

# Supplement C: Testosterone Models Only (With Testosterone Outliers)

Reward sensitivity and internalizing symptoms during the transition to puberty: An examination of 9- and 10-year-olds in the ABCD Study.

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## Sensitivity Analysis Results for Sample 1

### 1—Internalizing~Puberty—

#### 1.9 Model: CBCL internalizing factor ~ Testosterone

##### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   race.ethnicity.5level + interview_age + bmi + household.income +
##   high.educ + demo_race_hispanic
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.6120616   2.2405295    0.720  0.47191
## hormone_scr_ert_mean -0.0024728   0.0067497   -0.366  0.71413
## hormone_sal_end_min_since_midnight -0.0002314   0.0006836   -0.338  0.73502
## race.ethnicity.5levelBlack -0.6036115   0.8721010   -0.692  0.48892
## race.ethnicity.5levelMixed  1.0929743   0.8513287    1.284  0.19933
## race.ethnicity.5levelOther  1.9309205   0.9702969    1.990  0.04671 *
```

```
## race.ethnicity.5levelWhite      1.3124382  0.8023181   1.636  0.10202
## interview_age                   0.0111139  0.0152823   0.727  0.46716
## bmi                            0.0963105  0.0302626   3.182  0.00148 **
## household.income[>=200K]       -2.1717697  0.8091248  -2.684  0.00733 **
## household.income[100K-200K]    -1.6083932  0.7534289  -2.135  0.03289 *
## household.income[12K-16K]      0.3386461  1.0107828   0.335  0.73763
## household.income[16K-25K]      0.8269602  0.8465992   0.977  0.32877
## household.income[25K-35K]     -0.3890153  0.7914980  -0.491  0.62313
## household.income[35K-50K]     -0.2280807  0.7629076  -0.299  0.76500
## household.income[50K-75K]     -0.5028157  0.7593142  -0.662  0.50791
## household.income[5K-12K]       0.2904693  0.8839687   0.329  0.74249
## household.income[75K-100K]    -0.9710049  0.7625930  -1.273  0.20305
## high.educBachelor              0.4088725  0.7541689   0.542  0.58777
## high.educHS Diploma/GED       -0.4501968  0.7545074  -0.597  0.55078
## high.educPost Graduate Degree   0.6105223  0.7612389   0.802  0.42263
## high.educSome College          0.7030056  0.7097645   0.990  0.32205
## demo_race_hispanic1           -0.2464877  0.3518220  -0.701  0.48362
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0262
## lmer.REML = 13930  Scale est. = 13.577    n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   race.ethnicity.5level + interview_age + bmi + household.income +
##   high.educ + demo_race_hispanic
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.0664660   2.1746987   1.410  0.158648
## hormone_scr_ert_mean  0.0003068   0.0051175   0.060  0.952203
## hormone_sal_end_min_since_midnight  0.0006055   0.0006518   0.929  0.353004
## race.ethnicity.5levelBlack  0.6379976   0.7975449   0.800  0.423817
## race.ethnicity.5levelMixed  1.9916315   0.7785902   2.558  0.010588 *
## race.ethnicity.5levelOther  1.4895330   0.9244022   1.611  0.107234
## race.ethnicity.5levelWhite  1.6750910   0.7249451   2.311  0.020936 *
## interview_age    -0.0035157   0.0146528  -0.240  0.810405
## bmi              0.0790131   0.0312287   2.530  0.011464 *
## household.income[>=200K]   -2.6342476   0.7911828  -3.330  0.000883 ***
## household.income[100K-200K] -2.5013146   0.7352096  -3.402  0.000679 ***
## household.income[12K-16K]  -0.9192605   0.9892956  -0.929  0.352874
## household.income[16K-25K]  -0.2201322   0.8154728  -0.270  0.787226
## household.income[25K-35K]  -1.1658884   0.7982726  -1.461  0.144278
## household.income[35K-50K]  -0.8763951   0.7654210  -1.145  0.252328
## household.income[50K-75K]  -1.5732914   0.7337379  -2.144  0.032114 *
```

```
## household.income[5K-12K]          0.7944159  0.8581764   0.926 0.354692
## household.income[75K-100K]       -2.1373553  0.7474477  -2.860 0.004279 **
## high.educBachelor                 0.8765672  0.7244403   1.210 0.226399
## high.educHS Diploma/GED         -0.1286033  0.7331932  -0.175 0.860779
## high.educPost Graduate Degree     0.7570812  0.7351086   1.030 0.303164
## high.educSome College             0.9605045  0.6888042   1.394 0.163308
## demo_race_hispanic1             -0.4382291  0.3326134  -1.318 0.187784
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0206
## lmer.REML = 15198  Scale est. = 14.339    n = 2457
```

## 1.10 Model: CBCL Anxious-Depressed ~ Testosterone

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   race.ethnicity.5level + interview_age + bmi + household.income +
##   high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.0915317   1.2855741   0.849  0.3959
## hormone_scr_ert_mean      0.0006783   0.0038754   0.175  0.8611
## hormone_sal_end_min_since_midnight -0.0002621   0.0003914  -0.670  0.5031
## race.ethnicity.5levelBlack    -0.2293040   0.4980515  -0.460  0.6453
## race.ethnicity.5levelMixed     0.5505545   0.4862818   1.132  0.2577
## race.ethnicity.5levelOther     0.7729731   0.5547241   1.393  0.1636
## race.ethnicity.5levelWhite     0.7856258   0.4582490   1.714  0.0866 .
## interview_age      0.0040207   0.0087875   0.458  0.6473
## bmi                 0.0254984   0.0173614   1.469  0.1421
## household.income[>=200K]     -1.1324484   0.4622601  -2.450  0.0144 *
## household.income[100K-200K]  -0.6242904   0.4306495  -1.450  0.1473
## household.income[12K-16K]     0.1460299   0.5780393   0.253  0.8006
## household.income[16K-25K]     0.5777438   0.4842485   1.193  0.2330
## household.income[25K-35K]    -0.0354609   0.4527126  -0.078  0.9376
## household.income[35K-50K]     0.0813808   0.4361013   0.187  0.8520
## household.income[50K-75K]    -0.0381632   0.4340311  -0.088  0.9299
## household.income[5K-12K]      0.0861162   0.5050909   0.170  0.8646
## household.income[75K-100K]   -0.3554195   0.4358402  -0.815  0.4149
## high.educBachelor           0.2992076   0.4313293   0.694  0.4880
## high.educHS Diploma/GED    -0.2422344   0.4320133  -0.561  0.5751
## high.educPost Graduate Degree  0.6340948   0.4353527   1.457  0.1454
## high.educSome College        0.4566859   0.4060047   1.125  0.2608
## demo_race_hispanic1        -0.1033314   0.2007828  -0.515  0.6069
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0187
## lmer.REML = 11449  Scale est. = 5.1695    n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   race.ethnicity.5level + interview_age + bmi + household.income +
##   high.educ + demo_race_hispanic
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.903e+00  1.228e+00   1.550  0.12136
## hormone_scr_ert_mean -6.367e-04  2.882e-03  -0.221  0.82520
## hormone_sal_end_min_since_midnight -2.543e-06  3.693e-04  -0.007  0.99451
## race.ethnicity.5levelBlack      5.351e-01  4.498e-01   1.190  0.23433
## race.ethnicity.5levelMixed      1.181e+00  4.395e-01   2.688  0.00723 **
## race.ethnicity.5levelOther      1.006e+00  5.202e-01   1.933  0.05333 .
## race.ethnicity.5levelWhite      1.132e+00  4.095e-01   2.763  0.00576 **
## interview_age      -4.298e-03  8.284e-03  -0.519  0.60386
## bmi                2.436e-02  1.761e-02   1.383  0.16668
## household.income[>=200K]      -1.051e+00  4.430e-01  -2.372  0.01777 *
## household.income[100K-200K]    -9.726e-01  4.119e-01  -2.361  0.01828 *
## household.income[12K-16K]     -2.414e-01  5.562e-01  -0.434  0.66435
## household.income[16K-25K]       8.198e-02  4.564e-01   0.180  0.85747
## household.income[25K-35K]     -2.940e-01  4.473e-01  -0.657  0.51105
## household.income[35K-50K]     -2.133e-01  4.289e-01  -0.497  0.61905
## household.income[50K-75K]     -6.889e-01  4.109e-01  -1.676  0.09379 .
## household.income[5K-12K]       1.745e-01  4.815e-01   0.363  0.71701
## household.income[75K-100K]    -8.116e-01  4.187e-01  -1.939  0.05268 .
## high.educBachelor      4.562e-01  4.056e-01   1.125  0.26077
## high.educHS Diploma/GED     -2.066e-01  4.105e-01  -0.503  0.61476
## high.educPost Graduate Degree  4.367e-01  4.115e-01   1.061  0.28879
## high.educSome College      3.479e-01  3.858e-01   0.902  0.36729
## demo_race_hispanic1     -9.500e-02  1.869e-01  -0.508  0.61129
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00801
## lmer.REML = 12423  Scale est. = 6.3378    n = 2457
```

## 1.11 Model: CBCL Withdrawn-Depressed ~ Testosterone

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##     race.ethnicity.5level + interview_age + bmi + household.income +
##     high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	3.899e-01	6.270e-01	0.622	0.53406
## hormone_scr_ert_mean	3.622e-04	1.893e-03	0.191	0.84825
## hormone_sal_end_min_since_midnight	3.311e-07	1.883e-04	0.002	0.99860
## race.ethnicity.5levelBlack	-4.265e-02	2.412e-01	-0.177	0.85966
## race.ethnicity.5levelMixed	2.203e-01	2.357e-01	0.934	0.35020
## race.ethnicity.5levelOther	3.962e-01	2.696e-01	1.469	0.14185
## race.ethnicity.5levelWhite	2.805e-01	2.218e-01	1.265	0.20596
## interview_age	1.063e-03	4.300e-03	0.247	0.80472
## bmi	2.783e-02	8.480e-03	3.281	0.00105 **
## household.income[>=200K]	-6.511e-01	2.247e-01	-2.898	0.00379 **
## household.income[100K-200K]	-5.806e-01	2.096e-01	-2.770	0.00566 **
## household.income[12K-16K]	-1.071e-02	2.818e-01	-0.038	0.96970
## household.income[16K-25K]	-1.060e-02	2.362e-01	-0.045	0.96423
## household.income[25K-35K]	-1.786e-01	2.207e-01	-0.809	0.41851
## household.income[35K-50K]	-2.919e-01	2.125e-01	-1.373	0.16975
## household.income[50K-75K]	-3.157e-01	2.114e-01	-1.493	0.13547
## household.income[5K-12K]	2.544e-01	2.460e-01	1.034	0.30133
## household.income[75K-100K]	-4.709e-01	2.122e-01	-2.219	0.02656 *
## high.educBachelor	2.350e-02	2.101e-01	0.112	0.91092
## high.educHS Diploma/GED	-8.454e-02	2.108e-01	-0.401	0.68846
## high.educPost Graduate Degree	4.384e-04	2.120e-01	0.002	0.99835
## high.educSome College	1.038e-01	1.978e-01	0.525	0.59971
## demo_race_hispanic1	-2.514e-02	9.632e-02	-0.261	0.79409

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0244
## lmer.REML = 8257.8  Scale est. = 1.479      n = 2257
```

### Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
```



```

##      race.ethnicity.5level + interview_age + bmi + household.income +
##      high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.020e+00  6.730e-01   1.515 0.129939
## hormone_scr_ert_mean      4.940e-05  1.576e-03   0.031 0.974994
## hormone_sal_end_min_since_midnight -2.213e-05  1.942e-04  -0.114 0.909284
## race.ethnicity.5levelBlack      1.441e-01  2.463e-01   0.585 0.558736
## race.ethnicity.5levelMixed      4.657e-01  2.416e-01   1.927 0.054061 .
## race.ethnicity.5levelOther      2.401e-01  2.858e-01   0.840 0.401001
## race.ethnicity.5levelWhite      3.500e-01  2.241e-01   1.562 0.118421
## interview_age      -1.451e-03  4.547e-03  -0.319 0.749611
## bmi      2.443e-02  9.702e-03   2.518 0.011852 *
## household.income[>=200K]      -9.423e-01  2.430e-01  -3.878 0.000108 ***
## household.income[100K-200K]      -9.123e-01  2.266e-01  -4.026 5.84e-05 ***
## household.income[12K-16K]      -4.248e-01  3.069e-01  -1.384 0.166433
## household.income[16K-25K]      -8.329e-02  2.513e-01  -0.331 0.740383
## household.income[25K-35K]      -3.513e-01  2.467e-01  -1.424 0.154579
## household.income[35K-50K]      -3.433e-01  2.364e-01  -1.452 0.146555
## household.income[50K-75K]      -4.646e-01  2.261e-01  -2.054 0.040034 *
## household.income[5K-12K]      3.608e-01  2.654e-01   1.359 0.174194
## household.income[75K-100K]      -7.584e-01  2.305e-01  -3.290 0.001016 **
## high.educBachelor      1.543e-01  2.222e-01   0.695 0.487423
## high.educHS Diploma/GED      4.305e-02  2.254e-01   0.191 0.848519
## high.educPost Graduate Degree      1.061e-01  2.257e-01   0.470 0.638394
## high.educSome College      2.247e-01  2.117e-01   1.061 0.288648
## demo_race_hispanic1      -2.947e-01  9.853e-02  -2.992 0.002804 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0343
## lmer.REML = 9533.7  Scale est. = 2.1639    n = 2457

```

## 1.12 Model: CBCL Depressed DSM-5 ~ Testosterone

### Female participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      race.ethnicity.5level + interview_age + bmi + household.income +
##      high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      3.432e-01  7.525e-01   0.456 0.64834
## hormone_scr_ert_mean      -8.371e-04  2.270e-03  -0.369 0.71236
## hormone_sal_end_min_since_midnight  2.542e-05  2.243e-04   0.113 0.90977

```

```

## race.ethnicity.5levelBlack      -1.727e-02  2.909e-01  -0.059  0.95267
## race.ethnicity.5levelMixed      4.633e-01  2.845e-01   1.629  0.10352
## race.ethnicity.5levelOther      6.968e-01  3.254e-01   2.141  0.03238 *
## race.ethnicity.5levelWhite      5.720e-01  2.672e-01   2.141  0.03240 *
## interview_age                   1.773e-04  5.152e-03   0.034  0.97255
## bmi                             2.823e-02  1.020e-02   2.768  0.00569 **
## household.income[>=200K]       -7.065e-01  2.716e-01  -2.601  0.00936 **
## household.income[100K-200K]    -5.757e-01  2.534e-01  -2.272  0.02320 *
## household.income[12K-16K]      3.153e-02  3.406e-01   0.093  0.92624
## household.income[16K-25K]      1.158e-01  2.855e-01   0.406  0.68509
## household.income[25K-35K]     -1.277e-01  2.667e-01  -0.479  0.63207
## household.income[35K-50K]     -5.852e-02  2.571e-01  -0.228  0.81995
## household.income[50K-75K]     -1.884e-01  2.557e-01  -0.737  0.46116
## household.income[5K-12K]       3.357e-02  2.980e-01   0.113  0.91033
## household.income[75K-100K]    -3.254e-01  2.566e-01  -1.268  0.20481
## high.educBachelor              8.526e-02  2.537e-01   0.336  0.73688
## high.educHS Diploma/GED       -1.238e-02  2.543e-01  -0.049  0.96119
## high.educPost Graduate Degree   1.280e-01  2.561e-01   0.500  0.61738
## high.educSome College          1.700e-01  2.389e-01   0.712  0.47676
## demo_race_hispanic1           -6.237e-02  1.153e-01  -0.541  0.58868
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0221
## lmer.REML = 9076.3  Scale est. = 1.6816    n = 2257

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##    race.ethnicity.5level + interview_age + bmi + household.income +
##    high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.7751334   0.8352816   0.928  0.35350
## hormone_scr_ert_mean 0.0002740   0.0019643   0.139  0.88908
## hormone_sal_end_min_since_midnight 0.0001307   0.0002461   0.531  0.59543
## race.ethnicity.5levelBlack 0.2388958   0.3058820   0.781  0.43487
## race.ethnicity.5levelMixed 0.6724926   0.2992994   2.247  0.02474 *
## race.ethnicity.5levelOther 0.4760698   0.3547091   1.342  0.17968
## race.ethnicity.5levelWhite 0.5643830   0.2781369   2.029  0.04255 *
## interview_age    0.0015933   0.0056381   0.283  0.77752
## bmi              0.0053047   0.0120176   0.441  0.65895
## household.income[>=200K] -0.8453036   0.3026605  -2.793  0.00526 **
## household.income[100K-200K] -0.8162365   0.2816898  -2.898  0.00379 **
## household.income[12K-16K]  0.0580291   0.3801373   0.153  0.87868
## household.income[16K-25K]  0.1765280   0.3124769   0.565  0.57217

```

```
## household.income[25K-35K] -0.1632304 0.3062358 -0.533 0.59407
## household.income[35K-50K] -0.0725845 0.2935558 -0.247 0.80473
## household.income[50K-75K] -0.4596688 0.2811367 -1.635 0.10217
## household.income[5K-12K] 0.5234487 0.3293143 1.590 0.11207
## household.income[75K-100K] -0.7297336 0.2864610 -2.547 0.01091 *
## high.educBachelor 0.4115234 0.2769434 1.486 0.13742
## high.educHS Diploma/GED 0.0365562 0.2805734 0.130 0.89635
## high.educPost Graduate Degree 0.2634737 0.2811565 0.937 0.34880
## high.educSome College 0.2245384 0.2635663 0.852 0.39434
## demo_race_hispanic1 -0.3250331 0.1251447 -2.597 0.00945 **
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0182
## lmer.REML = 10558 Scale est. = 2.6281 n = 2457
```

### 1.13 Model: CBCL internalizing factor ~ Testosterone + PDS

#### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
## PDS_score + race.ethnicity.5level + interview_age + bmi +
## household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
## Estimate Std. Error t value Pr(>|t|)
## (Intercept) 2.3849731 2.2523486 1.059 0.28977
## hormone_scr_ert_mean -0.0072480 0.0069331 -1.045 0.29594
## hormone_sal_end_min_since_midnight -0.0002028 0.0006830 -0.297 0.76649
## PDS_score 0.5277784 0.1795365 2.940 0.00332 **
## race.ethnicity.5levelBlack -0.8473558 0.8746326 -0.969 0.33274
## race.ethnicity.5levelMixed 0.9756462 0.8508145 1.147 0.25162
## race.ethnicity.5levelOther 1.7537912 0.9704714 1.807 0.07087 .
## race.ethnicity.5levelWhite 1.2413969 0.8014043 1.549 0.12152
## interview_age 0.0014609 0.0156079 0.094 0.92543
## bmi 0.0807876 0.0306640 2.635 0.00848 **
## household.income[>=200K] -2.0972746 0.8080079 -2.596 0.00950 **
## household.income[100K-200K] -1.5217800 0.7525642 -2.022 0.04328 *
## household.income[12K-16K] 0.3778573 1.0089231 0.375 0.70806
## household.income[16K-25K] 0.8283878 0.8449654 0.980 0.32700
## household.income[25K-35K] -0.3576827 0.7900541 -0.453 0.65079
## household.income[35K-50K] -0.1992379 0.7614848 -0.262 0.79362
## household.income[50K-75K] -0.4494775 0.7580628 -0.593 0.55329
## household.income[5K-12K] 0.2668758 0.8822540 0.302 0.76230
## household.income[75K-100K] -0.9372513 0.7612223 -1.231 0.21836
## high.educBachelor 0.3855439 0.7528024 0.512 0.60860
## high.educHS Diploma/GED -0.5096355 0.7533615 -0.676 0.49880
```

```
## high.educPost Graduate Degree      0.6021663  0.7598244   0.793  0.42815
## high.educSome College              0.6411348  0.7087379   0.905  0.36577
## demo_race_hispanic1               -0.2090333  0.3516249  -0.594  0.55225
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0293
## lmer.REML = 13923  Scale est. = 13.62    n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.2929988   2.1707218   1.517 0.129395
## hormone_scr_ert_mean -0.0012913   0.0051239  -0.252 0.801056
## hormone_sal_end_min_since_midnight 0.0005665   0.0006516   0.869 0.384714
## PDS_score        0.8064709   0.2182095   3.696 0.000224 ***
## race.ethnicity.5levelBlack  0.4114275   0.7982294   0.515 0.606303
## race.ethnicity.5levelMixed  1.9360178   0.7768915   2.492 0.012768 *
## race.ethnicity.5levelOther  1.4122545   0.9225130   1.531 0.125930
## race.ethnicity.5levelWhite  1.6552388   0.7234098   2.288 0.022217 *
## interview_age    -0.0118355   0.0147928  -0.800 0.423741
## bmi              0.0625709   0.0314725   1.988 0.046911 *
## household.income[>=200K] -2.3958068   0.7920431  -3.025 0.002514 **
## household.income[100K-200K] -2.2977480   0.7355378  -3.124 0.001806 **
## household.income[12K-16K]  -0.7494126   0.9879091  -0.759 0.448175
## household.income[16K-25K]   0.0183604   0.8161377   0.022 0.982054
## household.income[25K-35K]  -1.0335998   0.7971156  -1.297 0.194866
## household.income[35K-50K]  -0.6861982   0.7653210  -0.897 0.370013
## household.income[50K-75K]  -1.3792472   0.7339158  -1.879 0.060323 .
## household.income[5K-12K]    0.9433987   0.8570731   1.101 0.271127
## household.income[75K-100K] -1.9183321   0.7480623  -2.564 0.010395 *
## high.educBachelor    0.8111338   0.7230651   1.122 0.262059
## high.educHS Diploma/GED -0.2543241   0.7322564  -0.347 0.728384
## high.educPost Graduate Degree  0.6831994   0.7337212   0.931 0.351872
## high.educSome College   0.8654243   0.6877002   1.258 0.208356
## demo_race_hispanic1    -0.4541757   0.3325459  -1.366 0.172143
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0251
## lmer.REML = 15186  Scale est. = 14.145    n = 2457
```

