

BDI =~ BDI_Appetite_quantised   +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised

OCD =~ OCIR_14_quantised    +
       OCIR_15_quantised    +
       OCIR_16_quantised    +
       OCIR_17_quantised    +
       OCIR_18_quantised    +
       OCIR_2_quantised +
       OCIR_3_quantised +
       OCIR_4_quantised +
       OCIR_5_quantised +
       OCIR_6_quantised +
       OCIR_7_quantised +
       OCIR_8_quantised +
       OCIR_9_quantised +
       OCIR_1_quantised +
       OCIR_10_quantised    +
       OCIR_11_quantised    +
       OCIR_12_quantised    +
       OCIR_13_quantised
```

```
SZ =~ SZ_1_quantised    +
      SZ_10_quantised   +
      SZ_11_quantised +
      SZ_12_quantised +
      SZ_13_quantised +
      SZ_14_quantised +
      SZ_15_quantised +
      SZ_16_quantised +
      SZ_17_quantised +
      SZ_18_quantised +
      SZ_19_quantised +
      SZ_2_quantised +
      SZ_20_quantised +
      SZ_21_quantised +
      SZ_22_quantised +
      SZ_23_quantised +
      SZ_24_quantised +
      SZ_25_quantised +
      SZ_26_quantised +
      SZ_27_quantised +
      SZ_28_quantised +
      SZ_29_quantised +
      SZ_3_quantised +
      SZ_30_quantised +
      SZ_31_quantised +
      SZ_32_quantised +
      SZ_33_quantised +
      SZ_34_quantised +
      SZ_35_quantised +
      SZ_36_quantised +
      SZ_37_quantised +
      SZ_38_quantised +
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised

STAI =~ STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
```

```
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
        STAI2_Tension_quantised +
        STAI2_Thoughts_quantised +
        STAI2_UnimportantThought_quantised +
        STAI2_Worry_quantised
'

FitpFactor1<- cfa(pFactor1, data = combineditemdata, estimator = "MLR", se='robust.huber.white')
FitBiFactor2<- cfa(BiFactor2, data = combineditemdata, estimator = "MLR", se='robust.huber.white')
FitTriFactor3<- cfa(TriFactor3, data = combineditemdata, estimator = "MLR", se='robust.huber.white')
FitQuaires4<- cfa(Quaires4, data = combineditemdata, estimator = "MLR", se='robust.huber.white')

FitpFactor1vars <-data.frame(fitMeasures(FitpFactor1, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea.ci
names(FitpFactor1vars) <- "P Factor"
FitBiFactor2vars<- data.frame(fitMeasures(FitBiFactor2, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea.c
names(FitBiFactor2vars) <- "Bi Factor (AnxDep vs. not)"
FitTriFactor3vars<- data.frame(fitMeasures(FitTriFactor3, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea
names(FitTriFactor3vars) <- "Tri Factor (AnxDep vs. SZ or OCD)"
FitQuaires4vars<- data.frame(fitMeasures(FitQuaires4, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea.ci
names(FitQuaires4vars) <- "Four Factor (All questionnaires)"
Allfits <- cbind.data.frame(FitpFactor1vars, FitBiFactor2vars, FitTriFactor3vars, FitQuaires4vars)
rownames(Allfits) <- c("BIC", "AIC", "RMSEA", "RMSEA CI-", "RMSEA CI+")

kable(t(Allfits), digits = 3)
```

	BIC	AIC	RMSEA	RMSEA CI-	RMSEA CI+
P Factor	206756.6	205762.2	0.071	0.071	0.072
Bi Factor (AnxDep vs. not)	199828.5	198829.1	0.061	0.060	0.062
Tri Factor (AnxDep vs. SZ or OCD)	196936.3	195927.1	0.056	0.056	0.057
Four Factor (All questionnaires)	195624.0	194599.8	0.054	0.053	0.055

Interpretation

As demonstrated by the lowest BIC/AIC the 4 factor (orignal questionnaire structure) solution is the best description of the data. This also has the lowest RMSEA, which is in turn below 0.08 and hence a good fit to the data.

Structural Equation Model of the factor structure with regression

We can now feed this factor structure into a structural equation model with the original regression analysis in it. This is similar to the linear regression, although it allows the different items of the questionnaire to have varying influence over the summary questionnaire 'factors'.

```
###SEM

QuaireSEMpmid <- '#specifying measurement model
```

```
BDI =~ BDI_Appetite_quantised   +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised

OCD =~ OCIR_14_quantised    +
       OCIR_15_quantised    +
       OCIR_16_quantised    +
       OCIR_17_quantised    +
       OCIR_18_quantised    +
       OCIR_2_quantised +
       OCIR_3_quantised +
       OCIR_4_quantised +
       OCIR_5_quantised +
       OCIR_6_quantised +
       OCIR_7_quantised +
       OCIR_8_quantised +
       OCIR_9_quantised +
       OCIR_1_quantised +
       OCIR_10_quantised    +
       OCIR_11_quantised    +
       OCIR_12_quantised    +
       OCIR_13_quantised

SZ =~ SZ_1_quantised    +
      SZ_10_quantised   +
      SZ_11_quantised +
      SZ_12_quantised +
      SZ_13_quantised +
      SZ_14_quantised +
      SZ_15_quantised +
      SZ_16_quantised +
      SZ_17_quantised +
      SZ_18_quantised +
      SZ_19_quantised +
      SZ_2_quantised +
      SZ_20_quantised +
```

```
      SZ_21_quantised +
      SZ_22_quantised +
      SZ_23_quantised +
      SZ_24_quantised +
      SZ_25_quantised +
      SZ_26_quantised +
      SZ_27_quantised +
      SZ_28_quantised +
      SZ_29_quantised +
      SZ_3_quantised +
      SZ_30_quantised +
      SZ_31_quantised +
      SZ_32_quantised +
      SZ_33_quantised +
      SZ_34_quantised +
      SZ_35_quantised +
      SZ_36_quantised +
      SZ_37_quantised +
      SZ_38_quantised +
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised

STAI =~ STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
        STAI2_Tension_quantised +
        STAI2_Thoughts_quantised +
        STAI2_UnimportantThought_quantised +
        STAI2_Worry_quantised


#Regressions
```

```
propmedhigh ~ spreadsheet + Ravens + Age + GenderMF + BDI + OCD + SZ + STAI

#residual correlations
spreadsheet ~~ Ravens + Age + GenderMF + BDI + OCD + SZ + STAI
Ravens ~~ Age  + GenderMF + BDI + OCD + SZ + STAI
Age ~~  GenderMF + BDI + OCD + SZ + STAI
GenderMF ~~ BDI + OCD + SZ + STAI
BDI ~~ OCD + SZ + STAI
OCD ~~ SZ + STAI
SZ ~~ STAI
'

QuaireSEMdrift <- '#specifying measurement model

BDI =~ BDI_Appetite_quantised   +
       BDI_Attractive_quantised +
       BDI_Blame_quantised  +
       BDI_Cry_quantised    +
       BDI_Decisions_quantised  +
       BDI_Disappointment_quantised +
       BDI_Failure_quantised    +
       BDI_Future_quantised +
       BDI_Guilty_quantised +
       BDI_Health_quantised +
       BDI_Interest_In_People_quantised +
       BDI_Irritated_quantised  +
       BDI_Libido_quantised +
       BDI_Punished_quantised   +
       BDI_Sad_quantised +
       BDI_Satisfaction_quantised   +
       BDI_Sleep_quantised  +
       BDI_Tired_quantised  +
       BDI_weight_quantised +
       BDI_Work_quantised

OCD =~ OCIR_14_quantised    +
       OCIR_15_quantised    +
       OCIR_16_quantised    +
       OCIR_17_quantised    +
       OCIR_18_quantised    +
       OCIR_2_quantised +
       OCIR_3_quantised +
       OCIR_4_quantised +
       OCIR_5_quantised +
       OCIR_6_quantised +
       OCIR_7_quantised +
       OCIR_8_quantised +
       OCIR_9_quantised +
       OCIR_1_quantised +
       OCIR_10_quantised    +
       OCIR_11_quantised    +
       OCIR_12_quantised    +
       OCIR_13_quantised
```

```
SZ =~ SZ_1_quantised    +
      SZ_10_quantised   +
      SZ_11_quantised +
      SZ_12_quantised +
      SZ_13_quantised +
      SZ_14_quantised +
      SZ_15_quantised +
      SZ_16_quantised +
      SZ_17_quantised +
      SZ_18_quantised +
      SZ_19_quantised +
      SZ_2_quantised +
      SZ_20_quantised +
      SZ_21_quantised +
      SZ_22_quantised +
      SZ_23_quantised +
      SZ_24_quantised +
      SZ_25_quantised +
      SZ_26_quantised +
      SZ_27_quantised +
      SZ_28_quantised +
      SZ_29_quantised +
      SZ_3_quantised +
      SZ_30_quantised +
      SZ_31_quantised +
      SZ_32_quantised +
      SZ_33_quantised +
      SZ_34_quantised +
      SZ_35_quantised +
      SZ_36_quantised +
      SZ_37_quantised +
      SZ_38_quantised +
      SZ_39_quantised +
      SZ_4_quantised +
      SZ_40_quantised +
      SZ_41_quantised +
      SZ_42_quantised +
      SZ_5_quantised +
      SZ_6_quantised +
      SZ_7_quantised +
      SZ_8_quantised +
      SZ_9_quantised

STAI =~ STAI2_Calm_quantised +
        STAI2_Content_quantised +
        STAI2_Desicions_quantised +
        STAI2_Difficulties_quantised +
        STAI2_DisappointmentsSelf_quantised +
        STAI2_Failure_quantised +
        STAI2_Happy_quantised +
        STAI2_HappyOthers_quantised +
        STAI2_Inadequate_quantised +
        STAI2_Nervous_quantised +
```

```r
        STAI2_Pleasant_quantised +
        STAI2_Rested_quantised +
        STAI2_SatisfiedSelf_quantised +
        STAI2_Secure_quantised +
        STAI2_SelfConfidence_quantised +
        STAI2_Steady_quantised +
        STAI2_Tension_quantised +
        STAI2_Thoughts_quantised +
        STAI2_UnimportantThought_quantised +
        STAI2_Worry_quantised


#Regressions
driftrate ~ spreadsheet + Ravens + Age + GenderMF + BDI + OCD + SZ + STAI

#residual correlations
spreadsheet ~~ Ravens + Age + GenderMF + BDI + OCD + SZ + STAI
Ravens ~~ Age  + GenderMF + BDI + OCD + SZ + STAI
Age ~~  GenderMF + BDI + OCD + SZ + STAI
GenderMF ~~ BDI + OCD + SZ + STAI
BDI ~~ OCD + SZ + STAI
OCD ~~ SZ + STAI
SZ ~~ STAI
'


FitQuaireSEMpmid <- sem(QuaireSEMpmid, data = combineditemdata, estimator = "MLR", se='robust.huber.whi
FitQuaireSEMdrift <- sem(QuaireSEMdrift, data = combineditemdata, estimator = "MLR", se='robust.huber.wh

summary(FitQuaireSEMpmid, standardized=TRUE, rsquare=T, fit.measures=F)
```

```
## lavaan 0.6-3 ended normally after 223 iterations
##
##   Optimization method                           NLMINB
##   Number of free parameters                        241
##
##                                                   Used       Total
##   Number of observations                           990        1066
##
##   Estimator                                         ML      Robust
##   Model Fit Test Statistic                   19683.727   17260.394
##   Degrees of freedom                              5324        5324
##   P-value (Chi-square)                           0.000       0.000
##   Scaling correction factor                                  1.140
##     for the Yuan-Bentler correction (Mplus variant)
##
## Parameter Estimates:
##
##   Information                                 Observed
##   Observed information based on                Hessian
##   Standard Errors                   Robust.huber.white
##
## Latent Variables:
```

```
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   BDI =~
##     BDI_Apptt_qnts    1.000                               0.584    0.651
##     BDI_Attrctv_qn    1.045    0.057   18.241    0.000    0.611    0.647
##     BDI_Blam_qntsd    1.142    0.057   19.909    0.000    0.667    0.760
##     BDI_Cry_quntsd    0.997    0.050   20.093    0.000    0.583    0.666
##     BDI_Dcsns_qnts    1.109    0.056   19.787    0.000    0.648    0.731
##     BDI_Dsppntmnt_    1.126    0.062   18.274    0.000    0.658    0.745
##     BDI_Falr_qntsd    1.142    0.061   18.655    0.000    0.667    0.730
##     BDI_Futr_qntsd    1.131    0.059   19.162    0.000    0.661    0.741
##     BDI_Glty_qntsd    1.004    0.053   18.944    0.000    0.587    0.690
##     BDI_Hlth_qntsd    0.771    0.045   16.978    0.000    0.451    0.583
##     BDI_Intrs_I_P_    1.075    0.055   19.385    0.000    0.628    0.694
##     BDI_Irrttd_qnt    1.072    0.051   20.852    0.000    0.626    0.706
##     BDI_Libd_qntsd    0.868    0.048   18.244    0.000    0.507    0.574
##     BDI_Pnshd_qnts    1.060    0.055   19.294    0.000    0.620    0.665
##     BDI_Sad_quntsd    0.945    0.048   19.683    0.000    0.552    0.714
##     BDI_Stsfctn_qn    1.097    0.059   18.534    0.000    0.641    0.689
##     BDI_Slep_qntsd    0.889    0.050   17.721    0.000    0.520    0.579
##     BDI_Tird_qntsd    0.971    0.052   18.753    0.000    0.567    0.664
##     BDI_wght_qntsd    0.558    0.043   12.882    0.000    0.326    0.456
##     BDI_Work_qntsd    1.068    0.053   20.171    0.000    0.624    0.723
##   OCD =~
##     OCIR_14_quntsd    1.000                               1.111    0.826
##     OCIR_15_quntsd    0.833    0.029   29.075    0.000    0.925    0.713
##     OCIR_16_quntsd    0.931    0.029   32.283    0.000    1.033    0.788
##     OCIR_17_quntsd    1.013    0.028   36.734    0.000    1.125    0.840
##     OCIR_18_quntsd    0.980    0.028   34.839    0.000    1.089    0.820
##     OCIR_2_quantsd    0.834    0.028   30.262    0.000    0.926    0.714
##     OCIR_3_quantsd    0.810    0.028   28.552    0.000    0.900    0.714
##     OCIR_4_quantsd    0.934    0.027   35.234    0.000    1.037    0.805
##     OCIR_5_quantsd    0.894    0.030   29.657    0.000    0.993    0.767
##     OCIR_6_quantsd    0.849    0.030   28.000    0.000    0.942    0.735
##     OCIR_7_quantsd    0.799    0.029   27.687    0.000    0.887    0.720
##     OCIR_8_quantsd    0.982    0.025   39.513    0.000    1.090    0.816
##     OCIR_9_quantsd    0.819    0.028   29.298    0.000    0.910    0.719
##     OCIR_1_quantsd    0.856    0.027   32.152    0.000    0.950    0.743
##     OCIR_10_quntsd    0.975    0.025   38.418    0.000    1.083    0.845
##     OCIR_11_quntsd    0.972    0.027   35.748    0.000    1.079    0.829
##     OCIR_12_quntsd    0.900    0.030   29.821    0.000    0.999    0.770
##     OCIR_13_quntsd    0.780    0.028   27.801    0.000    0.866    0.687
##   SZ =~
##     SZ_1_quantised    1.000                               0.304    0.624
##     SZ_10_quantisd    0.832    0.042   19.768    0.000    0.253    0.598
##     SZ_11_quantisd    0.813    0.044   18.281    0.000    0.247    0.500
##     SZ_12_quantisd    0.789    0.045   17.483    0.000    0.240    0.501
##     SZ_13_quantisd    0.904    0.048   18.685    0.000    0.274    0.557
##     SZ_14_quantisd    0.872    0.053   16.390    0.000    0.265    0.530
##     SZ_15_quantisd    0.923    0.051   17.936    0.000    0.280    0.562
##     SZ_16_quantisd    0.716    0.051   13.956    0.000    0.217    0.435
##     SZ_17_quantisd    0.840    0.049   17.252    0.000    0.255    0.514
##     SZ_18_quantisd    0.972    0.050   19.599    0.000    0.295    0.599
##     SZ_19_quantisd    0.842    0.049   17.290    0.000    0.256    0.514
##     SZ_2_quantised    0.949    0.044   21.519    0.000    0.288    0.591
```

