

Supplement D: 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 2

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)    -2.1071054   2.2589226  -0.933  0.351030
## hormone_scr_ert_mean -0.0005039   0.0064784  -0.078  0.938007
## hormone_sal_end_min_since_midnight  0.0003094   0.0007007   0.442  0.658868
## race.ethnicity.5levelBlack -0.5533077   0.8135541  -0.680  0.496505
## race.ethnicity.5levelMixed  1.2062036   0.7946051   1.518  0.129160
## race.ethnicity.5levelOther -0.2247794   0.9335229  -0.241  0.809743
```

```

## race.ethnicity.5levelWhite      1.1929127  0.7390607   1.614 0.106651
## interview_age                   0.0443382  0.0156553   2.832 0.004666 **
## bmi                             0.0587276  0.0318370   1.845 0.065225 .
## household.income[>=200K]        -2.8945830  0.8606248  -3.363 0.000783 ***
## household.income[100K-200K]     -1.9876350  0.7978084  -2.491 0.012798 *
## household.income[12K-16K]       -0.6123525  1.0342241  -0.592 0.553852
## household.income[16K-25K]       -1.3834620  0.8873276  -1.559 0.119109
## household.income[25K-35K]       -0.4726691  0.8352812  -0.566 0.571533
## household.income[35K-50K]       -1.4738226  0.8131523  -1.812 0.070048 .
## household.income[50K-75K]       -1.5220404  0.7962443  -1.912 0.056067 .
## household.income[5K-12K]        -0.4096088  0.9033164  -0.453 0.650269
## household.income[75K-100K]      -1.6252271  0.8093336  -2.008 0.044754 *
## high.educBachelor               1.1108620  0.7523008   1.477 0.139921
## high.educHS Diploma/GED        1.1386181  0.7539996   1.510 0.131160
## high.educPost Graduate Degree   1.4879881  0.7660923   1.942 0.052227 .
## high.educSome College           1.4454025  0.7016478   2.060 0.039515 *
## demo_race_hispanic1            -0.0648526  0.3621269  -0.179 0.857885
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0178
## lmer.REML = 13723  Scale est. = 17.43    n = 2223

```

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)    3.1056260   2.2406416   1.386 0.165864
## hormone_scr_ert_mean  0.0073089   0.0063336   1.154 0.248623
## hormone_sal_end_min_since_midnight  0.0010206   0.0006769   1.508 0.131716
## race.ethnicity.5levelBlack -0.4375328   0.8970385  -0.488 0.625770
## race.ethnicity.5levelMixed  1.0406106   0.8773832   1.186 0.235725
## race.ethnicity.5levelOther  0.0920508   0.9963282   0.092 0.926396
## race.ethnicity.5levelWhite  0.9511348   0.8260970   1.151 0.249700
## interview_age    0.0072723   0.0148975   0.488 0.625484
## bmi              0.0387777   0.0309066   1.255 0.209720
## household.income[>=200K] -3.2467188   0.8483582  -3.827 0.000133 ***
## household.income[100K-200K] -2.6894117   0.7939195  -3.388 0.000717 ***
## household.income[12K-16K] -0.2190092   1.0304833  -0.213 0.831711
## household.income[16K-25K] -0.1251940   0.8516290  -0.147 0.883140
## household.income[25K-35K] -0.8863972   0.8512300  -1.041 0.297836
## household.income[35K-50K] -1.3774937   0.8075136  -1.706 0.088167 .
## household.income[50K-75K] -1.7689992   0.7859628  -2.251 0.024493 *

```

```
## household.income[5K-12K] -0.2035162 0.8807958 -0.231 0.817288
## household.income[75K-100K] -2.7944401 0.8092473 -3.453 0.000564 ***
## high.educBachelor 1.3191925 0.7943595 1.661 0.096906 .
## high.educHS Diploma/GED -0.7106367 0.7867872 -0.903 0.366504
## high.educPost Graduate Degree 0.5707848 0.7987378 0.715 0.474921
## high.educSome College 0.9717117 0.7556605 1.286 0.198599
## demo_race_hispanic1 -0.0493608 0.3556688 -0.139 0.889633
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0311
## lmer.REML = 14926 Scale est. = 16.005 n = 2402
```