## 1.14 Model: CBCL internalizing factor ~ Testosterone + Pubertal category

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	2.9130028	2.3233291	1.254	0.21004
## hormone_scr_ert_mean	-0.0043560	0.0068699	-0.634	0.52610
## hormone_sal_end_min_since_midnight	-0.0002944	0.0006838	-0.430	0.66688
## pds_p_ss_categoryEarly	0.8530436	0.3107091	2.745	0.00609 **
## pds_p_ss_categoryLate	0.6289272	0.7852569	0.801	0.42326
## pds_p_ss_categoryMid	0.8353742	0.3145314	2.656	0.00797 **
## race.ethnicity.5levelBlack	-0.6929110	0.8745294	-0.792	0.42826
## race.ethnicity.5levelMixed	1.0674042	0.8512557	1.254	0.21000
## race.ethnicity.5levelOther	1.8920193	0.9698718	1.951	0.05121 .
## race.ethnicity.5levelWhite	1.3136759	0.8018803	1.638	0.10151
## interview_age	0.0007031	0.0159111	0.044	0.96476
## bmi	0.0696107	0.0318289	2.187	0.02884 *
## household.income[>=200K]	-2.1356351	0.8084772	-2.642	0.00831 **
## household.income[100K-200K]	-1.6226379	0.7528361	-2.155	0.03124 *
## household.income[12K-16K]	0.2925047	1.0101851	0.290	0.77218
## household.income[16K-25K]	0.7173974	0.8462362	0.848	0.39667
## household.income[25K-35K]	-0.4632761	0.7909074	-0.586	0.55810
## household.income[35K-50K]	-0.3209262	0.7625588	-0.421	0.67390
## household.income[50K-75K]	-0.5315424	0.7585077	-0.701	0.48352
## household.income[5K-12K]	0.2693149	0.8837212	0.305	0.76058
## household.income[75K-100K]	-1.0093036	0.7618340	-1.325	0.18536
## high.educBachelor	0.4151960	0.7538851	0.551	0.58187
## high.educHS Diploma/GED	-0.4170856	0.7537675	-0.553	0.58009
## high.educPost Graduate Degree	0.6362550	0.7610128	0.836	0.40321
## high.educSome College	0.7048327	0.7090978	0.994	0.32034
## demo_race_hispanic1	-0.2197306	0.3528992	-0.623	0.53358

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0281
## lmer.REML = 13920  Scale est. = 13.422    n = 2257
```

### Male participants

```
##
## Family: gaussian
## Link function: identity
```

```
##
## Formula:
## cbcl_scr_syn_internal_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      3.7394833   2.1842469   1.712  0.08702 .
## hormone_scr_ert_mean -0.0005762   0.0051209  -0.113  0.91043
## hormone_sal_end_min_since_midnight 0.0005844   0.0006520   0.896  0.37023
## pds_p_ss_categoryEarly 0.7161635   0.2626241   2.727  0.00644 **
## pds_p_ss_categoryLate 1.1909433   1.6929272   0.703  0.48182
## pds_p_ss_categoryMid 0.8742425   0.5436148   1.608  0.10792
## race.ethnicity.5levelBlack 0.4546388   0.7996894   0.569  0.56973
## race.ethnicity.5levelMixed 1.9768616   0.7779312   2.541  0.01111 *
## race.ethnicity.5levelOther 1.4706289   0.9241263   1.591  0.11166
## race.ethnicity.5levelWhite 1.6989407   0.7243723   2.345  0.01909 *
## interview_age -0.0100871   0.0148047  -0.681  0.49572
## bmi 0.0720118   0.0312910   2.301  0.02146 *
## household.income[>=200K] -2.5048234   0.7919363  -3.163  0.00158 **
## household.income[100K-200K] -2.3889839   0.7360462  -3.246  0.00119 **
## household.income[12K-16K] -0.8057223   0.9891133  -0.815  0.41539
## household.income[16K-25K] -0.0890937   0.8165999  -0.109  0.91313
## household.income[25K-35K] -1.1169091   0.7979407  -1.400  0.16172
## household.income[35K-50K] -0.7591936   0.7663482  -0.991  0.32195
## household.income[50K-75K] -1.4609483   0.7343644  -1.989  0.04677 *
## household.income[5K-12K] 0.8137225   0.8575058   0.949  0.34274
## household.income[75K-100K] -2.0128346   0.7483507  -2.690  0.00720 **
## high.educBachelor 0.8495565   0.7253189   1.171  0.24160
## high.educHS Diploma/GED -0.1610651   0.7338868  -0.219  0.82630
## high.educPost Graduate Degree 0.7395912   0.7359294   1.005  0.31501
## high.educSome College 0.9257112   0.6898823   1.342  0.17977
## demo_race_hispanic1 -0.4948756   0.3332239  -1.485  0.13764
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0229
## lmer.REML = 15187 Scale est. = 14.412 n = 2457
```

## 1.15 Model: CBCL Anxious-Depressed ~ Testosterone + PDS

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
```

```
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	1.3338531	1.2938522	1.031	0.3027
## hormone_scr_ert_mean	-0.0008455	0.0039874	-0.212	0.8321
## hormone_sal_end_min_since_midnight	-0.0002534	0.0003914	-0.648	0.5174
## PDS_score	0.1669514	0.1031628	1.618	0.1057
## race.ethnicity.5levelBlack	-0.3064905	0.5001979	-0.613	0.5401
## race.ethnicity.5levelMixed	0.5139224	0.4866413	1.056	0.2911
## race.ethnicity.5levelOther	0.7165922	0.5556139	1.290	0.1973
## race.ethnicity.5levelWhite	0.7634012	0.4583128	1.666	0.0959
## interview_age	0.0009908	0.0089820	0.110	0.9122
## bmi	0.0205792	0.0176161	1.168	0.2429
## household.income[>=200K]	-1.1091095	0.4622750	-2.399	0.0165 *
## household.income[100K-200K]	-0.5971794	0.4307722	-1.386	0.1658
## household.income[12K-16K]	0.1582639	0.5778154	0.274	0.7842
## household.income[16K-25K]	0.5784135	0.4840208	1.195	0.2322
## household.income[25K-35K]	-0.0257929	0.4525398	-0.057	0.9546
## household.income[35K-50K]	0.0905335	0.4359269	0.208	0.8355
## household.income[50K-75K]	-0.0216196	0.4339443	-0.050	0.9603
## household.income[5K-12K]	0.0784624	0.5048613	0.155	0.8765
## household.income[75K-100K]	-0.3448767	0.4356853	-0.792	0.4287
## high.educBachelor	0.2923270	0.4311570	0.678	0.4978
## high.educHS Diploma/GED	-0.2604124	0.4319643	-0.603	0.5467
## high.educPost Graduate Degree	0.6319203	0.4351604	1.452	0.1466
## high.educSome College	0.4374635	0.4059938	1.078	0.2814
## demo_race_hispanic1	-0.0917267	0.2008802	-0.457	0.6480

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0193
## lmer.REML = 11449 Scale est. = 5.1832 n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	2.039e+00	1.226e+00	1.664	0.096296
## hormone_scr_ert_mean	-1.555e-03	2.886e-03	-0.539	0.589981
## hormone_sal_end_min_since_midnight	-2.494e-05	3.692e-04	-0.068	0.946153
## PDS_score	4.695e-01	1.232e-01	3.811	0.000142 ***
## race.ethnicity.5levelBlack	4.023e-01	4.501e-01	0.894	0.371481
## race.ethnicity.5levelMixed	1.148e+00	4.385e-01	2.618	0.008911 **

```

## race.ethnicity.5levelOther      9.603e-01  5.190e-01  1.850 0.064415 .
## race.ethnicity.5levelWhite      1.119e+00  4.085e-01  2.739 0.006209 **
## interview_age                   -9.180e-03  8.363e-03 -1.098 0.272419
## bmi                             1.478e-02  1.774e-02  0.833 0.404830
## household.income[>=200K]        -9.116e-01  4.434e-01 -2.056 0.039901 *
## household.income[100K-200K]     -8.538e-01  4.120e-01 -2.073 0.038321 *
## household.income[12K-16K]       -1.369e-01  5.554e-01 -0.246 0.805386
## household.income[16K-25K]        2.218e-01  4.567e-01  0.486 0.627278
## household.income[25K-35K]       -2.165e-01  4.466e-01 -0.485 0.627821
## household.income[35K-50K]       -1.015e-01  4.287e-01 -0.237 0.812961
## household.income[50K-75K]       -5.764e-01  4.109e-01 -1.403 0.160825
## household.income[5K-12K]        2.598e-01  4.807e-01  0.540 0.588977
## household.income[75K-100K]      -6.845e-01  4.189e-01 -1.634 0.102394
## high.educBachelor               4.175e-01  4.047e-01  1.032 0.302373
## high.educHS Diploma/GED        -2.791e-01  4.099e-01 -0.681 0.496028
## high.educPost Graduate Degree    3.930e-01  4.107e-01  0.957 0.338660
## high.educSome College           2.926e-01  3.851e-01  0.760 0.447449
## demo_race_hispanic1             -1.043e-01  1.868e-01 -0.558 0.576727
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0128
## lmer.REML = 12411  Scale est. = 6.2673    n = 2457

```

## 1.16 Model: CBCL Anxious-Depressed ~ Testosterone + Pubertal category

### Female participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.3976675   1.3342087    1.048  0.2950
## hormone_scr_ert_mean  0.0005304   0.0039493    0.134  0.8932
## hormone_sal_end_min_since_midnight -0.0002822   0.0003916   -0.721  0.4712
## pds_p_ss_categoryEarly  0.4284597   0.1788420    2.396  0.0167 *
## pds_p_ss_categoryLate  0.0286476   0.4524355    0.063  0.9495
## pds_p_ss_categoryMid   0.2640472   0.1805458    1.462  0.1437
## race.ethnicity.5levelBlack -0.2273591   0.4996946   -0.455  0.6492
## race.ethnicity.5levelMixed  0.5591203   0.4864831    1.149  0.2506
## race.ethnicity.5levelOther  0.7739368   0.5548199    1.395  0.1632
## race.ethnicity.5levelWhite  0.7948214   0.4581901    1.735  0.0829 .
## interview_age      0.0011649   0.0091550    0.127  0.8988
## bmi                0.0170123   0.0182750    0.931  0.3520
## household.income[>=200K] -1.1263754   0.4621622   -2.437  0.0149 *

```



```

## household.income[100K-200K]      -0.6426355  0.4305829  -1.492  0.1357
## household.income[12K-16K]         0.1115583  0.5780881   0.193  0.8470
## household.income[16K-25K]         0.5264156  0.4843782   1.087  0.2772
## household.income[25K-35K]        -0.0683600  0.4526886  -0.151  0.8800
## household.income[35K-50K]         0.0383381  0.4362046   0.088  0.9300
## household.income[50K-75K]        -0.0573583  0.4338575  -0.132  0.8948
## household.income[5K-12K]          0.0881304  0.5052998   0.174  0.8616
## household.income[75K-100K]       -0.3739521  0.4356868  -0.858  0.3908
## high.educBachelor                 0.2963089  0.4314649   0.687  0.4923
## high.educHS Diploma/GED         -0.2201014  0.4319043  -0.510  0.6104
## high.educPost Graduate Degree     0.6394792  0.4355276   1.468  0.1422
## high.educSome College             0.4654983  0.4058967   1.147  0.2516
## demo_race_hispanic1             -0.0917669  0.2014228  -0.456  0.6487
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0197
## lmer.REML = 11447  Scale est. = 5.139    n = 2257

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_anxdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.295e+00  1.233e+00   1.861  0.06285 .
## hormone_scr_ert_mean -1.146e-03  2.884e-03  -0.397  0.69117
## hormone_sal_end_min_since_midnight -1.411e-05  3.694e-04  -0.038  0.96952
## pds_p_ss_categoryEarly  4.509e-01  1.485e-01   3.036  0.00242 **
## pds_p_ss_categoryLate  7.222e-01  9.626e-01   0.750  0.45317
## pds_p_ss_categoryMid   3.639e-01  3.060e-01   1.189  0.23448
## race.ethnicity.5levelBlack  4.376e-01  4.509e-01   0.971  0.33187
## race.ethnicity.5levelMixed  1.178e+00  4.390e-01   2.683  0.00735 **
## race.ethnicity.5levelOther  1.006e+00  5.199e-01   1.935  0.05314 .
## race.ethnicity.5levelWhite  1.149e+00  4.091e-01   2.808  0.00503 **
## interview_age      -8.130e-03  8.366e-03  -0.972  0.33129
## bmi                2.056e-02  1.764e-02   1.166  0.24372
## household.income[>=200K] -9.830e-01  4.434e-01  -2.217  0.02673 *
## household.income[100K-200K] -9.167e-01  4.123e-01  -2.223  0.02630 *
## household.income[12K-16K] -1.802e-01  5.561e-01  -0.324  0.74599
## household.income[16K-25K]  1.460e-01  4.570e-01   0.319  0.74938
## household.income[25K-35K] -2.702e-01  4.471e-01  -0.604  0.54567
## household.income[35K-50K] -1.557e-01  4.294e-01  -0.363  0.71694
## household.income[50K-75K] -6.332e-01  4.113e-01  -1.540  0.12378
## household.income[5K-12K]  1.802e-01  4.811e-01   0.375  0.70805

```

```
## household.income[75K-100K]          -7.486e-01  4.191e-01  -1.786  0.07421 .
## high.educBachelor                   4.357e-01  4.060e-01   1.073  0.28333
## high.educHS Diploma/GED            -2.205e-01  4.109e-01  -0.537  0.59157
## high.educPost Graduate Degree        4.214e-01  4.119e-01   1.023  0.30639
## high.educSome College                3.254e-01  3.864e-01   0.842  0.39980
## demo_race_hispanic1                 -1.273e-01  1.872e-01  -0.680  0.49669
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0105
## lmer.REML = 12414 Scale est. = 6.357      n = 2457
```