```
##     SZ_20_quantisd    0.951    0.044   21.644    0.000    0.289    0.637
##     SZ_21_quantisd    0.894    0.050   17.929    0.000    0.272    0.549
##     SZ_22_quantisd    0.871    0.052   16.717    0.000    0.265    0.532
##     SZ_23_quantisd    0.885    0.049   17.998    0.000    0.269    0.548
##     SZ_24_quantisd    0.883    0.046   19.057    0.000    0.268    0.546
##     SZ_25_quantisd    0.800    0.046   17.379    0.000    0.243    0.491
##     SZ_26_quantisd   -0.009    0.047   -0.193    0.847   -0.003   -0.006
##     SZ_27_quantisd    0.059    0.048    1.242    0.214    0.018    0.039
##     SZ_28_quantisd   -0.049    0.055   -0.897    0.370   -0.015   -0.031
##     SZ_29_quantisd    0.602    0.049   12.279    0.000    0.183    0.371
##     SZ_3_quantised    0.792    0.043   18.237    0.000    0.240    0.548
##     SZ_30_quantisd    0.115    0.055    2.100    0.036    0.035    0.071
##     SZ_31_quantisd    0.038    0.046    0.829    0.407    0.012    0.026
##     SZ_32_quantisd    0.697    0.050   13.975    0.000    0.212    0.429
##     SZ_33_quantisd    0.459    0.050    9.104    0.000    0.139    0.289
##     SZ_34_quantisd   -0.052    0.047   -1.122    0.262   -0.016   -0.035
##     SZ_35_quantisd    0.784    0.042   18.515    0.000    0.238    0.569
##     SZ_36_quantisd    0.846    0.048   17.786    0.000    0.257    0.516
##     SZ_37_quantisd   -0.206    0.050   -4.076    0.000   -0.062   -0.136
##     SZ_38_quantisd    0.907    0.043   21.043    0.000    0.275    0.597
##     SZ_39_quantisd   -0.010    0.048   -0.201    0.841   -0.003   -0.006
##     SZ_4_quantised    0.837    0.041   20.321    0.000    0.254    0.549
##     SZ_40_quantisd    0.702    0.049   14.432    0.000    0.213    0.432
##     SZ_41_quantisd    0.851    0.046   18.573    0.000    0.258    0.522
##     SZ_42_quantisd    0.955    0.045   21.264    0.000    0.290    0.584
##     SZ_5_quantised    0.878    0.044   20.165    0.000    0.267    0.597
##     SZ_6_quantised    0.900    0.044   20.478    0.000    0.273    0.606
##     SZ_7_quantised    0.870    0.045   19.529    0.000    0.264    0.535
##     SZ_8_quantised    0.842    0.042   20.206    0.000    0.256    0.566
##     SZ_9_quantised    0.902    0.046   19.716    0.000    0.274    0.565
##   STAI =~
##     STAI2_Clm_qnts    1.000                               0.541    0.589
##     STAI2_Cntnt_qn    0.928    0.042   22.300    0.000    0.502    0.548
##     STAI2_Dscns_qn    0.844    0.044   18.994    0.000    0.456    0.502
##     STAI2_Dffclts_   -1.273    0.169   -7.551    0.000   -0.688   -0.715
##     STAI2_DsppntS_   -1.134    0.172   -6.582    0.000   -0.613   -0.649
##     STAI2_Flr_qnts   -1.340    0.158   -8.459    0.000   -0.724   -0.756
##     STAI2_Hppy_qnt    0.975    0.044   22.183    0.000    0.527    0.570
##     STAI2_HppyOth_   -1.062    0.155   -6.841    0.000   -0.574   -0.574
##     STAI2_Indqt_qn   -1.329    0.170   -7.808    0.000   -0.719   -0.735
##     STAI2_Nrvs_qnt   -1.244    0.164   -7.595    0.000   -0.672   -0.719
##     STAI2_Plsnt_qn    0.926    0.039   23.904    0.000    0.501    0.586
##     STAI2_Rstd_qnt    0.683    0.052   13.229    0.000    0.369    0.413
##     STAI2_StsfdSl_    1.054    0.043   24.243    0.000    0.569    0.588
##     STAI2_Scr_qnts    1.000    0.045   22.181    0.000    0.541    0.567
##     STAI2_SlfCnfd_   -1.142    0.159   -7.157    0.000   -0.617   -0.600
##     STAI2_Stdy_qnt    1.065    0.044   24.470    0.000    0.576    0.641
##     STAI2_Tnsn_qnt   -1.214    0.191   -6.357    0.000   -0.656   -0.683
##     STAI2_Thghts_q   -1.018    0.170   -5.989    0.000   -0.550   -0.610
##     STAI2_UnmprtT_   -1.134    0.179   -6.352    0.000   -0.613   -0.643
##     STAI2_Wrry_qnt   -1.183    0.173   -6.819    0.000   -0.639   -0.653
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
```

```
##   propmedhigh ~
##     spreadsheet       0.006    0.002    2.731    0.006    0.006    0.085
##     Ravens            0.010    0.002    4.254    0.000    0.010    0.143
##     Age              -0.002    0.001   -3.757    0.000   -0.002   -0.118
##     GenderMF         -0.005    0.013   -0.411    0.681   -0.005   -0.013
##     BDI              -0.057    0.024   -2.358    0.018   -0.033   -0.159
##     OCD              -0.001    0.010   -0.085    0.932   -0.001   -0.004
##     SZ                0.026    0.041    0.624    0.533    0.008    0.037
##     STAI             -0.026    0.025   -1.032    0.302   -0.014   -0.067
##
## Covariances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   spreadsheet ~~
##     Ravens           -0.395    0.280   -1.408    0.159   -0.395   -0.045
##     Age               1.278    0.974    1.312    0.190    1.278    0.042
##     GenderMF          0.059    0.047    1.264    0.206    0.059    0.040
##   BDI ~~
##     spreadsheet      -0.006    0.057   -0.113    0.910   -0.011   -0.004
##   OCD ~~
##     spreadsheet       0.125    0.108    1.162    0.245    0.113    0.038
##   SZ ~~
##     spreadsheet      -0.022    0.030   -0.736    0.462   -0.073   -0.024
##   STAI ~~
##     spreadsheet      -0.006    0.054   -0.111    0.911   -0.011   -0.004
##   Ravens ~~
##     Age               2.696    0.986    2.734    0.006    2.696    0.090
##     GenderMF         -0.070    0.046   -1.529    0.126   -0.070   -0.048
##   BDI ~~
##     Ravens           -0.323    0.059   -5.457    0.000   -0.552   -0.188
##   OCD ~~
##     Ravens           -1.108    0.100  -11.101    0.000   -0.998   -0.339
##   SZ ~~
##     Ravens            0.200    0.030    6.737    0.000    0.657    0.223
##   STAI ~~
##     Ravens            0.209    0.053    3.920    0.000    0.387    0.131
##   Age ~~
##     GenderMF         -0.061    0.160   -0.379    0.705   -0.061   -0.012
##   BDI ~~
##     Age              -1.316    0.202   -6.531    0.000   -2.253   -0.220
##   OCD ~~
##     Age              -3.814    0.341  -11.173    0.000   -3.434   -0.336
##   SZ ~~
##     Age               0.838    0.107    7.824    0.000    2.760    0.270
##   STAI ~~
##     Age               1.300    0.208    6.262    0.000    2.405    0.235
##   BDI ~~
##     GenderMF          0.010    0.009    1.049    0.294    0.017    0.035
##   OCD ~~
##     GenderMF          0.042    0.017    2.426    0.015    0.038    0.077
##   SZ ~~
##     GenderMF         -0.008    0.005   -1.560    0.119   -0.025   -0.051
##   STAI ~~
##     GenderMF         -0.009    0.009   -0.968    0.333   -0.016   -0.032
##   BDI ~~
```

```
##     OCD              0.340    0.027   12.653    0.000    0.525    0.525
##     SZ              -0.116    0.008  -14.095    0.000   -0.654   -0.654
##     STAI            -0.260    0.027   -9.522    0.000   -0.822   -0.822
##   OCD ~~
##     SZ              -0.247    0.015  -16.995    0.000   -0.733   -0.733
##     STAI            -0.281    0.023  -11.999    0.000   -0.468   -0.468
##   SZ ~~
##     STAI             0.104    0.007   14.084    0.000    0.632    0.632
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .BDI_Apptt_qnts    0.464    0.028   16.534    0.000    0.464    0.576
##    .BDI_Attrctv_qn    0.518    0.028   18.727    0.000    0.518    0.581
##    .BDI_Blam_qntsd    0.325    0.019   16.993    0.000    0.325    0.422
##    .BDI_Cry_quntsd    0.426    0.029   14.932    0.000    0.426    0.556
##    .BDI_Dcsns_qnts    0.367    0.022   16.762    0.000    0.367    0.466
##    .BDI_Dsppntmnt_    0.347    0.022   16.017    0.000    0.347    0.445
##    .BDI_Falr_qntsd    0.389    0.023   17.136    0.000    0.389    0.466
##    .BDI_Futr_qntsd    0.357    0.022   16.558    0.000    0.357    0.450
##    .BDI_Glty_qntsd    0.379    0.023   16.479    0.000    0.379    0.524
##    .BDI_Hlth_qntsd    0.394    0.021   18.344    0.000    0.394    0.660
##    .BDI_Intrs_I_P_    0.425    0.024   17.828    0.000    0.425    0.519
##    .BDI_Irrttd_qnt    0.394    0.021   18.359    0.000    0.394    0.501
##    .BDI_Libd_qntsd    0.525    0.031   17.082    0.000    0.525    0.671
##    .BDI_Pnshd_qnts    0.485    0.031   15.829    0.000    0.485    0.558
##    .BDI_Sad_quntsd    0.294    0.020   14.599    0.000    0.294    0.491
##    .BDI_Stsfctn_qn    0.455    0.027   17.158    0.000    0.455    0.525
##    .BDI_Slep_qntsd    0.536    0.027   19.826    0.000    0.536    0.665
##    .BDI_Tird_qntsd    0.409    0.022   18.625    0.000    0.409    0.560
##    .BDI_wght_qntsd    0.404    0.029   13.738    0.000    0.404    0.792
##    .BDI_Work_qntsd    0.356    0.020   17.788    0.000    0.356    0.477
##    .OCIR_14_quntsd    0.573    0.038   14.887    0.000    0.573    0.317
##    .OCIR_15_quntsd    0.830    0.048   17.266    0.000    0.830    0.492
##    .OCIR_16_quntsd    0.651    0.043   15.273    0.000    0.651    0.379
##    .OCIR_17_quntsd    0.528    0.036   14.758    0.000    0.528    0.294
##    .OCIR_18_quntsd    0.577    0.041   13.927    0.000    0.577    0.327
##    .OCIR_2_quantsd    0.825    0.040   20.713    0.000    0.825    0.490
##    .OCIR_3_quantsd    0.779    0.044   17.654    0.000    0.779    0.490
##    .OCIR_4_quantsd    0.585    0.036   16.313    0.000    0.585    0.352
##    .OCIR_5_quantsd    0.692    0.045   15.355    0.000    0.692    0.412
##    .OCIR_6_quantsd    0.758    0.043   17.759    0.000    0.758    0.460
##    .OCIR_7_quantsd    0.732    0.041   17.761    0.000    0.732    0.482
##    .OCIR_8_quantsd    0.596    0.039   15.269    0.000    0.596    0.334
##    .OCIR_9_quantsd    0.773    0.043   18.192    0.000    0.773    0.483
##    .OCIR_1_quantsd    0.731    0.040   18.186    0.000    0.731    0.447
##    .OCIR_10_quntsd    0.469    0.030   15.742    0.000    0.469    0.285
##    .OCIR_11_quntsd    0.532    0.033   16.121    0.000    0.532    0.313
##    .OCIR_12_quntsd    0.685    0.042   16.420    0.000    0.685    0.407
##    .OCIR_13_quntsd    0.838    0.044   18.923    0.000    0.838    0.528
##    .SZ_1_quantised    0.144    0.006   22.369    0.000    0.144    0.610
##    .SZ_10_quantisd    0.114    0.005   21.692    0.000    0.114    0.642
##    .SZ_11_quantisd    0.183    0.006   29.281    0.000    0.183    0.750
##    .SZ_12_quantisd    0.171    0.006   26.849    0.000    0.171    0.749
##    .SZ_13_quantisd    0.168    0.006   26.425    0.000    0.168    0.690
```

```
##    .SZ_14_quantisd    0.179    0.007    26.901    0.000    0.179    0.719
##    .SZ_15_quantisd    0.170    0.006    26.215    0.000    0.170    0.684
##    .SZ_16_quantisd    0.203    0.006    34.131    0.000    0.203    0.811
##    .SZ_17_quantisd    0.181    0.006    28.689    0.000    0.181    0.736
##    .SZ_18_quantisd    0.156    0.006    24.312    0.000    0.156    0.641
##    .SZ_19_quantisd    0.182    0.006    28.686    0.000    0.182    0.736
##    .SZ_2_quantised    0.154    0.006    24.189    0.000    0.154    0.650
##    .SZ_20_quantisd    0.122    0.006    22.159    0.000    0.122    0.595
##    .SZ_21_quantisd    0.171    0.007    26.247    0.000    0.171    0.699
##    .SZ_22_quantisd    0.177    0.007    26.748    0.000    0.177    0.717
##    .SZ_23_quantisd    0.168    0.006    26.158    0.000    0.168    0.699
##    .SZ_24_quantisd    0.169    0.006    26.538    0.000    0.169    0.701
##    .SZ_25_quantisd    0.186    0.006    29.895    0.000    0.186    0.759
##    .SZ_26_quantisd    0.212    0.006    37.150    0.000    0.212    1.000
##    .SZ_27_quantisd    0.208    0.006    35.154    0.000    0.208    0.998
##    .SZ_28_quantisd    0.237    0.004    66.525    0.000    0.237    0.999
##    .SZ_29_quantisd    0.209    0.006    36.886    0.000    0.209    0.862
##    .SZ_3_quantised    0.134    0.006    21.758    0.000    0.134    0.699
##    .SZ_30_quantisd    0.242    0.003    87.996    0.000    0.242    0.995
##    .SZ_31_quantisd    0.205    0.006    33.773    0.000    0.205    0.999
##    .SZ_32_quantisd    0.199    0.006    32.917    0.000    0.199    0.816
##    .SZ_33_quantisd    0.213    0.005    41.178    0.000    0.213    0.916
##    .SZ_34_quantisd    0.206    0.006    33.906    0.000    0.206    0.999
##    .SZ_35_quantisd    0.118    0.006    21.176    0.000    0.118    0.676
##    .SZ_36_quantisd    0.181    0.006    28.550    0.000    0.181    0.733
##    .SZ_37_quantisd    0.207    0.006    35.313    0.000    0.207    0.981
##    .SZ_38_quantisd    0.137    0.006    23.224    0.000    0.137    0.643
##    .SZ_39_quantisd    0.206    0.006    33.964    0.000    0.206    1.000
##    .SZ_4_quantised    0.149    0.006    23.952    0.000    0.149    0.698
##    .SZ_40_quantisd    0.199    0.006    33.029    0.000    0.199    0.814
##    .SZ_41_quantisd    0.178    0.006    28.089    0.000    0.178    0.728
##    .SZ_42_quantisd    0.162    0.006    25.102    0.000    0.162    0.659
##    .SZ_5_quantised    0.128    0.006    21.713    0.000    0.128    0.643
##    .SZ_6_quantised    0.129    0.006    22.847    0.000    0.129    0.633
##    .SZ_7_quantised    0.174    0.006    26.838    0.000    0.174    0.714
##    .SZ_8_quantised    0.139    0.006    22.293    0.000    0.139    0.680
##    .SZ_9_quantised    0.160    0.006    26.000    0.000    0.160    0.681
##    .STAI2_Clm_qnts    0.549    0.055     9.977    0.000    0.549    0.653
##    .STAI2_Cntnt_qn    0.587    0.055    10.616    0.000    0.587    0.700
##    .STAI2_Dscns_qn    0.618    0.047    13.167    0.000    0.618    0.748
##    .STAI2_Dffclts_    0.453    0.036    12.650    0.000    0.453    0.489
##    .STAI2_DsppntS_    0.516    0.043    12.006    0.000    0.516    0.579
##    .STAI2_Flr_qnts    0.394    0.027    14.735    0.000    0.394    0.429
##    .STAI2_Hppy_qnt    0.578    0.059     9.826    0.000    0.578    0.675
##    .STAI2_HppyOth_    0.670    0.044    15.382    0.000    0.670    0.670
##    .STAI2_Indqt_qn    0.440    0.039    11.350    0.000    0.440    0.460
##    .STAI2_Nrvs_qnt    0.423    0.032    13.274    0.000    0.423    0.483
##    .STAI2_Plsnt_qn    0.479    0.051     9.369    0.000    0.479    0.657
##    .STAI2_Rstd_qnt    0.662    0.045    14.675    0.000    0.662    0.829
##    .STAI2_StsfdSl_    0.615    0.065     9.464    0.000    0.615    0.655
##    .STAI2_Scr_qnts    0.618    0.062    10.010    0.000    0.618    0.679
##    .STAI2_SlfCnfd_    0.678    0.045    15.093    0.000    0.678    0.641
##    .STAI2_Stdy_qnt    0.476    0.052     9.185    0.000    0.476    0.589
##    .STAI2_Tnsn_qnt    0.494    0.050     9.931    0.000    0.494    0.534
```

