**AURORA analyses:**

**Defining the *r* factor for post-trauma resilience and its neural predictors**

**van Rooij et al *Nature Mental Health***

Analyses were conducted in SPSS v.28.0

Step 1: PCA

All 2-week and 6-month item-level clinical data from the AURORA study were imported in a long-form dataset, using the variable DATASET to indicate 2-weeks or 6-month data: DATASET=1, 6-month data; DATASET=2, 2-week data.

Available data:

* n=2772 with 2-week or 6-month item level data
* n=2062 with 6-month item-level data
* n=1835 with complete 6-month item-level data 🡪 used for PCA

*PCA syntax*

FACTOR

/VARIABLES DisturbingMemories FeelingUpset AvoidReminders FeelingCutOff FeelingIrritable

DifficultyConcentrate BadDreams RelivingEvent StrongPhysicalReactions AvoidStressExperience

TroubleRemember NoOneCanBeTrusted BlamingSelf FeelingFear LossOfInterest LackPositiveEmotions

TakingRisks Superalert FeelingJumpy SleepProblems Anxious WorryAboutThings TroubleRelax Tense

NothingInterest Worthless NothingToLookForward Helpless Sad Failure Depressed Unhappy Hopeless

DiffStayAwakeInDay SleepProbDiffGetThingsDone NumDaysAlcohol NumDaysNicotine FeelingRejected

ActWithoutThinkUpset UnfinishedTasks ThinkThingsOver ThinkCarefully LoseControl

ActWithoutThinkExcited SeeThingsThrough

/MISSING LISTWISE

/ANALYSIS DisturbingMemories FeelingUpset AvoidReminders FeelingCutOff FeelingIrritable

DifficultyConcentrate BadDreams RelivingEvent StrongPhysicalReactions AvoidStressExperience

TroubleRemember NoOneCanBeTrusted BlamingSelf FeelingFear LossOfInterest LackPositiveEmotions

TakingRisks Superalert FeelingJumpy SleepProblems Anxious WorryAboutThings TroubleRelax Tense

NothingInterest Worthless NothingToLookForward Helpless Sad Failure Depressed Unhappy Hopeless

DiffStayAwakeInDay SleepProbDiffGetThingsDone NumDaysAlcohol NumDaysNicotine FeelingRejected

ActWithoutThinkUpset UnfinishedTasks ThinkThingsOver ThinkCarefully LoseControl

ActWithoutThinkExcited SeeThingsThrough

/SELECT=DATASET(1)

/PRINT UNIVARIATE INITIAL EXTRACTION ROTATION

/FORMAT SORT

/PLOT EIGEN

/CRITERIA MINEIGEN(1) ITERATE(25)

/EXTRACTION PC

/CRITERIA ITERATE(25)

/ROTATION VARIMAX

/SAVE REG(ALL)

/METHOD=CORRELATION.

Step 2: Static and dynamic factors

The resulting principal components (Eigenvalues >2) for dataset 1 (FAC1\_6m; FAC2\_6m; FAC3\_6m) and dataset 2 (FAC1\_2w; FAC2\_2w; FAC3\_2w) were exported to a wide-form dataset. The scores were multiplied by minus one to calculate static resilience scores for the r-factor, reminder acceptance, and behavioral control. Then dynamic resilience was calculated by subtracting the 2-week scores from the 6-month scores.

*Syntax:*

COMPUTE rfactor\_static=FAC1\_6m \* - 1.

COMPUTE reminderacceptance\_static=FAC2\_6m \* - 1.

COMPUTE behavioralcontrol\_static=FAC3\_6m \* - 1.

EXECUTE.

COMPUTE rfactor\_dynamic=rfactor\_static - FAC1\_2w.

COMPUTE reminderacceptance\_dynamic= reminderacceptance\_static – FAC2\_2w.

COMPUTE behavioralcontrol\_dynamic= behavioralcontrol\_static – FAC3\_2w.

EXECUTE.

Step 3: Demographics

Neuroimaging data [Contrast estimates for the three task paradigms for regions of interest (n=9)] were extracted, exported to SPSS and merged with the dataset.

Available data:

* n=2772 – total sample r-factor analyses 🡪 n=1835 in analyses
* n=388 – total sample imaging (n=329 for inhibition, n=370 for threat processing, and n=325 for reward processing). Of these individuals with neuroimaging data, r-factor scores were available for total N=260 (n=215 for inhibition, n=249 for threat processing, and n=214 for reward processing). 🡪 n=260 in analyses

A variable was created for imaging data available yes/no. The demographics table for all participants with available data were included, separately for the complete (n=1835) and neuroimaging (n=260) dataset.