## 1.17 Model: CBCL Withdrawn-Depressed ~ Testosterone + PDS

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      6.246e-01  6.300e-01   0.991  0.32161
## hormone_scr_ert_mean -1.127e-03  1.945e-03  -0.579  0.56242
## hormone_sal_end_min_since_midnight  7.072e-06  1.880e-04   0.038  0.96999
## PDS_score         1.618e-01  5.034e-02   3.214  0.00133 **
## race.ethnicity.5levelBlack -1.199e-01  2.419e-01  -0.496  0.62029
## race.ethnicity.5levelMixed  1.839e-01  2.356e-01   0.781  0.43513
## race.ethnicity.5levelOther  3.411e-01  2.697e-01   1.265  0.20606
## race.ethnicity.5levelWhite  2.583e-01  2.215e-01   1.167  0.24351
## interview_age      -1.840e-03  4.386e-03  -0.420  0.67485
## bmi                2.304e-02  8.593e-03   2.682  0.00738 **
## household.income[>=200K] -6.289e-01  2.243e-01  -2.803  0.00510 **
## household.income[100K-200K] -5.551e-01  2.094e-01  -2.651  0.00808 **
## household.income[12K-16K]  -4.890e-04  2.813e-01  -0.002  0.99861
## household.income[16K-25K] -1.021e-02  2.357e-01  -0.043  0.96547
## household.income[25K-35K] -1.701e-01  2.203e-01  -0.772  0.44000
## household.income[35K-50K] -2.832e-01  2.121e-01  -1.335  0.18188
## household.income[50K-75K] -3.004e-01  2.110e-01  -1.423  0.15475
## household.income[5K-12K]   2.464e-01  2.456e-01   1.003  0.31578
## household.income[75K-100K] -4.610e-01  2.118e-01  -2.177  0.02960 *
## high.educBachelor      1.721e-02  2.097e-01   0.082  0.93459
## high.educHS Diploma/GED -1.017e-01  2.105e-01  -0.483  0.62901
## high.educPost Graduate Degree -1.680e-03  2.116e-01  -0.008  0.99367
## high.educSome College    8.515e-02  1.975e-01   0.431  0.66640
## demo_race_hispanic1     -1.400e-02  9.623e-02  -0.145  0.88436
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0283
## lmer.REML = 8251.6  Scale est. = 1.4688    n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.072e+00  6.728e-01   1.593 0.111234
## hormone_scr_ert_mean -2.825e-04  1.581e-03  -0.179 0.858142
## hormone_sal_end_min_since_midnight -2.687e-05  1.940e-04  -0.139 0.889851
## PDS_score       1.591e-01  6.787e-02   2.344 0.019175 *
## race.ethnicity.5levelBlack    9.529e-02  2.470e-01   0.386 0.699658
## race.ethnicity.5levelMixed    4.538e-01  2.414e-01   1.879 0.060296 .
## race.ethnicity.5levelOther    2.275e-01  2.856e-01   0.797 0.425670
## race.ethnicity.5levelWhite    3.465e-01  2.239e-01   1.548 0.121833
## interview_age    -3.152e-03  4.600e-03  -0.685 0.493223
## bmi              2.109e-02  9.797e-03   2.153 0.031434 *
## household.income[>=200K]    -8.960e-01  2.436e-01  -3.679 0.000239 ***
## household.income[100K-200K] -8.723e-01  2.270e-01  -3.842 0.000125 ***
## household.income[12K-16K]   -3.904e-01  3.069e-01  -1.272 0.203482
## household.income[16K-25K]   -3.667e-02  2.519e-01  -0.146 0.884252
## household.income[25K-35K]   -3.253e-01  2.467e-01  -1.319 0.187360
## household.income[35K-50K]   -3.055e-01  2.367e-01  -1.291 0.196998
## household.income[50K-75K]   -4.262e-01  2.265e-01  -1.882 0.059992 .
## household.income[5K-12K]    3.886e-01  2.654e-01   1.464 0.143266
## household.income[75K-100K]  -7.151e-01  2.310e-01  -3.096 0.001987 **
## high.educBachelor    1.430e-01  2.220e-01   0.644 0.519457
## high.educHS Diploma/GED    1.957e-02  2.254e-01   0.087 0.930820
## high.educPost Graduate Degree  9.293e-02  2.255e-01   0.412 0.680311
## high.educSome College    2.075e-01  2.116e-01   0.981 0.326859
## demo_race_hispanic1    -3.008e-01  9.846e-02  -3.055 0.002276 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0361
## lmer.REML = 9531.7  Scale est. = 2.1646    n = 2457
```

## 1.18 Model: CBCL Withdrawn-Depressed ~ Testosterone + Pubertal category

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	9.203e-01	6.505e-01	1.415	0.15732
## hormone_scr_ert_mean	-6.505e-04	1.928e-03	-0.337	0.73587
## hormone_sal_end_min_since_midnight	-1.992e-05	1.883e-04	-0.106	0.91573
## pds_p_ss_categoryEarly	1.888e-01	8.761e-02	2.155	0.03128 *
## pds_p_ss_categoryLate	4.698e-01	2.218e-01	2.118	0.03429 *
## pds_p_ss_categoryMid	2.555e-01	8.813e-02	2.899	0.00378 **
## race.ethnicity.5levelBlack	-9.030e-02	2.419e-01	-0.373	0.70897
## race.ethnicity.5levelMixed	2.042e-01	2.357e-01	0.866	0.38636
## race.ethnicity.5levelOther	3.710e-01	2.695e-01	1.377	0.16880
## race.ethnicity.5levelWhite	2.777e-01	2.216e-01	1.253	0.21024
## interview_age	-2.852e-03	4.476e-03	-0.637	0.52399
## bmi	1.909e-02	8.922e-03	2.139	0.03253 *
## household.income[>=200K]	-6.359e-01	2.245e-01	-2.832	0.00466 **
## household.income[100K-200K]	-5.768e-01	2.095e-01	-2.753	0.00595 **
## household.income[12K-16K]	-2.023e-02	2.817e-01	-0.072	0.94276
## household.income[16K-25K]	-3.365e-02	2.361e-01	-0.142	0.88671
## household.income[25K-35K]	-2.003e-01	2.206e-01	-0.908	0.36395
## household.income[35K-50K]	-3.148e-01	2.124e-01	-1.482	0.13853
## household.income[50K-75K]	-3.205e-01	2.112e-01	-1.517	0.12934
## household.income[5K-12K]	2.335e-01	2.460e-01	0.949	0.34275
## household.income[75K-100K]	-4.777e-01	2.120e-01	-2.254	0.02432 *
## high.educBachelor	2.366e-02	2.100e-01	0.113	0.91033
## high.educHS Diploma/GED	-8.196e-02	2.106e-01	-0.389	0.69724
## high.educPost Graduate Degree	5.126e-03	2.120e-01	0.024	0.98071
## high.educSome College	9.762e-02	1.976e-01	0.494	0.62140
## demo_race_hispanic1	-2.586e-02	9.656e-02	-0.268	0.78886

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0271
## lmer.REML = 8255.4  Scale est. = 1.4514    n = 2257
```

### Male participants

```
##
## Family: gaussian
## Link function: identity
```

```

##
## Formula:
## cbcl_scr_syn_withdep_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.165e+00  6.763e-01   1.723 0.085069 .
## hormone_scr_ert_mean      -1.831e-04  1.578e-03  -0.116 0.907641
## hormone_sal_end_min_since_midnight -2.341e-05  1.941e-04  -0.121 0.904020
## pds_p_ss_categoryEarly      1.293e-01  8.193e-02   1.578 0.114607
## pds_p_ss_categoryLate      2.900e-01  5.332e-01   0.544 0.586530
## pds_p_ss_categoryMid      3.358e-01  1.687e-01   1.990 0.046695 *
## race.ethnicity.5levelBlack      9.048e-02  2.472e-01   0.366 0.714428
## race.ethnicity.5levelMixed      4.564e-01  2.416e-01   1.890 0.058932 .
## race.ethnicity.5levelOther      2.286e-01  2.858e-01   0.800 0.423938
## race.ethnicity.5levelWhite      3.523e-01  2.240e-01   1.573 0.115916
## interview_age      -2.932e-03  4.597e-03  -0.638 0.523620
## bmi      2.271e-02  9.728e-03   2.335 0.019629 *
## household.income[>=200K]      -9.031e-01  2.434e-01  -3.710 0.000212 ***
## household.income[100K-200K]      -8.750e-01  2.271e-01  -3.853 0.000120 ***
## household.income[12K-16K]      -3.886e-01  3.071e-01  -1.266 0.205795
## household.income[16K-25K]      -4.114e-02  2.519e-01  -0.163 0.870264
## household.income[25K-35K]      -3.330e-01  2.468e-01  -1.350 0.177273
## household.income[35K-50K]      -3.041e-01  2.369e-01  -1.284 0.199300
## household.income[50K-75K]      -4.282e-01  2.265e-01  -1.890 0.058872 .
## household.income[5K-12K]      3.708e-01  2.654e-01   1.397 0.162549
## household.income[75K-100K]      -7.190e-01  2.310e-01  -3.112 0.001877 **
## high.educBachelor      1.541e-01  2.225e-01   0.693 0.488654
## high.educHS Diploma/GED      3.051e-02  2.257e-01   0.135 0.892474
## high.educPost Graduate Degree      1.079e-01  2.260e-01   0.477 0.633050
## high.educSome College      2.193e-01  2.122e-01   1.034 0.301459
## demo_race_hispanic1      -3.106e-01  9.872e-02  -3.147 0.001672 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0355
## lmer.REML = 9532.4  Scale est. = 2.1737    n = 2457

```

## 1.19 Model: CBCL Depressed DSM-5 ~ Testosterone + PDS

### Female participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic

```

```
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	5.992e-01	7.569e-01	0.792	0.42860
## hormone_scr_ert_mean	-2.427e-03	2.333e-03	-1.040	0.29826
## hormone_sal_end_min_since_midnight	3.149e-05	2.245e-04	0.140	0.88846
## PDS_score	1.754e-01	6.055e-02	2.897	0.00381 **
## race.ethnicity.5levelBlack	-9.862e-02	2.920e-01	-0.338	0.73562
## race.ethnicity.5levelMixed	4.250e-01	2.845e-01	1.494	0.13536
## race.ethnicity.5levelOther	6.408e-01	3.256e-01	1.968	0.04918 *
## race.ethnicity.5levelWhite	5.492e-01	2.671e-01	2.056	0.03987 *
## interview_age	-2.984e-03	5.261e-03	-0.567	0.57064
## bmi	2.304e-02	1.034e-02	2.227	0.02602 *
## household.income[>=200K]	-6.819e-01	2.713e-01	-2.513	0.01204 *
## household.income[100K-200K]	-5.474e-01	2.532e-01	-2.162	0.03073 *
## household.income[12K-16K]	4.327e-02	3.400e-01	0.127	0.89873
## household.income[16K-25K]	1.152e-01	2.850e-01	0.404	0.68606
## household.income[25K-35K]	-1.170e-01	2.662e-01	-0.439	0.66036
## household.income[35K-50K]	-4.895e-02	2.566e-01	-0.191	0.84875
## household.income[50K-75K]	-1.710e-01	2.553e-01	-0.670	0.50307
## household.income[5K-12K]	2.552e-02	2.975e-01	0.086	0.93163
## household.income[75K-100K]	-3.145e-01	2.562e-01	-1.228	0.21967
## high.educBachelor	7.634e-02	2.533e-01	0.301	0.76317
## high.educHS Diploma/GED	-3.330e-02	2.540e-01	-0.131	0.89570
## high.educPost Graduate Degree	1.235e-01	2.557e-01	0.483	0.62911
## high.educSome College	1.481e-01	2.386e-01	0.621	0.53474
## demo_race_hispanic1	-4.992e-02	1.155e-01	-0.432	0.66551

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0252
## lmer.REML = 9071.7  Scale est. = 1.684    n = 2257
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   PDS_score + race.ethnicity.5level + interview_age + bmi +
##   household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	0.8419344	0.8349191	1.008	0.31336
## hormone_scr_ert_mean	-0.0001795	0.0019698	-0.091	0.92739
## hormone_sal_end_min_since_midnight	0.0001196	0.0002465	0.485	0.62754
## PDS_score	0.2247642	0.0841149	2.672	0.00759 **
## race.ethnicity.5levelBlack	0.1737691	0.3066118	0.567	0.57094
## race.ethnicity.5levelMixed	0.6568495	0.2990470	2.196	0.02815 *

```
## race.ethnicity.5levelOther      0.4564344  0.3544045   1.288  0.19791
## race.ethnicity.5levelWhite      0.5592126  0.2779274   2.012  0.04432 *
## interview_age                   -0.0007317  0.0057013  -0.128  0.89789
## bmi                             0.0006575  0.0121293   0.054  0.95677
## household.income[>=200K]        -0.7786050  0.3033218  -2.567  0.01032 *
## household.income[100K-200K]     -0.7592106  0.2821270  -2.691  0.00717 **
## household.income[12K-16K]       0.1060704  0.3800657   0.279  0.78020
## household.income[16K-25K]       0.2423647  0.3130487   0.774  0.43888
## household.income[25K-35K]      -0.1264754  0.3061144  -0.413  0.67952
## household.income[35K-50K]      -0.0193472  0.2938340  -0.066  0.94751
## household.income[50K-75K]      -0.4060613  0.2815081  -1.442  0.14930
## household.income[5K-12K]        0.5629247  0.3292292   1.710  0.08743 .
## household.income[75K-100K]     -0.6690307  0.2870010  -2.331  0.01983 *
## high.educBachelor               0.3922746  0.2767150   1.418  0.15643
## high.educHS Diploma/GED        0.0002672  0.2805197   0.001  0.99924
## high.educPost Graduate Degree    0.2415544  0.2809273   0.860  0.38996
## high.educSome College           0.1973599  0.2634254   0.749  0.45381
## demo_race_hispanic1            -0.3299402  0.1253069  -2.633  0.00852 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0206
## lmer.REML = 10554  Scale est. = 2.6271    n = 2457
```

## 1.20 Model: CBCL Depressed DSM-5 ~ Testosterone + Pubertal category

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    8.652e-01  7.815e-01   1.107  0.26834
## hormone_scr_ert_mean -1.733e-03  2.313e-03  -0.749  0.45381
## hormone_sal_end_min_since_midnight  6.095e-07  2.251e-04   0.003  0.99784
## pds_p_ss_categoryEarly  2.321e-01  1.051e-01   2.209  0.02730 *
## pds_p_ss_categoryLate  3.375e-01  2.656e-01   1.271  0.20392
## pds_p_ss_categoryMid   2.934e-01  1.061e-01   2.766  0.00572 **
## race.ethnicity.5levelBlack -6.071e-02  2.921e-01  -0.208  0.83537
## race.ethnicity.5levelMixed  4.492e-01  2.847e-01   1.578  0.11478
## race.ethnicity.5levelOther  6.790e-01  3.255e-01   2.086  0.03711 *
## race.ethnicity.5levelWhite  5.709e-01  2.674e-01   2.135  0.03285 *
## interview_age     -3.784e-03  5.366e-03  -0.705  0.48078
## bmi               1.872e-02  1.074e-02   1.744  0.08129 .
## household.income[>=200K] -6.912e-01  2.716e-01  -2.545  0.01098 *
```

```

## household.income[100K-200K]      -5.743e-01  2.533e-01  -2.267  0.02350 *
## household.income[12K-16K]        2.316e-02  3.405e-01   0.068  0.94577
## household.income[16K-25K]        8.513e-02  2.854e-01   0.298  0.76556
## household.income[25K-35K]       -1.493e-01  2.666e-01  -0.560  0.57548
## household.income[35K-50K]       -8.550e-02  2.570e-01  -0.333  0.73945
## household.income[50K-75K]       -1.941e-01  2.555e-01  -0.760  0.44748
## household.income[5K-12K]        1.979e-02  2.980e-01   0.066  0.94705
## household.income[75K-100K]     -3.359e-01  2.564e-01  -1.310  0.19030
## high.educBachelor                8.707e-02  2.537e-01   0.343  0.73152
## high.educHS Diploma/GED        -7.606e-03  2.542e-01  -0.030  0.97613
## high.educPost Graduate Degree    1.354e-01  2.562e-01   0.528  0.59725
## high.educSome College            1.651e-01  2.388e-01   0.692  0.48931
## demo_race_hispanic1            -5.640e-02  1.160e-01  -0.486  0.62679
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.024
## lmer.REML = 9074.5  Scale est. = 1.6658    n = 2257

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_dsm5_depress_r ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   pds_p_ss_category + race.ethnicity.5level + interview_age +
##   bmi + household.income + high.educ + demo_race_hispanic
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    9.824e-01  8.394e-01   1.170  0.24199
## hormone_scr_ert_mean -1.301e-05  1.967e-03  -0.007  0.99472
## hormone_sal_end_min_since_midnight 1.228e-04  2.465e-04   0.498  0.61840
## pds_p_ss_categoryEarly 2.078e-01  1.013e-01   2.051  0.04039 *
## pds_p_ss_categoryLate 1.880e-01  6.559e-01   0.287  0.77445
## pds_p_ss_categoryMid 3.956e-01  2.092e-01   1.891  0.05877 .
## race.ethnicity.5levelBlack 1.725e-01  3.070e-01   0.562  0.57418
## race.ethnicity.5levelMixed 6.635e-01  2.992e-01   2.218  0.02668 *
## race.ethnicity.5levelOther 4.619e-01  3.548e-01   1.302  0.19315
## race.ethnicity.5levelWhite 5.700e-01  2.781e-01   2.050  0.04050 *
## interview_age    -4.211e-04  5.700e-03  -0.074  0.94111
## bmi              3.100e-03  1.205e-02   0.257  0.79697
## household.income[>=200K] -7.979e-01  3.033e-01  -2.631  0.00856 **
## household.income[100K-200K] -7.730e-01  2.823e-01  -2.738  0.00622 **
## household.income[12K-16K]  1.027e-01  3.804e-01   0.270  0.78709
## household.income[16K-25K]  2.263e-01  3.132e-01   0.722  0.47009
## household.income[25K-35K] -1.457e-01  3.064e-01  -0.476  0.63446
## household.income[35K-50K] -2.787e-02  2.942e-01  -0.095  0.92452
## household.income[50K-75K] -4.170e-01  2.816e-01  -1.480  0.13888
## household.income[5K-12K]   5.300e-01  3.293e-01   1.609  0.10769

```



```
## household.income[75K-100K]      -6.835e-01  2.871e-01  -2.381  0.01735 *
## high.educBachelor                4.001e-01  2.775e-01   1.442  0.14955
## high.educHS Diploma/GED         1.496e-02  2.811e-01   0.053  0.95756
## high.educPost Graduate Degree    2.548e-01  2.817e-01   0.904  0.36588
## high.educSome College            2.079e-01  2.642e-01   0.787  0.43142
## demo_race_hispanic1             -3.434e-01  1.256e-01  -2.735  0.00628 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0194
## lmer.REML = 10555 Scale est. = 2.6123    n = 2457
```

## 2—Reward~Puberty—

### 2.11 Model: Caudate Anticipation ~ Testosterone

#### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## caudate_rvs_n_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -4.068e-01  3.509e-01  -1.159  0.2465
## hormone_scr_ert_mean -1.241e-03  1.274e-03  -0.975  0.3299
## hormone_sal_end_min_since_midnight -2.408e-05  1.268e-04  -0.190  0.8494
## interview_age      5.334e-03  2.826e-03   1.888  0.0592 .
## MRI_minus_hormone_date_time -2.321e-06  2.646e-06  -0.877  0.3805
## bmi              -7.738e-03  5.289e-03  -1.463  0.1436
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00124
## lmer.REML =  4982 Scale est. = 0.76865    n = 1882
```

#### Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
```

```
## Family: gaussian
## Link function: identity
##
## Formula:
## caudate_rvsnt_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -7.924e-03  3.741e-01  -0.021  0.9831
## hormone_scr_ert_mean    -1.718e-03  9.451e-04  -1.818  0.0693 .
## hormone_sal_end_min_since_midnight -7.759e-06  1.296e-04  -0.060  0.9523
## interview_age      1.339e-03  2.928e-03   0.457  0.6474
## MRI_minus_hormone_date_time      4.444e-07  2.635e-06   0.169  0.8661
## bmi              -5.231e-03  6.058e-03  -0.864  0.3880
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = -0.000139
## lmer.REML = 5176.8  Scale est. = 0.70214  n = 1879
```

## 2.12 Model B: Putamen Anticipation ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## putamen_rvsnt_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -1.719e-01  3.404e-01  -0.505  0.614
## hormone_scr_ert_mean    -2.867e-04  1.243e-03  -0.231  0.818
## hormone_sal_end_min_since_midnight -3.958e-05  1.230e-04  -0.322  0.748
## interview_age      3.160e-03  2.738e-03   1.154  0.248
## MRI_minus_hormone_date_time    -1.949e-06  2.610e-06  -0.747  0.455
## bmi              -8.463e-03  5.127e-03  -1.651  0.099 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.000127
## lmer.REML = 4856.6  Scale est. = 0.71587  n = 1879
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## putamen_rvs_n_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -2.715e-01  3.694e-01  -0.735   0.462
## hormone_scr_ert_mean    -6.929e-04  9.275e-04  -0.747   0.455
## hormone_sal_end_min_since_midnight -1.328e-05  1.302e-04  -0.102   0.919
## interview_age      4.063e-03  2.892e-03   1.405   0.160
## MRI_minus_hormone_date_time    1.028e-06  2.550e-06   0.403   0.687
## bmi              -9.712e-03  6.036e-03  -1.609   0.108
##
##
## R-sq.(adj) =  0.000153
## lmer.REML = 5128.7  Scale est. = 0.79256   n = 1879
```

## 2.13 Model: Accumbens Anticipation ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## accumbens_rvs_n_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -5.548e-02  2.672e-01  -0.208   0.8355
## hormone_scr_ert_mean    -1.893e-03  9.691e-04  -1.953   0.0509 .
## hormone_sal_end_min_since_midnight -6.136e-05  9.501e-05  -0.646   0.5185
## interview_age      2.262e-03  2.151e-03   1.051   0.2932
## MRI_minus_hormone_date_time    -2.218e-06  2.054e-06  -1.080   0.2802
## bmi              -4.580e-03  4.029e-03  -1.137   0.2558
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
```

```
## R-sq.(adj) = 0.00238
## lmer.REML = 3969.5 Scale est. = 0.42741 n = 1883
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## accumbens_rvsnt_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	5.388e-01	2.927e-01	1.841	0.0658 .
hormone_scr_ert_mean	-7.498e-04	7.316e-04	-1.025	0.3055
hormone_sal_end_min_since_midnight	-2.250e-04	9.865e-05	-2.281	0.0226 *
interview_age	-2.591e-03	2.288e-03	-1.133	0.2575
MRI_minus_hormone_date_time	2.714e-06	2.008e-06	1.351	0.1768
bmi	-1.782e-03	4.719e-03	-0.378	0.7057