```
##    .STAI2_Thghts_q    0.512    0.041   12.385    0.000    0.512    0.628
##    .STAI2_UnmprtT_    0.533    0.044   12.107    0.000    0.533    0.587
##    .STAI2_Wrry_qnt    0.550    0.043   12.931    0.000    0.550    0.574
##    .propmedhigh       0.041    0.002   24.690    0.000    0.041    0.942
##     spreadsheet       9.000    0.003 2595.756    0.000    9.000    1.000
##     Ravens            8.672    0.335   25.891    0.000    8.672    1.000
##     Age             104.591    6.150   17.008    0.000  104.591    1.000
##     GenderMF          0.242    0.003   86.073    0.000    0.242    1.000
##     BDI               0.341    0.030   11.258    0.000    1.000    1.000
##     OCD               1.233    0.060   20.613    0.000    1.000    1.000
##     SZ                0.092    0.007   14.003    0.000    1.000    1.000
##     STAI              0.292    0.061    4.811    0.000    1.000    1.000
##
## R-Square:
##                    Estimate
##     BDI_Apptt_qnts    0.424
##     BDI_Attrctv_qn    0.419
##     BDI_Blam_qntsd    0.578
##     BDI_Cry_quntsd    0.444
##     BDI_Dcsns_qnts    0.534
##     BDI_Dsppntmnt_    0.555
##     BDI_Falr_qntsd    0.534
##     BDI_Futr_qntsd    0.550
##     BDI_Glty_qntsd    0.476
##     BDI_Hlth_qntsd    0.340
##     BDI_Intrs_I_P_    0.481
##     BDI_Irrttd_qnt    0.499
##     BDI_Libd_qntsd    0.329
##     BDI_Pnshd_qnts    0.442
##     BDI_Sad_quntsd    0.509
##     BDI_Stsfctn_qn    0.475
##     BDI_Slep_qntsd    0.335
##     BDI_Tird_qntsd    0.440
##     BDI_wght_qntsd    0.208
##     BDI_Work_qntsd    0.523
##     OCIR_14_quntsd    0.683
##     OCIR_15_quntsd    0.508
##     OCIR_16_quntsd    0.621
##     OCIR_17_quntsd    0.706
##     OCIR_18_quntsd    0.673
##     OCIR_2_quantsd    0.510
##     OCIR_3_quantsd    0.510
##     OCIR_4_quantsd    0.648
##     OCIR_5_quantsd    0.588
##     OCIR_6_quantsd    0.540
##     OCIR_7_quantsd    0.518
##     OCIR_8_quantsd    0.666
##     OCIR_9_quantsd    0.517
##     OCIR_1_quantsd    0.553
##     OCIR_10_quntsd    0.715
##     OCIR_11_quntsd    0.687
##     OCIR_12_quntsd    0.593
##     OCIR_13_quntsd    0.472
##     SZ_1_quantised    0.390
```

```
##      SZ_10_quantisd    0.358
##      SZ_11_quantisd    0.250
##      SZ_12_quantisd    0.251
##      SZ_13_quantisd    0.310
##      SZ_14_quantisd    0.281
##      SZ_15_quantisd    0.316
##      SZ_16_quantisd    0.189
##      SZ_17_quantisd    0.264
##      SZ_18_quantisd    0.359
##      SZ_19_quantisd    0.264
##      SZ_2_quantised    0.350
##      SZ_20_quantisd    0.405
##      SZ_21_quantisd    0.301
##      SZ_22_quantisd    0.283
##      SZ_23_quantisd    0.301
##      SZ_24_quantisd    0.299
##      SZ_25_quantisd    0.241
##      SZ_26_quantisd    0.000
##      SZ_27_quantisd    0.002
##      SZ_28_quantisd    0.001
##      SZ_29_quantisd    0.138
##      SZ_3_quantised    0.301
##      SZ_30_quantisd    0.005
##      SZ_31_quantisd    0.001
##      SZ_32_quantisd    0.184
##      SZ_33_quantisd    0.084
##      SZ_34_quantisd    0.001
##      SZ_35_quantisd    0.324
##      SZ_36_quantisd    0.267
##      SZ_37_quantisd    0.019
##      SZ_38_quantisd    0.357
##      SZ_39_quantisd    0.000
##      SZ_4_quantised    0.302
##      SZ_40_quantisd    0.186
##      SZ_41_quantisd    0.272
##      SZ_42_quantisd    0.341
##      SZ_5_quantised    0.357
##      SZ_6_quantised    0.367
##      SZ_7_quantised    0.286
##      SZ_8_quantised    0.320
##      SZ_9_quantised    0.319
##      STAI2_Clm_qnts    0.347
##      STAI2_Cntnt_qn    0.300
##      STAI2_Dscns_qn    0.252
##      STAI2_Dffclts_    0.511
##      STAI2_DsppntS_    0.421
##      STAI2_Flr_qnts    0.571
##      STAI2_Hppy_qnt    0.325
##      STAI2_HppyOth_    0.330
##      STAI2_Indqt_qn    0.540
##      STAI2_Nrvs_qnt    0.517
##      STAI2_Plsnt_qn    0.343
##      STAI2_Rstd_qnt    0.171
##      STAI2_StsfdSl_    0.345
```

```
##     STAI2_Scr_qnts    0.321
##     STAI2_SlfCnfd_    0.359
##     STAI2_Stdy_qnt    0.411
##     STAI2_Tnsn_qnt    0.466
##     STAI2_Thghts_q    0.372
##     STAI2_UnmprtT_    0.413
##     STAI2_Wrry_qnt    0.426
##     propmedhigh       0.058
```

```r
summary(FitQuaireSEMdrift, standardized=TRUE, rsquare=T, fit.measures=F)
```

```
## lavaan 0.6-3 ended normally after 320 iterations
##
##   Optimization method                           NLMINB
##   Number of free parameters                        241
##
##                                                   Used       Total
##   Number of observations                           990        1066
##
##   Estimator                                         ML      Robust
##   Model Fit Test Statistic                   19684.334   17263.958
##   Degrees of freedom                              5324        5324
##   P-value (Chi-square)                           0.000       0.000
##   Scaling correction factor                                  1.140
##     for the Yuan-Bentler correction (Mplus variant)
##
## Parameter Estimates:
##
##   Information                                 Observed
##   Observed information based on                Hessian
##   Standard Errors                   Robust.huber.white
##
## Latent Variables:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   BDI =~
##     BDI_Apptt_qnts    1.000                               0.584    0.651
##     BDI_Attrctv_qn    1.045    0.057   18.240    0.000    0.611    0.647
##     BDI_Blam_qntsd    1.142    0.057   19.908    0.000    0.667    0.760
##     BDI_Cry_quntsd    0.997    0.050   20.090    0.000    0.583    0.666
##     BDI_Dcsns_qnts    1.109    0.056   19.787    0.000    0.648    0.731
##     BDI_Dsppntmnt_    1.126    0.062   18.273    0.000    0.658    0.745
##     BDI_Falr_qntsd    1.142    0.061   18.655    0.000    0.667    0.730
##     BDI_Futr_qntsd    1.130    0.059   19.161    0.000    0.661    0.741
##     BDI_Glty_qntsd    1.004    0.053   18.943    0.000    0.586    0.690
##     BDI_Hlth_qntsd    0.771    0.045   16.978    0.000    0.451    0.583
##     BDI_Intrs_I_P_    1.075    0.055   19.385    0.000    0.628    0.694
##     BDI_Irrttd_qnt    1.072    0.051   20.853    0.000    0.626    0.706
##     BDI_Libd_qntsd    0.868    0.048   18.241    0.000    0.507    0.574
##     BDI_Pnshd_qnts    1.061    0.055   19.296    0.000    0.620    0.665
##     BDI_Sad_quntsd    0.945    0.048   19.684    0.000    0.552    0.714
##     BDI_Stsfctn_qn    1.097    0.059   18.535    0.000    0.641    0.689
##     BDI_Slep_qntsd    0.889    0.050   17.721    0.000    0.520    0.579
##     BDI_Tird_qntsd    0.971    0.052   18.752    0.000    0.567    0.664
##     BDI_wght_qntsd    0.558    0.043   12.884    0.000    0.326    0.456
```

```
##     BDI_Work_qntsd    1.068    0.053   20.171    0.000    0.624    0.723
##   OCD =~
##     OCIR_14_quntsd    1.000                               1.111    0.826
##     OCIR_15_quntsd    0.833    0.029   29.075    0.000    0.925    0.713
##     OCIR_16_quntsd    0.931    0.029   32.284    0.000    1.033    0.788
##     OCIR_17_quntsd    1.013    0.028   36.734    0.000    1.125    0.840
##     OCIR_18_quntsd    0.980    0.028   34.839    0.000    1.089    0.820
##     OCIR_2_quantsd    0.834    0.028   30.262    0.000    0.926    0.714
##     OCIR_3_quantsd    0.810    0.028   28.552    0.000    0.900    0.714
##     OCIR_4_quantsd    0.934    0.027   35.234    0.000    1.037    0.805
##     OCIR_5_quantsd    0.894    0.030   29.658    0.000    0.993    0.767
##     OCIR_6_quantsd    0.849    0.030   28.000    0.000    0.942    0.735
##     OCIR_7_quantsd    0.799    0.029   27.687    0.000    0.887    0.720
##     OCIR_8_quantsd    0.982    0.025   39.514    0.000    1.090    0.816
##     OCIR_9_quantsd    0.819    0.028   29.299    0.000    0.910    0.719
##     OCIR_1_quantsd    0.856    0.027   32.154    0.000    0.950    0.743
##     OCIR_10_quntsd    0.975    0.025   38.418    0.000    1.083    0.845
##     OCIR_11_quntsd    0.972    0.027   35.748    0.000    1.079    0.829
##     OCIR_12_quntsd    0.900    0.030   29.821    0.000    0.999    0.770
##     OCIR_13_quntsd    0.780    0.028   27.802    0.000    0.866    0.687
##   SZ =~
##     SZ_1_quantised    1.000                               0.304    0.624
##     SZ_10_quantisd    0.832    0.042   19.767    0.000    0.253    0.598
##     SZ_11_quantisd    0.813    0.044   18.281    0.000    0.247    0.500
##     SZ_12_quantisd    0.789    0.045   17.482    0.000    0.240    0.501
##     SZ_13_quantisd    0.904    0.048   18.685    0.000    0.274    0.557
##     SZ_14_quantisd    0.872    0.053   16.391    0.000    0.265    0.530
##     SZ_15_quantisd    0.923    0.051   17.934    0.000    0.280    0.562
##     SZ_16_quantisd    0.716    0.051   13.955    0.000    0.217    0.435
##     SZ_17_quantisd    0.840    0.049   17.251    0.000    0.255    0.514
##     SZ_18_quantisd    0.972    0.050   19.598    0.000    0.295    0.599
##     SZ_19_quantisd    0.842    0.049   17.289    0.000    0.256    0.514
##     SZ_2_quantised    0.949    0.044   21.519    0.000    0.288    0.591
##     SZ_20_quantisd    0.951    0.044   21.643    0.000    0.289    0.637
##     SZ_21_quantisd    0.894    0.050   17.927    0.000    0.272    0.549
##     SZ_22_quantisd    0.871    0.052   16.716    0.000    0.265    0.532
##     SZ_23_quantisd    0.885    0.049   17.998    0.000    0.269    0.548
##     SZ_24_quantisd    0.883    0.046   19.056    0.000    0.268    0.546
##     SZ_25_quantisd    0.800    0.046   17.378    0.000    0.243    0.491
##     SZ_26_quantisd   -0.009    0.047   -0.193    0.847   -0.003   -0.006
##     SZ_27_quantisd    0.059    0.048    1.241    0.215    0.018    0.039
##     SZ_28_quantisd   -0.049    0.055   -0.897    0.370   -0.015   -0.031
##     SZ_29_quantisd    0.602    0.049   12.280    0.000    0.183    0.371
##     SZ_3_quantised    0.792    0.043   18.237    0.000    0.240    0.548
##     SZ_30_quantisd    0.115    0.055    2.100    0.036    0.035    0.071
##     SZ_31_quantisd    0.038    0.046    0.828    0.408    0.012    0.025
##     SZ_32_quantisd    0.697    0.050   13.975    0.000    0.212    0.429
##     SZ_33_quantisd    0.459    0.050    9.104    0.000    0.139    0.289
##     SZ_34_quantisd   -0.052    0.047   -1.123    0.262   -0.016   -0.035
##     SZ_35_quantisd    0.784    0.042   18.514    0.000    0.238    0.569
##     SZ_36_quantisd    0.846    0.048   17.785    0.000    0.257    0.516
##     SZ_37_quantisd   -0.206    0.050   -4.076    0.000   -0.062   -0.136
##     SZ_38_quantisd    0.907    0.043   21.042    0.000    0.275    0.597
##     SZ_39_quantisd   -0.010    0.048   -0.201    0.840   -0.003   -0.006
```

```
##     SZ_4_quantised    0.837    0.041   20.321    0.000    0.254    0.549
##     SZ_40_quantisd    0.702    0.049   14.431    0.000    0.213    0.432
##     SZ_41_quantisd    0.851    0.046   18.572    0.000    0.258    0.522
##     SZ_42_quantisd    0.955    0.045   21.264    0.000    0.290    0.584
##     SZ_5_quantised    0.878    0.044   20.164    0.000    0.267    0.597
##     SZ_6_quantised    0.900    0.044   20.478    0.000    0.273    0.606
##     SZ_7_quantised    0.870    0.045   19.528    0.000    0.264    0.535
##     SZ_8_quantised    0.842    0.042   20.203    0.000    0.256    0.566
##     SZ_9_quantised    0.902    0.046   19.715    0.000    0.274    0.565
##   STAI =~
##     STAI2_Clm_qnts    1.000                               0.540    0.589
##     STAI2_Cntnt_qn    0.928    0.042   22.297    0.000    0.502    0.548
##     STAI2_Dscns_qn    0.844    0.044   18.993    0.000    0.456    0.502
##     STAI2_Dffclts_   -1.273    0.169   -7.551    0.000   -0.688   -0.715
##     STAI2_DsppntS_   -1.134    0.172   -6.583    0.000   -0.613   -0.649
##     STAI2_Flr_qnts   -1.340    0.158   -8.460    0.000   -0.724   -0.756
##     STAI2_Hppy_qnt    0.975    0.044   22.181    0.000    0.527    0.570
##     STAI2_HppyOth_   -1.062    0.155   -6.842    0.000   -0.574   -0.574
##     STAI2_Indqt_qn   -1.330    0.170   -7.809    0.000   -0.719   -0.735
##     STAI2_Nrvs_qnt   -1.244    0.164   -7.596    0.000   -0.672   -0.719
##     STAI2_Plsnt_qn    0.926    0.039   23.902    0.000    0.500    0.586
##     STAI2_Rstd_qnt    0.683    0.052   13.227    0.000    0.369    0.413
##     STAI2_StsfdSl_    1.054    0.043   24.243    0.000    0.569    0.588
##     STAI2_Scr_qnts    1.000    0.045   22.179    0.000    0.541    0.567
##     STAI2_SlfCnfd_   -1.142    0.160   -7.158    0.000   -0.617   -0.600
##     STAI2_Stdy_qnt    1.065    0.044   24.468    0.000    0.576    0.641
##     STAI2_Tnsn_qnt   -1.214    0.191   -6.358    0.000   -0.656   -0.683
##     STAI2_Thghts_q   -1.019    0.170   -5.990    0.000   -0.550   -0.610
##     STAI2_UnmprtT_   -1.134    0.179   -6.353    0.000   -0.613   -0.643
##     STAI2_Wrry_qnt   -1.183    0.173   -6.819    0.000   -0.639   -0.653
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   driftrate ~
##     spreadsheet       0.000    0.000    2.751    0.006    0.000    0.086
##     Ravens            0.001    0.000    4.281    0.000    0.001    0.145
##     Age              -0.000    0.000   -3.530    0.000   -0.000   -0.111
##     GenderMF         -0.000    0.001   -0.445    0.656   -0.000   -0.014
##     BDI              -0.003    0.001   -2.557    0.011   -0.002   -0.171
##     OCD               0.000    0.001    0.086    0.931    0.000    0.005
##     SZ                0.001    0.002    0.614    0.539    0.000    0.036
##     STAI             -0.002    0.001   -1.103    0.270   -0.001   -0.072
##
## Covariances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   spreadsheet ~~
##     Ravens           -0.395    0.280   -1.407    0.159   -0.395   -0.045
##     Age               1.283    0.974    1.317    0.188    1.283    0.042
##     GenderMF          0.059    0.047    1.264    0.206    0.059    0.040
##   BDI ~~
##     spreadsheet      -0.007    0.057   -0.114    0.909   -0.011   -0.004
##   OCD ~~
##     spreadsheet       0.125    0.108    1.160    0.246    0.113    0.038
##   SZ ~~
```