Syntax:

FREQUENCIES VARIABLES=ED\_GenderBirthCert ED\_RaceEthCode ED\_Marital ED\_highestgrade ED\_TraumaCode

WK2\_EmploymentCode WK2\_IncomeCode

/ORDER=ANALYSIS.

DESCRIPTIVES VARIABLES=ED\_Age

/STATISTICS=MEAN STDDEV MIN MAX.

Step 4: Exploring resilience scores

1. Analyses were performed investigating the associations between the resilience scores and biological sex, age, childhood trauma levels and trait resilience.

Syntax (biological sex):

T-TEST GROUPS=ED\_GenderBirthCert(1 2)

/MISSING=ANALYSIS

/VARIABLES=rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static.

/ES DISPLAY(TRUE)

/CRITERIA=CI(.95).

Syntax (age):

CORRELATIONS

/VARIABLES= rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static ED\_age

/PRINT=TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

Syntax (childhood trauma; CTQ):

CORRELATIONS

/VARIABLES= rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static WK2\_CTQSF\_EmoAbu\_RS WK2\_CTQSF\_PhyAbu\_RS WK2\_CTQSF\_SexAbu\_RS

WK2\_CTQSF\_EmoNeg\_RS WK2\_CTQSF\_PhyNeg\_RS WK2\_CTQSF\_Total\_RS Wk2\_CTQ\_abuse\_tot Wk2\_CTQ\_neglect\_tot

/PRINT=TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

Syntax (trait resilience; CD-RISC):

CORRELATIONS

/VARIABLES= rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static M6\_CDRISC10\_RS

/PRINT=TWOTAIL NOSIG FULL

/MISSING=PAIRWISE.

1. The 2-week and 6-month scores were compared.

Syntax:

T-TEST PAIRS= FAC1\_2w FAC2\_2w FAC3\_2w WITH rfactor\_static reminderacceptance\_static behavioralcontrol\_static (PAIRED)

/ES DISPLAY(TRUE) STANDARDIZER(SD)

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

1. Resilience scores were compared between individuals in the imaging sample (n=260) and individuals not included in the imaging analyses (n=1575).

Syntax:

T-TEST GROUPS=imagingdata\_avail(0 1)

/MISSING=ANALYSIS

/VARIABLES= rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static

/ES DISPLAY(TRUE)

/CRITERIA=CI(.95).

Step 5: ROI analyses

Outliers per task who deviated >3SD from the mean were excluded (Go/NoGo task, n=2, faces task, n=9, card task, n=2).

|  |  |  |  |
| --- | --- | --- | --- |
| TASK | outliers SID |  |  |
| Faces | 122790 |  | PID ~= 122790 AND PID ~= 116651 AND PID ~= 112017 AND PID ~= 116651 AND PID ~= 113231 AND PID ~= 119308 AND PID ~= 116651 AND PID ~= 119308 AND PID ~= 111035 |
|  | 116651 |  |  |
|  | 112017 |  |  |
|  | 116651 |  |  |
|  | 113231 |  |  |
|  | 119308 |  |  |
|  | 116651 |  |  |
|  | 119308 |  |  |
|  | 111035 | (4x) |  |
| card | 109586 |  | PID ~= 109586 AND PID ~= 100375 |
|  | 100375 |  |  |
| GNG | 115190 |  | PID ~= 115190 AND PID ~= 122657 |
|  | 122657 |  |  |

Correlation analyses with the resilience scores were performed including site as dummy variables.

Syntax:

PARTIAL CORR

/VARIABLES= GNG\_Hammers\_LR\_Hippocampus faces\_CITI168\_LR\_Amyg faces\_hammers\_LR\_Hippocampus faces\_WFU\_BA25 faces\_ROI\_BA32

card\_binary\_bilateral\_OFC\_HarvOx card\_CITI168\_NAcc card\_CITI168\_LR\_Amyg GNG\_vmPFC rfactor\_globalstress\_6m rfactor\_static rfactor\_dynamic reminderacceptance\_dynamic reminderacceptance\_static behavioralcontrol\_dynamic behavioralcontrol\_static BY DUMMY\_WS DUMMY\_Temple DUMMY\_McLean DUMMY\_WUSL

/SIGNIFICANCE=TWOTAIL

/MISSING=PAIRWISE.