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) -0.6278787  1.2779423  -0.491  0.6232
## hormone_scr_ert_mean -0.0005158  0.0036757  -0.140  0.8884
## hormone_sal_end_min_since_midnight 0.0003222  0.0003945   0.817  0.4141
## race.ethnicity.5levelBlack -0.1323226  0.4574877  -0.289  0.7724
## race.ethnicity.5levelMixed  0.8271690  0.4470916   1.850  0.0644 .
## race.ethnicity.5levelOther  0.0797420  0.5256062   0.152  0.8794
## race.ethnicity.5levelWhite  0.7162109  0.4156458   1.723  0.0850 .
## interview_age  0.0189471  0.0088860   2.132  0.0331 *
## bmi  0.0046652  0.0179743   0.260  0.7952
## household.income[>=200K] -1.0585835  0.4843286  -2.186  0.0289 *
## household.income[100K-200K] -0.5389692  0.4488972  -1.201  0.2300
## household.income[12K-16K] -0.1322651  0.5813472  -0.228  0.8200
## household.income[16K-25K] -0.6015048  0.5001093  -1.203  0.2292
## household.income[25K-35K] -0.0160177  0.4701268  -0.034  0.9728
## household.income[35K-50K] -0.4137428  0.4577558  -0.904  0.3662
## household.income[50K-75K] -0.3291524  0.4480220  -0.735  0.4626
## household.income[5K-12K] -0.1234757  0.5096163  -0.242  0.8086
## household.income[75K-100K] -0.3399515  0.4554739  -0.746  0.4555
## high.educBachelor 0.2203962  0.4228538   0.521  0.6023
## high.educHS Diploma/GED 0.1548519  0.4243101   0.365  0.7152
## high.educPost Graduate Degree 0.6479895  0.4306588   1.505  0.1326
## high.educSome College 0.4808816  0.3945293   1.219  0.2230
## demo_race_hispanic1 0.0943624  0.2029479   0.465  0.6420
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0131
## lmer.REML = 11222  Scale est. = 6.7621    n = 2223
```

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)      2.5352778   1.2635016   2.007  0.0449 *
## hormone_scr_ert_mean      0.0057229   0.0035691   1.603  0.1090
## hormone_sal_end_min_since_midnight      0.0002212   0.0003817   0.580  0.5622
## race.ethnicity.5levelBlack      -0.1589177   0.5042697  -0.315  0.7527
## race.ethnicity.5levelMixed       0.4906292   0.4931250   0.995  0.3199
## race.ethnicity.5levelOther       0.2513959   0.5610525   0.448  0.6541
## race.ethnicity.5levelWhite       0.6188364   0.4645104   1.332  0.1829
## interview_age      -0.0080146   0.0084223  -0.952  0.3414
## bmi                0.0078182   0.0174316   0.449  0.6538
## household.income[>=200K]      -1.3228900   0.4760361  -2.779  0.0055 **
## household.income[100K-200K]    -1.0369157   0.4456730  -2.327  0.0201 *
## household.income[12K-16K]       0.0452592   0.5780709   0.078  0.9376
## household.income[16K-25K]     -0.1486867   0.4782978  -0.311  0.7559
## household.income[25K-35K]     -0.3405650   0.4780272  -0.712  0.4763
## household.income[35K-50K]     -0.4328718   0.4532567  -0.955  0.3397
## household.income[50K-75K]     -0.7860506   0.4412610  -1.781  0.0750 .
## household.income[5K-12K]       0.0134167   0.4943585   0.027  0.9784
## household.income[75K-100K]    -1.0014578   0.4542070  -2.205  0.0276 *
## high.educBachelor       1.1183357   0.4459645   2.508  0.0122 *
## high.educHS Diploma/GED     -0.0810822   0.4418735  -0.183  0.8544
## high.educPost Graduate Degree   0.7875419   0.4483780   1.756  0.0791 .
## high.educSome College       0.7424598   0.4244030   1.749  0.0803 .
## demo_race_hispanic1       0.0881719   0.1997724   0.441  0.6590
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0148
## lmer.REML = 12204  Scale est. = 6.4651    n = 2402
```

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)	2.214e-01	6.693e-01	0.331	0.740836
## hormone_scr_ert_mean	3.278e-03	1.928e-03	1.700	0.089248 .
## hormone_sal_end_min_since_midnight	-9.079e-05	2.073e-04	-0.438	0.661538
## race.ethnicity.5levelBlack	-4.174e-01	2.387e-01	-1.748	0.080548 .
## race.ethnicity.5levelMixed	-1.502e-02	2.331e-01	-0.064	0.948626
## race.ethnicity.5levelOther	-2.860e-01	2.739e-01	-1.044	0.296517
## race.ethnicity.5levelWhite	-3.848e-02	2.169e-01	-0.177	0.859221
## interview_age	6.942e-03	4.666e-03	1.488	0.137001
## bmi	1.687e-02	9.377e-03	1.799	0.072139 .
## household.income[>=200K]	-9.070e-01	2.519e-01	-3.601	0.000325 ***
## household.income[100K-200K]	-6.623e-01	2.333e-01	-2.838	0.004574 **
## household.income[12K-16K]	-4.354e-01	3.017e-01	-1.443	0.149052
## household.income[16K-25K]	-3.553e-01	2.606e-01	-1.363	0.172933
## household.income[25K-35K]	-1.468e-01	2.444e-01	-0.601	0.548066
## household.income[35K-50K]	-5.819e-01	2.381e-01	-2.444	0.014609 *
## household.income[50K-75K]	-5.526e-01	2.328e-01	-2.373	0.017713 *
## household.income[5K-12K]	-5.312e-02	2.657e-01	-0.200	0.841544
## household.income[75K-100K]	-5.842e-01	2.368e-01	-2.467	0.013704 *
## high.educBachelor	1.378e-01	2.195e-01	0.628	0.530110
## high.educHS Diploma/GED	4.141e-01	2.208e-01	1.876	0.060826 .
## high.educPost Graduate Degree	1.723e-01	2.236e-01	0.770	0.441108
## high.educSome College	2.044e-01	2.049e-01	0.998	0.318489
## demo_race_hispanic1	-1.093e-02	1.058e-01	-0.103	0.917710