```
##     spreadsheet      -0.022    0.030   -0.735    0.463   -0.073   -0.024
##   STAI ~~
##     spreadsheet      -0.006    0.054   -0.110    0.912   -0.011   -0.004
##   Ravens ~~
##     Age               2.698    0.986    2.735    0.006    2.698    0.090
##     GenderMF         -0.070    0.046   -1.529    0.126   -0.070   -0.048
##   BDI ~~
##     Ravens           -0.323    0.059   -5.457    0.000   -0.552   -0.188
##   OCD ~~
##     Ravens           -1.108    0.100  -11.102    0.000   -0.998   -0.339
##   SZ ~~
##     Ravens            0.200    0.030    6.737    0.000    0.657    0.223
##   STAI ~~
##     Ravens            0.209    0.053    3.921    0.000    0.387    0.131
##   Age ~~
##     GenderMF         -0.061    0.160   -0.379    0.705   -0.061   -0.012
##   BDI ~~
##     Age              -1.316    0.202   -6.531    0.000   -2.253   -0.220
##   OCD ~~
##     Age              -3.814    0.341  -11.174    0.000   -3.434   -0.336
##   SZ ~~
##     Age               0.838    0.107    7.824    0.000    2.760    0.270
##   STAI ~~
##     Age               1.300    0.208    6.262    0.000    2.405    0.235
##   BDI ~~
##     GenderMF          0.010    0.009    1.049    0.294    0.017    0.035
##   OCD ~~
##     GenderMF          0.042    0.017    2.426    0.015    0.038    0.077
##   SZ ~~
##     GenderMF         -0.008    0.005   -1.560    0.119   -0.025   -0.051
##   STAI ~~
##     GenderMF         -0.009    0.009   -0.968    0.333   -0.016   -0.032
##   BDI ~~
##     OCD               0.340    0.027   12.654    0.000    0.525    0.525
##     SZ               -0.116    0.008  -14.096    0.000   -0.654   -0.654
##     STAI             -0.260    0.027   -9.521    0.000   -0.822   -0.822
##   OCD ~~
##     SZ               -0.247    0.015  -16.994    0.000   -0.733   -0.733
##     STAI             -0.281    0.023  -12.006    0.000   -0.468   -0.468
##   SZ ~~
##     STAI              0.104    0.007   14.080    0.000    0.632    0.632
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .BDI_Apptt_qnts    0.464    0.028   16.535    0.000    0.464    0.576
##    .BDI_Attrctv_qn    0.518    0.028   18.728    0.000    0.518    0.581
##    .BDI_Blam_qntsd    0.325    0.019   16.991    0.000    0.325    0.422
##    .BDI_Cry_quntsd    0.426    0.029   14.930    0.000    0.426    0.556
##    .BDI_Dcsns_qnts    0.367    0.022   16.761    0.000    0.367    0.466
##    .BDI_Dsppntmnt_    0.347    0.022   16.018    0.000    0.347    0.445
##    .BDI_Falr_qntsd    0.389    0.023   17.135    0.000    0.389    0.466
##    .BDI_Futr_qntsd    0.357    0.022   16.559    0.000    0.357    0.450
##    .BDI_Glty_qntsd    0.379    0.023   16.480    0.000    0.379    0.524
##    .BDI_Hlth_qntsd    0.394    0.021   18.344    0.000    0.394    0.660
```

```
##     .BDI_Intrs_I_P_    0.425    0.024    17.829    0.000    0.425    0.519
##     .BDI_Irrttd_qnt    0.394    0.021    18.357    0.000    0.394    0.501
##     .BDI_Libd_qntsd    0.525    0.031    17.081    0.000    0.525    0.671
##     .BDI_Pnshd_qnts    0.485    0.031    15.831    0.000    0.485    0.558
##     .BDI_Sad_quntsd    0.294    0.020    14.599    0.000    0.294    0.491
##     .BDI_Stsfctn_qn    0.455    0.027    17.159    0.000    0.455    0.526
##     .BDI_Slep_qntsd    0.536    0.027    19.827    0.000    0.536    0.665
##     .BDI_Tird_qntsd    0.409    0.022    18.626    0.000    0.409    0.560
##     .BDI_wght_qntsd    0.404    0.029    13.738    0.000    0.404    0.792
##     .BDI_Work_qntsd    0.356    0.020    17.787    0.000    0.356    0.477
##     .OCIR_14_quntsd    0.573    0.038    14.887    0.000    0.573    0.317
##     .OCIR_15_quntsd    0.830    0.048    17.267    0.000    0.830    0.492
##     .OCIR_16_quntsd    0.651    0.043    15.273    0.000    0.651    0.379
##     .OCIR_17_quntsd    0.528    0.036    14.759    0.000    0.528    0.294
##     .OCIR_18_quntsd    0.577    0.041    13.927    0.000    0.577    0.327
##     .OCIR_2_quantsd    0.825    0.040    20.714    0.000    0.825    0.490
##     .OCIR_3_quantsd    0.779    0.044    17.654    0.000    0.779    0.490
##     .OCIR_4_quantsd    0.585    0.036    16.313    0.000    0.585    0.352
##     .OCIR_5_quantsd    0.692    0.045    15.356    0.000    0.692    0.412
##     .OCIR_6_quantsd    0.758    0.043    17.759    0.000    0.758    0.460
##     .OCIR_7_quantsd    0.732    0.041    17.761    0.000    0.732    0.482
##     .OCIR_8_quantsd    0.596    0.039    15.269    0.000    0.596    0.334
##     .OCIR_9_quantsd    0.773    0.043    18.192    0.000    0.773    0.483
##     .OCIR_1_quantsd    0.731    0.040    18.186    0.000    0.731    0.447
##     .OCIR_10_quntsd    0.469    0.030    15.743    0.000    0.469    0.286
##     .OCIR_11_quntsd    0.532    0.033    16.121    0.000    0.532    0.313
##     .OCIR_12_quntsd    0.685    0.042    16.421    0.000    0.685    0.407
##     .OCIR_13_quntsd    0.838    0.044    18.924    0.000    0.838    0.528
##     .SZ_1_quantised    0.144    0.006    22.367    0.000    0.144    0.610
##     .SZ_10_quantisd    0.114    0.005    21.692    0.000    0.114    0.642
##     .SZ_11_quantisd    0.183    0.006    29.280    0.000    0.183    0.750
##     .SZ_12_quantisd    0.171    0.006    26.848    0.000    0.171    0.749
##     .SZ_13_quantisd    0.168    0.006    26.425    0.000    0.168    0.690
##     .SZ_14_quantisd    0.179    0.007    26.900    0.000    0.179    0.719
##     .SZ_15_quantisd    0.170    0.006    26.216    0.000    0.170    0.684
##     .SZ_16_quantisd    0.203    0.006    34.129    0.000    0.203    0.811
##     .SZ_17_quantisd    0.181    0.006    28.689    0.000    0.181    0.736
##     .SZ_18_quantisd    0.156    0.006    24.312    0.000    0.156    0.641
##     .SZ_19_quantisd    0.182    0.006    28.684    0.000    0.182    0.736
##     .SZ_2_quantised    0.154    0.006    24.188    0.000    0.154    0.650
##     .SZ_20_quantisd    0.122    0.006    22.160    0.000    0.122    0.595
##     .SZ_21_quantisd    0.171    0.007    26.245    0.000    0.171    0.699
##     .SZ_22_quantisd    0.177    0.007    26.748    0.000    0.177    0.717
##     .SZ_23_quantisd    0.168    0.006    26.159    0.000    0.168    0.699
##     .SZ_24_quantisd    0.169    0.006    26.538    0.000    0.169    0.701
##     .SZ_25_quantisd    0.186    0.006    29.892    0.000    0.186    0.759
##     .SZ_26_quantisd    0.212    0.006    37.150    0.000    0.212    1.000
##     .SZ_27_quantisd    0.208    0.006    35.155    0.000    0.208    0.998
##     .SZ_28_quantisd    0.237    0.004    66.525    0.000    0.237    0.999
##     .SZ_29_quantisd    0.209    0.006    36.886    0.000    0.209    0.862
##     .SZ_3_quantised    0.134    0.006    21.758    0.000    0.134    0.699
##     .SZ_30_quantisd    0.242    0.003    87.997    0.000    0.242    0.995
##     .SZ_31_quantisd    0.205    0.006    33.773    0.000    0.205    0.999
##     .SZ_32_quantisd    0.199    0.006    32.916    0.000    0.199    0.816
```

```
##    .SZ_33_quantisd    0.213    0.005   41.179    0.000    0.213    0.916
##    .SZ_34_quantisd    0.206    0.006   33.905    0.000    0.206    0.999
##    .SZ_35_quantisd    0.118    0.006   21.176    0.000    0.118    0.676
##    .SZ_36_quantisd    0.181    0.006   28.549    0.000    0.181    0.733
##    .SZ_37_quantisd    0.207    0.006   35.311    0.000    0.207    0.981
##    .SZ_38_quantisd    0.137    0.006   23.224    0.000    0.137    0.643
##    .SZ_39_quantisd    0.206    0.006   33.964    0.000    0.206    1.000
##    .SZ_4_quantised    0.149    0.006   23.951    0.000    0.149    0.698
##    .SZ_40_quantisd    0.199    0.006   33.029    0.000    0.199    0.814
##    .SZ_41_quantisd    0.178    0.006   28.089    0.000    0.178    0.728
##    .SZ_42_quantisd    0.162    0.006   25.100    0.000    0.162    0.659
##    .SZ_5_quantised    0.128    0.006   21.712    0.000    0.128    0.643
##    .SZ_6_quantised    0.129    0.006   22.848    0.000    0.129    0.633
##    .SZ_7_quantised    0.174    0.006   26.834    0.000    0.174    0.714
##    .SZ_8_quantised    0.139    0.006   22.292    0.000    0.139    0.680
##    .SZ_9_quantised    0.160    0.006   26.000    0.000    0.160    0.681
##    .STAI2_Clm_qnts    0.549    0.055    9.980    0.000    0.549    0.653
##    .STAI2_Cntnt_qn    0.587    0.055   10.619    0.000    0.587    0.700
##    .STAI2_Dscns_qn    0.618    0.047   13.170    0.000    0.618    0.748
##    .STAI2_Dffclts_    0.452    0.036   12.651    0.000    0.452    0.489
##    .STAI2_DsppntS_    0.516    0.043   12.010    0.000    0.516    0.579
##    .STAI2_Flr_qnts    0.394    0.027   14.739    0.000    0.394    0.429
##    .STAI2_Hppy_qnt    0.578    0.059    9.828    0.000    0.578    0.675
##    .STAI2_HppyOth_    0.670    0.044   15.384    0.000    0.670    0.670
##    .STAI2_Indqt_qn    0.440    0.039   11.353    0.000    0.440    0.460
##    .STAI2_Nrvs_qnt    0.423    0.032   13.277    0.000    0.423    0.483
##    .STAI2_Plsnt_qn    0.479    0.051    9.372    0.000    0.479    0.657
##    .STAI2_Rstd_qnt    0.662    0.045   14.678    0.000    0.662    0.829
##    .STAI2_StsfdSl_    0.615    0.065    9.467    0.000    0.615    0.655
##    .STAI2_Scr_qnts    0.618    0.062   10.014    0.000    0.618    0.679
##    .STAI2_SlfCnfd_    0.678    0.045   15.095    0.000    0.678    0.641
##    .STAI2_Stdy_qnt    0.476    0.052    9.187    0.000    0.476    0.589
##    .STAI2_Tnsn_qnt    0.494    0.050    9.932    0.000    0.494    0.534
##    .STAI2_Thghts_q    0.512    0.041   12.388    0.000    0.512    0.628
##    .STAI2_UnmprtT_    0.533    0.044   12.111    0.000    0.533    0.587
##    .STAI2_Wrry_qnt    0.550    0.043   12.934    0.000    0.550    0.574
##    .driftrate         0.000    0.000   21.330    0.000    0.000    0.942
##     spreadsheet       9.000    0.003 2594.686    0.000    9.000    1.000
##     Ravens            8.673    0.335   25.891    0.000    8.673    1.000
##     Age             104.594    6.150   17.007    0.000  104.594    1.000
##     GenderMF          0.242    0.003   86.073    0.000    0.242    1.000
##     BDI               0.341    0.030   11.259    0.000    1.000    1.000
##     OCD               1.233    0.060   20.614    0.000    1.000    1.000
##     SZ                0.092    0.007   14.002    0.000    1.000    1.000
##     STAI              0.292    0.061    4.811    0.000    1.000    1.000
##
## R-Square:
##                    Estimate
##     BDI_Apptt_qnts    0.424
##     BDI_Attrctv_qn    0.419
##     BDI_Blam_qntsd    0.578
##     BDI_Cry_quntsd    0.444
##     BDI_Dcsns_qnts    0.534
##     BDI_Dsppntmnt_    0.555
```

```
##      BDI_Falr_qntsd    0.534
##      BDI_Futr_qntsd    0.550
##      BDI_Glty_qntsd    0.476
##      BDI_Hlth_qntsd    0.340
##      BDI_Intrs_I_P_    0.481
##      BDI_Irrttd_qnt    0.499
##      BDI_Libd_qntsd    0.329
##      BDI_Pnshd_qnts    0.442
##      BDI_Sad_quntsd    0.509
##      BDI_Stsfctn_qn    0.474
##      BDI_Slep_qntsd    0.335
##      BDI_Tird_qntsd    0.440
##      BDI_wght_qntsd    0.208
##      BDI_Work_qntsd    0.523
##      OCIR_14_quntsd    0.683
##      OCIR_15_quntsd    0.508
##      OCIR_16_quntsd    0.621
##      OCIR_17_quntsd    0.706
##      OCIR_18_quntsd    0.673
##      OCIR_2_quantsd    0.510
##      OCIR_3_quantsd    0.510
##      OCIR_4_quantsd    0.648
##      OCIR_5_quantsd    0.588
##      OCIR_6_quantsd    0.540
##      OCIR_7_quantsd    0.518
##      OCIR_8_quantsd    0.666
##      OCIR_9_quantsd    0.517
##      OCIR_1_quantsd    0.553
##      OCIR_10_quntsd    0.714
##      OCIR_11_quntsd    0.687
##      OCIR_12_quntsd    0.593
##      OCIR_13_quntsd    0.472
##      SZ_1_quantised    0.390
##      SZ_10_quantisd    0.358
##      SZ_11_quantisd    0.250
##      SZ_12_quantisd    0.251
##      SZ_13_quantisd    0.310
##      SZ_14_quantisd    0.281
##      SZ_15_quantisd    0.316
##      SZ_16_quantisd    0.189
##      SZ_17_quantisd    0.264
##      SZ_18_quantisd    0.359
##      SZ_19_quantisd    0.264
##      SZ_2_quantised    0.350
##      SZ_20_quantisd    0.405
##      SZ_21_quantisd    0.301
##      SZ_22_quantisd    0.283
##      SZ_23_quantisd    0.301
##      SZ_24_quantisd    0.299
##      SZ_25_quantisd    0.241
##      SZ_26_quantisd    0.000
##      SZ_27_quantisd    0.002
##      SZ_28_quantisd    0.001
##      SZ_29_quantisd    0.138
```

