Surprise study analysis

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Study description

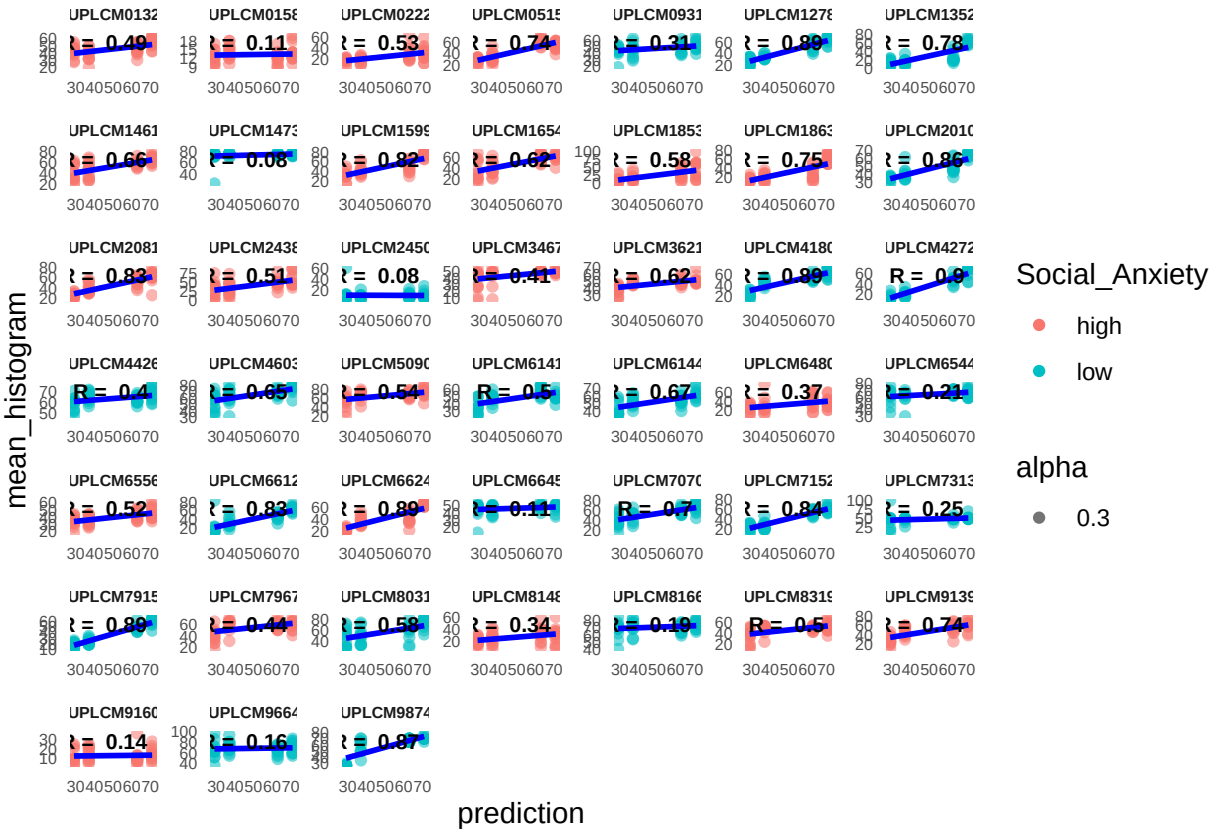
This is the first surprise study using the same task version as pilot 21. We had the following groups of participants with the experiment's corresponding Gorilla link: - Prolific aged 18-25 (n = 30): https://app.gorilla.sc/admin/experiment/180921/design - Prolific aged 26-45 (n = 38): https://app.gorilla.sc/admin/experiment/185160/design - School students aged 14-18 (n = 30): https://app.gorilla.sc/admin/experiment/177048/design - Community participants aged 18-25 (n = 24): https://app.gorilla.sc/admin/experiment/180348/design

The sample sizes include participants that potentially need to be excluded.

```
## # A tibble: 45 x 2
##    Random_ID_new Trial.Number
##    <chr>                <int>
##  1 SUPLCM01328             48
##  2 SUPLCM01588             48
##  3 SUPLCM02221             48
##  4 SUPLCM05151             48
##  5 SUPLCM09311             48
##  6 SUPLCM12782             48
##  7 SUPLCM13522             48
##  8 SUPLCM14619             48
##  9 SUPLCM14738             48
## 10 SUPLCM15998             48
## # i 35 more rows
```