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0199
## lmer.REML = 8384.3  Scale est. = 2.3112    n = 2223
```

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)      0.0892732   0.7323442    0.122 0.902988
## hormone_scr_ert_mean      0.0018018   0.0020666    0.872 0.383379
## hormone_sal_end_min_since_midnight 0.0004597   0.0002129    2.159 0.030960 *
## race.ethnicity.5levelBlack      -0.1015088   0.2926048   -0.347 0.728686
## race.ethnicity.5levelMixed      0.2786642   0.2865972    0.972 0.330990
## race.ethnicity.5levelOther      0.0371081   0.3263319    0.114 0.909475
## race.ethnicity.5levelWhite      0.1303351   0.2694325    0.484 0.628615
## interview_age      0.0120639   0.0048912    2.466 0.013716 *
## bmi      0.0007705   0.0101529    0.076 0.939516
## household.income[>=200K]      -1.1142179   0.2763274   -4.032 5.7e-05 ***
## household.income[100K-200K]      -0.9550911   0.2591769   -3.685 0.000234 ***
## household.income[12K-16K]      0.0198971   0.3370804    0.059 0.952935
## household.income[16K-25K]      0.0807031   0.2787014    0.290 0.772172
## household.income[25K-35K]      -0.2930086   0.2784905   -1.052 0.292846
## household.income[35K-50K]      -0.5500948   0.2641880   -2.082 0.037430 *
## household.income[50K-75K]      -0.6841478   0.2569750   -2.662 0.007813 **
## household.income[5K-12K]      -0.0664452   0.2884000   -0.230 0.817807
## household.income[75K-100K]      -1.0070774   0.2644114   -3.809 0.000143 ***
## high.educBachelor      -0.0119320   0.2591754   -0.046 0.963283
## high.educHS Diploma/GED      -0.5280081   0.2568199   -2.056 0.039896 *
## high.educPost Graduate Degree      -0.2661877   0.2607203   -1.021 0.307372
## high.educSome College      -0.0854034   0.2464826   -0.346 0.729006
## demo_race_hispanic1      -0.1414250   0.1116140   -1.267 0.205247
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0388
## lmer.REML = 9632.1 Scale est. = 2.172 n = 2402

```

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)      0.4931909   0.7796397    0.633 0.52707
## hormone_scr_ert_mean      -0.0007163   0.0022421   -0.319 0.74939
## hormone_sal_end_min_since_midnight 0.0001286   0.0002401    0.536 0.59223

```

```

## race.ethnicity.5levelBlack      -0.1501691  0.2791056  -0.538  0.59061
## race.ethnicity.5levelMixed      0.2157698  0.2728952   0.791  0.42922
## race.ethnicity.5levelOther     -0.2185505  0.3208743  -0.681  0.49587
## race.ethnicity.5levelWhite      0.2523180  0.2535797   0.995  0.31983
## interview_age                   0.0053815  0.0054204   0.993  0.32090
## bmi                             0.0133624  0.0109749   1.218  0.22353
## household.income[>=200K]       -0.7811567  0.2957852  -2.641  0.00833 **
## household.income[100K-200K]    -0.6269009  0.2741762  -2.286  0.02232 *
## household.income[12K-16K]      -0.1102720  0.3551443  -0.310  0.75621
## household.income[16K-25K]      -0.4185991  0.3054201  -1.371  0.17065
## household.income[25K-35K]      -0.1279104  0.2871629  -0.445  0.65605
## household.income[35K-50K]      -0.3712449  0.2795677  -1.328  0.18434
## household.income[50K-75K]      -0.4935868  0.2736536  -1.804  0.07142 .
## household.income[5K-12K]       0.0499999  0.3112172   0.161  0.87238
## household.income[75K-100K]     -0.5147682  0.2781909  -1.850  0.06439 .
## high.educBachelor              -0.1088689  0.2583097  -0.421  0.67346
## high.educHS Diploma/GED        0.0516195  0.2591501   0.199  0.84213
## high.educPost Graduate Degree   0.0742016  0.2630641   0.282  0.77792
## high.educSome College           0.0094671  0.2410133   0.039  0.96867
## demo_race_hispanic1            -0.0483067  0.1236985  -0.391  0.69619
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.00797
## lmer.REML = 9048.5  Scale est. = 2.4611    n = 2223

```

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)    1.0068070   0.8528557   1.181  0.237914
## hormone_scr_ert_mean 0.0032698   0.0024105   1.356  0.175071
## hormone_sal_end_min_since_midnight 0.0004080   0.0002563   1.592  0.111514
## race.ethnicity.5levelBlack -0.1182274   0.3412625  -0.346  0.729042
## race.ethnicity.5levelMixed  0.2125088   0.3338631   0.637  0.524502
## race.ethnicity.5levelOther  0.0385905   0.3793390   0.102  0.918979
## race.ethnicity.5levelWhite  0.1791285   0.3142836   0.570  0.568760
## interview_age    0.0053202   0.0056767   0.937  0.348754
## bmi             -0.0016684   0.0117755  -0.142  0.887339
## household.income[>=200K] -1.1781979   0.3226317  -3.652  0.000266 ***
## household.income[100K-200K] -1.1506620   0.3020387  -3.810  0.000143 ***
## household.income[12K-16K]  0.0995614   0.3921335   0.254  0.799597
## household.income[16K-25K] -0.4041850   0.3241146  -1.247  0.212504

```

```
## household.income[25K-35K]          -0.6281861  0.3239519  -1.939  0.052603 .
## household.income[35K-50K]          -0.7667279  0.3073047  -2.495  0.012663 *
## household.income[50K-75K]          -0.8104465  0.2990792  -2.710  0.006781 **
## household.income[5K-12K]           -0.2192026  0.3352288  -0.654  0.513246
## household.income[75K-100K]         -1.0082305  0.3079062  -3.274  0.001074 **
## high.educBachelor                  0.3006669  0.3021809   0.995  0.319843
## high.educHS Diploma/GED           -0.3619869  0.2993237  -1.209  0.226649
## high.educPost Graduate Degree       -0.0059478  0.3038650  -0.020  0.984385
## high.educSome College               0.3221808  0.2874516   1.121  0.262479
## demo_race_hispanic1                -0.1289946  0.1345615  -0.959  0.337843
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0257
## lmer.REML = 10334 Scale est. = 2.4455    n = 2402
```