```
##     SZ_3_quantised    0.301
##     SZ_30_quantisd    0.005
##     SZ_31_quantisd    0.001
##     SZ_32_quantisd    0.184
##     SZ_33_quantisd    0.084
##     SZ_34_quantisd    0.001
##     SZ_35_quantisd    0.324
##     SZ_36_quantisd    0.267
##     SZ_37_quantisd    0.019
##     SZ_38_quantisd    0.357
##     SZ_39_quantisd    0.000
##     SZ_4_quantised    0.302
##     SZ_40_quantisd    0.186
##     SZ_41_quantisd    0.272
##     SZ_42_quantisd    0.341
##     SZ_5_quantised    0.357
##     SZ_6_quantised    0.367
##     SZ_7_quantised    0.286
##     SZ_8_quantised    0.320
##     SZ_9_quantised    0.319
##     STAI2_Clm_qnts    0.347
##     STAI2_Cntnt_qn    0.300
##     STAI2_Dscns_qn    0.252
##     STAI2_Dffclts_    0.511
##     STAI2_DsppntS_    0.421
##     STAI2_Flr_qnts    0.571
##     STAI2_Hppy_qnt    0.325
##     STAI2_HppyOth_    0.330
##     STAI2_Indqt_qn    0.540
##     STAI2_Nrvs_qnt    0.517
##     STAI2_Plsnt_qn    0.343
##     STAI2_Rstd_qnt    0.171
##     STAI2_StsfdSl_    0.345
##     STAI2_Scr_qnts    0.321
##     STAI2_SlfCnfd_    0.359
##     STAI2_Stdy_qnt    0.411
##     STAI2_Tnsn_qnt    0.466
##     STAI2_Thghts_q    0.372
##     STAI2_UnmprtT_    0.413
##     STAI2_Wrry_qnt    0.426
##     driftrate         0.058
```

```r
Fitpmidvars <-data.frame(fitMeasures(FitQuaireSEMpmid, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea.ci
names(Fitpmidvars) <- "p(mid as high)"
Fitdriftvars<- data.frame(fitMeasures(FitQuaireSEMdrift, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea
names(Fitdriftvars) <- "Drift Rate"
SEMfits <- cbind.data.frame(Fitpmidvars, Fitdriftvars)
rownames(SEMfits) <- c("BIC", "AIC", "RMSEA", "RMSEA CI-", "RMSEA CI+")

kable(t(SEMfits), digits = 3)
```

	BIC	AIC	RMSEA	RMSEA CI-	RMSEA CI+
p(mid as high)	199600.0	198419.6	0.052	0.051	0.053

	BIC	AIC	RMSEA	RMSEA CI-	RMSEA CI+
Drift Rate	193931.5	192751.1	0.052	0.051	0.053

Interpretation

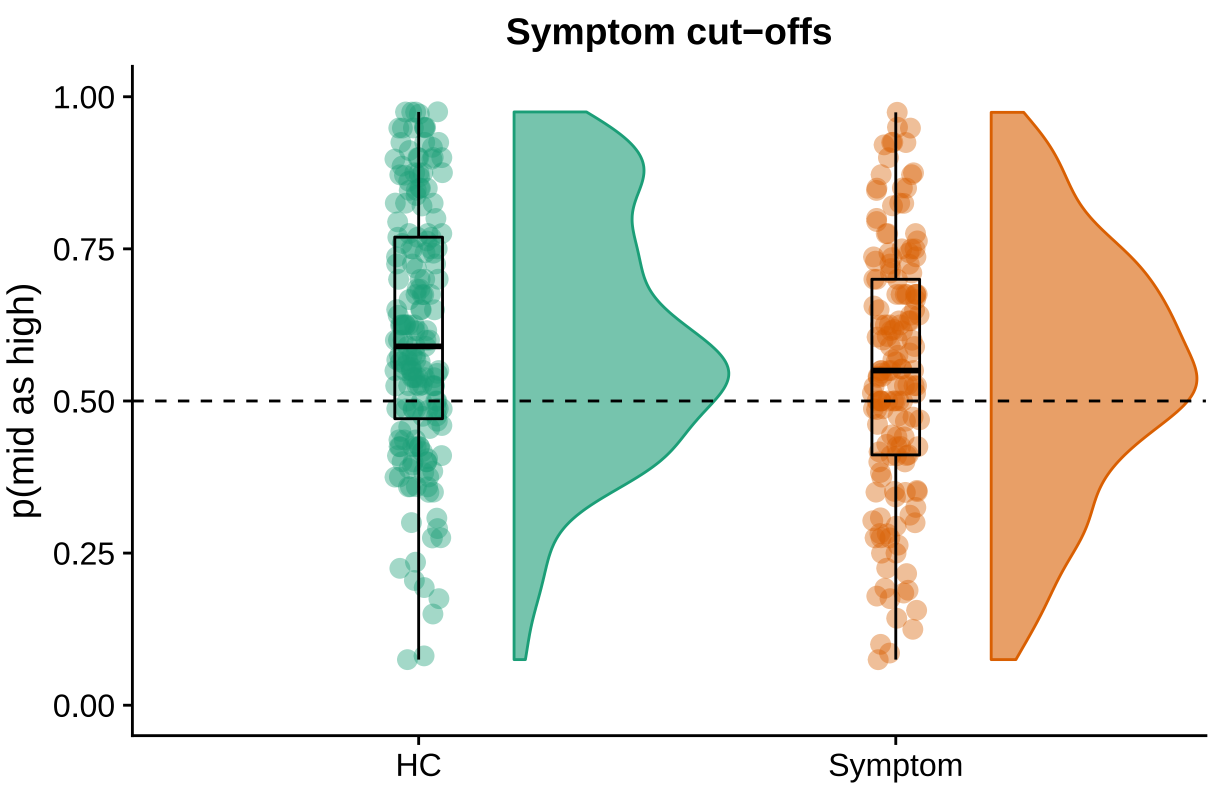
We replicate the basic linear regression, demonstrating the BDI depression symptoms and no other scales significantly influence task performance.

3: 'Replication' of prior group effects

Finally, as a sanity check, we should be able to 'replicate' the case control study in our original paper by selecting 'symptomatic' and 'healthy control' individuals from this large cross-sectional sample. We attempted to do this in two ways. I) A very simple BDI symptom scale cut-off (theory-based grouping) and then II) a more data-driven way using latent mixture modelling to identifying latent classes.

I) Symptom cut-offs (theory-based)

We defined control individuals as those with BDI less than 3 and symptomatic as those with BDI greater than 28 (this cut off is based on Beck's original cut off for severe depression of 29)



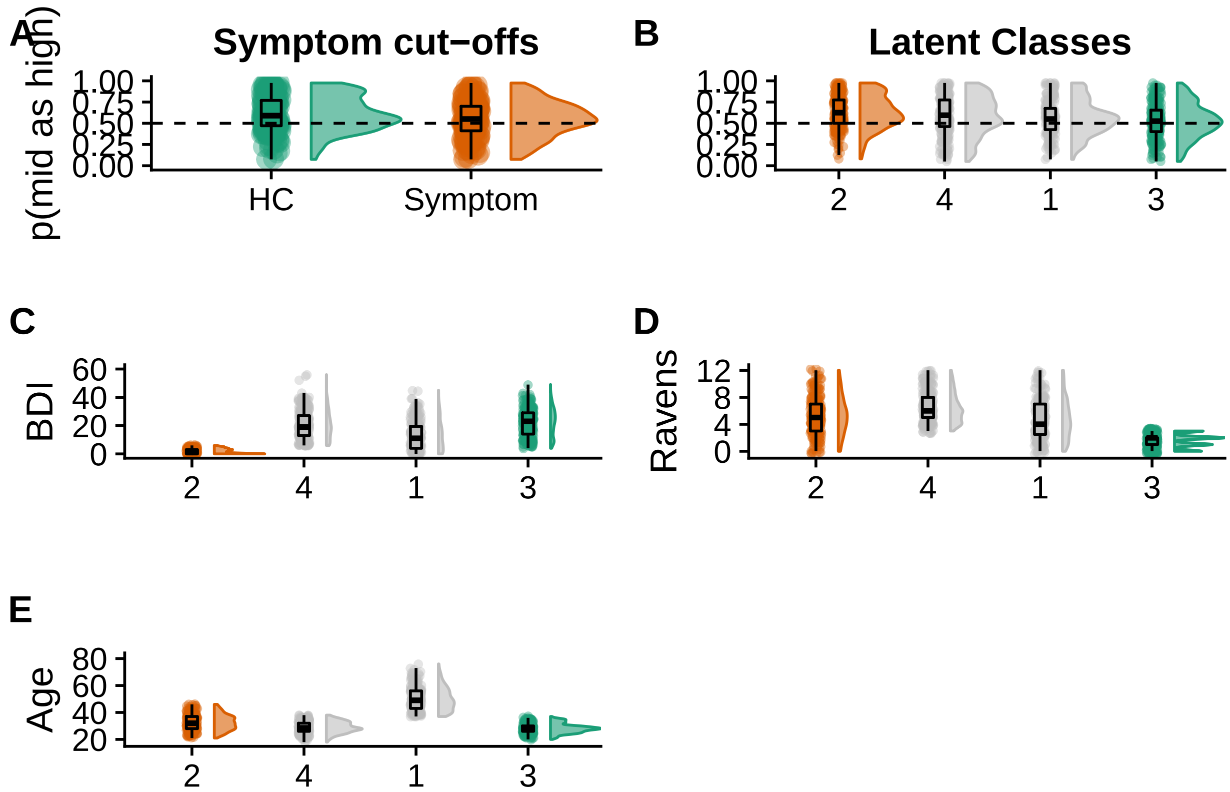

```
## [1] "The number of patients is N = 170"
```

```
## [1] "The number of controls is N = 198"
```

```
##
##  Two Sample t-test
##
## data:  Pmid by group
## t = 2.766, df = 349, p-value = 0.005976
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.01762747 0.10438403
## sample estimates:
##      mean in group HC mean in group Symptom
##             0.6087543             0.5477486

## [1] "The effect size of the Human group difference on p(mid as high) is d= 0.3"

##
##  Two Sample t-test
##
## data:  driftrate by group
## t = 2.78, df = 349, p-value = 0.005731
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.001015933 0.005930341
## sample estimates:
##      mean in group HC mean in group Symptom
##           0.006236747           0.002763610

## [1] "The effect size of the Human group difference on driftrate is d= 0.3"
```

II) Latent mixture modelling (data-driven)

In a more data driven approach we ran an exploratory latent class analysis based on the symptoms/traits (BDI, Age, IQ) that are predict task performance in the regression. Notably we do not include task performance in our class analysis so that classes are defined orthogonal to task performance. Optimal class breakdown (N=5 classes) is plotted below, but ordered by those with the higest postive bias based on the symptom defined latent classes. We then defined the 'symptomatic group' as those with the lowest p(mid)as high score, whilst the control group is those with the highest p(mid as high) score. The distributions of the other latent classes are plotted in gray.




```
## ----------------------------------------------------
## Gaussian finite mixture model fitted by EM algorithm
## ----------------------------------------------------
##
## Mclust VVI (diagonal, varying volume and shape) model with 4 components:
##
##  log-likelihood   n df       BIC       ICL
##        -9629.49 994 27 -19445.33 -19841.74
##
## Clustering table:
##   1   2   3   4
## 219 233 266 276

##
##  Two Sample t-test
##
## data:  Pmid by group
## t = -5.8731, df = 497, p-value = 7.836e-09
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.13813301 -0.06887991
## sample estimates:
##      mean in group HC mean in group Symptom
##             0.5310236             0.6345301

## [1] "The effect size of the Human group difference on driftrate is d= 0.53"
```

```
##
##  Two Sample t-test
##
## data:  BDI by group
## t = 32.016, df = 497, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  19.31422 21.83977
## sample estimates:
##      mean in group HC mean in group Symptom
##             22.259398              1.682403
```

```
## [1] "The effect size of the Human group difference is d= 2.87"
```

```
##
##  Two Sample t-test
##
## data:  Age by group
## t = -10.506, df = 497, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -5.246439 -3.593246
## sample estimates:
##      mean in group HC mean in group Symptom
##              28.20677              32.62661
```

```
##
##  Two Sample t-test
##
## data:  Ravens by group
## t = -20.409, df = 497, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -4.137983 -3.411244
## sample estimates:
##      mean in group HC mean in group Symptom
##              1.560150              5.334764
```

Interpretation

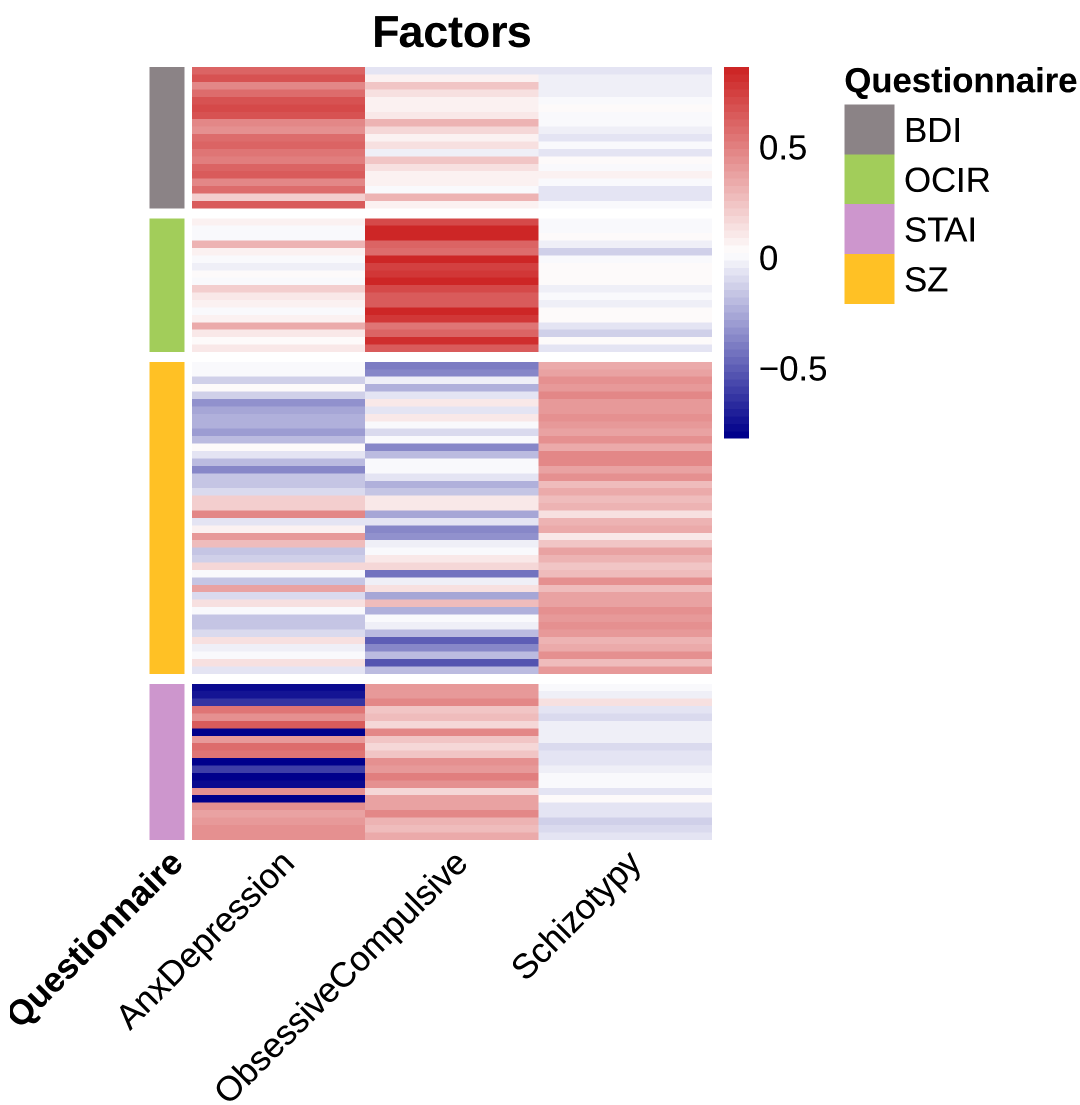
This approach identified 5 latent classes. Confirming our initial study, the group with the highest mean depression scores are those with the greatest negative bias, while those with the highest bias have very low depression scores. Interestingly, the 'symptomatic' latent class is also particularly low IQ relative to the other classes. These results are (highly!) exploratory and should be approached with caution, but they perhaps suggest that IQ can protect against negative bias in depressed individuals (which has been speculated in therapy research before). They also provide predictions about the distributions of relevant variables within those who may be currently or at risk of developping clinically-relevant behavioural symptoms.

Supplementary Analysis

Exploratory Factor Analysis of questionnaires

The simple regression above, however, collapses across the individual responses to the different items on the questionnaires and just uses summary scores. However, it may be that there is a simpler underlying structure to the data. For instance BDI and STAI are often highly correlated - so may actually be measuring the same latent construct. In this next section (inspired by Gillan et al 2016) we first run an exploratory factor analysis on the individual items from the questionnaires in an attempt to reduce the amount of latent variables.