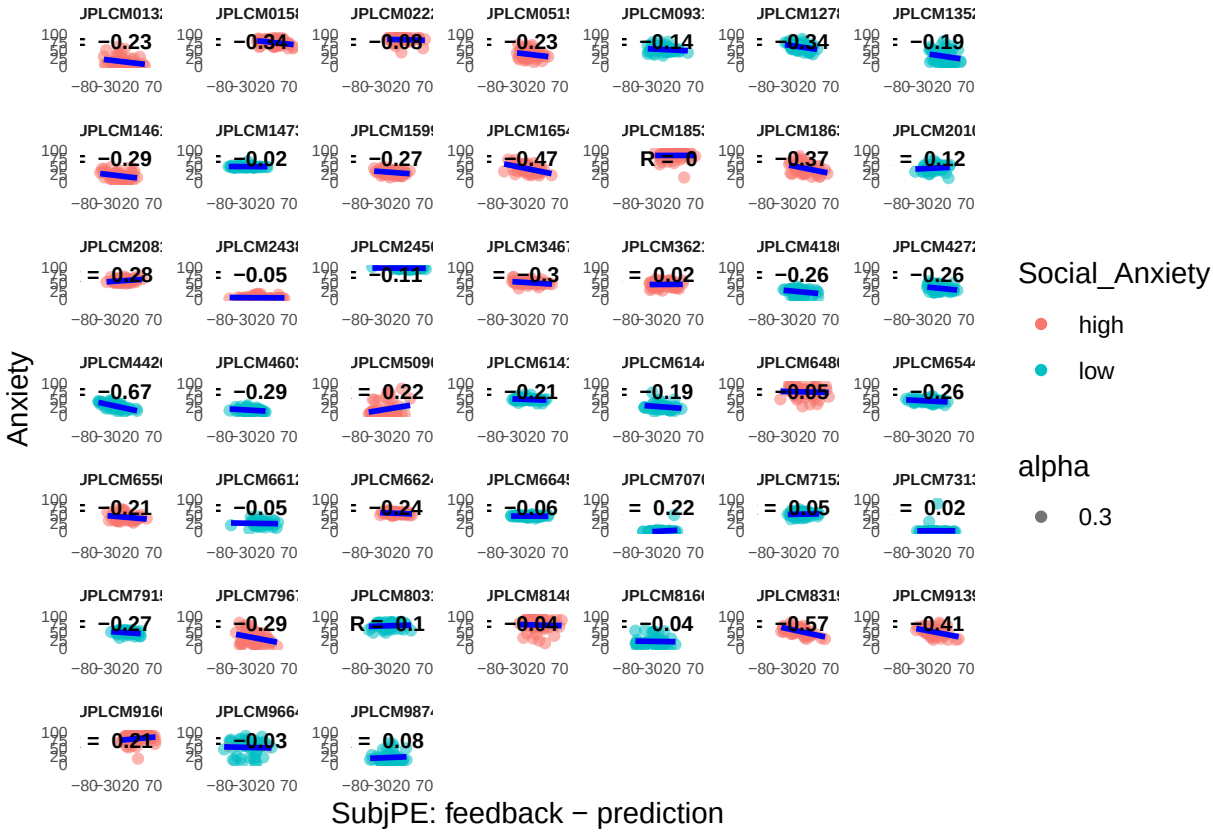
Relationship between prediction and mean histograms (4x only in the beginning)

```
## [1] "average correlation between mean_hist and prediction: 0.551116398117538"
```