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) = 0.00196
## lmer.REML = 4277.7 Scale est. = 0.50479 n = 1882
```

## 2.14 Model: Caudate Feedback ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## caudate_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	1.297e+00	3.356e-01	3.864	0.000115 ***
hormone_scr_ert_mean	2.663e-03	1.206e-03	2.208	0.027366 *
hormone_sal_end_min_since_midnight	-2.425e-04	1.140e-04	-2.127	0.033577 *
interview_age	-9.477e-03	2.693e-03	-3.519	0.000443 ***

```
## MRI_minus_hormone_date_time      -2.254e-06  2.506e-06  -0.899  0.368647
## bmi                             -4.982e-03  5.029e-03  -0.991  0.322026
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00878
## lmer.REML = 4812.8  Scale est. = 0.73039    n = 1879
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## caudate_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.038e-01  3.470e-01   0.299   0.765
## hormone_scr_ert_mean      4.356e-04  8.625e-04   0.505   0.614
## hormone_sal_end_min_since_midnight -9.995e-05  1.186e-04  -0.843   0.399
## interview_age      -1.164e-04  2.709e-03  -0.043   0.966
## MRI_minus_hormone_date_time      1.238e-06  2.379e-06   0.520   0.603
## bmi                5.723e-04  5.593e-03   0.102   0.919
##
##
## R-sq.(adj) = -0.00198
## lmer.REML = 4894.7  Scale est. = 0.76165    n = 1879
```

## 2.15 Model: Putamen Feedback ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## putamen_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
```

```
## (Intercept)                1.025e+00  3.192e-01   3.211  0.00134 **
## hormone_scr_ert_mean        3.333e-03  1.154e-03   2.887  0.00393 **
## hormone_sal_end_min_since_midnight -3.148e-04  1.114e-04  -2.826  0.00477 **
## interview_age               -6.810e-03  2.564e-03  -2.656  0.00798 **
## MRI_minus_hormone_date_time -8.979e-07  2.410e-06  -0.373  0.70947
## bmi                        -7.652e-03  4.802e-03  -1.593  0.11122
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00999
## lmer.REML = 4628.4  Scale est. = 0.65827   n = 1881
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## putamen_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      3.047e-01  3.444e-01   0.885   0.376
## hormone_scr_ert_mean -1.437e-04  8.593e-04  -0.167   0.867
## hormone_sal_end_min_since_midnight  5.928e-05  1.240e-04   0.478   0.633
## interview_age      -2.775e-03  2.690e-03  -1.032   0.302
## MRI_minus_hormone_date_time -4.121e-07  2.405e-06  -0.171   0.864
## bmi                3.399e-03  5.588e-03   0.608   0.543
##
##
## R-sq.(adj) = -0.00274
## lmer.REML = 4879.5  Scale est. = 0.72274   n = 1886
```

## 2.16 Model: Accumbens Feedback ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## accumbens_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
```

```
##      interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      6.414e-01  2.479e-01   2.587  0.00976 **
## hormone_scr_ert_mean -2.479e-04  8.939e-04  -0.277  0.78152
## hormone_sal_end_min_since_midnight -1.613e-04  8.442e-05  -1.910  0.05628 .
## interview_age      -4.598e-03  1.993e-03  -2.308  0.02113 *
## MRI_minus_hormone_date_time -5.216e-06  1.852e-06  -2.816  0.00491 **
## bmi               1.837e-03  3.714e-03   0.495  0.62088
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00773
## lmer.REML = 3708.9  Scale est. = 0.4018    n = 1887
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## accumbens_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.423e-01  2.820e-01   0.505   0.614
## hormone_scr_ert_mean  5.418e-04  7.074e-04   0.766   0.444
## hormone_sal_end_min_since_midnight -1.371e-04  9.779e-05  -1.402   0.161
## interview_age      -6.591e-05  2.206e-03  -0.030   0.976
## MRI_minus_hormone_date_time  7.378e-07  1.935e-06   0.381   0.703
## bmi               3.592e-04  4.555e-03   0.079   0.937
##
##
## R-sq.(adj) = -0.000829
## lmer.REML = 4107.6  Scale est. = 0.43178    n = 1878
```

## 2.17 Model: OFC Anticipation ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
```

```

## Link function: identity
##
## Formula:
## lOFC_rvsn_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -7.390e-02  2.245e-01  -0.329   0.742
## hormone_scr_ert_mean    -3.508e-04  8.105e-04  -0.433   0.665
## hormone_sal_end_min_since_midnight  5.443e-05  7.656e-05   0.711   0.477
## interview_age     5.796e-04  1.808e-03   0.321   0.749
## MRI_minus_hormone_date_time    5.600e-08  1.676e-06   0.033   0.973
## bmi             -5.870e-04  3.377e-03  -0.174   0.862
##
##
## R-sq.(adj) =  -0.0022
## lmer.REML = 3307.6  Scale est. = 0.30165    n = 1878

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_rvsn_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -2.487e-02  2.575e-01  -0.097   0.923
## hormone_scr_ert_mean    3.533e-04  9.297e-04   0.380   0.704
## hormone_sal_end_min_since_midnight  5.004e-06  8.753e-05   0.057   0.954
## interview_age    -2.698e-04  2.072e-03  -0.130   0.896
## MRI_minus_hormone_date_time    1.951e-06  1.923e-06   1.014   0.311
## bmi             1.885e-03  3.857e-03   0.489   0.625
##
##
## R-sq.(adj) =  -0.00184
## lmer.REML = 3825.9  Scale est. = 0.4317    n = 1878

```

## Male participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:

```



```
## lOFC_rvsn_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -2.954e-01  2.437e-01  -1.212   0.2257
## hormone_scr_ert_mean    -1.099e-03  6.126e-04  -1.794   0.0730 .
## hormone_sal_end_min_since_midnight  1.842e-05  8.381e-05   0.220   0.8260
## interview_age      2.627e-03  1.909e-03   1.376   0.1689
## MRI_minus_hormone_date_time    3.108e-06  1.668e-06   1.864   0.0625 .
## bmi              2.974e-04  3.957e-03   0.075   0.9401
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) =  0.00198
## lmer.REML = 3571 Scale est. = 0.33913 n = 1876

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_rvsn_ant_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -2.362e-01  2.674e-01  -0.884   0.377
## hormone_scr_ert_mean    -1.951e-04  6.684e-04  -0.292   0.770
## hormone_sal_end_min_since_midnight -8.085e-06  9.037e-05  -0.089   0.929
## interview_age      1.346e-03  2.093e-03   0.643   0.520
## MRI_minus_hormone_date_time    2.582e-06  1.870e-06   1.380   0.168
## bmi              4.564e-03  4.310e-03   1.059   0.290
##
##
## R-sq.(adj) = -0.000739
## lmer.REML = 3915.1 Scale est. = 0.42776 n = 1873
```

## 2.18 Model: OFC Feedback ~ Testosterone

### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
```

```

##
## Formula:
## lOFC_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      3.964e-01  1.949e-01   2.034  0.0421 *
## hormone_scr_ert_mean      1.243e-03  7.026e-04   1.769  0.0771 .
## hormone_sal_end_min_since_midnight -1.098e-04  6.670e-05  -1.647  0.0998 .
## interview_age      -3.060e-03  1.567e-03  -1.953  0.0510 .
## MRI_minus_hormone_date_time      -1.935e-06  1.453e-06  -1.331  0.1832
## bmi      -6.448e-04  2.930e-03  -0.220  0.8258
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00352
## lmer.REML = 2785.4  Scale est. = 0.21157    n = 1880

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      2.110e-01  2.397e-01   0.880  0.3789
## hormone_scr_ert_mean      1.076e-03  8.672e-04   1.241  0.2148
## hormone_sal_end_min_since_midnight -1.439e-04  8.346e-05  -1.725  0.0848 .
## interview_age      -1.426e-03  1.930e-03  -0.739  0.4601
## MRI_minus_hormone_date_time      -2.465e-06  1.795e-06  -1.373  0.1698
## bmi      1.651e-03  3.613e-03   0.457  0.6477
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00194
## lmer.REML = 3558.7  Scale est. = 0.3211    n = 1882

```

## Male participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian

```

```

## Link function: identity
##
## Formula:
## lOFC_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -1.599e-02  2.191e-01  -0.073   0.9418
## hormone_scr_ert_mean      4.502e-04  5.466e-04   0.824   0.4103
## hormone_sal_end_min_since_midnight -5.739e-05  7.387e-05  -0.777   0.4374
## interview_age      1.817e-03  1.711e-03   1.062   0.2883
## MRI_minus_hormone_date_time      1.402e-06  1.493e-06   0.939   0.3480
## bmi              -7.404e-03  3.537e-03  -2.093   0.0364 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00113
## lmer.REML = 3203.9  Scale est. = 0.30736    n = 1886

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_posvsneg_feedback_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + MRI_minus_hormone_date_time + bmi
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)      9.085e-02  2.549e-01   0.356   0.722
## hormone_scr_ert_mean      1.801e-04  6.424e-04   0.280   0.779
## hormone_sal_end_min_since_midnight -8.439e-05  8.611e-05  -0.980   0.327
## interview_age      4.289e-04  1.993e-03   0.215   0.830
## MRI_minus_hormone_date_time      1.919e-06  1.737e-06   1.105   0.269
## bmi              -2.536e-03  4.128e-03  -0.614   0.539
##
##
## R-sq.(adj) = -0.00144
## lmer.REML = 3764.3  Scale est. = 0.33758    n = 1884

```

## 2.19 Model: MID Reaction Time ~ Testosterone

### Female participants

```

##
## Family: gaussian
## Link function: identity
##

```

```

## Formula:
## rt_diff_large_neutral_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -5.595e-01  3.468e-01  -1.613   0.1068
## hormone_scr_ert_mean    -6.745e-04  1.248e-03  -0.541   0.5889
## hormone_sal_end_min_since_midnight  3.684e-05  1.161e-04   0.317   0.7510
## interview_age      5.611e-03  2.770e-03   2.026   0.0429 *
## bmi             -3.300e-03  5.229e-03  -0.631   0.5281
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.000514
## lmer.REML = 5517.2  Scale est. = 0.68602    n = 2046

##
## Family: gaussian
## Link function: identity
##
## Formula:
## rt_diff_large_small_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -2.277e-01  3.509e-01  -0.649   0.517
## hormone_scr_ert_mean    3.866e-04  1.261e-03   0.306   0.759
## hormone_sal_end_min_since_midnight  1.155e-06  1.172e-04   0.010   0.992
## interview_age      3.160e-03  2.801e-03   1.128   0.259
## bmi             -7.900e-03  5.280e-03  -1.496   0.135
##
##
## R-sq.(adj) = -0.000116
## lmer.REML = 5565.2  Scale est. = 0.76382    n = 2046

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## rt_diff_large_neutral_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      0.1042040  0.3272787   0.318   0.750
## hormone_scr_ert_mean    -0.0011918  0.0008470  -1.407   0.160
## hormone_sal_end_min_since_midnight -0.0000282  0.0001118  -0.252   0.801

```

```
## interview_age          -0.0001317  0.0025632  -0.051    0.959
## bmi                   -0.0021695  0.0052725  -0.411    0.681
##
##
## R-sq.(adj) =  -0.000544
## lmer.REML = 5549.3  Scale est. = 0.72006    n = 2131

##
## Family: gaussian
## Link function: identity
##
## Formula:
## rt_diff_large_small_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.116e-01  3.294e-01   0.339   0.735
## hormone_scr_ert_mean  -5.578e-04  8.472e-04  -0.658   0.510
## hormone_sal_end_min_since_midnight -9.045e-06  1.096e-04  -0.083   0.934
## interview_age    -9.699e-04  2.578e-03  -0.376   0.707
## bmi             2.468e-03  5.288e-03   0.467   0.641
##
##
## R-sq.(adj) =  -0.00152
## lmer.REML = 5589.9  Scale est. = 0.78848    n = 2131
```

## 2.20 Model: BIS-BAS-RR ~ Testosterone

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## bisbas_ss_basm_rr_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##      interview_age + bmi
##
## Parametric coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.894e-01  3.372e-01   0.562   0.5743
## hormone_scr_ert_mean  -1.047e-03  1.183e-03  -0.885   0.3765
## hormone_sal_end_min_since_midnight  4.123e-06  1.215e-04   0.034   0.9729
## interview_age    -3.262e-03  2.694e-03  -1.211   0.2262
## bmi             1.010e-02  5.033e-03   2.007   0.0448 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00221
## lmer.REML = 7034.7  Scale est. = 0.71206    n = 2491
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## bisbas_ss_basm_rr_z ~ hormone_scr_ert_mean + hormone_sal_end_min_since_midnight +
##   interview_age + bmi
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -0.1898256   0.3189722  -0.595   0.55182
## hormone_scr_ert_mean      0.0004313   0.0008723   0.494   0.62107
## hormone_sal_end_min_since_midnight  0.0002326   0.0001142   2.037   0.04179 *
## interview_age    -0.0020163   0.0025127  -0.802   0.42237
## bmi              0.0165217   0.0051188   3.228   0.00126 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00643
## lmer.REML = 7446.4  Scale est. = 0.70937  n = 2688
```

## 4—Internalizing~Puberty x Reward—

### 4.14 Model: CBCL internalizing factor ~ Testosterone x Accumbens activity (anticipation stage) + PDS

#### Female participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * accumbens_rvsnt_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##               Estimate Std. Error t value
## (Intercept)    5.111e+00  2.546e+00   2.007
## PDS_score       6.082e-01  2.040e-01   2.982
## hormone_sal_end_min_since_midnight -9.330e-04  7.775e-04  -1.200
## hormone_scr_ert_mean -4.660e-03  8.069e-03  -0.577
## accumbens_rvsnt_ant_z  7.823e-02  3.925e-01   0.199
## race.ethnicity.5levelBlack -1.556e-01  9.880e-01  -0.158
```

```

## race.ethnicity.5levelMixed      1.890e+00  9.440e-01  2.002
## race.ethnicity.5levelOther      1.729e+00  1.068e+00  1.619
## race.ethnicity.5levelWhite      1.439e+00  8.879e-01  1.620
## demo_race_hispanic1            9.539e-02  3.903e-01  0.244
## interview_age                   -1.007e-02  1.746e-02 -0.577
## MRI_minus_hormone_date_time     -8.684e-06  1.650e-05 -0.526
## bmi                             6.778e-02  3.462e-02  1.958
## household.income[>=200K]        -2.564e+00  9.640e-01 -2.659
## household.income[100K-200K]     -2.035e+00  9.088e-01 -2.239
## household.income[12K-16K]       -3.155e-02  1.184e+00 -0.027
## household.income[16K-25K]       -1.513e-01  1.015e+00 -0.149
## household.income[25K-35K]       -1.365e+00  9.590e-01 -1.423
## household.income[35K-50K]       -4.729e-01  9.180e-01 -0.515
## household.income[50K-75K]       -1.240e+00  9.182e-01 -1.350
## household.income[5K-12K]        -2.171e-01  1.062e+00 -0.204
## household.income[75K-100K]      -1.526e+00  9.195e-01 -1.660
## high.educBachelor               -3.470e-01  8.572e-01 -0.405
## high.educHS Diploma/GED         -1.165e+00  8.767e-01 -1.329
## high.educPost Graduate Degree    -3.700e-02  8.654e-01 -0.043
## high.educSome College            -1.098e-01  8.112e-01 -0.135
## hormone_scr_ert_mean:accumbens_rvsnt_z -2.731e-03  1.000e-02 -0.273
##                                Pr(>|t|)
## (Intercept)                     0.04489 *
## PDS_score                        0.00291 **
## hormone_sal_end_min_since_midnight 0.23032
## hormone_scr_ert_mean             0.56372
## accumbens_rvsnt_z                0.84203
## race.ethnicity.5levelBlack       0.87484
## race.ethnicity.5levelMixed       0.04541 *
## race.ethnicity.5levelOther       0.10569
## race.ethnicity.5levelWhite       0.10532
## demo_race_hispanic1              0.80693
## interview_age                    0.56420
## MRI_minus_hormone_date_time      0.59875
## bmi                              0.05042 .
## household.income[>=200K]          0.00790 **
## household.income[100K-200K]       0.02527 *
## household.income[12K-16K]         0.97874
## household.income[16K-25K]         0.88152
## household.income[25K-35K]         0.15488
## household.income[35K-50K]         0.60653
## household.income[50K-75K]         0.17711
## household.income[5K-12K]          0.83805
## household.income[75K-100K]        0.09709 .
## high.educBachelor                 0.68567
## high.educHS Diploma/GED           0.18401
## high.educPost Graduate Degree      0.96590
## high.educSome College              0.89232
## hormone_scr_ert_mean:accumbens_rvsnt_z 0.78481
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0265

```

```
## lmer.REML = 10493 Scale est. = 10.936 n = 1713
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##     hormone_scr_ert_mean * accumbens_rvsnt_ant_z + race.ethnicity.5level +
##     demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##     bmi + household.income + high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value
## (Intercept)      2.608e+00  2.528e+00   1.032
## PDS_score         6.902e-01  2.596e-01   2.659
## hormone_sal_end_min_since_midnight  3.420e-04  7.540e-04   0.454
## hormone_scr_ert_mean -1.840e-03  5.923e-03  -0.311
## accumbens_rvsnt_ant_z  3.009e-02  2.419e-01   0.124
## race.ethnicity.5levelBlack -1.704e-02  9.634e-01  -0.018
## race.ethnicity.5levelMixed  2.270e+00  9.265e-01   2.450
## race.ethnicity.5levelOther  1.769e+00  1.078e+00   1.641
## race.ethnicity.5levelWhite  1.693e+00  8.694e-01   1.948
## demo_race_hispanic1 -5.103e-01  3.736e-01  -1.366
## interview_age -6.944e-03  1.670e-02  -0.416
## MRI_minus_hormone_date_time -6.884e-06  1.440e-05  -0.478
## bmi  4.834e-02  3.665e-02   1.319
## household.income[>=200K] -1.454e+00  1.018e+00  -1.429
## household.income[100K-200K] -1.001e+00  9.640e-01  -1.039
## household.income[12K-16K] -3.814e-01  1.244e+00  -0.307
## household.income[16K-25K]  1.279e+00  1.048e+00   1.220
## household.income[25K-35K]  1.743e-01  1.021e+00   0.171
## household.income[35K-50K]  5.730e-01  9.873e-01   0.580
## household.income[50K-75K] -2.549e-01  9.629e-01  -0.265
## household.income[5K-12K]  1.683e+00  1.101e+00   1.528
## household.income[75K-100K] -7.125e-01  9.756e-01  -0.730
## high.educBachelor  1.584e-01  8.413e-01   0.188
## high.educHS Diploma/GED -1.175e+00  8.657e-01  -1.357
## high.educPost Graduate Degree -5.302e-02  8.515e-01  -0.062
## high.educSome College  2.755e-01  8.039e-01   0.343
## hormone_scr_ert_mean:accumbens_rvsnt_ant_z -3.751e-03  5.514e-03  -0.680
##
##               Pr(>|t|)
## (Intercept)      0.30237
## PDS_score         0.00791 **
## hormone_sal_end_min_since_midnight  0.65015
## hormone_scr_ert_mean  0.75618
## accumbens_rvsnt_ant_z  0.90103
## race.ethnicity.5levelBlack  0.98589
```