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)    -0.8909008   2.2741589   -0.392  0.695281
## hormone_scr_ert_mean -0.0050581   0.0065663   -0.770  0.441202
## hormone_sal_end_min_since_midnight  0.0003612   0.0006991    0.517  0.605477
## PDS_score        0.6834329   0.1790954    3.816  0.000139 ***
## race.ethnicity.5levelBlack -0.8587200   0.8147680   -1.054  0.292024
## race.ethnicity.5levelMixed  1.0870575   0.7924639    1.372  0.170283
## race.ethnicity.5levelOther -0.2869147   0.9304459   -0.308  0.757836
## race.ethnicity.5levelWhite  1.1260331   0.7367968    1.528  0.126586
## interview_age      0.0287436   0.0161343    1.782  0.074965 .
## bmi               0.0387861   0.0321549    1.206  0.227860
## household.income[>=200K] -2.7137092   0.8587692   -3.160  0.001599 **
## household.income[100K-200K] -1.8334576   0.7959079   -2.304  0.021338 *
## household.income[12K-16K]    -0.3893694   1.0320168   -0.377  0.705995
## household.income[16K-25K]    -1.2850728   0.8845393   -1.453  0.146418
## household.income[25K-35K]    -0.3468624   0.8328671   -0.416  0.677108
## household.income[35K-50K]    -1.3619024   0.8107506   -1.680  0.093137 .
## household.income[50K-75K]    -1.4314341   0.7936936   -1.804  0.071445 .
## household.income[5K-12K]     -0.3464536   0.9003389   -0.385  0.700420
## household.income[75K-100K]   -1.4668235   0.8074577   -1.817  0.069415 .
## high.educBachelor          1.0998676   0.7495061    1.467  0.142395
## high.educHS Diploma/GED     1.0663359   0.7514866    1.419  0.156050
```

```
## high.educPost Graduate Degree      1.4639553  0.7632768   1.918 0.055242 .
## high.educSome College              1.3299620  0.6996736   1.901 0.057455 .
## demo_race_hispanic1               -0.0233628  0.3611620  -0.065 0.948428
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0232
## lmer.REML = 13710  Scale est. = 17.6      n = 2223
```

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)      3.088576   2.238055   1.380 0.167708
## hormone_scr_ert_mean      0.005783   0.006355   0.910 0.362939
## hormone_sal_end_min_since_midnight      0.001049   0.000676   1.552 0.120910
## PDS_score           0.558263   0.220389   2.533 0.011370 *
## race.ethnicity.5levelBlack      -0.624728   0.899146  -0.695 0.487247
## race.ethnicity.5levelMixed       1.040917   0.876452   1.188 0.235090
## race.ethnicity.5levelOther       0.115141   0.995276   0.116 0.907910
## race.ethnicity.5levelWhite       0.954340   0.825205   1.156 0.247597
## interview_age           0.002445   0.015003   0.163 0.870541
## bmi                  0.028082   0.031157   0.901 0.367517
## household.income[>=200K]      -3.052481   0.850969  -3.587 0.000341 ***
## household.income[100K-200K]    -2.498111   0.796712  -3.136 0.001736 **
## household.income[12K-16K]      -0.120264   1.030199  -0.117 0.907077
## household.income[16K-25K]       0.049480   0.853565   0.058 0.953778
## household.income[25K-35K]      -0.687263   0.853987  -0.805 0.421033
## household.income[35K-50K]      -1.193847   0.809973  -1.474 0.140632
## household.income[50K-75K]      -1.621824   0.787323  -2.060 0.039515 *
## household.income[5K-12K]       -0.164414   0.880046  -0.187 0.851814
## household.income[75K-100K]     -2.609650   0.811716  -3.215 0.001322 **
## high.educBachelor           1.242727   0.794110   1.565 0.117732
## high.educHS Diploma/GED      -0.793527   0.786652  -1.009 0.313202
## high.educPost Graduate Degree   0.501735   0.798379   0.628 0.529775
## high.educSome College         0.870880   0.755925   1.152 0.249407
## demo_race_hispanic1          -0.066459   0.355288  -0.187 0.851632
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.033
## lmer.REML = 14920  Scale est. = 15.891      n = 2402
```

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)	-0.4014828	2.3537691	-0.171	0.86458
## hormone_scr_ert_mean	-0.0030647	0.0065386	-0.469	0.63933
## hormone_sal_end_min_since_midnight	0.0002946	0.0007016	0.420	0.67461
## pds_p_ss_categoryEarly	0.3009121	0.3143608	0.957	0.33856
## pds_p_ss_categoryLate	0.7784655	0.8009235	0.972	0.33118
## pds_p_ss_categoryMid	0.8306195	0.3086501	2.691	0.00717 **
## race.ethnicity.5levelBlack	-0.7379536	0.8151487	-0.905	0.36541
## race.ethnicity.5levelMixed	1.1287245	0.7938496	1.422	0.15522
## race.ethnicity.5levelOther	-0.2419654	0.9319611	-0.260	0.79517
## race.ethnicity.5levelWhite	1.1504108	0.7380217	1.559	0.11919
## interview_age	0.0311708	0.0165036	1.889	0.05906 .
## bmi	0.0329450	0.0333538	0.988	0.32339
## household.income[>=200K]	-2.7433347	0.8612128	-3.185	0.00147 **
## household.income[100K-200K]	-1.8535785	0.7983608	-2.322	0.02034 *
## household.income[12K-16K]	-0.5653939	1.0329704	-0.547	0.58420
## household.income[16K-25K]	-1.2856346	0.8866460	-1.450	0.14720
## household.income[25K-35K]	-0.4273756	0.8348164	-0.512	0.60874
## household.income[35K-50K]	-1.4270826	0.8120506	-1.757	0.07899 .
## household.income[50K-75K]	-1.4592006	0.7955690	-1.834	0.06677 .
## household.income[5K-12K]	-0.3556083	0.9029050	-0.394	0.69373
## household.income[75K-100K]	-1.5140074	0.8092192	-1.871	0.06149 .
## high.educBachelor	1.0810420	0.7515602	1.438	0.15046
## high.educHS Diploma/GED	1.0945076	0.7528005	1.454	0.14611
## high.educPost Graduate Degree	1.4494531	0.7655446	1.893	0.05844 .
## high.educSome College	1.3856339	0.7013563	1.976	0.04832 *
## demo_race_hispanic1	-0.0709145	0.3617479	-0.196	0.84460