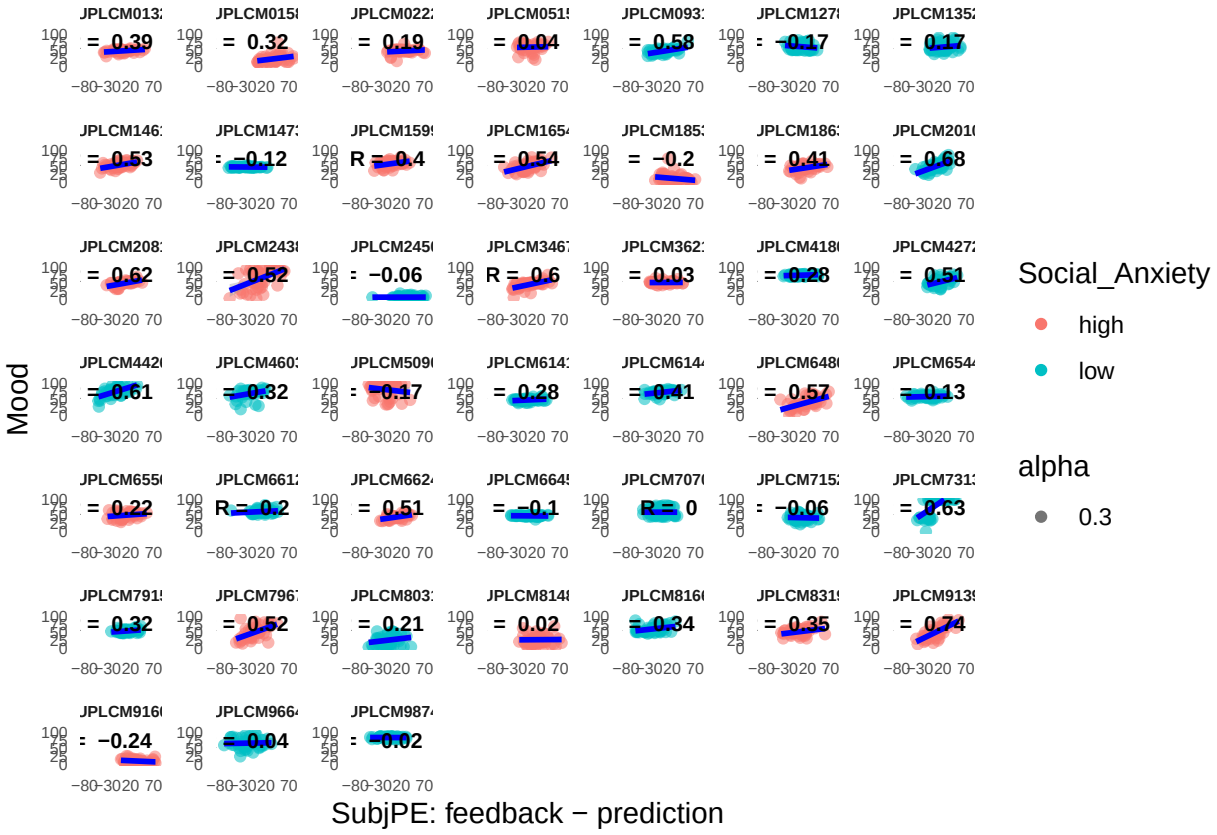
Relationship between Anxiety and SubjPE

```
## [1] "average correlation between anxiety and SubjPE: -0.145065538931356"
```



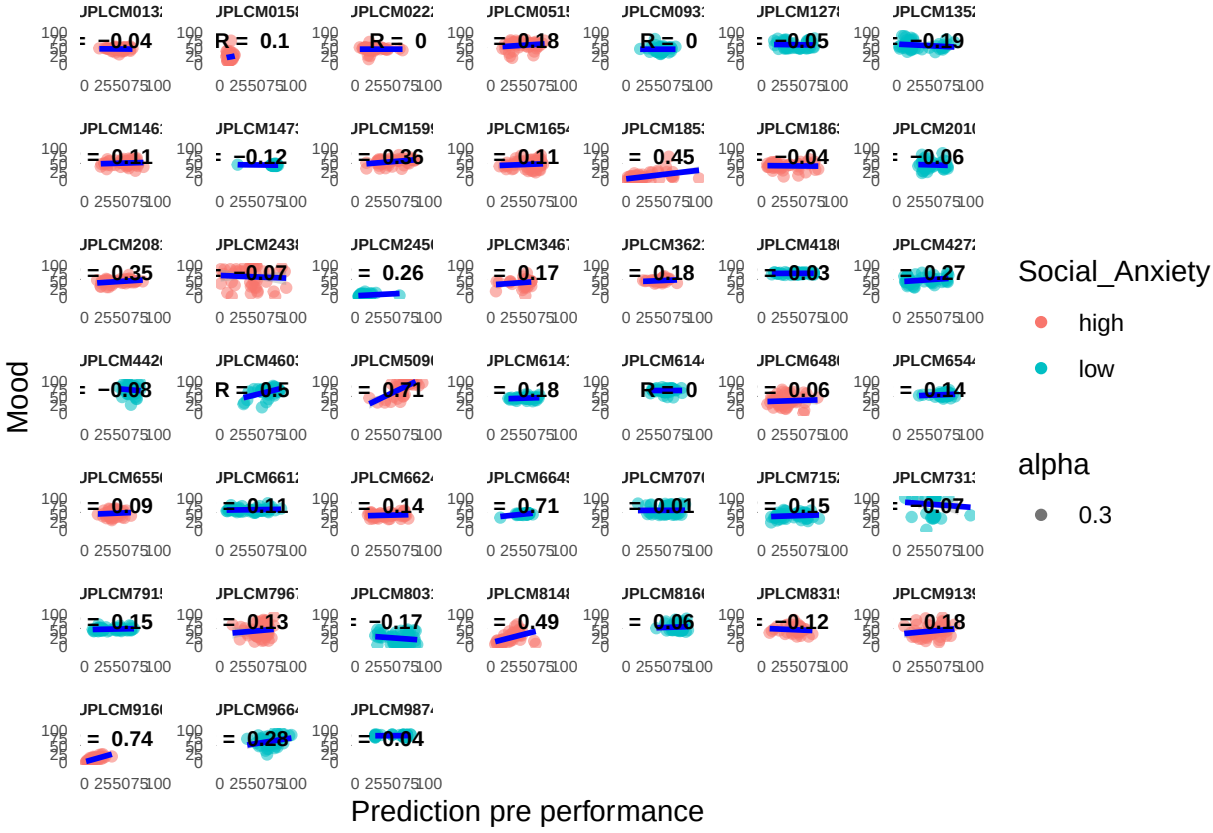
Relationship between Mood and SubjPE

```
## [1] "average correlation between mood and SubjPE: 0.267980134168208"
```