```

## race.ethnicity.5levelMixed          0.01437 *
## race.ethnicity.5levelOther          0.10106
## race.ethnicity.5levelWhite          0.05160 .
## demo_race_hispanic1                 0.17215
## interview_age                       0.67754
## MRI_minus_hormone_date_time         0.63257
## bmi                                 0.18731
## household.income[>=200K]            0.15332
## household.income[100K-200K]         0.29913
## household.income[12K-16K]           0.75914
## household.income[16K-25K]           0.22246
## household.income[25K-35K]           0.86455
## household.income[35K-50K]           0.56174
## household.income[50K-75K]           0.79129
## household.income[5K-12K]            0.12669
## household.income[75K-100K]          0.46530
## high.educBachelor                   0.85066
## high.educHS Diploma/GED            0.17496
## high.educPost Graduate Degree        0.95036
## high.educSome College                0.73185
## hormone_scr_ert_mean:accumbens_rvsnt_z 0.49644
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0247
## lmer.REML = 10501 Scale est. = 16.466    n = 1724

```

#### 4.15 Model: CBCL internalizing factor ~ Testosterone x Caudate activity (anticipation stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * caudate_rvsnt_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    4.990e+00  2.546e+00   1.960  0.05020
## PDS_score       6.216e-01  2.038e-01   3.050  0.00232
## hormone_sal_end_min_since_midnight -9.183e-04  7.771e-04  -1.182  0.23751
## hormone_scr_ert_mean -4.610e-03  8.073e-03  -0.571  0.56800
## caudate_rvsnt_z  1.361e-02  3.148e-01   0.043  0.96552

```

```

## race.ethnicity.5levelBlack          -1.077e-01  9.880e-01  -0.109  0.91317
## race.ethnicity.5levelMixed           1.853e+00  9.427e-01   1.966  0.04950
## race.ethnicity.5levelOther           1.717e+00  1.064e+00   1.613  0.10686
## race.ethnicity.5levelWhite           1.433e+00  8.872e-01   1.615  0.10640
## demo_race_hispanic1                 1.018e-01  3.887e-01   0.262  0.79332
## interview_age                       -1.115e-02  1.749e-02  -0.637  0.52400
## MRI_minus_hormone_date_time         -8.347e-06  1.610e-05  -0.518  0.60426
## bmi                                 6.868e-02  3.464e-02   1.983  0.04752
## household.income[>=200K]            -2.408e+00  9.598e-01  -2.508  0.01222
## household.income[100K-200K]         -1.868e+00  9.032e-01  -2.068  0.03878
## household.income[12K-16K]           9.953e-02  1.170e+00   0.085  0.93222
## household.income[16K-25K]           -7.581e-02  1.007e+00  -0.075  0.94001
## household.income[25K-35K]           -1.238e+00  9.540e-01  -1.298  0.19446
## household.income[35K-50K]           -3.491e-01  9.121e-01  -0.383  0.70193
## household.income[50K-75K]           -1.076e+00  9.128e-01  -1.179  0.23869
## household.income[5K-12K]            -1.074e-01  1.056e+00  -0.102  0.91901
## household.income[75K-100K]          -1.384e+00  9.146e-01  -1.513  0.13037
## high.educBachelor                   -2.912e-01  8.548e-01  -0.341  0.73339
## high.educHS Diploma/GED             -1.090e+00  8.727e-01  -1.250  0.21165
## high.educPost Graduate Degree        1.736e-02  8.632e-01   0.020  0.98396
## high.educSome College                -5.618e-02  8.080e-01  -0.070  0.94458
## hormone_scr_ert_mean:caudate_rvsnt_z 2.129e-03  8.151e-03   0.261  0.79401
##
## (Intercept)                          .
## PDS_score                            **
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## caudate_rvsnt_z
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed           *
## race.ethnicity.5levelOther
## race.ethnicity.5levelWhite
## demo_race_hispanic1
## interview_age
## MRI_minus_hormone_date_time
## bmi                                 *
## household.income[>=200K]             *
## household.income[100K-200K]          *
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K]
## household.income[5K-12K]
## household.income[75K-100K]
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:caudate_rvsnt_z
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##

```

```
## R-sq.(adj) = 0.026
## lmer.REML = 10489 Scale est. = 11.076 n = 1712
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##     hormone_scr_ert_mean * caudate_rvsnt_ant_z + race.ethnicity.5level +
##     demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##     bmi + household.income + high.educ
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	2.619e+00	2.531e+00	1.035	0.30080
## PDS_score	7.170e-01	2.599e-01	2.759	0.00586
## hormone_sal_end_min_since_midnight	3.212e-04	7.547e-04	0.426	0.67041
## hormone_scr_ert_mean	-6.342e-03	6.650e-03	-0.954	0.34038
## caudate_rvsnt_ant_z	1.779e-01	1.845e-01	0.964	0.33514
## race.ethnicity.5levelBlack	-5.027e-02	9.744e-01	-0.052	0.95886
## race.ethnicity.5levelMixed	2.249e+00	9.387e-01	2.396	0.01669
## race.ethnicity.5levelOther	1.730e+00	1.089e+00	1.589	0.11225
## race.ethnicity.5levelWhite	1.634e+00	8.821e-01	1.852	0.06417
## demo_race_hispanic1	-4.943e-01	3.752e-01	-1.318	0.18784
## interview_age	-6.808e-03	1.676e-02	-0.406	0.68465
## MRI_minus_hormone_date_time	-1.092e-05	1.470e-05	-0.743	0.45753
## bmi	5.015e-02	3.676e-02	1.364	0.17266
## household.income[>=200K]	-1.283e+00	1.013e+00	-1.267	0.20536
## household.income[100K-200K]	-8.803e-01	9.582e-01	-0.919	0.35837
## household.income[12K-16K]	-3.362e-01	1.240e+00	-0.271	0.78635
## household.income[16K-25K]	1.325e+00	1.041e+00	1.274	0.20298
## household.income[25K-35K]	3.222e-01	1.015e+00	0.317	0.75097
## household.income[35K-50K]	6.864e-01	9.824e-01	0.699	0.48484
## household.income[50K-75K]	-1.607e-01	9.573e-01	-0.168	0.86670
## household.income[5K-12K]	1.878e+00	1.090e+00	1.722	0.08519
## household.income[75K-100K]	-5.727e-01	9.699e-01	-0.590	0.55495
## high.educBachelor	2.141e-01	8.383e-01	0.255	0.79843
## high.educHS Diploma/GED	-1.109e+00	8.636e-01	-1.284	0.19932
## high.educPost Graduate Degree	-7.555e-02	8.487e-01	-0.089	0.92908
## high.educSome College	2.748e-01	7.996e-01	0.344	0.73112
## hormone_scr_ert_mean:caudate_rvsnt_ant_z	-6.002e-03	3.826e-03	-1.569	0.11693

```
##
## (Intercept)
## PDS_score **
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## caudate_rvsnt_ant_z
```

```

## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed          *
## race.ethnicity.5levelOther
## race.ethnicity.5levelWhite          .
## demo_race_hispanic1
## interview_age
## MRI_minus_hormone_date_time
## bmi
## household.income[>=200K]
## household.income[100K-200K]
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K]
## household.income[5K-12K]           .
## household.income[75K-100K]
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:caudate_rvsn_ant_z
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0258
## lmer.REML = 10495  Scale est. = 16.662    n = 1722

```

#### 4.16 Model: CBCL internalizing factor ~ Testosterone x Putamen activity (anticipation stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * putamen_rvsn_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    4.771e+00  2.536e+00   1.882  0.06006
## PDS_score       6.339e-01  2.039e-01   3.108  0.00191
## hormone_sal_end_min_since_midnight -8.205e-04  7.728e-04  -1.062  0.28853
## hormone_scr_ert_mean -6.138e-03  8.100e-03  -0.758  0.44867

```

```

## putamen_rvsnt_ant_z -1.843e-01 3.322e-01 -0.555 0.57909
## race.ethnicity.5levelBlack -9.684e-02 9.838e-01 -0.098 0.92160
## race.ethnicity.5levelMixed 1.905e+00 9.389e-01 2.029 0.04264
## race.ethnicity.5levelOther 1.756e+00 1.063e+00 1.652 0.09878
## race.ethnicity.5levelWhite 1.432e+00 8.834e-01 1.622 0.10508
## demo_race_hispanic1 1.295e-01 3.879e-01 0.334 0.73861
## interview_age -9.287e-03 1.743e-02 -0.533 0.59433
## MRI_minus_hormone_date_time -6.999e-06 1.632e-05 -0.429 0.66810
## bmi 6.713e-02 3.454e-02 1.944 0.05212
## household.income[>=200K] -2.412e+00 9.573e-01 -2.520 0.01184
## household.income[100K-200K] -1.896e+00 9.005e-01 -2.106 0.03538
## household.income[12K-16K] 7.134e-02 1.175e+00 0.061 0.95160
## household.income[16K-25K] -1.611e-01 1.007e+00 -0.160 0.87290
## household.income[25K-35K] -1.291e+00 9.509e-01 -1.358 0.17462
## household.income[35K-50K] -3.764e-01 9.089e-01 -0.414 0.67885
## household.income[50K-75K] -1.061e+00 9.110e-01 -1.165 0.24429
## household.income[5K-12K] -1.276e-01 1.054e+00 -0.121 0.90368
## household.income[75K-100K] -1.519e+00 9.127e-01 -1.665 0.09614
## high.educBachelor -2.773e-01 8.498e-01 -0.326 0.74426
## high.educHS Diploma/GED -1.104e+00 8.676e-01 -1.272 0.20354
## high.educPost Graduate Degree -6.702e-03 8.584e-01 -0.008 0.99377
## high.educSome College -7.379e-02 8.029e-01 -0.092 0.92679
## hormone_scr_ert_mean:putamen_rvsnt_ant_z 8.043e-03 8.661e-03 0.929 0.35322
##
## (Intercept) .
## PDS_score **
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## putamen_rvsnt_ant_z
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed *
## race.ethnicity.5levelOther .
## race.ethnicity.5levelWhite
## demo_race_hispanic1
## interview_age
## MRI_minus_hormone_date_time
## bmi .
## household.income[>=200K] *
## household.income[100K-200K] *
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K]
## household.income[5K-12K]
## household.income[75K-100K] .
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:putamen_rvsnt_ant_z
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##

```

```
##
## R-sq.(adj) = 0.0262
## lmer.REML = 10452 Scale est. = 11.006 n = 1708
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * putamen_rvsn_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
```

	Estimate	Std. Error	t value	Pr(> t )
## (Intercept)	2.436e+00	2.534e+00	0.961	0.33653
## PDS_score	7.422e-01	2.605e-01	2.850	0.00443
## hormone_sal_end_min_since_midnight	4.286e-04	7.527e-04	0.569	0.56912
## hormone_scr_ert_mean	-8.189e-03	6.529e-03	-1.254	0.20994
## putamen_rvsn_ant_z	2.574e-01	2.053e-01	1.254	0.21018
## race.ethnicity.5levelBlack	-2.445e-02	9.733e-01	-0.025	0.97996
## race.ethnicity.5levelMixed	2.261e+00	9.352e-01	2.418	0.01571
## race.ethnicity.5levelOther	1.713e+00	1.088e+00	1.575	0.11542
## race.ethnicity.5levelWhite	1.625e+00	8.808e-01	1.845	0.06521
## demo_race_hispanic1	-5.364e-01	3.741e-01	-1.434	0.15175
## interview_age	-5.757e-03	1.675e-02	-0.344	0.73115
## MRI_minus_hormone_date_time	-1.054e-05	1.430e-05	-0.737	0.46104
## bmi	5.615e-02	3.690e-02	1.522	0.12824
## household.income[>=200K]	-1.290e+00	1.018e+00	-1.268	0.20488
## household.income[100K-200K]	-9.149e-01	9.645e-01	-0.949	0.34298
## household.income[12K-16K]	-3.873e-01	1.243e+00	-0.312	0.75539
## household.income[16K-25K]	1.291e+00	1.046e+00	1.234	0.21723
## household.income[25K-35K]	3.099e-01	1.020e+00	0.304	0.76126
## household.income[35K-50K]	7.009e-01	9.884e-01	0.709	0.47835
## household.income[50K-75K]	-1.327e-01	9.640e-01	-0.138	0.89056
## household.income[5K-12K]	1.805e+00	1.096e+00	1.646	0.09997
## household.income[75K-100K]	-6.039e-01	9.760e-01	-0.619	0.53617
## high.educBachelor	1.139e-01	8.409e-01	0.135	0.89230
## high.educHS Diploma/GED	-1.206e+00	8.675e-01	-1.391	0.16451
## high.educPost Graduate Degree	-1.206e-01	8.515e-01	-0.142	0.88738
## high.educSome College	1.940e-01	8.032e-01	0.242	0.80917
## hormone_scr_ert_mean:putamen_rvsn_ant_z	-9.658e-03	4.672e-03	-2.067	0.03884

```
##
## (Intercept)
## PDS_score **
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
```

```

## putamen_rvs_n_ant_z
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed *
## race.ethnicity.5levelOther
## race.ethnicity.5levelWhite .
## demo_race_hispanic1
## interview_age
## MRI_minus_hormone_date_time
## bmi
## household.income[>=200K]
## household.income[100K-200K]
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K]
## household.income[5K-12K] .
## household.income[75K-100K]
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:putamen_rvs_n_ant_z *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0274
## lmer.REML = 10499 Scale est. = 16.221 n = 1724

```

#### 4.17 Model: CBCL internalizing factor ~ Testosterone x Accumbens activity (feedback stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * accumbens_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error
## (Intercept)    4.823e+00  2.536e+00
## PDS_score       6.132e-01  2.035e-01
## hormone_sal_end_min_since_midnight -9.444e-04  7.760e-04

```

```

## hormone_scr_ert_mean -3.432e-03 8.078e-03
## accumbens_posvsneg_feedback_z -9.782e-02 4.356e-01
## race.ethnicity.5levelBlack -1.479e-01 9.867e-01
## race.ethnicity.5levelMixed 1.849e+00 9.419e-01
## race.ethnicity.5levelOther 1.714e+00 1.063e+00
## race.ethnicity.5levelWhite 1.441e+00 8.871e-01
## demo_race_hispanic1 1.031e-01 3.896e-01
## interview_age -1.028e-02 1.745e-02
## MRI_minus_hormone_date_time -1.059e-05 1.617e-05
## bmi 6.704e-02 3.458e-02
## household.income[>=200K] -2.422e+00 9.548e-01
## household.income[100K-200K] -1.829e+00 8.967e-01
## household.income[12K-16K] 1.957e-01 1.165e+00
## household.income[16K-25K] -7.280e-03 1.001e+00
## household.income[25K-35K] -1.195e+00 9.465e-01
## household.income[35K-50K] -2.774e-01 9.048e-01
## household.income[50K-75K] -1.104e+00 9.061e-01
## household.income[5K-12K] -2.401e-02 1.050e+00
## household.income[75K-100K] -1.359e+00 9.077e-01
## high.educBachelor -2.335e-01 8.512e-01
## high.educHS Diploma/GED -1.015e+00 8.659e-01
## high.educPost Graduate Degree 6.910e-02 8.597e-01
## high.educSome College -3.016e-02 8.040e-01
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z 3.086e-03 1.085e-02
## t value Pr(>|t|)
## (Intercept) 1.901 0.05743 .
## PDS_score 3.014 0.00262 **
## hormone_sal_end_min_since_midnight -1.217 0.22376
## hormone_scr_ert_mean -0.425 0.67098
## accumbens_posvsneg_feedback_z -0.225 0.82234
## race.ethnicity.5levelBlack -0.150 0.88083
## race.ethnicity.5levelMixed 1.963 0.04982 *
## race.ethnicity.5levelOther 1.612 0.10723
## race.ethnicity.5levelWhite 1.624 0.10451
## demo_race_hispanic1 0.265 0.79124
## interview_age -0.589 0.55575
## MRI_minus_hormone_date_time -0.655 0.51268
## bmi 1.939 0.05270 .
## household.income[>=200K] -2.536 0.01130 *
## household.income[100K-200K] -2.040 0.04152 *
## household.income[12K-16K] 0.168 0.86663
## household.income[16K-25K] -0.007 0.99420
## household.income[25K-35K] -1.263 0.20686
## household.income[35K-50K] -0.307 0.75922
## household.income[50K-75K] -1.218 0.22328
## household.income[5K-12K] -0.023 0.98176
## household.income[75K-100K] -1.497 0.13446
## high.educBachelor -0.274 0.78384
## high.educHS Diploma/GED -1.172 0.24117
## high.educPost Graduate Degree 0.080 0.93594
## high.educSome College -0.038 0.97009
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z 0.284 0.77611
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```



```
##
##
## R-sq.(adj) = 0.0257
## lmer.REML = 10513 Scale est. = 10.915 n = 1717
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##     hormone_scr_ert_mean * accumbens_posvsneg_feedback_z + race.ethnicity.5level +
##     demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##     bmi + household.income + high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error
## (Intercept)	1.606e+00	2.508e+00
## PDS_score	6.475e-01	2.570e-01
## hormone_sal_end_min_since_midnight	4.895e-04	7.480e-04
## hormone_scr_ert_mean	-5.811e-04	5.359e-03
## accumbens_posvsneg_feedback_z	2.132e-01	3.396e-01
## race.ethnicity.5levelBlack	2.185e-01	9.558e-01
## race.ethnicity.5levelMixed	2.399e+00	9.180e-01
## race.ethnicity.5levelOther	1.960e+00	1.070e+00
## race.ethnicity.5levelWhite	1.737e+00	8.611e-01
## demo_race_hispanic1	-4.650e-01	3.716e-01
## interview_age	-3.928e-03	1.659e-02
## MRI_minus_hormone_date_time	-1.102e-05	1.420e-05
## bmi	4.791e-02	3.629e-02
## household.income[>=200K]	-1.400e+00	1.003e+00
## household.income[100K-200K]	-1.028e+00	9.479e-01
## household.income[12K-16K]	-4.189e-01	1.227e+00
## household.income[16K-25K]	1.295e+00	1.031e+00
## household.income[25K-35K]	2.207e-01	1.005e+00
## household.income[35K-50K]	4.810e-01	9.722e-01
## household.income[50K-75K]	-2.432e-01	9.471e-01
## household.income[5K-12K]	1.073e+00	1.083e+00
## household.income[75K-100K]	-6.972e-01	9.594e-01
## high.educBachelor	6.823e-01	8.386e-01
## high.educHS Diploma/GED	-6.409e-01	8.608e-01
## high.educPost Graduate Degree	4.332e-01	8.501e-01
## high.educSome College	6.485e-01	7.997e-01
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z	3.329e-03	9.145e-03

```
##
## t value Pr(>|t|)
## (Intercept) 0.640 0.52209
## PDS_score 2.519 0.01186 *
## hormone_sal_end_min_since_midnight 0.654 0.51296
```

```

## hormone_scr_ert_mean -0.108 0.91366
## accumbens_posvsneg_feedback_z 0.628 0.53032
## race.ethnicity.5levelBlack 0.229 0.81918
## race.ethnicity.5levelMixed 2.613 0.00905 **
## race.ethnicity.5levelOther 1.831 0.06720 .
## race.ethnicity.5levelWhite 2.017 0.04386 *
## demo_race_hispanic1 -1.251 0.21095
## interview_age -0.237 0.81285
## MRI_minus_hormone_date_time -0.776 0.43758
## bmi 1.320 0.18699
## household.income[>=200K] -1.397 0.16265
## household.income[100K-200K] -1.085 0.27813
## household.income[12K-16K] -0.341 0.73293
## household.income[16K-25K] 1.256 0.20916
## household.income[25K-35K] 0.220 0.82618
## household.income[35K-50K] 0.495 0.62087
## household.income[50K-75K] -0.257 0.79734
## household.income[5K-12K] 0.990 0.32217
## household.income[75K-100K] -0.727 0.46752
## high.educBachelor 0.814 0.41597
## high.educHS Diploma/GED -0.745 0.45665
## high.educPost Graduate Degree 0.510 0.61044
## high.educSome College 0.811 0.41752
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z 0.364 0.71587
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.023
## lmer.REML = 10446 Scale est. = 17.086 n = 1720

```

#### 4.18 Model: CBCL internalizing factor ~ Testosterone x Caudate activity (Feed-back stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * caudate_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value
## (Intercept)  5.005e+00  2.550e+00  1.963
## PDS_score    6.332e-01  2.036e-01  3.111