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0199
## lmer.REML = 13716  Scale est. = 17.856    n = 2223
```

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)      3.3602193   2.2442373   1.497 0.134457
## hormone_scr_ert_mean      0.0067102   0.0063534   1.056 0.291005
## hormone_sal_end_min_since_midnight      0.0010245   0.0006766   1.514 0.130131
## pds_p_ss_categoryEarly      0.4287784   0.2786940   1.539 0.124053
## pds_p_ss_categoryLate     -0.3275198   1.6853121  -0.194 0.845928
## pds_p_ss_categoryMid      1.0944572   0.5267377   2.078 0.037835 *
## race.ethnicity.5levelBlack     -0.5377514   0.8987737  -0.598 0.549686
## race.ethnicity.5levelMixed      1.1012815   0.8775444   1.255 0.209617
## race.ethnicity.5levelOther      0.1604393   0.9962607   0.161 0.872074
## race.ethnicity.5levelWhite      1.0390238   0.8265328   1.257 0.208846
## interview_age      0.0044930   0.0149664   0.300 0.764045
## bmi      0.0310927   0.0310838   1.000 0.317274
## household.income[>=200K]     -3.1202425   0.8528624  -3.659 0.000259 ***
## household.income[100K-200K]   -2.5625584   0.7986649  -3.209 0.001352 **
## household.income[12K-16K]     -0.2033292   1.0331585  -0.197 0.843998
## household.income[16K-25K]     -0.0190071   0.8559902  -0.022 0.982286
## household.income[25K-35K]     -0.7483076   0.8587517  -0.871 0.383629
## household.income[35K-50K]     -1.2629168   0.8118806  -1.556 0.119950
## household.income[50K-75K]     -1.6693066   0.7890513  -2.116 0.034484 *
## household.income[5K-12K]      -0.2049517   0.8814592  -0.233 0.816159
## household.income[75K-100K]    -2.6855344   0.8132950  -3.302 0.000974 ***
## high.educBachelor      1.2451244   0.7952244   1.566 0.117540
## high.educHS Diploma/GED     -0.8192283   0.7883139  -1.039 0.298810
## high.educPost Graduate Degree   0.5054866   0.7994850   0.632 0.527274
## high.educSome College      0.8531876   0.7574455   1.126 0.260109
## demo_race_hispanic1     -0.0866705   0.3559775  -0.243 0.807661
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.032
## lmer.REML = 14917 Scale est. = 15.893    n = 2402
```

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)	-0.0920232	1.2882575	-0.071	0.94306
## hormone_scr_ert_mean	-0.0025561	0.0037315	-0.685	0.49342
## hormone_sal_end_min_since_midnight	0.0003435	0.0003942	0.871	0.38372
## PDS_score	0.3017431	0.1013996	2.976	0.00295 **
## race.ethnicity.5levelBlack	-0.2652441	0.4588441	-0.578	0.56328
## race.ethnicity.5levelMixed	0.7753733	0.4465176	1.736	0.08262 .
## race.ethnicity.5levelOther	0.0538544	0.5245876	0.103	0.91824
## race.ethnicity.5levelWhite	0.6869058	0.4149906	1.655	0.09802 .
## interview_age	0.0121067	0.0091654	1.321	0.18667
## bmi	-0.0042453	0.0181822	-0.233	0.81540
## household.income[>=200K]	-0.9786515	0.4839268	-2.022	0.04326 *
## household.income[100K-200K]	-0.4711869	0.4484121	-1.051	0.29347
## household.income[12K-16K]	-0.0340576	0.5808720	-0.059	0.95325
## household.income[16K-25K]	-0.5595962	0.4991948	-1.121	0.26241
## household.income[25K-35K]	0.0384669	0.4693705	0.082	0.93469
## household.income[35K-50K]	-0.3649910	0.4570041	-0.799	0.42457
## household.income[50K-75K]	-0.2898722	0.4471731	-0.648	0.51690
## household.income[5K-12K]	-0.0973030	0.5085805	-0.191	0.84829
## household.income[75K-100K]	-0.2704652	0.4550171	-0.594	0.55230
## high.educBachelor	0.2160937	0.4218528	0.512	0.60853
## high.educHS Diploma/GED	0.1240475	0.4234712	0.293	0.76960
## high.educPost Graduate Degree	0.6373348	0.4296596	1.483	0.13813
## high.educSome College	0.4301231	0.3939573	1.092	0.27504
## demo_race_hispanic1	0.1121954	0.2027286	0.553	0.58003