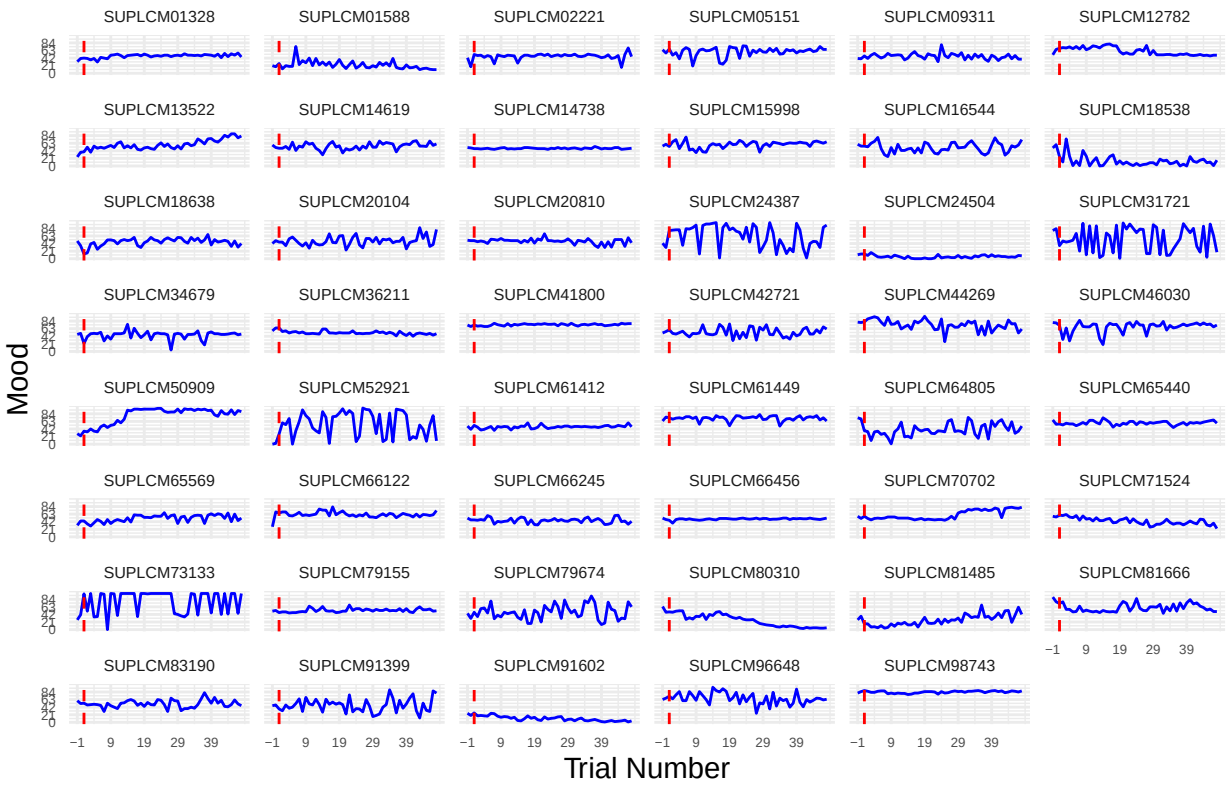
Relationship between Mood and prediction (pre-performance)

```
## [1] "average correlation between mood and prediction before performance: 0.142634395378829"
```