```

## hormone_sal_end_min_since_midnight	-9.975e-04	7.767e-04	-1.284
## hormone_scr_ert_mean	-4.577e-03	8.071e-03	-0.567
## caudate_posvsneg_feedback_z	-3.221e-01	3.279e-01	-0.982
## race.ethnicity.5levelBlack	-1.162e-01	9.872e-01	-0.118
## race.ethnicity.5levelMixed	1.819e+00	9.415e-01	1.932
## race.ethnicity.5levelOther	1.700e+00	1.062e+00	1.600
## race.ethnicity.5levelWhite	1.401e+00	8.863e-01	1.580
## demo_race_hispanic1	1.311e-01	3.917e-01	0.335
## interview_age	-1.177e-02	1.752e-02	-0.672
## MRI_minus_hormone_date_time	-9.855e-06	1.610e-05	-0.612
## bmi	6.844e-02	3.458e-02	1.979
## household.income[>=200K]	-2.302e+00	9.543e-01	-2.412
## household.income[100K-200K]	-1.798e+00	8.976e-01	-2.003
## household.income[12K-16K]	2.103e-01	1.166e+00	0.180
## household.income[16K-25K]	2.413e-02	1.005e+00	0.024
## household.income[25K-35K]	-1.206e+00	9.489e-01	-1.271
## household.income[35K-50K]	-2.525e-01	9.056e-01	-0.279
## household.income[50K-75K]	-1.049e+00	9.084e-01	-1.154
## household.income[5K-12K]	-6.013e-02	1.057e+00	-0.057
## household.income[75K-100K]	-1.350e+00	9.087e-01	-1.486
## high.educBachelor	-2.292e-01	8.497e-01	-0.270
## high.educHS Diploma/GED	-1.096e+00	8.682e-01	-1.262
## high.educPost Graduate Degree	6.331e-02	8.583e-01	0.074
## high.educSome College	-4.378e-02	8.037e-01	-0.054
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z	3.830e-03	8.402e-03	0.456
##	Pr(> t )		
## (Intercept)	0.0498	*	
## PDS_score	0.0019	**	
## hormone_sal_end_min_since_midnight	0.1992		
## hormone_scr_ert_mean	0.5707		
## caudate_posvsneg_feedback_z	0.3261		
## race.ethnicity.5levelBlack	0.9063		
## race.ethnicity.5levelMixed	0.0536	.	
## race.ethnicity.5levelOther	0.1097		
## race.ethnicity.5levelWhite	0.1142		
## demo_race_hispanic1	0.7378		
## interview_age	0.5018		
## MRI_minus_hormone_date_time	0.5404		
## bmi	0.0479	*	
## household.income[>=200K]	0.0160	*	
## household.income[100K-200K]	0.0453	*	
## household.income[12K-16K]	0.8569		
## household.income[16K-25K]	0.9809		
## household.income[25K-35K]	0.2038		
## household.income[35K-50K]	0.7804		
## household.income[50K-75K]	0.2485		
## household.income[5K-12K]	0.9546		
## household.income[75K-100K]	0.1375		
## high.educBachelor	0.7874		
## high.educHS Diploma/GED	0.2070		
## high.educPost Graduate Degree	0.9412		
## high.educSome College	0.9566		
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z	0.6485		
## ---			

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0268
## lmer.REML = 10483  Scale est. = 10.963    n = 1712
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * caudate_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value
## (Intercept)	2.899e+00	2.543e+00	1.140
## PDS_score	7.290e-01	2.601e-01	2.802
## hormone_sal_end_min_since_midnight	5.462e-04	7.566e-04	0.722
## hormone_scr_ert_mean	1.479e-04	5.373e-03	0.028
## caudate_posvsneg_feedback_z	3.874e-02	2.473e-01	0.157
## race.ethnicity.5levelBlack	3.216e-02	9.737e-01	0.033
## race.ethnicity.5levelMixed	2.285e+00	9.374e-01	2.438
## race.ethnicity.5levelOther	1.823e+00	1.088e+00	1.676
## race.ethnicity.5levelWhite	1.702e+00	8.809e-01	1.933
## demo_race_hispanic1	-4.385e-01	3.733e-01	-1.175
## interview_age	-1.363e-02	1.671e-02	-0.816
## MRI_minus_hormone_date_time	-1.465e-05	1.440e-05	-1.018
## bmi	5.249e-02	3.673e-02	1.429
## household.income[>=200K]	-1.213e+00	1.019e+00	-1.189
## household.income[100K-200K]	-8.247e-01	9.641e-01	-0.855
## household.income[12K-16K]	-4.465e-01	1.254e+00	-0.356
## household.income[16K-25K]	1.409e+00	1.046e+00	1.347
## household.income[25K-35K]	1.132e-01	1.023e+00	0.111
## household.income[35K-50K]	7.100e-01	9.884e-01	0.718
## household.income[50K-75K]	-4.810e-02	9.630e-01	-0.050
## household.income[5K-12K]	1.833e+00	1.097e+00	1.670
## household.income[75K-100K]	-5.539e-01	9.760e-01	-0.568
## high.educBachelor	1.779e-01	8.458e-01	0.210
## high.educHS Diploma/GED	-1.139e+00	8.699e-01	-1.310
## high.educPost Graduate Degree	-9.244e-02	8.572e-01	-0.108
## high.educSome College	2.596e-01	8.063e-01	0.322
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z	2.744e-03	6.194e-03	0.443

```
##
## Pr(>|t|)
## (Intercept)
## PDS_score
```

```

## hormone_sal_end_min_since_midnight          0.47043
## hormone_scr_ert_mean                        0.97804
## caudate_posvsneg_feedback_z                 0.87555
## race.ethnicity.5levelBlack                  0.97366
## race.ethnicity.5levelMixed                  0.01488 *
## race.ethnicity.5levelOther                  0.09396 .
## race.ethnicity.5levelWhite                  0.05346 .
## demo_race_hispanic1                        0.24027
## interview_age                              0.41471
## MRI_minus_hormone_date_time                 0.30896
## bmi                                          0.15313
## household.income[>=200K]                   0.23441
## household.income[100K-200K]                 0.39244
## household.income[12K-16K]                  0.72189
## household.income[16K-25K]                  0.17812
## household.income[25K-35K]                  0.91189
## household.income[35K-50K]                  0.47263
## household.income[50K-75K]                  0.96017
## household.income[5K-12K]                   0.09505 .
## household.income[75K-100K]                 0.57044
## high.educBachelor                          0.83348
## high.educHS Diploma/GED                   0.19051
## high.educPost Graduate Degree               0.91414
## high.educSome College                      0.74755
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z 0.65782
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0256
## lmer.REML = 10491  Scale est. = 16.782    n = 1722

```

#### 4.19 Model: CBCL internalizing factor ~ Testosterone x Putamen activity (Feed-back stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * putamen_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##                                     Estimate Std. Error t value
## (Intercept)                     4.749e+00  2.543e+00   1.868

```

## PDS_score	6.180e-01	2.034e-01	3.038
## hormone_sal_end_min_since_midnight	-1.045e-03	7.784e-04	-1.343
## hormone_scr_ert_mean	-3.965e-03	8.097e-03	-0.490
## putamen_posvsneg_feedback_z	-1.922e-01	3.620e-01	-0.531
## race.ethnicity.5levelBlack	-3.292e-02	9.888e-01	-0.033
## race.ethnicity.5levelMixed	1.865e+00	9.411e-01	1.982
## race.ethnicity.5levelOther	1.778e+00	1.064e+00	1.671
## race.ethnicity.5levelWhite	1.436e+00	8.863e-01	1.620
## demo_race_hispanic1	1.464e-01	3.913e-01	0.374
## interview_age	-1.028e-02	1.748e-02	-0.588
## MRI_minus_hormone_date_time	-7.430e-06	1.625e-05	-0.457
## bmi	6.842e-02	3.462e-02	1.976
## household.income[>=200K]	-2.290e+00	9.545e-01	-2.399
## household.income[100K-200K]	-1.782e+00	8.982e-01	-1.984
## household.income[12K-16K]	2.160e-01	1.166e+00	0.185
## household.income[16K-25K]	6.140e-03	1.002e+00	0.006
## household.income[25K-35K]	-1.150e+00	9.485e-01	-1.213
## household.income[35K-50K]	-2.411e-01	9.055e-01	-0.266
## household.income[50K-75K]	-1.011e+00	9.097e-01	-1.111
## household.income[5K-12K]	-1.029e-01	1.059e+00	-0.097
## household.income[75K-100K]	-1.328e+00	9.091e-01	-1.461
## high.educBachelor	-1.843e-01	8.506e-01	-0.217
## high.educHS Diploma/GED	-1.001e+00	8.697e-01	-1.151
## high.educPost Graduate Degree	1.134e-01	8.588e-01	0.132
## high.educSome College	1.176e-02	8.041e-01	0.015
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z	6.324e-04	9.209e-03	0.069
##	Pr(> t )		
## (Intercept)	0.06197	.	
## PDS_score	0.00242	**	
## hormone_sal_end_min_since_midnight	0.17940		
## hormone_scr_ert_mean	0.62438		
## putamen_posvsneg_feedback_z	0.59549		
## race.ethnicity.5levelBlack	0.97344		
## race.ethnicity.5levelMixed	0.04769	*	
## race.ethnicity.5levelOther	0.09491	.	
## race.ethnicity.5levelWhite	0.10533		
## demo_race_hispanic1	0.70837		
## interview_age	0.55667		
## MRI_minus_hormone_date_time	0.64762		
## bmi	0.04828	*	
## household.income[>=200K]	0.01655	*	
## household.income[100K-200K]	0.04746	*	
## household.income[12K-16K]	0.85299		
## household.income[16K-25K]	0.99511		
## household.income[25K-35K]	0.22548		
## household.income[35K-50K]	0.79004		
## household.income[50K-75K]	0.26666		
## household.income[5K-12K]	0.92260		
## household.income[75K-100K]	0.14430		
## high.educBachelor	0.82845		
## high.educHS Diploma/GED	0.24998		
## high.educPost Graduate Degree	0.89493		
## high.educSome College	0.98833		
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z	0.94526		

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0261
## lmer.REML = 10476  Scale est. = 10.959    n = 1711
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * putamen_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value
## (Intercept)	2.331e+00	2.537e+00	0.919
## PDS_score	7.058e-01	2.598e-01	2.716
## hormone_sal_end_min_since_midnight	4.408e-04	7.566e-04	0.583
## hormone_scr_ert_mean	-3.399e-04	5.474e-03	-0.062
## putamen_posvsneg_feedback_z	3.281e-01	3.006e-01	1.091
## race.ethnicity.5levelBlack	8.006e-02	9.663e-01	0.083
## race.ethnicity.5levelMixed	2.352e+00	9.288e-01	2.532
## race.ethnicity.5levelOther	1.887e+00	1.082e+00	1.745
## race.ethnicity.5levelWhite	1.779e+00	8.722e-01	2.039
## demo_race_hispanic1	-5.044e-01	3.759e-01	-1.342
## interview_age	-9.328e-03	1.676e-02	-0.557
## MRI_minus_hormone_date_time	-1.168e-05	1.443e-05	-0.809
## bmi	5.793e-02	3.679e-02	1.575
## household.income[>=200K]	-1.327e+00	1.012e+00	-1.311
## household.income[100K-200K]	-9.225e-01	9.582e-01	-0.963
## household.income[12K-16K]	-3.255e-01	1.245e+00	-0.261
## household.income[16K-25K]	1.307e+00	1.039e+00	1.258
## household.income[25K-35K]	2.914e-01	1.017e+00	0.287
## household.income[35K-50K]	5.776e-01	9.839e-01	0.587
## household.income[50K-75K]	-1.474e-01	9.576e-01	-0.154
## household.income[5K-12K]	1.720e+00	1.089e+00	1.580
## household.income[75K-100K]	-6.469e-01	9.704e-01	-0.667
## high.educBachelor	2.924e-01	8.339e-01	0.351
## high.educHS Diploma/GED	-1.059e+00	8.612e-01	-1.230
## high.educPost Graduate Degree	2.723e-02	8.446e-01	0.032
## high.educSome College	2.948e-01	7.951e-01	0.371
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z	-5.730e-03	8.088e-03	-0.709
## Pr(> t )			
## (Intercept)	0.35830		

```

## PDS_score 0.00667 **
## hormone_sal_end_min_since_midnight 0.56024
## hormone_scr_ert_mean 0.95050
## putamen_posvsneg_feedback_z 0.27521
## race.ethnicity.5levelBlack 0.93398
## race.ethnicity.5levelMixed 0.01142 *
## race.ethnicity.5levelOther 0.08122 .
## race.ethnicity.5levelWhite 0.04159 *
## demo_race_hispanic1 0.17988
## interview_age 0.57791
## MRI_minus_hormone_date_time 0.41842
## bmi 0.11549
## household.income[>=200K] 0.18988
## household.income[100K-200K] 0.33585
## household.income[12K-16K] 0.79375
## household.income[16K-25K] 0.20850
## household.income[25K-35K] 0.77450
## household.income[35K-50K] 0.55724
## household.income[50K-75K] 0.87769
## household.income[5K-12K] 0.11435
## household.income[75K-100K] 0.50506
## high.educBachelor 0.72585
## high.educHS Diploma/GED 0.21900
## high.educPost Graduate Degree 0.97428
## high.educSome College 0.71087
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z 0.47873
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0247
## lmer.REML = 10552 Scale est. = 16.944 n = 1730

```

## 4.20 Model: CBCL internalizing factor ~ Testosterone x Lateral OFC activity (anticipation stage) + PDS

### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * lOFC_rvsnt_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
## Estimate Std. Error t value Pr(>|t|)

```



```

## (Intercept) 4.969e+00 2.556e+00 1.944 0.05206 .
## PDS_score 6.129e-01 2.044e-01 2.999 0.00275 **
## hormone_sal_end_min_since_midnight -8.807e-04 7.790e-04 -1.131 0.25843
## hormone_scr_ert_mean -4.087e-03 8.122e-03 -0.503 0.61492
## lOFC_rvs_n_ant_z 1.667e-01 4.886e-01 0.341 0.73300
## race.ethnicity.5levelBlack -2.471e-01 9.993e-01 -0.247 0.80472
## race.ethnicity.5levelMixed 1.750e+00 9.566e-01 1.829 0.06757 .
## race.ethnicity.5levelOther 1.623e+00 1.079e+00 1.504 0.13287
## race.ethnicity.5levelWhite 1.330e+00 9.000e-01 1.478 0.13960
## demo_race_hispanic1 8.829e-02 3.906e-01 0.226 0.82120
## interview_age -1.193e-02 1.761e-02 -0.677 0.49821
## MRI_minus_hormone_date_time -9.169e-06 1.622e-05 -0.565 0.57205
## bmi 6.980e-02 3.481e-02 2.005 0.04510 *
## household.income[>=200K] -2.332e+00 9.562e-01 -2.439 0.01484 *
## household.income[100K-200K] -1.790e+00 9.001e-01 -1.989 0.04691 *
## household.income[12K-16K] 1.713e-01 1.167e+00 0.147 0.88335
## household.income[16K-25K] 3.211e-02 1.004e+00 0.032 0.97450
## household.income[25K-35K] -1.140e+00 9.527e-01 -1.197 0.23147
## household.income[35K-50K] -1.862e-01 9.104e-01 -0.205 0.83796
## household.income[50K-75K] -1.029e+00 9.089e-01 -1.133 0.25752
## household.income[5K-12K] 2.007e-02 1.056e+00 0.019 0.98484
## household.income[75K-100K] -1.322e+00 9.107e-01 -1.452 0.14680
## high.educBachelor -1.998e-01 8.508e-01 -0.235 0.81436
## high.educHS Diploma/GED -1.020e+00 8.672e-01 -1.176 0.23985
## high.educPost Graduate Degree 9.708e-02 8.591e-01 0.113 0.91004
## high.educSome College 3.962e-02 8.046e-01 0.049 0.96073
## hormone_scr_ert_mean:lOFC_rvs_n_ant_z 7.246e-04 1.268e-02 0.057 0.95443
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0264
## lmer.REML = 10473 Scale est. = 11.449 n = 1709

```

## Male participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

```

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * lOFC_rvs_n_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
## Estimate Std. Error t value Pr(>|t|)
## (Intercept) 1.010e+00 2.516e+00 0.401 0.6882
## PDS_score 6.066e-01 2.594e-01 2.339 0.0195 *

```

```

## hormone_sal_end_min_since_midnight    4.395e-04  7.436e-04  0.591  0.5546
## hormone_scr_ert_mean                  -4.458e-03  5.850e-03 -0.762  0.4462
## lOFC_rvs_n_ant_z                      4.038e-01  3.476e-01  1.162  0.2455
## race.ethnicity.5levelBlack             1.208e-01  9.529e-01  0.127  0.8991
## race.ethnicity.5levelMixed             2.259e+00  9.158e-01  2.467  0.0137 *
## race.ethnicity.5levelOther             1.836e+00  1.066e+00  1.722  0.0853 .
## race.ethnicity.5levelWhite             1.632e+00  8.585e-01  1.901  0.0574 .
## demo_race_hispanic1                   -5.482e-01  3.695e-01 -1.484  0.1381
## interview_age                         2.934e-03  1.659e-02  0.177  0.8597
## MRI_minus_hormone_date_time            -7.549e-06  1.412e-05 -0.535  0.5929
## bmi                                   4.577e-02  3.643e-02  1.256  0.2091
## household.income[>=200K]              -1.529e+00  1.007e+00 -1.518  0.1293
## household.income[100K-200K]            -1.118e+00  9.553e-01 -1.171  0.2420
## household.income[12K-16K]              -5.075e-01  1.231e+00 -0.412  0.6803
## household.income[16K-25K]              1.090e+00  1.040e+00  1.048  0.2947
## household.income[25K-35K]              5.773e-02  1.011e+00  0.057  0.9545
## household.income[35K-50K]              3.896e-01  9.781e-01  0.398  0.6905
## household.income[50K-75K]              -4.049e-01  9.546e-01 -0.424  0.6715
## household.income[5K-12K]               1.197e+00  1.095e+00  1.093  0.2745
## household.income[75K-100K]             -7.771e-01  9.668e-01 -0.804  0.4216
## high.educBachelor                     9.470e-01  8.411e-01  1.126  0.2604
## high.educHS Diploma/GED               -4.670e-01  8.655e-01 -0.540  0.5895
## high.educPost Graduate Degree           6.553e-01  8.512e-01  0.770  0.4415
## high.educSome College                   9.732e-01  8.039e-01  1.211  0.2262
## hormone_scr_ert_mean:lOFC_rvs_n_ant_z -1.506e-02  9.311e-03 -1.617  0.1061
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0224
## lmer.REML = 10442  Scale est. = 16.111    n = 1721