```
###EFA

#Determine facrors using Cattell-Nelson-Gorsuch CNG Indices (claire's approach)
determinefactors <- nCng(combineditemdata[44:143], cor=TRUE, model="factors")
#Do an EFA using N factors from CNG
efaQaires <- fa(combineditemdata[44:143], nfact = determinefactors$nFactors, rotate = "geominQ", fm = "r

efaQaires.loadmat <- zapsmall(matrix(round(efaQaires$loadings, 2), nrow = 100, ncol = 3))
rownames(efaQaires.loadmat) <- names(combineditemdata[44:143])

#heatmap
efaQairesdataf <- data.frame(efaQaires.loadmat)
row.names(efaQairesdataf) <- gsub("_quantised", "", row.names(efaQairesdataf))
names(efaQairesdataf)<-c("AnxDepression","ObsessiveCompulsive","Schizotypy")
annotation <- substr(row.names(efaQairesdataf), start=1, stop=3)
annotationdf <- data.frame(Questionnaire = annotation)
levels(annotationdf$Questionnaire) <- c('BDI', 'OCIR', 'STAI', 'SZ')
rownames(annotationdf) <- rownames(efaQairesdataf)
countqs <- summary(annotationdf$Questionnaire)
qbreaks <- c(countqs[1], (countqs[1]+countqs[2]), (countqs[1]+countqs[2]+countqs[4]) )
ancol = list(Questionnaire =c(BDI ="lavenderblush4", OCIR ="darkolivegreen3", STAI ="plum3",SZ ="golden

heatmapplot <- pheatmap(
  mat               = efaQairesdataf,
  border_color      = NA,
  color             = colorRampPalette(c("darkblue", "white", "firebrick3"))(50),
  cellwidth         = 70,
  cellheight        = 3,
  show_colnames     = TRUE,
  show_rownames     = FALSE,
  drop_levels       = TRUE,
  fontsize          = 14,
  main              = "Factors",
  treeheight_row    = 0,
  treeheight_col    = 0,
  cluster_rows      = FALSE,
  annotation_row    = annotationdf,
  annotation_colors = ancol,
  angle_col         = 45,
  gaps_row          = qbreaks,
  gaps_col          = c(1,2),
  width             = 20,
    height            = 20
)


heatmapplot
```



Interpretation

We Identify 3 latent factors using Cattell-Nelson-Gorsuch Indices (as in Gillan et al.). One factor we name "AnxDepression" as it maps closely onto the BDI and STAI , "ObsessiveCompulsive" which is a mix of the OCIR and STAI (and not Schizotypy), and "Schizotypy" which loads positively almost exclusively on the Schizotypy questionnaire.

Exploratory Structural Equation Model using latent factors

We can now use these factor loadings in an Exploratory Structural Equation Model (ESEM) and run the same regression as above but instead of feeding in the summary questionnaire scores, we can create a latent variable that represents each factor. Of note we use the 'Robust maximum likelihood' (MLR) estimator as it is robust to non-normality and the individual items for the questionnaires are not continuous.

```
##ESEM which mimics regression - this takes the loadings from the EFA and uses them to weight the relati
terms <- vector()
for (i in 1:3) {
  terms[i] <-
    paste0("F",i,"=~ ", paste0(c(efaQaires.loadmat[,i]), "*", names(efaQaires.loadmat[,1]), collapse =
}

efaQaires.esem <- paste(terms, collapse = "\n")
##adding the regression and covariances to match the original regression analysis
terms[4] <- "propmedhigh ~ spreadsheet + Ravens + Age + GenderMF + F1 + F2 + F3"
##adding residual correlations
terms[5] <- "spreadsheet ~~ Ravens + Age + GenderMF + F1 + F2 + F3"
terms[6] <- "Ravens ~~ Age  + GenderMF + F1 + F2 + F3"
terms[7] <- "Age ~~  GenderMF + F1 + F2 + F3"
terms[8] <- "GenderMF ~~ F1 + F2 + F3"
terms[9] <- "F1 ~~ F2 + F3"
terms[10] <- "F2 ~~ F3"

semFactorsMatch <- paste(terms, collapse = "\n")

#Fit the model (this takes a while!)
fititem.factors <- sem(semFactorsMatch, data=combineditemdata, meanstructure=TRUE,  estimator = "MLR")

#This plots loads of fit indices, but we are mostly intersted in the regression
summary(fititem.factors, standardized=TRUE, rsquare=F, fit.measures=F)
```

```
## lavaan 0.6-3 ended normally after 267 iterations
##
##   Optimization method                           NLMINB
##   Number of free parameters                        241
##
##                                                   Used       Total
##   Number of observations                           990        1066
##
##   Estimator                                         ML      Robust
##   Model Fit Test Statistic                   19555.630   17207.926
##   Degrees of freedom                              5429        5429
##   P-value (Chi-square)                           0.000       0.000
##   Scaling correction factor                                  1.136
##     for the Yuan-Bentler correction (Mplus variant)
##
## Parameter Estimates:
##
##   Information                                 Observed
##   Observed information based on                Hessian
##   Standard Errors                   Robust.huber.white
##
```

```
## Latent Variables:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   F1 =~
##     BDI_Attrctv_qn    0.620                               0.540    0.595
##     BDI_Blam_qntsd    0.680                               0.592    0.677
##     BDI_Cry_quntsd    0.470                               0.409    0.465
##     BDI_Dcsns_qnts    0.590                               0.513    0.587
##     BDI_Dsppntmnt_    0.690                               0.600    0.682
##     BDI_Falr_qntsd    0.710                               0.618    0.684
##     BDI_Futr_qntsd    0.670                               0.583    0.658
##     BDI_Glty_qntsd    0.490                               0.426    0.481
##     BDI_Hlth_qntsd    0.430                               0.374    0.463
##     BDI_Intrs_I_P_    0.590                               0.513    0.584
##     BDI_Irrttd_qnt    0.600                               0.522    0.588
##     BDI_Libd_qntsd    0.540                               0.470    0.540
##     BDI_Pnshd_qnts    0.500                               0.435    0.467
##     BDI_Sad_quntsd    0.620                               0.540    0.647
##     BDI_Stsfctn_qn    0.640                               0.557    0.606
##     BDI_Slep_qntsd    0.480                               0.418    0.469
##     BDI_Tird_qntsd    0.570                               0.496    0.586
##     BDI_wght_qntsd    0.220                               0.191    0.253
##     BDI_Work_qntsd    0.650                               0.566    0.645
##     OCIR_1_quantsd    0.070                               0.061    0.053
##     OCIR_10_quntsd    0.000                               0.000    0.000
##     OCIR_11_quntsd    0.020                               0.017    0.015
##     OCIR_12_quntsd    0.300                               0.261    0.231
##     OCIR_13_quntsd    0.070                               0.061    0.054
##     OCIR_14_quntsd    0.010                               0.009    0.007
##     OCIR_15_quntsd   -0.040                              -0.035   -0.029
##     OCIR_16_quntsd    0.050                               0.044    0.038
##     OCIR_17_quntsd   -0.010                              -0.009   -0.008
##     OCIR_18_quntsd    0.210                               0.183    0.162
##     OCIR_2_quantsd    0.120                               0.104    0.088
##     OCIR_3_quantsd    0.060                               0.052    0.045
##     OCIR_4_quantsd    0.020                               0.017    0.015
##     OCIR_5_quantsd    0.060                               0.052    0.045
##     OCIR_6_quantsd    0.350                               0.305    0.273
##     OCIR_7_quantsd    0.110                               0.096    0.087
##     OCIR_8_quantsd    0.040                               0.035    0.029
##     OCIR_9_quantsd    0.110                               0.096    0.083
##     SZ_1_quantised    0.000                               0.000    0.000
##     SZ_10_quantisd    0.020                               0.017    0.035
##     SZ_11_quantisd   -0.140                              -0.122   -0.249
##     SZ_12_quantisd    0.050                               0.044    0.090
##     SZ_13_quantisd   -0.130                              -0.113   -0.234
##     SZ_14_quantisd   -0.340                              -0.296   -0.556
##     SZ_15_quantisd   -0.280                              -0.244   -0.463
##     SZ_16_quantisd   -0.220                              -0.191   -0.374
##     SZ_17_quantisd   -0.230                              -0.200   -0.393
##     SZ_18_quantisd   -0.290                              -0.252   -0.472
##     SZ_19_quantisd   -0.190                              -0.165   -0.332
##     SZ_2_quantised    0.040                               0.035    0.065
##     SZ_20_quantisd   -0.070                              -0.061   -0.130
##     SZ_21_quantisd   -0.190                              -0.165   -0.335
```

```
##     SZ_22_quantisd   -0.370                                    -0.322   -0.583
##     SZ_23_quantisd   -0.160                                    -0.139   -0.283
##     SZ_24_quantisd   -0.160                                    -0.139   -0.254
##     SZ_25_quantisd   -0.090                                    -0.078   -0.156
##     SZ_26_quantisd    0.210                                     0.183    0.336
##     SZ_27_quantisd    0.220                                     0.191    0.359
##     SZ_28_quantisd    0.490                                     0.426    0.727
##     SZ_29_quantisd   -0.070                                    -0.061   -0.124
##     SZ_3_quantised    0.080                                     0.070    0.137
##     SZ_30_quantisd    0.390                                     0.339    0.600
##     SZ_31_quantisd    0.270                                     0.235    0.463
##     SZ_32_quantisd   -0.150                                    -0.131   -0.264
##     SZ_33_quantisd   -0.130                                    -0.113   -0.232
##     SZ_34_quantisd    0.170                                     0.148    0.274
##     SZ_35_quantisd    0.000                                     0.000    0.000
##     SZ_36_quantisd   -0.150                                    -0.131   -0.266
##     SZ_37_quantisd    0.380                                     0.331    0.524
##     SZ_38_quantisd   -0.090                                    -0.078   -0.152
##     SZ_39_quantisd    0.140                                     0.122    0.202
##     SZ_4_quantised    0.020                                     0.017    0.037
##     SZ_40_quantisd   -0.160                                    -0.139   -0.280
##     SZ_41_quantisd   -0.160                                    -0.139   -0.283
##     SZ_42_quantisd   -0.100                                    -0.087   -0.170
##     SZ_5_quantised    0.140                                     0.122    0.208
##     SZ_6_quantised   -0.020                                    -0.017   -0.033
##     SZ_7_quantised    0.020                                     0.017    0.036
##     SZ_8_quantised    0.130                                     0.113    0.186
##     SZ_9_quantised   -0.070                                    -0.061   -0.123
##     STAI2_Clm_qnts   -0.770                                    -0.670   -0.769
##     STAI2_Cntnt_qn   -0.740                                    -0.644   -0.737
##     STAI2_Dscns_qn   -0.640                                    -0.557   -0.643
##     STAI2_Dffclts_    0.540                                     0.470    0.508
##     STAI2_DsppntS_    0.440                                     0.383    0.420
##     STAI2_Flr_qnts    0.640                                     0.557    0.605
##     STAI2_Hppy_qnt   -0.810                                    -0.705   -0.807
##     STAI2_HppyOth_    0.420                                     0.365    0.376
##     STAI2_Indqt_qn    0.580                                     0.505    0.542
##     STAI2_Nrvs_qnt    0.540                                     0.470    0.519
##     STAI2_Plsnt_qn   -0.820                                    -0.714   -0.847
##     STAI2_Rstd_qnt   -0.610                                    -0.531   -0.607
##     STAI2_StsfdSl_   -0.800                                    -0.696   -0.789
##     STAI2_Scr_qnts   -0.770                                    -0.670   -0.756
##     STAI2_SlfCnfd_    0.440                                     0.383    0.387
##     STAI2_Stdy_qnt   -0.790                                    -0.687   -0.800
##     STAI2_Tnsn_qnt    0.450                                     0.392    0.422
##     STAI2_Thghts_q    0.380                                     0.331    0.366
##     STAI2_UnmprtT_    0.400                                     0.348    0.384
##     STAI2_Wrry_qnt    0.450                                     0.392    0.417
##     STAI_Anxs_qnts    0.450                                     0.392    0.407
##   F2 =~
##     BDI_Attrctv_qn   -0.070                                    -0.067   -0.074
##     BDI_Blam_qntsd    0.070                                     0.067    0.076
##     BDI_Cry_quntsd    0.240                                     0.229    0.260
##     BDI_Dcsns_qnts    0.140                                     0.134    0.153
```

```
##      BDI_Dsppntmnt_    0.060                                  0.057    0.065
##      BDI_Falr_qntsd    0.060                                  0.057    0.063
##      BDI_Futr_qntsd    0.090                                  0.086    0.097
##      BDI_Glty_qntsd    0.300                                  0.287    0.323
##      BDI_Hlth_qntsd    0.170                                  0.162    0.201
##      BDI_Intrs_I_P_    0.070                                  0.067    0.076
##      BDI_Irrttd_qnt    0.130                                  0.124    0.140
##      BDI_Libd_qntsd   -0.030                                 -0.029   -0.033
##      BDI_Pnshd_qnts    0.240                                  0.229    0.246
##      BDI_Sad_quntsd    0.140                                  0.134    0.160
##      BDI_Stsfctn_qn    0.070                                  0.067    0.073
##      BDI_Slep_qntsd    0.060                                  0.057    0.064
##      BDI_Tird_qntsd    0.010                                  0.010    0.011
##      BDI_wght_qntsd    0.290                                  0.277    0.367
##      BDI_Work_qntsd    0.080                                  0.076    0.087
##      OCIR_1_quantsd    0.710                                  0.678    0.593
##      OCIR_10_quntsd    0.860                                  0.821    0.740
##      OCIR_11_quntsd    0.840                                  0.802    0.699
##      OCIR_12_quntsd    0.620                                  0.592    0.525
##      OCIR_13_quntsd    0.580                                  0.554    0.487
##      OCIR_14_quntsd    0.830                                  0.793    0.677
##      OCIR_15_quntsd    0.740                                  0.707    0.592
##      OCIR_16_quntsd    0.790                                  0.755    0.654
##      OCIR_17_quntsd    0.860                                  0.821    0.713
##      OCIR_18_quntsd    0.710                                  0.678    0.601
##      OCIR_2_quantsd    0.640                                  0.611    0.516
##      OCIR_3_quantsd    0.650                                  0.621    0.540
##      OCIR_4_quantsd    0.830                                  0.793    0.692
##      OCIR_5_quantsd    0.770                                  0.735    0.635
##      OCIR_6_quantsd    0.550                                  0.525    0.471
##      OCIR_7_quantsd    0.610                                  0.583    0.531
##      OCIR_8_quantsd    0.800                                  0.764    0.645
##      OCIR_9_quantsd    0.630                                  0.602    0.522
##      SZ_1_quantised   -0.390                                 -0.373   -0.668
##      SZ_10_quantisd   -0.350                                 -0.334   -0.667
##      SZ_11_quantisd   -0.040                                 -0.038   -0.078
##      SZ_12_quantisd   -0.230                                 -0.220   -0.454
##      SZ_13_quantisd   -0.050                                 -0.048   -0.099
##      SZ_14_quantisd    0.090                                  0.086    0.161
##      SZ_15_quantisd   -0.050                                 -0.048   -0.091
##      SZ_16_quantisd    0.110                                  0.105    0.205
##      SZ_17_quantisd   -0.010                                 -0.010   -0.019
##      SZ_18_quantisd   -0.090                                 -0.086   -0.161
##      SZ_19_quantisd    0.020                                  0.019    0.038
##      SZ_2_quantised   -0.370                                 -0.353   -0.657
##      SZ_20_quantisd   -0.210                                 -0.201   -0.428
##      SZ_21_quantisd    0.000                                  0.000    0.000
##      SZ_22_quantisd    0.010                                  0.010    0.017
##      SZ_23_quantisd   -0.080                                 -0.076   -0.155
##      SZ_24_quantisd   -0.240                                 -0.229   -0.418
##      SZ_25_quantisd   -0.160                                 -0.153   -0.304
##      SZ_26_quantisd    0.120                                  0.115    0.211
##      SZ_27_quantisd    0.090                                  0.086    0.161
##      SZ_28_quantisd   -0.250                                 -0.239   -0.407
```