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0159
## lmer.REML = 11216 Scale est. = 6.8238    n = 2223
```

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)	2.5254694	1.2622972	2.001	0.0455 *
## hormone_scr_ert_mean	0.0049290	0.0035814	1.376	0.1689
## hormone_sal_end_min_since_midnight	0.0002372	0.0003813	0.622	0.5340
## PDS_score	0.2951154	0.1244111	2.372	0.0178 *
## race.ethnicity.5levelBlack	-0.2572250	0.5055148	-0.509	0.6109
## race.ethnicity.5levelMixed	0.4914706	0.4926761	0.998	0.3186

```
## race.ethnicity.5levelOther      0.2639043  0.5605531  0.471  0.6378
## race.ethnicity.5levelWhite      0.6208725  0.4640838  1.338  0.1811
## interview_age                   -0.0105756  0.0084838  -1.247  0.2127
## bmi                             0.0021597  0.0175778  0.123  0.9022
## household.income[>=200K]        -1.2194261  0.4776070  -2.553  0.0107 *
## household.income[100K-200K]     -0.9348785  0.4473469  -2.090  0.0367 *
## household.income[12K-16K]        0.0986751  0.5780005  0.171  0.8645
## household.income[16K-25K]       -0.0566342  0.4794449  -0.118  0.9060
## household.income[25K-35K]       -0.2348574  0.4796674  -0.490  0.6244
## household.income[35K-50K]       -0.3363838  0.4546829  -0.740  0.4595
## household.income[50K-75K]       -0.7077286  0.4421021  -1.601  0.1095
## household.income[5K-12K]         0.0346482  0.4939987  0.070  0.9441
## household.income[75K-100K]      -0.9034314  0.4556761  -1.983  0.0475 *
## high.educBachelor                1.0777046  0.4458889  2.417  0.0157 *
## high.educHS Diploma/GED        -0.1250172  0.4418603  -0.283  0.7773
## high.educPost Graduate Degree    0.7507389  0.4482421  1.675  0.0941 .
## high.educSome College            0.6887846  0.4246204  1.622  0.1049
## demo_race_hispanic1             0.0796552  0.1996128  0.399  0.6899
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0165
## lmer.REML = 12201  Scale est. = 6.4313    n = 2402
```

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)    0.1354643   1.3319127   0.102  0.9190
## hormone_scr_ert_mean -0.0016070   0.0037122  -0.433  0.6651
## hormone_sal_end_min_since_midnight 0.0002989   0.0003953   0.756  0.4496
## pds_p_ss_categoryEarly 0.2349230   0.1784307   1.317  0.1881
## pds_p_ss_categoryLate 0.2566102   0.4540128   0.565  0.5720
## pds_p_ss_categoryMid 0.3940787   0.1748688   2.254  0.0243 *
## race.ethnicity.5levelBlack -0.2071872   0.4587886  -0.452  0.6516
## race.ethnicity.5levelMixed 0.7922716   0.4470233   1.772  0.0765 .
## race.ethnicity.5levelOther 0.0714176   0.5251161   0.136  0.8918
## race.ethnicity.5levelWhite 0.6972459   0.4154149   1.678  0.0934 .
## interview_age     0.0129311   0.0093639   1.381  0.1674
## bmi               -0.0072197   0.0188507  -0.383  0.7018
## household.income[>=200K] -0.9943174   0.4849936  -2.050  0.0405 *
```



```
## household.income[100K-200K]      -0.4823280  0.4495150  -1.073  0.2834
## household.income[12K-16K]        -0.1209538  0.5810498  -0.208  0.8351
## household.income[16K-25K]        -0.5517352  0.5000714  -1.103  0.2700
## household.income[25K-35K]         0.0014186  0.4701874   0.003  0.9976
## household.income[35K-50K]        -0.3910107  0.4574483  -0.855  0.3928
## household.income[50K-75K]        -0.3027098  0.4479492  -0.676  0.4993
## household.income[5K-12K]         -0.0951313  0.5096709  -0.187  0.8520
## household.income[75K-100K]       -0.2905233  0.4557245  -0.637  0.5239
## high.educBachelor                 0.2091117  0.4227829   0.495  0.6209
## high.educHS Diploma/GED          0.1395986  0.4239649   0.329  0.7420
## high.educPost Graduate Degree     0.6318352  0.4307089   1.467  0.1425
## high.educSome College             0.4578850  0.3946842   1.160  0.2461
## demo_race_hispanic1              0.0910777  0.2029286   0.449  0.6536
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0138
## lmer.REML = 11220  Scale est. = 6.8753    n = 2223
```

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)    2.6573928   1.2655920   2.100  0.03586 *
## hormone_scr_ert_mean    0.0053839   0.0035805   1.504  0.13280
## hormone_sal_end_min_since_midnight  0.0002250   0.0003817   0.590  0.55558
## pds_p_ss_categoryEarly    0.2022554   0.1572861   1.286  0.19860
## pds_p_ss_categoryLate   -0.0489003   0.9476156  -0.052  0.95885
## pds_p_ss_categoryMid     0.6476946   0.2972345   2.179  0.02942 *
## race.ethnicity.5levelBlack -0.2166209   0.5052651  -0.429  0.66816
## race.ethnicity.5levelMixed  0.5275891   0.4932400   1.070  0.28489
## race.ethnicity.5levelOther  0.2892977   0.5610474   0.516  0.60615
## race.ethnicity.5levelWhite  0.6679432   0.4647875   1.437  0.15082
## interview_age    -0.0094946   0.0084618  -1.122  0.26195
## bmi              0.0037890   0.0175340   0.216  0.82893
## household.income[>=200K]   -1.2443561   0.4785954  -2.600  0.00938 **
## household.income[100K-200K] -0.9589020   0.4483651  -2.139  0.03256 *
## household.income[12K-16K]   0.0615465   0.5795720   0.106  0.91544
## household.income[16K-25K]  -0.0790108   0.4807513  -0.164  0.86947
## household.income[25K-35K]  -0.2495000   0.4822403  -0.517  0.60494
## household.income[35K-50K]  -0.3617450   0.4556879  -0.794  0.42737
## household.income[50K-75K]  -0.7235423   0.4430068  -1.633  0.10255
## household.income[5K-12K]    0.0184478   0.4947293   0.037  0.97026
```