```

#### 4.21 Model: CBCL internalizing factor ~ Testosterone x Medial OFC activity (anticipation stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * mOFC_rvs_n_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##                               Estimate Std. Error t value Pr(>|t|)
## (Intercept)                 5.006e+00  2.553e+00  1.961  0.05008 .

```

```

## PDS_score 6.365e-01 2.044e-01 3.113 0.00188 **
## hormone_sal_end_min_since_midnight -9.251e-04 7.767e-04 -1.191 0.23378
## hormone_scr_ert_mean -4.706e-03 8.121e-03 -0.579 0.56237
## mOFC_rvs_n_ant_z 3.729e-02 4.173e-01 0.089 0.92881
## race.ethnicity.5levelBlack -2.490e-01 1.000e+00 -0.249 0.80341
## race.ethnicity.5levelMixed 1.778e+00 9.571e-01 1.858 0.06338 .
## race.ethnicity.5levelOther 1.615e+00 1.080e+00 1.495 0.13502
## race.ethnicity.5levelWhite 1.364e+00 9.007e-01 1.515 0.13008
## demo_race_hispanic1 9.395e-02 3.909e-01 0.240 0.81008
## interview_age -1.056e-02 1.756e-02 -0.601 0.54772
## MRI_minus_hormone_date_time -9.195e-06 1.622e-05 -0.567 0.57085
## bmi 6.396e-02 3.468e-02 1.844 0.06533 .
## household.income[>=200K] -2.357e+00 9.579e-01 -2.460 0.01399 *
## household.income[100K-200K] -1.832e+00 9.010e-01 -2.034 0.04214 *
## household.income[12K-16K] 1.672e-01 1.169e+00 0.143 0.88626
## household.income[16K-25K] 6.040e-03 1.006e+00 0.006 0.99521
## household.income[25K-35K] -1.118e+00 9.541e-01 -1.172 0.24136
## household.income[35K-50K] -2.241e-01 9.111e-01 -0.246 0.80574
## household.income[50K-75K] -1.052e+00 9.097e-01 -1.157 0.24753
## household.income[5K-12K] 1.374e-02 1.057e+00 0.013 0.98963
## household.income[75K-100K] -1.344e+00 9.120e-01 -1.474 0.14060
## high.educBachelor -2.516e-01 8.583e-01 -0.293 0.76947
## high.educHS Diploma/GED -1.063e+00 8.727e-01 -1.218 0.22358
## high.educPost Graduate Degree 3.145e-02 8.667e-01 0.036 0.97106
## high.educSome College -4.493e-02 8.119e-01 -0.055 0.95587
## hormone_scr_ert_mean:mOFC_rvs_n_ant_z 1.210e-03 1.061e-02 0.114 0.90921
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.026
## lmer.REML = 10468 Scale est. = 10.99 n = 1708

```

## Male participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

```

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * mOFC_rvs_n_ant_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  1.040e+00  2.513e+00   0.414   0.6789
## PDS_score    6.052e-01  2.599e-01   2.329   0.0200 *
## hormone_sal_end_min_since_midnight 3.845e-04  7.519e-04   0.511   0.6092

```

```

## hormone_scr_ert_mean -3.010e-03 5.819e-03 -0.517 0.6051
## mOFC_rvs_n_ant_z -5.063e-02 3.151e-01 -0.161 0.8724
## race.ethnicity.5levelBlack 1.332e-01 9.588e-01 0.139 0.8896
## race.ethnicity.5levelMixed 2.225e+00 9.203e-01 2.418 0.0157 *
## race.ethnicity.5levelOther 1.793e+00 1.071e+00 1.674 0.0943 .
## race.ethnicity.5levelWhite 1.673e+00 8.632e-01 1.938 0.0528 .
## demo_race_hispanic1 -4.718e-01 3.719e-01 -1.269 0.2047
## interview_age 8.434e-04 1.667e-02 0.051 0.9596
## MRI_minus_hormone_date_time -8.007e-06 1.460e-05 -0.549 0.5834
## bmi 5.535e-02 3.654e-02 1.515 0.1300
## household.income[>=200K] -1.657e+00 1.005e+00 -1.649 0.0994 .
## household.income[100K-200K] -1.269e+00 9.510e-01 -1.335 0.1822
## household.income[12K-16K] -5.615e-01 1.230e+00 -0.456 0.6482
## household.income[16K-25K] 9.764e-01 1.035e+00 0.943 0.3458
## household.income[25K-35K] -8.787e-03 1.011e+00 -0.009 0.9931
## household.income[35K-50K] 2.626e-01 9.743e-01 0.270 0.7875
## household.income[50K-75K] -4.663e-01 9.511e-01 -0.490 0.6240
## household.income[5K-12K] 1.288e+00 1.100e+00 1.171 0.2419
## household.income[75K-100K] -9.677e-01 9.647e-01 -1.003 0.3159
## high.educBachelor 1.095e+00 8.412e-01 1.302 0.1930
## high.educHS Diploma/GED -3.836e-01 8.673e-01 -0.442 0.6584
## high.educPost Graduate Degree 8.259e-01 8.517e-01 0.970 0.3324
## high.educSome College 1.072e+00 8.046e-01 1.332 0.1831
## hormone_scr_ert_mean:mOFC_rvs_n_ant_z 5.637e-03 7.919e-03 0.712 0.4767
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0225
## lmer.REML = 10415 Scale est. = 16.146 n = 1714

```

## 4.22 Model: CBCL internalizing factor ~ Testosterone x Lateral OFC activity (feedback stage) + PDS

### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * lOFC_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value
## (Intercept)    4.513e+00  2.540e+00   1.777
## PDS_score       6.399e-01  2.031e-01   3.150

```

## hormone_sal_end_min_since_midnight	-8.113e-04	7.747e-04	-1.047
## hormone_scr_ert_mean	-5.338e-03	8.057e-03	-0.663
## l0FC_posvsneg_feedback_z	-1.231e-01	5.975e-01	-0.206
## race.ethnicity.5levelBlack	-1.009e-01	9.856e-01	-0.102
## race.ethnicity.5levelMixed	1.818e+00	9.407e-01	1.933
## race.ethnicity.5levelOther	1.980e+00	1.070e+00	1.851
## race.ethnicity.5levelWhite	1.445e+00	8.848e-01	1.633
## demo_race_hispanic1	-2.219e-02	3.893e-01	-0.057
## interview_age	-1.067e-02	1.746e-02	-0.611
## MRI_minus_hormone_date_time	-9.423e-06	1.612e-05	-0.585
## bmi	6.748e-02	3.450e-02	1.956
## household.income[>=200K]	-2.015e+00	9.689e-01	-2.080
## household.income[100K-200K]	-1.474e+00	9.132e-01	-1.614
## household.income[12K-16K]	4.982e-01	1.178e+00	0.423
## household.income[16K-25K]	3.437e-01	1.019e+00	0.337
## household.income[25K-35K]	-7.925e-01	9.669e-01	-0.820
## household.income[35K-50K]	5.397e-02	9.219e-01	0.059
## household.income[50K-75K]	-7.198e-01	9.239e-01	-0.779
## household.income[5K-12K]	3.629e-01	1.072e+00	0.339
## household.income[75K-100K]	-9.882e-01	9.250e-01	-1.068
## high.educBachelor	-3.289e-01	8.524e-01	-0.386
## high.educHS Diploma/GED	-1.282e+00	8.715e-01	-1.471
## high.educPost Graduate Degree	-8.961e-03	8.595e-01	-0.010
## high.educSome College	-6.675e-02	8.059e-01	-0.083
## hormone_scr_ert_mean:l0FC_posvsneg_feedback_z	6.665e-04	1.623e-02	0.041
##	Pr(> t )		
## (Intercept)	0.07582	.	
## PDS_score	0.00166	**	
## hormone_sal_end_min_since_midnight	0.29515		
## hormone_scr_ert_mean	0.50771		
## l0FC_posvsneg_feedback_z	0.83675		
## race.ethnicity.5levelBlack	0.91844		
## race.ethnicity.5levelMixed	0.05341	.	
## race.ethnicity.5levelOther	0.06438	.	
## race.ethnicity.5levelWhite	0.10262		
## demo_race_hispanic1	0.95454		
## interview_age	0.54130		
## MRI_minus_hormone_date_time	0.55890		
## bmi	0.05063	.	
## household.income[>=200K]	0.03766	*	
## household.income[100K-200K]	0.10663		
## household.income[12K-16K]	0.67251		
## household.income[16K-25K]	0.73588		
## household.income[25K-35K]	0.41256		
## household.income[35K-50K]	0.95333		
## household.income[50K-75K]	0.43602		
## household.income[5K-12K]	0.73493		
## household.income[75K-100K]	0.28551		
## high.educBachelor	0.69967		
## high.educHS Diploma/GED	0.14135		
## high.educPost Graduate Degree	0.99168		
## high.educSome College	0.93399		
## hormone_scr_ert_mean:l0FC_posvsneg_feedback_z	0.96724		
## ---			

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0261
## lmer.REML = 10460  Scale est. = 10.983    n = 1709
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * l0FC_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value
## (Intercept)	1.443e+00	2.504e+00	0.576
## PDS_score	6.427e-01	2.574e-01	2.497
## hormone_sal_end_min_since_midnight	4.374e-04	7.466e-04	0.586
## hormone_scr_ert_mean	-1.758e-03	5.699e-03	-0.309
## l0FC_posvsneg_feedback_z	1.930e-02	3.224e-01	0.060
## race.ethnicity.5levelBlack	1.695e-01	9.565e-01	0.177
## race.ethnicity.5levelMixed	2.385e+00	9.183e-01	2.597
## race.ethnicity.5levelOther	1.827e+00	1.073e+00	1.703
## race.ethnicity.5levelWhite	1.703e+00	8.619e-01	1.976
## demo_race_hispanic1	-5.217e-01	3.716e-01	-1.404
## interview_age	-5.012e-03	1.654e-02	-0.303
## MRI_minus_hormone_date_time	-8.159e-06	1.419e-05	-0.575
## bmi	6.105e-02	3.648e-02	1.674
## household.income[>=200K]	-1.532e+00	1.001e+00	-1.529
## household.income[100K-200K]	-1.158e+00	9.489e-01	-1.221
## household.income[12K-16K]	-5.372e-01	1.229e+00	-0.437
## household.income[16K-25K]	1.191e+00	1.039e+00	1.147
## household.income[25K-35K]	1.386e-01	1.009e+00	0.137
## household.income[35K-50K]	3.687e-01	9.731e-01	0.379
## household.income[50K-75K]	-3.209e-01	9.483e-01	-0.338
## household.income[5K-12K]	1.100e+00	1.082e+00	1.017
## household.income[75K-100K]	-8.175e-01	9.607e-01	-0.851
## high.educBachelor	1.032e+00	8.339e-01	1.237
## high.educHS Diploma/GED	-3.646e-01	8.609e-01	-0.424
## high.educPost Graduate Degree	7.438e-01	8.451e-01	0.880
## high.educSome College	9.675e-01	7.972e-01	1.214
## hormone_scr_ert_mean:l0FC_posvsneg_feedback_z	2.577e-03	7.176e-03	0.359

```
## Pr(>|t|)
## (Intercept)
## PDS_score
0.56454
0.01260 *
```

```

## hormone_sal_end_min_since_midnight      0.55807
## hormone_scr_ert_mean                    0.75772
## lOFC_posvsneg_feedback_z                0.95226
## race.ethnicity.5levelBlack              0.85936
## race.ethnicity.5levelMixed              0.00948 **
## race.ethnicity.5levelOther              0.08882 .
## race.ethnicity.5levelWhite              0.04837 *
## demo_race_hispanic1                    0.16050
## interview_age                          0.76187
## MRI_minus_hormone_date_time            0.56527
## bmi                                    0.09436 .
## household.income[>=200K]                0.12637
## household.income[100K-200K]            0.22239
## household.income[12K-16K]              0.66220
## household.income[16K-25K]              0.25165
## household.income[25K-35K]              0.89069
## household.income[35K-50K]              0.70479
## household.income[50K-75K]              0.73510
## household.income[5K-12K]               0.30949
## household.income[75K-100K]             0.39495
## high.educBachelor                      0.21614
## high.educHS Diploma/GED               0.67196
## high.educPost Graduate Degree          0.37893
## high.educSome College                  0.22508
## hormone_scr_ert_mean:lOFC_posvsneg_feedback_z 0.71951
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.022
## lmer.REML = 10498  Scale est. = 16.125    n = 1728

```

#### 4.23 Model: CBCL internalizing factor ~ Testosterone x Medial OFC activity (feedback stage) + PDS

##### Female participants

```

## Warning: Some predictor variables are on very different scales: consider
## rescaling

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * mOFC_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
##                                Estimate Std. Error t value
## (Intercept)                  5.095e+00  2.539e+00   2.007

```

## PDS_score	6.597e-01	2.036e-01	3.240
## hormone_sal_end_min_since_midnight	-9.882e-04	7.752e-04	-1.275
## hormone_scr_ert_mean	-4.499e-03	8.082e-03	-0.557
## mOFC_posvsneg_feedback_z	3.820e-03	4.477e-01	0.009
## race.ethnicity.5levelBlack	-1.471e-01	9.876e-01	-0.149
## race.ethnicity.5levelMixed	1.822e+00	9.417e-01	1.935
## race.ethnicity.5levelOther	1.799e+00	1.064e+00	1.691
## race.ethnicity.5levelWhite	1.421e+00	8.860e-01	1.604
## demo_race_hispanic1	5.931e-02	3.896e-01	0.152
## interview_age	-1.320e-02	1.749e-02	-0.755
## MRI_minus_hormone_date_time	-9.406e-06	1.612e-05	-0.584
## bmi	6.541e-02	3.463e-02	1.889
## household.income[>=200K]	-2.321e+00	9.582e-01	-2.422
## household.income[100K-200K]	-1.778e+00	9.021e-01	-1.971
## household.income[12K-16K]	-1.094e-01	1.177e+00	-0.093
## household.income[16K-25K]	3.844e-02	1.007e+00	0.038
## household.income[25K-35K]	-1.042e+00	9.586e-01	-1.087
## household.income[35K-50K]	-2.238e-01	9.102e-01	-0.246
## household.income[50K-75K]	-1.066e+00	9.119e-01	-1.169
## household.income[5K-12K]	7.003e-02	1.061e+00	0.066
## household.income[75K-100K]	-1.306e+00	9.127e-01	-1.430
## high.educBachelor	-1.655e-01	8.509e-01	-0.194
## high.educHS Diploma/GED	-1.024e+00	8.661e-01	-1.183
## high.educPost Graduate Degree	1.436e-01	8.577e-01	0.167
## high.educSome College	3.079e-02	8.035e-01	0.038
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z	-3.797e-03	1.146e-02	-0.331
##	Pr(> t )		
## (Intercept)	0.04489	*	
## PDS_score	0.00122	**	
## hormone_sal_end_min_since_midnight	0.20256		
## hormone_scr_ert_mean	0.57783		
## mOFC_posvsneg_feedback_z	0.99319		
## race.ethnicity.5levelBlack	0.88162		
## race.ethnicity.5levelMixed	0.05321	.	
## race.ethnicity.5levelOther	0.09101	.	
## race.ethnicity.5levelWhite	0.10886		
## demo_race_hispanic1	0.87903		
## interview_age	0.45057		
## MRI_minus_hormone_date_time	0.55957		
## bmi	0.05908	.	
## household.income[>=200K]	0.01554	*	
## household.income[100K-200K]	0.04883	*	
## household.income[12K-16K]	0.92596		
## household.income[16K-25K]	0.96957		
## household.income[25K-35K]	0.27715		
## household.income[35K-50K]	0.80576		
## household.income[50K-75K]	0.24270		
## household.income[5K-12K]	0.94738		
## household.income[75K-100K]	0.15279		
## high.educBachelor	0.84585		
## high.educHS Diploma/GED	0.23711		
## high.educPost Graduate Degree	0.86701		
## high.educSome College	0.96943		
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z	0.74042		



```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0255
## lmer.REML = 10471  Scale est. = 11.111    n = 1710
```

## Male participants

```
## Warning: Some predictor variables are on very different scales: consider
## rescaling
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * mOFC_posvsneg_feedback_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + MRI_minus_hormone_date_time +
##   bmi + household.income + high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value
## (Intercept)	1.396e+00	2.504e+00	0.557
## PDS_score	6.431e-01	2.575e-01	2.497
## hormone_sal_end_min_since_midnight	4.467e-04	7.480e-04	0.597
## hormone_scr_ert_mean	-1.071e-03	5.310e-03	-0.202
## mOFC_posvsneg_feedback_z	4.684e-01	3.503e-01	1.337
## race.ethnicity.5levelBlack	1.234e-01	9.563e-01	0.129
## race.ethnicity.5levelMixed	2.409e+00	9.186e-01	2.623
## race.ethnicity.5levelOther	1.810e+00	1.073e+00	1.686
## race.ethnicity.5levelWhite	1.693e+00	8.621e-01	1.964
## demo_race_hispanic1	-5.288e-01	3.716e-01	-1.423
## interview_age	-4.615e-03	1.655e-02	-0.279
## MRI_minus_hormone_date_time	-8.916e-06	1.418e-05	-0.629
## bmi	6.104e-02	3.646e-02	1.674
## household.income[>=200K]	-1.515e+00	1.002e+00	-1.512
## household.income[100K-200K]	-1.150e+00	9.490e-01	-1.211
## household.income[12K-16K]	-5.369e-01	1.230e+00	-0.436
## household.income[16K-25K]	1.192e+00	1.039e+00	1.147
## household.income[25K-35K]	1.182e-01	1.009e+00	0.117
## household.income[35K-50K]	3.538e-01	9.732e-01	0.364
## household.income[50K-75K]	-3.387e-01	9.483e-01	-0.357
## household.income[5K-12K]	1.107e+00	1.082e+00	1.024
## household.income[75K-100K]	-8.066e-01	9.608e-01	-0.839
## high.educBachelor	1.006e+00	8.337e-01	1.206
## high.educHS Diploma/GED	-3.869e-01	8.602e-01	-0.450
## high.educPost Graduate Degree	7.187e-01	8.443e-01	0.851
## high.educSome College	9.370e-01	7.969e-01	1.176
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z	-5.896e-03	9.268e-03	-0.636
## Pr(> t )			
## (Intercept)	0.5773		

```

## PDS_score                                0.0126 *
## hormone_sal_end_min_since_midnight        0.5504
## hormone_scr_ert_mean                      0.8402
## mOFC_posvsneg_feedback_z                 0.1813
## race.ethnicity.5levelBlack                0.8973
## race.ethnicity.5levelMixed                0.0088 **
## race.ethnicity.5levelOther                0.0919 .
## race.ethnicity.5levelWhite               0.0497 *
## demo_race_hispanic1                      0.1549
## interview_age                            0.7804
## MRI_minus_hormone_date_time              0.5295
## bmi                                       0.0943 .
## household.income[>=200K]                 0.1307
## household.income[100K-200K]              0.2259
## household.income[12K-16K]                0.6625
## household.income[16K-25K]                0.2516
## household.income[25K-35K]                0.9067
## household.income[35K-50K]                0.7163
## household.income[50K-75K]                0.7210
## household.income[5K-12K]                 0.3061
## household.income[75K-100K]               0.4013
## high.educBachelor                        0.2279
## high.educHS Diploma/GED                 0.6530
## high.educPost Graduate Degree            0.3948
## high.educSome College                    0.2398
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z 0.5247
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0231
## lmer.REML = 10480  Scale est. = 16.172    n = 1725

```

#### 4.24 Model: CBCL internalizing factor ~ Testosterone x BIS-BAS RR + PDS

##### Female participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * bisbas_ss_basm_rr + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + bmi + household.income +
##   high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.2264244   2.4339330   0.915  0.36043
## PDS_score       0.5539624   0.1793457   3.089  0.00203
## hormone_sal_end_min_since_midnight -0.0001635  0.0006833  -0.239  0.81092
## hormone_scr_ert_mean  0.0073019  0.0237668   0.307  0.75870