```
##     SZ_29_quantisd   -0.080                                     -0.076   -0.156
##     SZ_3_quantised   -0.370                                     -0.353   -0.694
##     SZ_30_quantisd   -0.330                                     -0.315   -0.557
##     SZ_31_quantisd   -0.020                                     -0.019   -0.038
##     SZ_32_quantisd   -0.010                                     -0.010   -0.019
##     SZ_33_quantisd    0.090                                      0.086    0.176
##     SZ_34_quantisd    0.160                                      0.153    0.283
##     SZ_35_quantisd   -0.450                                     -0.430   -0.731
##     SZ_36_quantisd   -0.030                                     -0.029   -0.058
##     SZ_37_quantisd    0.140                                      0.134    0.212
##     SZ_38_quantisd   -0.270                                     -0.258   -0.500
##     SZ_39_quantisd    0.280                                      0.267    0.443
##     SZ_4_quantised   -0.230                                     -0.220   -0.465
##     SZ_40_quantisd    0.010                                      0.010    0.019
##     SZ_41_quantisd   -0.040                                     -0.038   -0.078
##     SZ_42_quantisd   -0.200                                     -0.191   -0.374
##     SZ_5_quantised   -0.510                                     -0.487   -0.830
##     SZ_6_quantised   -0.350                                     -0.334   -0.634
##     SZ_7_quantised   -0.190                                     -0.181   -0.374
##     SZ_8_quantised   -0.530                                     -0.506   -0.833
##     SZ_9_quantised   -0.200                                     -0.191   -0.385
##     STAI2_Clm_qnts    0.410                                      0.392    0.449
##     STAI2_Cntnt_qn    0.410                                      0.392    0.448
##     STAI2_Dscns_qn    0.480                                      0.458    0.530
##     STAI2_Dffclts_    0.250                                      0.239    0.258
##     STAI2_DsppntS_    0.260                                      0.248    0.272
##     STAI2_Flr_qnts    0.180                                      0.172    0.187
##     STAI2_Hppy_qnt    0.460                                      0.439    0.503
##     STAI2_HppyOth_    0.230                                      0.220    0.226
##     STAI2_Indqt_qn    0.160                                      0.153    0.164
##     STAI2_Nrvs_qnt    0.240                                      0.229    0.253
##     STAI2_Plsnt_qn    0.430                                      0.411    0.488
##     STAI2_Rstd_qnt    0.400                                      0.382    0.437
##     STAI2_StsfdSl_    0.520                                      0.497    0.563
##     STAI2_Scr_qnts    0.450                                      0.430    0.485
##     STAI2_SlfCnfd_    0.180                                      0.172    0.174
##     STAI2_Stdy_qnt    0.360                                      0.344    0.400
##     STAI2_Tnsn_qnt    0.370                                      0.353    0.381
##     STAI2_Thghts_q    0.460                                      0.439    0.486
##     STAI2_UnmprtT_    0.320                                      0.306    0.337
##     STAI2_Wrry_qnt    0.260                                      0.248    0.265
##     STAI_Anxs_qnts    0.350                                      0.334    0.348
##   F3 =~
##     BDI_Attrctv_qn   -0.050                                     -0.021   -0.023
##     BDI_Blam_qntsd   -0.020                                     -0.008   -0.009
##     BDI_Cry_quntsd   -0.020                                     -0.008   -0.009
##     BDI_Dcsns_qnts   -0.030                                     -0.012   -0.014
##     BDI_Dsppntmnt_    0.020                                      0.008    0.009
##     BDI_Falr_qntsd    0.050                                      0.021    0.023
##     BDI_Futr_qntsd    0.010                                      0.004    0.005
##     BDI_Glty_qntsd    0.010                                      0.004    0.005
##     BDI_Hlth_qntsd   -0.030                                     -0.012   -0.015
##     BDI_Intrs_I_P_   -0.050                                     -0.021   -0.023
##     BDI_Irrttd_qnt   -0.010                                     -0.004   -0.005
```

```
##      BDI_Libd_qntsd   -0.050                                  -0.021   -0.024
##      BDI_Pnshd_qnts    0.030                                   0.012    0.013
##      BDI_Sad_quntsd    0.010                                   0.004    0.005
##      BDI_Stsfctn_qn    0.060                                   0.025    0.027
##      BDI_Slep_qntsd   -0.010                                  -0.004   -0.005
##      BDI_Tird_qntsd   -0.070                                  -0.029   -0.034
##      BDI_wght_qntsd   -0.050                                  -0.021   -0.027
##      BDI_Work_qntsd    0.010                                   0.004    0.005
##      OCIR_1_quantsd    0.010                                   0.004    0.004
##      OCIR_10_quntsd    0.020                                   0.008    0.007
##      OCIR_11_quntsd    0.040                                   0.017    0.014
##      OCIR_12_quntsd   -0.020                                  -0.008   -0.007
##      OCIR_13_quntsd   -0.140                                  -0.058   -0.051
##      OCIR_14_quntsd    0.020                                   0.008    0.007
##      OCIR_15_quntsd    0.040                                   0.017    0.014
##      OCIR_16_quntsd    0.030                                   0.012    0.011
##      OCIR_17_quntsd    0.030                                   0.012    0.011
##      OCIR_18_quntsd   -0.040                                  -0.017   -0.015
##      OCIR_2_quantsd    0.010                                   0.004    0.003
##      OCIR_3_quantsd   -0.040                                  -0.017   -0.014
##      OCIR_4_quantsd    0.050                                   0.021    0.018
##      OCIR_5_quantsd    0.030                                   0.012    0.011
##      OCIR_6_quantsd   -0.070                                  -0.029   -0.026
##      OCIR_7_quantsd   -0.130                                  -0.054   -0.049
##      OCIR_8_quantsd    0.050                                   0.021    0.017
##      OCIR_9_quantsd   -0.060                                  -0.025   -0.021
##      SZ_1_quantised    0.350                                   0.144    0.259
##      SZ_10_quantisd    0.380                                   0.157    0.313
##      SZ_11_quantisd    0.430                                   0.177    0.363
##      SZ_12_quantisd    0.390                                   0.161    0.332
##      SZ_13_quantisd    0.480                                   0.198    0.410
##      SZ_14_quantisd    0.420                                   0.173    0.325
##      SZ_15_quantisd    0.390                                   0.161    0.306
##      SZ_16_quantisd    0.430                                   0.177    0.346
##      SZ_17_quantisd    0.400                                   0.165    0.324
##      SZ_18_quantisd    0.380                                   0.157    0.293
##      SZ_19_quantisd    0.450                                   0.186    0.373
##      SZ_2_quantised    0.350                                   0.144    0.269
##      SZ_20_quantisd    0.460                                   0.190    0.405
##      SZ_21_quantisd    0.480                                   0.198    0.401
##      SZ_22_quantisd    0.360                                   0.149    0.269
##      SZ_23_quantisd    0.430                                   0.177    0.361
##      SZ_24_quantisd    0.280                                   0.116    0.211
##      SZ_25_quantisd    0.350                                   0.144    0.287
##      SZ_26_quantisd    0.270                                   0.111    0.205
##      SZ_27_quantisd    0.320                                   0.132    0.248
##      SZ_28_quantisd    0.130                                   0.054    0.091
##      SZ_29_quantisd    0.300                                   0.124    0.253
##      SZ_3_quantised    0.340                                   0.140    0.276
##      SZ_30_quantisd    0.100                                   0.041    0.073
##      SZ_31_quantisd    0.230                                   0.095    0.187
##      SZ_32_quantisd    0.380                                   0.157    0.317
##      SZ_33_quantisd    0.320                                   0.132    0.271
##      SZ_34_quantisd    0.240                                   0.099    0.183
```

```
##     SZ_35_quantisd    0.260                                    0.107    0.183
##     SZ_36_quantisd    0.430                                    0.177    0.362
##     SZ_37_quantisd    0.270                                    0.111    0.177
##     SZ_38_quantisd    0.380                                    0.157    0.304
##     SZ_39_quantisd    0.360                                    0.149    0.246
##     SZ_4_quantised    0.430                                    0.177    0.376
##     SZ_40_quantisd    0.400                                    0.165    0.332
##     SZ_41_quantisd    0.430                                    0.177    0.360
##     SZ_42_quantisd    0.420                                    0.173    0.339
##     SZ_5_quantised    0.310                                    0.128    0.218
##     SZ_6_quantised    0.350                                    0.144    0.274
##     SZ_7_quantised    0.450                                    0.186    0.383
##     SZ_8_quantised    0.270                                    0.111    0.183
##     SZ_9_quantised    0.410                                    0.169    0.341
##     STAI2_Clm_qnts   -0.010                                   -0.004   -0.005
##     STAI2_Cntnt_qn   -0.020                                   -0.008   -0.009
##     STAI2_Dscns_qn    0.140                                    0.058    0.067
##     STAI2_Dffclts_   -0.070                                   -0.029   -0.031
##     STAI2_DsppntS_   -0.090                                   -0.037   -0.041
##     STAI2_Flr_qnts   -0.030                                   -0.012   -0.013
##     STAI2_Hppy_qnt   -0.020                                   -0.008   -0.009
##     STAI2_HppyOth_   -0.020                                   -0.008   -0.008
##     STAI2_Indqt_qn   -0.090                                   -0.037   -0.040
##     STAI2_Nrvs_qnt   -0.080                                   -0.033   -0.036
##     STAI2_Plsnt_qn   -0.060                                   -0.025   -0.029
##     STAI2_Rstd_qnt   -0.020                                   -0.008   -0.009
##     STAI2_StsfdSl_    0.020                                    0.008    0.009
##     STAI2_Scr_qnts    0.000                                    0.000    0.000
##     STAI2_SlfCnfd_   -0.060                                   -0.025   -0.025
##     STAI2_Stdy_qnt    0.030                                    0.012    0.014
##     STAI2_Tnsn_qnt   -0.070                                   -0.029   -0.031
##     STAI2_Thghts_q   -0.060                                   -0.025   -0.027
##     STAI2_UnmprtT_   -0.140                                   -0.058   -0.064
##     STAI2_Wrry_qnt   -0.090                                   -0.037   -0.040
##     STAI_Anxs_qnts   -0.050                                   -0.021   -0.021
##
## Regressions:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   propmedhigh ~
##     spreadsheet       0.006    0.002    2.767    0.006    0.006    0.086
##     Ravens            0.010    0.002    4.339    0.000    0.010    0.145
##     Age              -0.003    0.001   -3.900    0.000   -0.003   -0.124
##     GenderMF         -0.005    0.013   -0.388    0.698   -0.005   -0.012
##     F1               -0.023    0.009   -2.624    0.009   -0.020   -0.097
##     F2               -0.009    0.009   -1.011    0.312   -0.008   -0.040
##     F3                0.006    0.018    0.309    0.757    0.002    0.011
##
## Covariances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##   spreadsheet ~~
##     Ravens           -0.395    0.280   -1.408    0.159   -0.395   -0.045
##     Age               1.278    0.974    1.312    0.190    1.278    0.042
##     GenderMF          0.059    0.047    1.264    0.206    0.059    0.040
##   F1 ~~
```

```
##     spreadsheet      -0.012    0.084   -0.143    0.886   -0.014   -0.005
##   F2 ~~
##     spreadsheet       0.090    0.093    0.968    0.333    0.094    0.031
##   F3 ~~
##     spreadsheet      -0.021    0.043   -0.497    0.619   -0.052   -0.017
##   Ravens ~~
##     Age               2.696    0.986    2.734    0.006    2.696    0.090
##     GenderMF         -0.070    0.046   -1.528    0.126   -0.070   -0.048
##   F1 ~~
##     Ravens           -0.410    0.080   -5.142    0.000   -0.471   -0.160
##   F2 ~~
##     Ravens           -0.983    0.086  -11.432    0.000   -1.029   -0.349
##   F3 ~~
##     Ravens           -0.073    0.043   -1.702    0.089   -0.176   -0.060
##   Age ~~
##     GenderMF         -0.061    0.160   -0.379    0.705   -0.061   -0.012
##   F1 ~~
##     Age              -2.154    0.310   -6.941    0.000   -2.476   -0.242
##   F2 ~~
##     Age              -3.192    0.281  -11.367    0.000   -3.341   -0.327
##   F3 ~~
##     Age               0.024    0.131    0.184    0.854    0.058    0.006
##   F1 ~~
##     GenderMF          0.014    0.014    0.992    0.321    0.016    0.032
##   F2 ~~
##     GenderMF          0.040    0.015    2.645    0.008    0.041    0.084
##   F3 ~~
##     GenderMF          0.004    0.007    0.627    0.531    0.011    0.022
##   F1 ~~
##     F2                0.386    0.022   17.289    0.000    0.465    0.465
##     F3               -0.070    0.012   -6.097    0.000   -0.196   -0.196
##   F2 ~~
##     F3               -0.007    0.016   -0.474    0.635   -0.019   -0.019
##
## Intercepts:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .BDI_Attrctv_qn    1.851    0.030   61.691    0.000    1.851    2.042
##    .BDI_Blam_qntsd    1.880    0.028   67.386    0.000    1.880    2.149
##    .BDI_Cry_quntsd    1.608    0.028   57.827    0.000    1.608    1.827
##    .BDI_Dcsns_qnts    1.730    0.028   61.375    0.000    1.730    1.979
##    .BDI_Dsppntmnt_    1.838    0.028   65.497    0.000    1.838    2.087
##    .BDI_Falr_qntsd    1.838    0.029   63.321    0.000    1.838    2.034
##    .BDI_Futr_qntsd    1.865    0.028   65.850    0.000    1.865    2.103
##    .BDI_Glty_qntsd    1.649    0.027   61.055    0.000    1.649    1.862
##    .BDI_Hlth_qntsd    1.691    0.025   68.835    0.000    1.691    2.094
##    .BDI_Intrs_I_P_    1.868    0.029   64.901    0.000    1.868    2.125
##    .BDI_Irrttd_qnt    1.867    0.028   66.237    0.000    1.867    2.103
##    .BDI_Libd_qntsd    1.694    0.028   60.268    0.000    1.694    1.946
##    .BDI_Pnshd_qnts    1.660    0.030   56.017    0.000    1.660    1.780
##    .BDI_Sad_quntsd    1.682    0.025   68.386    0.000    1.682    2.017
##    .BDI_Stsfctn_qn    1.836    0.030   62.084    0.000    1.836    1.998
##    .BDI_Slep_qntsd    1.836    0.029   64.377    0.000    1.836    2.060
##    .BDI_Tird_qntsd    1.914    0.027   70.442    0.000    1.914    2.263
##    .BDI_wght_qntsd    1.374    0.023   60.476    0.000    1.374    1.819
```

```
##    .BDI_Work_qntsd    1.788    0.027   65.179    0.000    1.788    2.040
##    .OCIR_1_quantsd    2.392    0.041   58.871    0.000    2.392    2.090
##    .OCIR_10_quntsd    1.991    0.041   48.896    0.000    1.991    1.793
##    .OCIR_11_quntsd    2.203    0.041   53.208    0.000    2.203    1.918
##    .OCIR_12_quntsd    2.316    0.041   56.177    0.000    2.316    2.052
##    .OCIR_13_quntsd    2.424    0.040   60.536    0.000    2.424    2.130
##    .OCIR_14_quntsd    2.186    0.043   51.180    0.000    2.186    1.865
##    .OCIR_15_quntsd    2.398    0.041   58.107    0.000    2.398    2.010
##    .OCIR_16_quntsd    2.127    0.042   51.049    0.000    2.127    1.844
##    .OCIR_17_quntsd    2.178    0.043   51.149    0.000    2.178    1.890
##    .OCIR_18_quntsd    2.231    0.042   52.896    0.000    2.231    1.977
##    .OCIR_2_quantsd    2.642    0.041   64.103    0.000    2.642    2.229
##    .OCIR_3_quantsd    2.466    0.040   61.560    0.000    2.466    2.143
##    .OCIR_4_quantsd    2.220    0.041   54.210    0.000    2.220    1.938
##    .OCIR_5_quantsd    2.155    0.041   52.331    0.000    2.155    1.859
##    .OCIR_6_quantsd    2.380    0.041   58.370    0.000    2.380    2.132
##    .OCIR_7_quantsd    2.189    0.039   55.883    0.000    2.189    1.995
##    .OCIR_8_quantsd    2.266    0.042   53.357    0.000    2.266    1.912
##    .OCIR_9_quantsd    2.520    0.040   62.668    0.000    2.520    2.185
##    .SZ_1_quantised    1.615    0.015  104.447    0.000    1.615    2.896
##    .SZ_10_quantisd    1.768    0.013  131.700    0.000    1.768    3.524
##    .SZ_11_quantisd    1.579    0.016  100.608    0.000    1.579    3.231
##    .SZ_12_quantisd    1.645    0.015  108.227    0.000    1.645    3.398
##    .SZ_13_quantisd    1.583    0.016  101.001    0.000    1.583    3.279
##    .SZ_14_quantisd    1.522    0.016   95.886    0.000    1.522    2.859
##    .SZ_15_quantisd    1.537    0.016   97.016    0.000    1.537    2.924
##    .SZ_16_quantisd    1.512    0.016   95.184    0.000    1.512    2.951
##    .SZ_17_quantisd    1.561    0.016   98.936    0.000    1.561    3.063
##    .SZ_18_quantisd    1.583    0.016  101.001    0.000    1.583    2.958
##    .SZ_19_quantisd    1.555    0.016   98.413    0.000    1.555    3.120
##    .SZ_2_quantised    1.612    0.015  104.099    0.000    1.612    2.998
##    .SZ_20_quantisd    1.710    0.014  118.592    0.000    1.710    3.647
##    .SZ_21_quantisd    1.572    0.016   99.939    0.000    1.572    3.186
##    .SZ_22_quantisd    1.554    0.016   98.327    0.000    1.554    2.815
##    .SZ_23_quantisd    1.598    0.016  102.547    0.000    1.598    3.250
##    .SZ_24_quantisd    1.595    0.016  102.228    0.000    1.595    2.909
##    .SZ_25_quantisd    1.571    0.016   99.846    0.000    1.571    3.120
##    .SZ_26_quantisd    1.305    0.015   89.183    0.000    1.305    2.397
##    .SZ_27_quantisd    1.296    0.015   89.329    0.000    1.296    2.431
##    .SZ_28_quantisd    1.386    0.015   89.575    0.000    1.386    2.362
##    .SZ_29_quantisd    1.585    0.016  101.200    0.000    1.585    3.236
##    .SZ_3_quantised    1.740    0.014  124.906    0.000    1.740    3.418
##    .SZ_30_quantisd    1.419    0.016   90.497    0.000    1.419    2.509
##    .SZ_31_quantisd    1.289    0.014   89.474    0.000    1.289    2.541
##    .SZ_32_quantisd    1.577    0.016  100.414    0.000    1.577    3.189
##    .SZ_33_quantisd    1.368    0.015   89.248    0.000    1.368    2.804
##    .SZ_34_quantisd    1.290    0.014   89.452    0.000    1.290    2.390
##    .SZ_35_quantisd    1.774    0.013  133.384    0.000    1.774    3.018
##    .SZ_36_quantisd    1.551    0.016   98.073    0.000    1.551    3.165
##    .SZ_37_quantisd    1.302    0.015   89.227    0.000    1.302    2.064
##    .SZ_38_quantisd    1.693    0.015  115.476    0.000    1.693    3.280
##    .SZ_39_quantisd    1.290    0.014   89.452    0.000    1.290    2.135
##    .SZ_4_quantised    1.690    0.015  114.957    0.000    1.690    3.577
##    .SZ_40_quantisd    1.577    0.016  100.414    0.000    1.577    3.172
```