```
## household.income[75K-100K]      -0.9329342  0.4564952  -2.044  0.04109 *
## high.educBachelor                1.0811188  0.4464593   2.422  0.01553 *
## high.educHS Diploma/GED         -0.1405658  0.4427402  -0.317  0.75090
## high.educPost Graduate Degree     0.7554663  0.4488033   1.683  0.09245 .
## high.educSome College            0.6797750  0.4254174   1.598  0.11020
## demo_race_hispanic1             0.0666127  0.1999862   0.333  0.73910
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0156
## lmer.REML = 12200  Scale est. = 6.4312    n = 2402
```

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)      5.155e-01  6.745e-01   0.764  0.444769
## hormone_scr_ert_mean  2.170e-03  1.957e-03   1.109  0.267577
## hormone_sal_end_min_since_midnight -7.674e-05  2.069e-04  -0.371  0.710767
## PDS_score         1.644e-01  5.301e-02   3.101  0.001953 **
## race.ethnicity.5levelBlack  -4.887e-01  2.393e-01  -2.042  0.041231 *
## race.ethnicity.5levelMixed  -4.181e-02  2.327e-01  -0.180  0.857427
## race.ethnicity.5levelOther  -2.988e-01  2.733e-01  -1.094  0.274292
## race.ethnicity.5levelWhite  -5.372e-02  2.165e-01  -0.248  0.804044
## interview_age       3.192e-03  4.811e-03   0.664  0.507054
## bmi                1.196e-02  9.489e-03   1.261  0.207504
## household.income[>=200K]    -8.650e-01  2.517e-01  -3.437  0.000599 ***
## household.income[100K-200K] -6.265e-01  2.330e-01  -2.688  0.007239 **
## household.income[12K-16K]   -3.812e-01  3.014e-01  -1.265  0.206144
## household.income[16K-25K]   -3.330e-01  2.601e-01  -1.280  0.200725
## household.income[25K-35K]   -1.181e-01  2.440e-01  -0.484  0.628324
## household.income[35K-50K]   -5.560e-01  2.377e-01  -2.339  0.019427 *
## household.income[50K-75K]   -5.313e-01  2.324e-01  -2.286  0.022326 *
## household.income[5K-12K]    -3.861e-02  2.651e-01  -0.146  0.884210
## household.income[75K-100K]  -5.467e-01  2.365e-01  -2.311  0.020924 *
## high.educBachelor          1.351e-01  2.190e-01   0.617  0.537217
## high.educHS Diploma/GED     3.972e-01  2.203e-01   1.803  0.071529 .
## high.educPost Graduate Degree 1.661e-01  2.231e-01   0.745  0.456593
## high.educSome College       1.764e-01  2.046e-01   0.862  0.388789
## demo_race_hispanic1        -2.211e-04  1.056e-01  -0.002  0.998329
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0237
## lmer.REML = 8378.8  Scale est. = 2.323      n = 2223
```