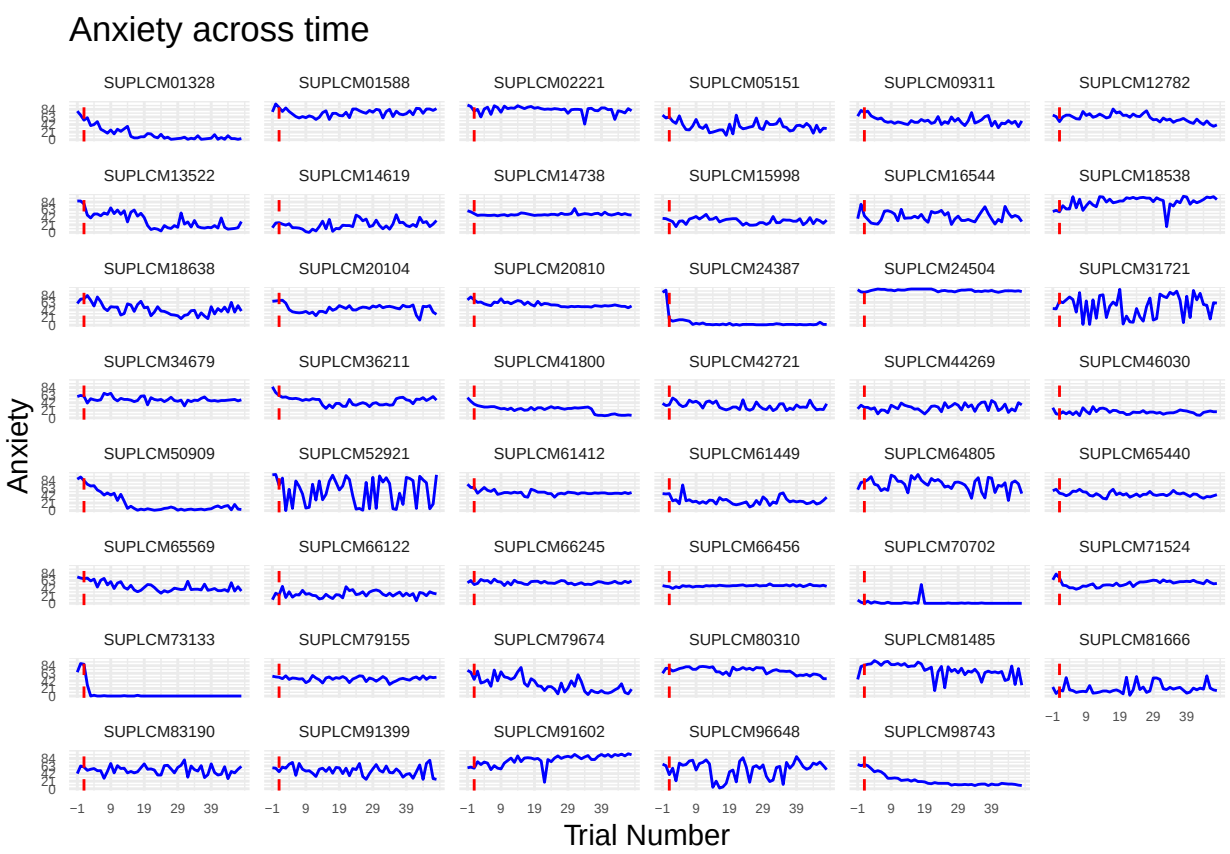


Mood over time

Mood across time

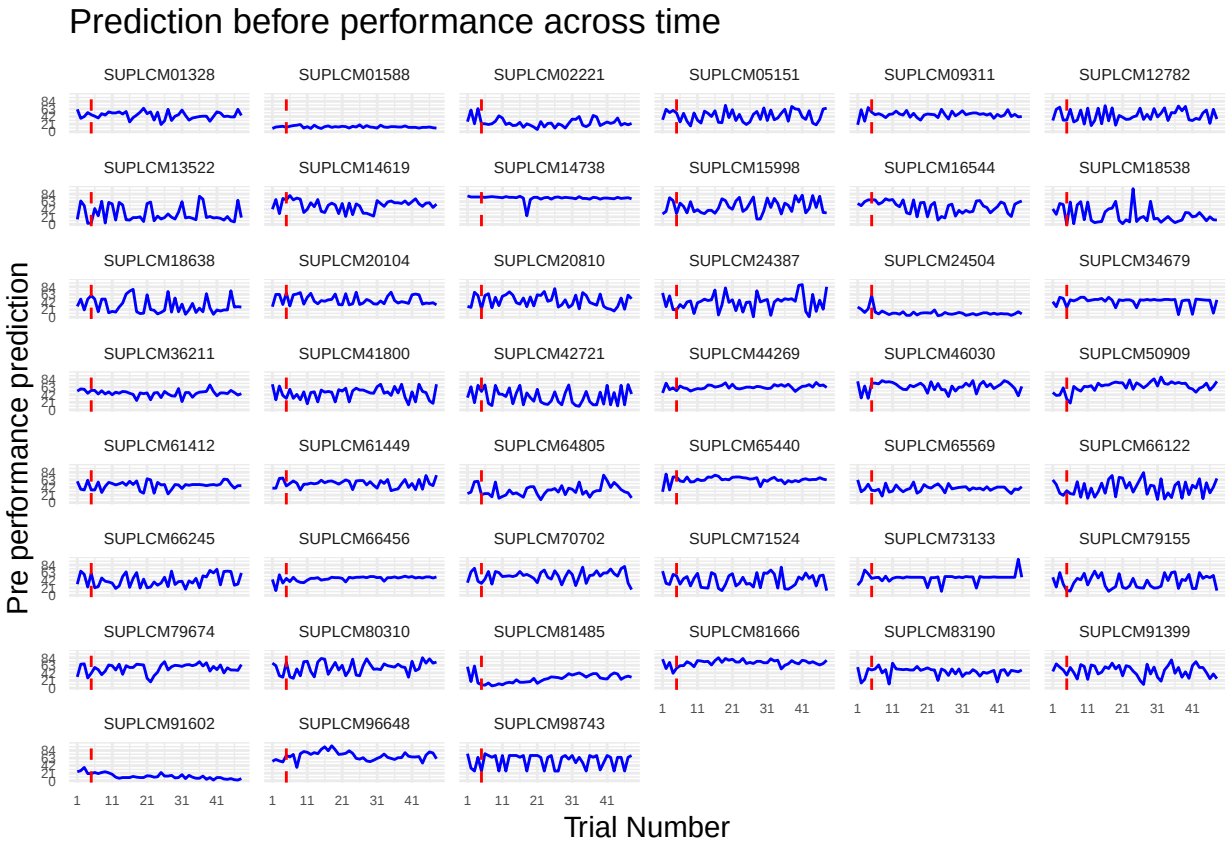


Anxiety over time