```

```

## bisbas_ss_basm_rr -0.0255792 0.1062607 -0.241 0.80979
## race.ethnicity.5levelBlack -0.7548756 0.8729042 -0.865 0.38725
## race.ethnicity.5levelMixed 1.0067983 0.8480583 1.187 0.23528
## race.ethnicity.5levelOther 1.8781342 0.9699894 1.936 0.05296
## race.ethnicity.5levelWhite 1.2270470 0.7990595 1.536 0.12478
## demo_race_hispanic1 -0.2713306 0.3521194 -0.771 0.44105
## interview_age 0.0024266 0.0156020 0.156 0.87642
## bmi 0.0855403 0.0306578 2.790 0.00531
## household.income[>=200K] -1.9728013 0.8147796 -2.421 0.01555
## household.income[100K-200K] -1.3610014 0.7598844 -1.791 0.07342
## household.income[12K-16K] 0.4998814 1.0205516 0.490 0.62431
## household.income[16K-25K] 1.0019979 0.8497870 1.179 0.23848
## household.income[25K-35K] -0.2863394 0.7984689 -0.359 0.71992
## household.income[35K-50K] -0.0237054 0.7682588 -0.031 0.97539
## household.income[50K-75K] -0.3097474 0.7655995 -0.405 0.68582
## household.income[5K-12K] 0.4126267 0.8855226 0.466 0.64128
## household.income[75K-100K] -0.7801572 0.7683307 -1.015 0.31003
## high.educBachelor 0.3410992 0.7541694 0.452 0.65111
## high.educHS Diploma/GED -0.5986513 0.7551969 -0.793 0.42803
## high.educPost Graduate Degree 0.5715050 0.7611838 0.751 0.45285
## high.educSome College 0.5677548 0.7109852 0.799 0.42464
## hormone_scr_ert_mean:bisbas_ss_basm_rr -0.0016948 0.0026146 -0.648 0.51690
##
## (Intercept)
## PDS_score **
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## bisbas_ss_basm_rr
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed
## race.ethnicity.5levelOther .
## race.ethnicity.5levelWhite
## demo_race_hispanic1
## interview_age
## bmi **
## household.income[>=200K] *
## household.income[100K-200K] .
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K]
## household.income[5K-12K]
## household.income[75K-100K]
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:bisbas_ss_basm_rr
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0301

```

```
## lmer.REML = 13857 Scale est. = 13.522 n = 2247
```

## Male participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##     hormone_scr_ert_mean * bisbas_ss_basm_rr + race.ethnicity.5level +
##     demo_race_hispanic + interview_age + bmi + household.income +
##     high.educ
##
## Parametric coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.3328355   2.3505600   1.418 0.156352
## PDS_score       0.8198151   0.2197663   3.730 0.000196
## hormone_sal_end_min_since_midnight 0.0006226   0.0006563   0.949 0.342876
## hormone_scr_ert_mean 0.0104850   0.0219424   0.478 0.632805
## bisbas_ss_basm_rr -0.0041559   0.0909846  -0.046 0.963572
## race.ethnicity.5levelBlack 0.3097979   0.8115562   0.382 0.702693
## race.ethnicity.5levelMixed 1.8575563   0.7898694   2.352 0.018766
## race.ethnicity.5levelOther 1.3213004   0.9341585   1.414 0.157365
## race.ethnicity.5levelWhite 1.5805843   0.7371938   2.144 0.032128
## demo_race_hispanic1 -0.4513905   0.3336491  -1.353 0.176217
## interview_age  -0.0124456   0.0148814  -0.836 0.403055
## bmi             0.0664385   0.0317286   2.094 0.036367
## household.income[>=200K] -2.3809830   0.7939687  -2.999 0.002738
## household.income[100K-200K] -2.2748574   0.7371230  -3.086 0.002051
## household.income[12K-16K]  -0.8660804   0.9958453  -0.870 0.384554
## household.income[16K-25K]   0.0031507   0.8192175   0.004 0.996932
## household.income[25K-35K]  -1.0066901   0.7990998  -1.260 0.207870
## household.income[35K-50K]  -0.6640911   0.7672515  -0.866 0.386825
## household.income[50K-75K]  -1.3592712   0.7358991  -1.847 0.064856
## household.income[5K-12K]    1.0228461   0.8613421   1.188 0.235146
## household.income[75K-100K] -1.9147370   0.7494648  -2.555 0.010685
## high.educBachelor  0.8104730   0.7247450   1.118 0.263556
## high.educHS Diploma/GED -0.1999661   0.7351377  -0.272 0.785636
## high.educPost Graduate Degree 0.6933678   0.7355681   0.943 0.345965
## high.educSome College  0.8686737   0.6896005   1.260 0.207908
## hormone_scr_ert_mean:bisbas_ss_basm_rr -0.0013377   0.0024566  -0.545 0.586122
##
## (Intercept)
## PDS_score ***
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## bisbas_ss_basm_rr
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed *
## race.ethnicity.5levelOther
## race.ethnicity.5levelWhite *
## demo_race_hispanic1
```

```

## interview_age
## bmi *
## household.income[>=200K] **
## household.income[100K-200K] **
## household.income[12K-16K]
## household.income[16K-25K]
## household.income[25K-35K]
## household.income[35K-50K]
## household.income[50K-75K] .
## household.income[5K-12K]
## household.income[75K-100K] *
## high.educBachelor
## high.educHS Diploma/GED
## high.educPost Graduate Degree
## high.educSome College
## hormone_scr_ert_mean:bisbas_ss_basm_rr
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0244
## lmer.REML = 15122 Scale est. = 14.228 n = 2443

```

#### 4.25 Model: CBCL internalizing factor ~ Testosterone x MID Reaction Time + PDS (large reward vs. neutral)

##### Female participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##   hormone_scr_ert_mean * rt_diff_large_neutral_z + race.ethnicity.5level +
##   demo_race_hispanic + interview_age + bmi + household.income +
##   high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value
## (Intercept)      6.3886308   2.4335386    2.625
## PDS_score         0.6546397   0.1956263    3.346
## hormone_sal_end_min_since_midnight -0.0008651  0.0007348   -1.177
## hormone_scr_ert_mean -0.0075356  0.0077037   -0.978
## rt_diff_large_neutral_z  0.0588683  0.2886999    0.204
## race.ethnicity.5levelBlack -0.1311188  0.9334778   -0.140
## race.ethnicity.5levelMixed  1.5430221  0.8993742    1.716
## race.ethnicity.5levelOther  2.0543598  1.0148839    2.024
## race.ethnicity.5levelWhite  1.4107734  0.8439755    1.672
## demo_race_hispanic1      0.0695369  0.3767256    0.185
## interview_age      -0.0253679  0.0167054   -1.519
## bmi                0.0764990  0.0332157    2.303
## household.income[>=200K] -1.9102339  0.9059772   -2.108

```

```

## household.income[100K-200K] -1.3576285 0.8507826 -1.596
## household.income[12K-16K] -0.1317972 1.1023873 -0.120
## household.income[16K-25K] 0.5668119 0.9565144 0.593
## household.income[25K-35K] -0.7514409 0.8993785 -0.836
## household.income[35K-50K] -0.2975048 0.8565106 -0.347
## household.income[50K-75K] -0.7304032 0.8614889 -0.848
## household.income[5K-12K] 0.1393972 1.0056429 0.139
## household.income[75K-100K] -0.9843606 0.8586407 -1.146
## high.educBachelor -0.3998800 0.8214365 -0.487
## high.educHS Diploma/GED -1.2972695 0.8388025 -1.547
## high.educPost Graduate Degree -0.2638125 0.8281084 -0.319
## high.educSome College -0.4401415 0.7740969 -0.569
## hormone_scr_ert_mean:rt_diff_large_neutral_z 0.0011134 0.0072441 0.154
## Pr(>|t|)
## (Intercept) 0.008731 **
## PDS_score 0.000835 ***
## hormone_sal_end_min_since_midnight 0.239207
## hormone_scr_ert_mean 0.328113
## rt_diff_large_neutral_z 0.838448
## race.ethnicity.5levelBlack 0.888310
## race.ethnicity.5levelMixed 0.086393 .
## race.ethnicity.5levelOther 0.043091 *
## race.ethnicity.5levelWhite 0.094778 .
## demo_race_hispanic1 0.853577
## interview_age 0.129049
## bmi 0.021385 *
## household.income[>=200K] 0.035125 *
## household.income[100K-200K] 0.110719
## household.income[12K-16K] 0.904848
## household.income[16K-25K] 0.553535
## household.income[25K-35K] 0.403539
## household.income[35K-50K] 0.728372
## household.income[50K-75K] 0.396639
## household.income[5K-12K] 0.889770
## household.income[75K-100K] 0.251772
## high.educBachelor 0.626454
## high.educHS Diploma/GED 0.122139
## high.educPost Graduate Degree 0.750087
## high.educSome College 0.569706
## hormone_scr_ert_mean:rt_diff_large_neutral_z 0.877866
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0224
## lmer.REML = 11326 Scale est. = 11.487 n = 1856

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##

```

```

## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
##     hormone_scr_ert_mean * rt_diff_large_neutral_z + race.ethnicity.5level +
##     demo_race_hispanic + interview_age + bmi + household.income +
##     high.educ
##
## Parametric coefficients:
##
##               Estimate Std. Error t value
## (Intercept)      2.3006356  2.3899105   0.963
## PDS_score         0.5625654  0.2448349   2.298
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean      -0.0036302  0.0055598  -0.653
## rt_diff_large_neutral_z      0.5469966  0.2362429   2.315
## race.ethnicity.5levelBlack    -0.0265367  0.9185750  -0.029
## race.ethnicity.5levelMixed     1.9828588  0.8855684   2.239
## race.ethnicity.5levelOther     1.2567968  1.0369698   1.212
## race.ethnicity.5levelWhite     1.4669349  0.8328463   1.761
## demo_race_hispanic1    -0.4984353  0.3575634  -1.394
## interview_age      -0.0042307  0.0159442  -0.265
## bmi                0.0836719  0.0346910   2.412
## household.income[>=200K]    -2.1899423  0.9378066  -2.335
## household.income[100K-200K]  -1.7179177  0.8823558  -1.947
## household.income[12K-16K]   -1.3083119  1.1657368  -1.122
## household.income[16K-25K]     0.2811342  0.9631249   0.292
## household.income[25K-35K]    -0.4303994  0.9350764  -0.460
## household.income[35K-50K]    -0.0548683  0.9070167  -0.060
## household.income[50K-75K]    -1.1747940  0.8806375  -1.334
## household.income[5K-12K]      1.1639372  1.0234921   1.137
## household.income[75K-100K]   -1.5530061  0.8936942  -1.738
## high.educBachelor          0.7308661  0.7869061   0.929
## high.educHS Diploma/GED    -0.7919955  0.8175334  -0.969
## high.educPost Graduate Degree  0.4613904  0.7998554   0.577
## high.educSome College       0.8115266  0.7515419   1.080
## hormone_scr_ert_mean:rt_diff_large_neutral_z -0.0104512  0.0058240  -1.795
##
##               Pr(>|t|)
## (Intercept)      0.3358
## PDS_score         0.0217 *
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean      0.5139
## rt_diff_large_neutral_z      0.0207 *
## race.ethnicity.5levelBlack    0.9770
## race.ethnicity.5levelMixed     0.0253 *
## race.ethnicity.5levelOther     0.2257
## race.ethnicity.5levelWhite     0.0783 .
## demo_race_hispanic1    0.1635
## interview_age      0.7908
## bmi                0.0160 *
## household.income[>=200K]    0.0196 *
## household.income[100K-200K]  0.0517 .
## household.income[12K-16K]   0.2619
## household.income[16K-25K]     0.7704
## household.income[25K-35K]     0.6454
## household.income[35K-50K]     0.9518
## household.income[50K-75K]     0.1824

```

```
## household.income[5K-12K] 0.2556
## household.income[75K-100K] 0.0824 .
## high.educBachelor 0.3531
## high.educHS Diploma/GED 0.3328
## high.educPost Graduate Degree 0.5641
## high.educSome College 0.2804
## hormone_scr_ert_mean:rt_diff_large_neutral_z 0.0729 .
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0269
## lmer.REML = 11940 Scale est. = 15.994 n = 1954
```

## 4.26 Model: CBCL internalizing factor ~ Testosterone x MID Reaction Time + PDS (large vs. small reward)

### Female participants

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
## hormone_scr_ert_mean * rt_diff_large_small_z + race.ethnicity.5level +
## demo_race_hispanic + interview_age + bmi + household.income +
## high.educ
##
## Parametric coefficients:
```

	Estimate	Std. Error	t value
## (Intercept)	6.3495830	2.4327408	2.610
## PDS_score	0.6552757	0.1957904	3.347
## hormone_sal_end_min_since_midnight	-0.0008401	0.0007343	-1.144
## hormone_scr_ert_mean	-0.0075539	0.0077532	-0.974
## rt_diff_large_small_z	-0.2627684	0.2849317	-0.922
## race.ethnicity.5levelBlack	-0.1301074	0.9329195	-0.139
## race.ethnicity.5levelMixed	1.5477935	0.8989518	1.722
## race.ethnicity.5levelOther	2.0181724	1.0145621	1.989
## race.ethnicity.5levelWhite	1.4113196	0.8436794	1.673
## demo_race_hispanic1	0.0393746	0.3766843	0.105
## interview_age	-0.0247378	0.0166887	-1.482
## bmi	0.0750706	0.0332078	2.261
## household.income[>=200K]	-1.8817260	0.9059359	-2.077
## household.income[100K-200K]	-1.3261222	0.8510178	-1.558
## household.income[12K-16K]	-0.1274722	1.1018354	-0.116
## household.income[16K-25K]	0.6014232	0.9560722	0.629
## household.income[25K-35K]	-0.7174231	0.8990075	-0.798
## household.income[35K-50K]	-0.2647043	0.8565661	-0.309
## household.income[50K-75K]	-0.6838949	0.8617822	-0.794
## household.income[5K-12K]	0.1506778	1.0052920	0.150
## household.income[75K-100K]	-0.9664933	0.8587333	-1.125
## high.educBachelor	-0.4531883	0.8209450	-0.552



```

## high.educHS Diploma/GED -1.3238767 0.8386840 -1.579
## high.educPost Graduate Degree -0.3183888 0.8270804 -0.385
## high.educSome College -0.4731392 0.7739579 -0.611
## hormone_scr_ert_mean:rt_diff_large_small_z 0.0021804 0.0073022 0.299
## Pr(>|t|)
## (Intercept) 0.009127 **
## PDS_score 0.000834 ***
## hormone_sal_end_min_since_midnight 0.252786
## hormone_scr_ert_mean 0.330039
## rt_diff_large_small_z 0.356538
## race.ethnicity.5levelBlack 0.889100
## race.ethnicity.5levelMixed 0.085279 .
## race.ethnicity.5levelOther 0.046827 *
## race.ethnicity.5levelWhite 0.094535 .
## demo_race_hispanic1 0.916761
## interview_age 0.138430
## bmi 0.023899 *
## household.income[>=200K] 0.037931 *
## household.income[100K-200K] 0.119340
## household.income[12K-16K] 0.907910
## household.income[16K-25K] 0.529391
## household.income[25K-35K] 0.424964
## household.income[35K-50K] 0.757334
## household.income[50K-75K] 0.427542
## household.income[5K-12K] 0.880872
## household.income[75K-100K] 0.260530
## high.educBachelor 0.580993
## high.educHS Diploma/GED 0.114620
## high.educPost Graduate Degree 0.700315
## high.educSome College 0.541061
## hormone_scr_ert_mean:rt_diff_large_small_z 0.765283
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0232
## lmer.REML = 11324 Scale est. = 11.418 n = 1856

```

## Male participants

```

##
## Family: gaussian
## Link function: identity
##
## Formula:
## cbcl_scr_syn_internal_r ~ PDS_score + hormone_sal_end_min_since_midnight +
## hormone_scr_ert_mean * rt_diff_large_small_z + race.ethnicity.5level +
## demo_race_hispanic + interview_age + bmi + household.income +
## high.educ
##
## Parametric coefficients:
## Estimate Std. Error t value
## (Intercept) 2.3734842 2.3918368 0.992

```

```

## PDS_score 0.5419405 0.2448408 2.213
## hormone_sal_end_min_since_midnight 0.0003368 0.0007048 0.478
## hormone_scr_ert_mean -0.0012930 0.0053052 -0.244
## rt_diff_large_small_z 0.1427904 0.2421943 0.590
## race.ethnicity.5levelBlack -0.0494521 0.9193025 -0.054
## race.ethnicity.5levelMixed 1.9372975 0.8861866 2.186
## race.ethnicity.5levelOther 1.2063573 1.0379098 1.162
## race.ethnicity.5levelWhite 1.4385788 0.8334310 1.726
## demo_race_hispanic1 -0.5094953 0.3577966 -1.424
## interview_age -0.0046767 0.0159591 -0.293
## bmi 0.0835836 0.0347292 2.407
## household.income[>=200K] -2.2064703 0.9383131 -2.352
## household.income[100K-200K] -1.7724987 0.8831395 -2.007
## household.income[12K-16K] -1.3489744 1.1665922 -1.156
## household.income[16K-25K] 0.2446786 0.9642816 0.254
## household.income[25K-35K] -0.4777806 0.9362853 -0.510
## household.income[35K-50K] -0.0796862 0.9078327 -0.088
## household.income[50K-75K] -1.1960888 0.8815104 -1.357
## household.income[5K-12K] 1.0876005 1.0245324 1.062
## household.income[75K-100K] -1.5993180 0.8947783 -1.787
## high.educBachelor 0.7322190 0.7906947 0.926
## high.educHS Diploma/GED -0.7563357 0.8204234 -0.922
## high.educPost Graduate Degree 0.4714471 0.8032040 0.587
## high.educSome College 0.8040349 0.7539138 1.066
## hormone_scr_ert_mean:rt_diff_large_small_z -0.0064829 0.0062829 -1.032
## Pr(>|t|)
## (Intercept) 0.3212
## PDS_score 0.0270 *
## hormone_sal_end_min_since_midnight 0.6328
## hormone_scr_ert_mean 0.8075
## rt_diff_large_small_z 0.5555
## race.ethnicity.5levelBlack 0.9571
## race.ethnicity.5levelMixed 0.0289 *
## race.ethnicity.5levelOther 0.2453
## race.ethnicity.5levelWhite 0.0845 .
## demo_race_hispanic1 0.1546
## interview_age 0.7695
## bmi 0.0162 *
## household.income[>=200K] 0.0188 *
## household.income[100K-200K] 0.0449 *
## household.income[12K-16K] 0.2477
## household.income[16K-25K] 0.7997
## household.income[25K-35K] 0.6099
## household.income[35K-50K] 0.9301
## household.income[50K-75K] 0.1750
## household.income[5K-12K] 0.2886
## household.income[75K-100K] 0.0740 .
## high.educBachelor 0.3545
## high.educHS Diploma/GED 0.3567
## high.educPost Graduate Degree 0.5573
## high.educSome College 0.2863
## hormone_scr_ert_mean:rt_diff_large_small_z 0.3023
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
##  
##  
## R-sq.(adj) = 0.0249  
## lmer.REML = 11944 Scale est. = 16.055 n = 1954
```