```
##    .SZ_41_quantisd    1.570    0.016   99.753    0.000    1.570    3.188
##    .SZ_42_quantisd    1.559    0.016   98.760    0.000    1.559    3.049
##    .SZ_5_quantised    1.725    0.014  121.607    0.000    1.725    2.940
##    .SZ_6_quantised    1.715    0.014  119.568    0.000    1.715    3.252
##    .SZ_7_quantised    1.580    0.016  100.705    0.000    1.580    3.260
##    .SZ_8_quantised    1.714    0.014  119.370    0.000    1.714    2.820
##    .SZ_9_quantised    1.620    0.015  105.037    0.000    1.620    3.269
##    .STAI2_Clm_qnts    2.697    0.029   92.505    0.000    2.697    3.094
##    .STAI2_Cntnt_qn    2.684    0.029   92.224    0.000    2.684    3.070
##    .STAI2_Dscns_qn    2.654    0.029   91.842    0.000    2.654    3.065
##    .STAI2_Dffclts_    2.204    0.031   72.065    0.000    2.204    2.382
##    .STAI2_DsppntS_    2.194    0.030   73.103    0.000    2.194    2.404
##    .STAI2_Flr_qnts    2.026    0.030   66.523    0.000    2.026    2.199
##    .STAI2_Hppy_qnt    2.725    0.029   92.690    0.000    2.725    3.121
##    .STAI2_HppyOth_    2.491    0.032   78.398    0.000    2.491    2.562
##    .STAI2_Indqt_qn    2.172    0.031   69.873    0.000    2.172    2.332
##    .STAI2_Nrvs_qnt    2.206    0.030   74.217    0.000    2.206    2.434
##    .STAI2_Plsnt_qn    2.727    0.027  100.458    0.000    2.727    3.239
##    .STAI2_Rstd_qnt    2.469    0.028   86.925    0.000    2.469    2.823
##    .STAI2_StsfdSl_    2.610    0.031   84.756    0.000    2.610    2.957
##    .STAI2_Scr_qnts    2.716    0.030   89.572    0.000    2.716    3.063
##    .STAI2_SlfCnfd_    2.395    0.033   73.220    0.000    2.395    2.419
##    .STAI2_Stdy_qnt    2.767    0.029   96.893    0.000    2.767    3.219
##    .STAI2_Tnsn_qnt    2.218    0.031   72.603    0.000    2.218    2.389
##    .STAI2_Thghts_q    1.960    0.029   68.317    0.000    1.960    2.167
##    .STAI2_UnmprtT_    2.199    0.030   72.575    0.000    2.199    2.424
##    .STAI2_Wrry_qnt    2.266    0.031   72.806    0.000    2.266    2.415
##    .STAI_Anxs_qnts    2.136    0.032   67.610    0.000    2.136    2.223
##    .propmedhigh       0.601    0.027   21.984    0.000    0.601    2.870
##     spreadsheet       3.982    0.095   41.762    0.000    3.982    1.327
##     Ravens            4.458    0.094   47.626    0.000    4.458    1.514
##     Age              34.293    0.325  105.506    0.000   34.293    3.353
##     GenderMF          0.590    0.016   37.736    0.000    0.590    1.199
##     F1                0.000                               0.000    0.000
##     F2                0.000                               0.000    0.000
##     F3                0.000                               0.000    0.000
##
## Variances:
##                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
##    .BDI_Attrctv_qn    0.555    0.027   20.415    0.000    0.555    0.675
##    .BDI_Blam_qntsd    0.372    0.020   18.704    0.000    0.372    0.486
##    .BDI_Cry_quntsd    0.466    0.028   16.465    0.000    0.466    0.602
##    .BDI_Dcsns_qnts    0.417    0.022   18.928    0.000    0.417    0.545
##    .BDI_Dsppntmnt_    0.382    0.021   18.076    0.000    0.382    0.492
##    .BDI_Falr_qntsd    0.403    0.021   19.317    0.000    0.403    0.494
##    .BDI_Futr_qntsd    0.393    0.021   18.722    0.000    0.393    0.500
##    .BDI_Glty_qntsd    0.408    0.022   18.337    0.000    0.408    0.520
##    .BDI_Hlth_qntsd    0.427    0.021   19.988    0.000    0.427    0.655
##    .BDI_Intrs_I_P_    0.468    0.024   19.789    0.000    0.468    0.606
##    .BDI_Irrttd_qnt    0.439    0.021   20.558    0.000    0.439    0.557
##    .BDI_Libd_qntsd    0.545    0.029   18.813    0.000    0.545    0.719
##    .BDI_Pnshd_qnts    0.537    0.031   17.148    0.000    0.537    0.617
##    .BDI_Sad_quntsd    0.320    0.019   16.896    0.000    0.320    0.460
##    .BDI_Stsfctn_qn    0.500    0.026   19.209    0.000    0.500    0.592
```

```
##     .BDI_Slep_qntsd    0.594    0.028    21.251    0.000    0.594    0.747
##     .BDI_Tird_qntsd    0.459    0.023    20.059    0.000    0.459    0.641
##     .BDI_wght_qntsd    0.405    0.029    14.015    0.000    0.405    0.711
##     .BDI_Work_qntsd    0.403    0.020    20.155    0.000    0.403    0.525
##     .OCIR_1_quantsd    0.807    0.037    22.069    0.000    0.807    0.617
##     .OCIR_10_quntsd    0.558    0.034    16.194    0.000    0.558    0.453
##     .OCIR_11_quntsd    0.662    0.037    17.861    0.000    0.662    0.502
##     .OCIR_12_quntsd    0.710    0.032    21.876    0.000    0.710    0.557
##     .OCIR_13_quntsd    0.947    0.043    22.104    0.000    0.947    0.731
##     .OCIR_14_quntsd    0.738    0.043    17.077    0.000    0.738    0.538
##     .OCIR_15_quntsd    0.946    0.048    19.654    0.000    0.946    0.664
##     .OCIR_16_quntsd    0.730    0.041    17.883    0.000    0.730    0.548
##     .OCIR_17_quntsd    0.660    0.038    17.356    0.000    0.660    0.497
##     .OCIR_18_quntsd    0.664    0.034    19.238    0.000    0.664    0.521
##     .OCIR_2_quantsd    0.961    0.039    24.461    0.000    0.961    0.684
##     .OCIR_3_quantsd    0.905    0.043    20.819    0.000    0.905    0.683
##     .OCIR_4_quantsd    0.671    0.037    18.375    0.000    0.671    0.511
##     .OCIR_5_quantsd    0.764    0.044    17.253    0.000    0.764    0.569
##     .OCIR_6_quantsd    0.723    0.032    22.511    0.000    0.723    0.581
##     .OCIR_7_quantsd    0.797    0.038    21.000    0.000    0.797    0.662
##     .OCIR_8_quantsd    0.795    0.042    18.805    0.000    0.795    0.566
##     .OCIR_9_quantsd    0.904    0.042    21.668    0.000    0.904    0.679
##     .SZ_1_quantised    0.149    0.008    18.601    0.000    0.149    0.480
##     .SZ_10_quantisd    0.119    0.006    18.757    0.000    0.119    0.475
##     .SZ_11_quantisd    0.178    0.006    31.630    0.000    0.178    0.745
##     .SZ_12_quantisd    0.169    0.007    25.862    0.000    0.169    0.720
##     .SZ_13_quantisd    0.165    0.005    30.114    0.000    0.165    0.706
##     .SZ_14_quantisd    0.163    0.007    22.702    0.000    0.163    0.574
##     .SZ_15_quantisd    0.162    0.007    24.800    0.000    0.162    0.588
##     .SZ_16_quantisd    0.190    0.006    29.799    0.000    0.190    0.722
##     .SZ_17_quantisd    0.177    0.006    28.241    0.000    0.177    0.683
##     .SZ_18_quantisd    0.154    0.007    23.008    0.000    0.154    0.539
##     .SZ_19_quantisd    0.177    0.006    29.102    0.000    0.177    0.713
##     .SZ_2_quantised    0.154    0.008    20.034    0.000    0.154    0.531
##     .SZ_20_quantisd    0.123    0.006    21.571    0.000    0.123    0.557
##     .SZ_21_quantisd    0.164    0.006    27.710    0.000    0.164    0.674
##     .SZ_22_quantisd    0.163    0.007    22.434    0.000    0.163    0.535
##     .SZ_23_quantisd    0.165    0.006    27.641    0.000    0.165    0.682
##     .SZ_24_quantisd    0.178    0.008    23.352    0.000    0.178    0.593
##     .SZ_25_quantisd    0.187    0.006    30.150    0.000    0.187    0.737
##     .SZ_26_quantisd    0.226    0.009    26.341    0.000    0.226    0.764
##     .SZ_27_quantisd    0.218    0.009    24.766    0.000    0.218    0.766
##     .SZ_28_quantisd    0.206    0.009    22.723    0.000    0.206    0.597
##     .SZ_29_quantisd    0.207    0.005    40.205    0.000    0.207    0.864
##     .SZ_3_quantised    0.135    0.007    17.980    0.000    0.135    0.519
##     .SZ_30_quantisd    0.208    0.008    24.841    0.000    0.208    0.651
##     .SZ_31_quantisd    0.206    0.008    25.839    0.000    0.206    0.799
##     .SZ_32_quantisd    0.193    0.006    33.945    0.000    0.193    0.791
##     .SZ_33_quantisd    0.204    0.005    37.434    0.000    0.204    0.857
##     .SZ_34_quantisd    0.222    0.009    25.307    0.000    0.222    0.761
##     .SZ_35_quantisd    0.147    0.009    17.302    0.000    0.147    0.427
##     .SZ_36_quantisd    0.178    0.006    31.427    0.000    0.178    0.741
##     .SZ_37_quantisd    0.232    0.010    22.767    0.000    0.232    0.584
##     .SZ_38_quantisd    0.144    0.007    21.426    0.000    0.144    0.541
```

```
##    .SZ_39_quantisd    0.235    0.011    21.095    0.000    0.235    0.643
##    .SZ_4_quantised    0.146    0.007    22.383    0.000    0.146    0.656
##    .SZ_40_quantisd    0.193    0.006    32.916    0.000    0.193    0.780
##    .SZ_41_quantisd    0.175    0.006    30.163    0.000    0.175    0.723
##    .SZ_42_quantisd    0.165    0.007    25.171    0.000    0.165    0.630
##    .SZ_5_quantised    0.135    0.008    16.056    0.000    0.135    0.391
##    .SZ_6_quantised    0.137    0.007    19.494    0.000    0.137    0.493
##    .SZ_7_quantised    0.170    0.006    30.022    0.000    0.170    0.724
##    .SZ_8_quantised    0.144    0.009    16.425    0.000    0.144    0.390
##    .SZ_9_quantised    0.161    0.006    25.920    0.000    0.161    0.654
##    .STAI2_Clm_qnts    0.403    0.019    21.337    0.000    0.403    0.530
##    .STAI2_Cntnt_qn    0.432    0.021    20.284    0.000    0.432    0.566
##    .STAI2_Dscns_qn    0.451    0.020    22.621    0.000    0.451    0.602
##    .STAI2_Dffclts_    0.467    0.022    21.139    0.000    0.467    0.546
##    .STAI2_DsppntS_    0.529    0.025    21.370    0.000    0.529    0.635
##    .STAI2_Flr_qnts    0.417    0.021    19.576    0.000    0.417    0.491
##    .STAI2_Hppy_qnt    0.363    0.017    21.707    0.000    0.363    0.476
##    .STAI2_HppyOth_    0.687    0.030    22.652    0.000    0.687    0.727
##    .STAI2_Indqt_qn    0.509    0.027    19.094    0.000    0.509    0.586
##    .STAI2_Nrvs_qnt    0.440    0.021    20.725    0.000    0.440    0.536
##    .STAI2_Plsnt_qn    0.310    0.016    19.604    0.000    0.310    0.437
##    .STAI2_Rstd_qnt    0.527    0.025    20.869    0.000    0.527    0.689
##    .STAI2_StsfdSl_    0.367    0.016    23.098    0.000    0.367    0.471
##    .STAI2_Scr_qnts    0.420    0.020    20.737    0.000    0.420    0.535
##    .STAI2_SlfCnfd_    0.738    0.031    23.624    0.000    0.738    0.753
##    .STAI2_Stdy_qnt    0.365    0.020    18.468    0.000    0.365    0.493
##    .STAI2_Tnsn_qnt    0.450    0.022    20.459    0.000    0.450    0.522
##    .STAI2_Thghts_q    0.376    0.019    20.080    0.000    0.376    0.460
##    .STAI2_UnmprtT_    0.498    0.022    22.233    0.000    0.498    0.605
##    .STAI2_Wrry_qnt    0.568    0.025    23.055    0.000    0.568    0.645
##    .STAI_Anxs_qnts    0.533    0.027    20.016    0.000    0.533    0.577
##    .propmedhigh       0.041    0.002    24.811    0.000    0.041    0.947
##     spreadsheet       9.000    0.003  2595.746    0.000    9.000    1.000
##     Ravens            8.672    0.335    25.891    0.000    8.672    1.000
##     Age             104.591    6.150    17.008    0.000  104.591    1.000
##     GenderMF          0.242    0.003    86.073    0.000    0.242    1.000
##     F1                0.757    0.029    26.127    0.000    1.000    1.000
##     F2                0.912    0.036    25.590    0.000    1.000    1.000
##     F3                0.170    0.012    14.421    0.000    1.000    1.000
```

```r
ESEMfits <-data.frame(fitMeasures(fititem.factors, c("bic","aic","rmsea","rmsea.ci.lower", "rmsea.ci.up
names(ESEMfits) <- "p(mid as high)"
rownames(ESEMfits) <- c("BIC", "AIC", "RMSEA", "RMSEA CI-", "RMSEA CI+")

kable(t(ESEMfits), digits = 3)
```

	BIC	AIC	RMSEA	RMSEA CI-	RMSEA CI+
p(mid as high)	199655.2	198474.8	0.051	0.05	0.052

Interpretation

In this ESEM we show that the AnxDepression factor (F1) alone significantly influences task performance.

Zooming out, both the simple regression and the ESEM agree that of mental health-relevant symptoms, task performance is driven by symptoms of mood and anxiety disorders and not OCD or Psychosis symptoms. This suggests that our original clinical study in mood and anxiety disorders did not reflect a generic pathology, but rather that effects may be selective to the mood and anxiety symptom group that we originally tested. This also suggests that we must also control for age and IQ if we ever want to use this to inform clinical decision-making.