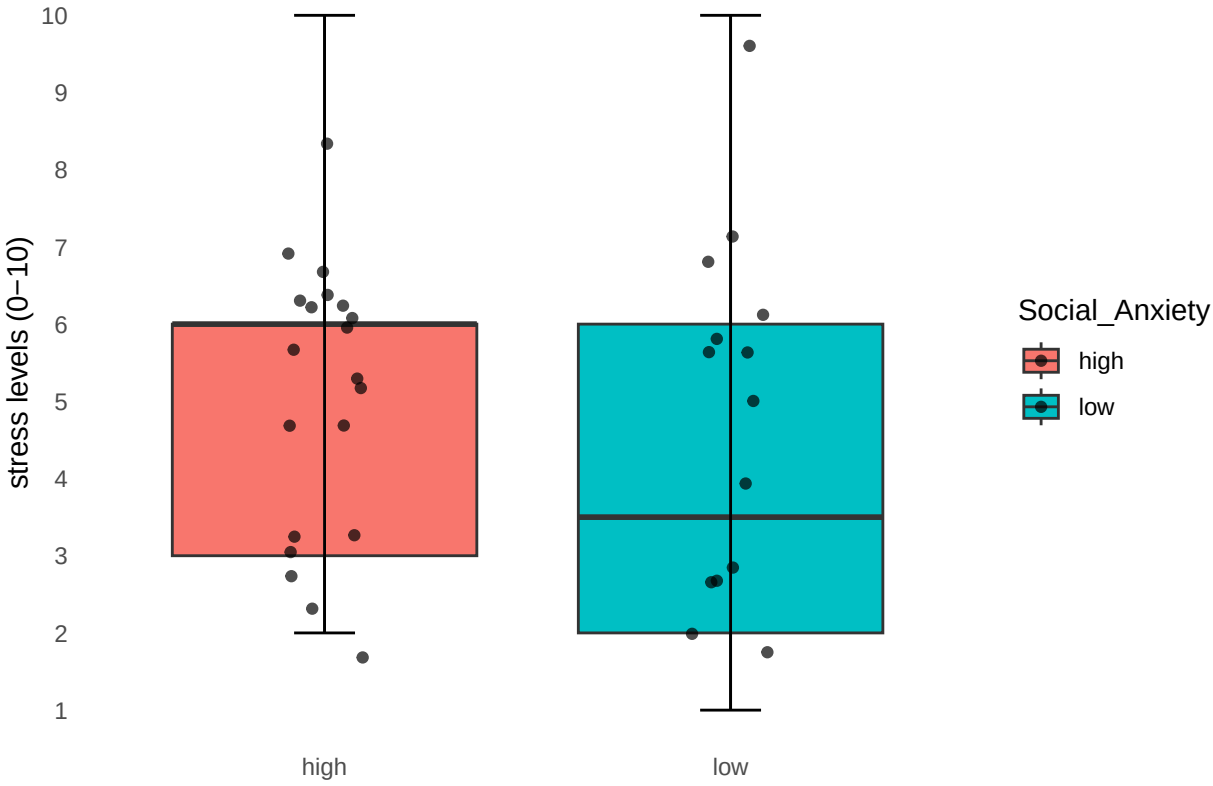


Prediction before performance over time

Red line presents until what points histograms were presented (4 first trials only).



Stress levels and social anxiety



LME models for Mood and SubjPE

The best model seems to be: Mood ~ SubjPE + mini_SPIN_total + (SubjPE | Random_ID_new)

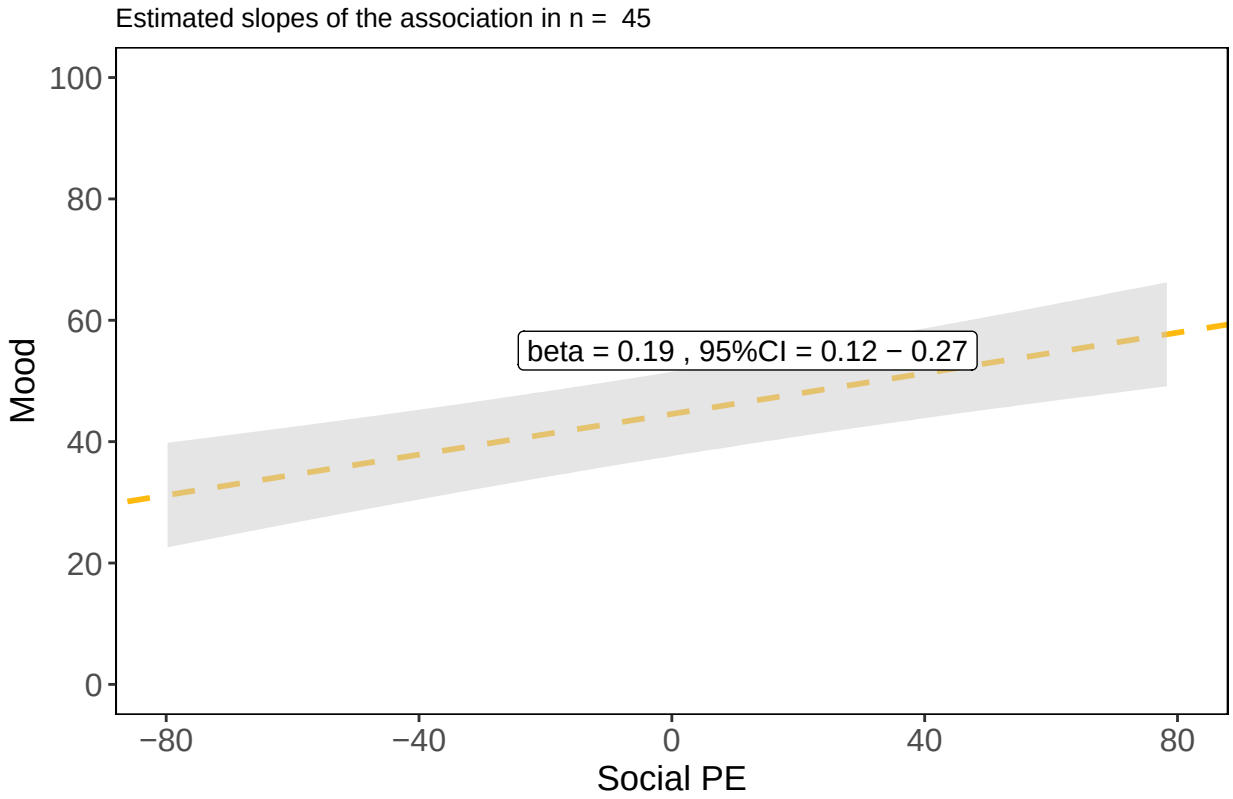
```
## [1] 16953.11
```

```
## [1] 17148.59
```

```
## [1] 16949.56
```

```
## [1] 16943.7
```

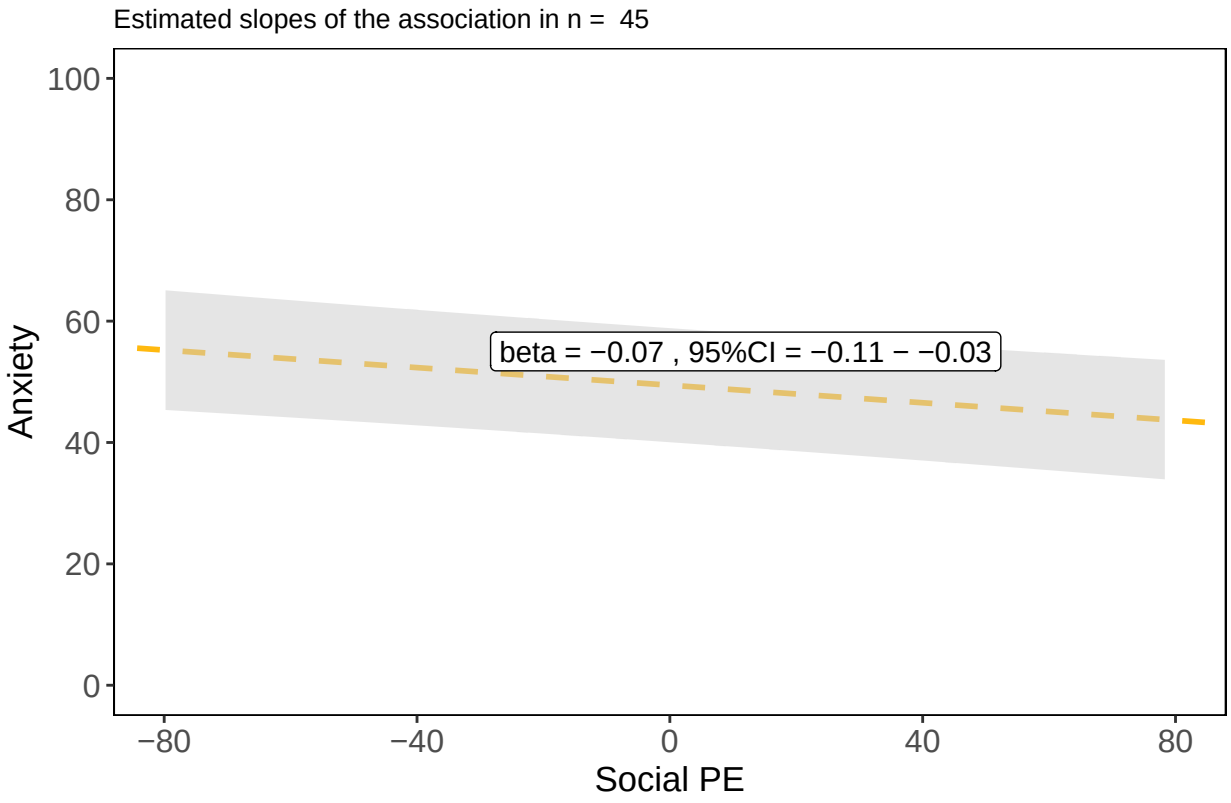
```
## Linear mixed model fit by REML ['lmerMod']
## Formula: Response_H ~ Response_SubjPE + Social_Anxiety + (Response_SubjPE |
##     Random_ID_new)
##    Data: final_df_18_25_com
## Control: lmerControl(optimizer = "bobyqa")
##
## REML criterion at convergence: 16929.7
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -5.8222 -0.4772  0.0189  0.4650  5.3259
##
## Random effects:
##  Groups        Name            Variance Std.Dev. Corr
##  Random_ID_new (Intercept)     277.7850 16.667
##                Response_SubjPE   0.0412  0.203   0.24
##  Residual                      129.8890 11.397
## Number of obs: 2160, groups:  Random_ID_new, 45
##
## Fixed effects:
##                   Estimate Std. Error t value
## (Intercept)       44.56715    3.53904  12.593
## Response_SubjPE    0.16752    0.03272   5.120
## Social_Anxietylow 12.75870    4.88661   2.611
##
## Correlation of Fixed Effects:
##             (Intr) Rs_SPE
## Rspns_SbjPE  0.149
## Scl_Anxtylw -0.707  0.006
```


Estimated slopes of the association in n = 45
100
80
60
40
20
0
Mood
beta = 0.19 , 95%CI = 0.12 − 0.27
−80
−40
0
40
80
Social PE

LME models for Anxiety and SubjPE

The best model seems to be: Anxiety ~ SubjPE + mini_SPIN_total + (SubjPE | Random_ID_new)

```
## [1] 17091.37
## [1] 17103.07
## [1] 17087.82
## [1] 17085.28
```



ICC for Mood

```
## # Intraclass Correlation Coefficient
##
##     Adjusted ICC: 0.644
##   Unadjusted ICC: 0.644
```

ICC for Anxiety

```
## # Intraclass Correlation Coefficient
##
##     Adjusted ICC: 0.773
##   Unadjusted ICC: 0.773
```