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)      0.0813939   0.7321183   0.111 0.911486
## hormone_scr_ert_mean      0.0014661   0.0020753   0.706 0.479980
## hormone_sal_end_min_since_midnight  0.0004659   0.0002130   2.187 0.028815 *
## PDS_score          0.1250502   0.0725504   1.724 0.084904 .
## race.ethnicity.5levelBlack      -0.1438460   0.2935465  -0.490 0.624159
## race.ethnicity.5levelMixed      0.2787190   0.2865261   0.973 0.330775
## race.ethnicity.5levelOther      0.0432501   0.3262493   0.133 0.894547
## race.ethnicity.5levelWhite      0.1313332   0.2693674   0.488 0.625905
## interview_age          0.0110167   0.0049286   2.235 0.025493 *
## bmi                -0.0016332   0.0102448  -0.159 0.873353
## household.income[>=200K]      -1.0700519   0.2774220  -3.857 0.000118 ***
## household.income[100K-200K]    -0.9113573   0.2603174  -3.501 0.000472 ***
## household.income[12K-16K]       0.0426844   0.3372595   0.127 0.899297
## household.income[16K-25K]       0.1200779   0.2795630   0.430 0.667584
## household.income[25K-35K]      -0.2477680   0.2796286  -0.886 0.375674
## household.income[35K-50K]      -0.5085698   0.2651967  -1.918 0.055268 .
## household.income[50K-75K]      -0.6504466   0.2576431  -2.525 0.011647 *
## household.income[5K-12K]       -0.0572338   0.2883762  -0.198 0.842695
## household.income[75K-100K]     -0.9648505   0.2654496  -3.635 0.000284 ***
## high.educBachelor          -0.0294268   0.2593016  -0.113 0.909656
## high.educHS Diploma/GED      -0.5464363   0.2569711  -2.126 0.033569 *
## high.educPost Graduate Degree  -0.2823470   0.2608178  -1.083 0.279120
## high.educSome College        -0.1081856   0.2467635  -0.438 0.661123
## demo_race_hispanic1         -0.1466465   0.1116678  -1.313 0.189229
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0394
## lmer.REML = 9632.5  Scale est. = 2.1541      n = 2402
```

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)	6.255e-01	6.974e-01	0.897	0.36986
## hormone_scr_ert_mean	2.666e-03	1.947e-03	1.369	0.17114
## hormone_sal_end_min_since_midnight	-7.981e-05	2.075e-04	-0.385	0.70055
## pds_p_ss_categoryEarly	1.123e-02	9.353e-02	0.120	0.90447
## pds_p_ss_categoryLate	3.436e-01	2.374e-01	1.447	0.14803
## pds_p_ss_categoryMid	1.676e-01	9.148e-02	1.832	0.06714 .
## race.ethnicity.5levelBlack	-4.604e-01	2.394e-01	-1.923	0.05456 .
## race.ethnicity.5levelMixed	-2.748e-02	2.330e-01	-0.118	0.90615
## race.ethnicity.5levelOther	-2.867e-01	2.737e-01	-1.048	0.29482
## race.ethnicity.5levelWhite	-4.482e-02	2.168e-01	-0.207	0.83621
## interview_age	3.886e-03	4.914e-03	0.791	0.42918
## bmi	1.089e-02	9.843e-03	1.107	0.26854
## household.income[>=200K]	-8.783e-01	2.523e-01	-3.481	0.00051 ***
## household.income[100K-200K]	-6.355e-01	2.337e-01	-2.719	0.00660 **
## household.income[12K-16K]	-4.221e-01	3.016e-01	-1.399	0.16181
## household.income[16K-25K]	-3.415e-01	2.607e-01	-1.310	0.19041
## household.income[25K-35K]	-1.430e-01	2.445e-01	-0.585	0.55872
## household.income[35K-50K]	-5.768e-01	2.380e-01	-2.423	0.01547 *
## household.income[50K-75K]	-5.434e-01	2.329e-01	-2.334	0.01970 *
## household.income[5K-12K]	-5.087e-02	2.658e-01	-0.191	0.84822
## household.income[75K-100K]	-5.641e-01	2.370e-01	-2.380	0.01739 *
## high.educBachelor	1.358e-01	2.196e-01	0.618	0.53643
## high.educHS Diploma/GED	4.042e-01	2.207e-01	1.832	0.06713 .
## high.educPost Graduate Degree	1.696e-01	2.238e-01	0.758	0.44857
## high.educSome College	1.941e-01	2.051e-01	0.947	0.34389
## demo_race_hispanic1	-1.299e-02	1.057e-01	-0.123	0.90217

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0212
## lmer.REML = 8386.4  Scale est. = 2.3236    n = 2223
```

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)      0.1433402   0.7334748   0.195 0.845076
## hormone_scr_ert_mean      0.0018374   0.0020732   0.886 0.375563
## hormone_sal_end_min_since_midnight      0.0004597   0.0002129   2.160 0.030888 *
## pds_p_ss_categoryEarly      0.0685110   0.0915408   0.748 0.454281
## pds_p_ss_categoryLate     -0.7491299   0.5520171  -1.357 0.174886
## pds_p_ss_categoryMid       0.3212095   0.1733997   1.852 0.064089 .
## race.ethnicity.5levelBlack  -0.1124838   0.2931348  -0.384 0.701215
## race.ethnicity.5levelMixed   0.2985349   0.2866297   1.042 0.297733
## race.ethnicity.5levelOther   0.0610404   0.3263033   0.187 0.851624
## race.ethnicity.5levelWhite   0.1560800   0.2695692   0.579 0.562646
## interview_age           0.0117028   0.0049130   2.382 0.017296 *
## bmi                   -0.0009328   0.0102130  -0.091 0.927231
## household.income[>=200K]    -1.1039570   0.2777691  -3.974 7.27e-05 ***
## household.income[100K-200K] -0.9450079   0.2607295  -3.624 0.000296 ***
## household.income[12K-16K]   -0.0064280   0.3379444  -0.019 0.984826
## household.income[16K-25K]    0.0909728   0.2801101   0.325 0.745380
## household.income[25K-35K]   -0.2763339   0.2809536  -0.984 0.325433
## household.income[35K-50K]   -0.5410621   0.2655814  -2.037 0.041733 *
## household.income[50K-75K]   -0.6752495   0.2579856  -2.617 0.008917 **
## household.income[5K-12K]    -0.0804313   0.2885826  -0.279 0.780490
## household.income[75K-100K]  -1.0001772   0.2657452  -3.764 0.000171 ***
## high.educBachelor          -0.0454387   0.2594918  -0.175 0.861011
## high.educHS Diploma/GED    -0.5728707   0.2573348  -2.226 0.026096 *
## high.educPost Graduate Degree -0.2970029   0.2609889  -1.138 0.255239
## high.educSome College       -0.1312489   0.2470998  -0.531 0.595359
## demo_race_hispanic1        -0.1542175   0.1117317  -1.380 0.167640
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.04
## lmer.REML = 9630.2 Scale est. = 2.1636 n = 2402

```

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)	0.6946964	0.7869030	0.883	0.3774
## hormone_scr_ert_mean	-0.0014794	0.0022787	-0.649	0.5163
## hormone_sal_end_min_since_midnight	0.0001378	0.0002400	0.574	0.5659
## PDS_score	0.1142379	0.0619875	1.843	0.0655 .
## race.ethnicity.5levelBlack	-0.2010053	0.2803340	-0.717	0.4734
## race.ethnicity.5levelMixed	0.1962901	0.2729607	0.719	0.4721
## race.ethnicity.5levelOther	-0.2286675	0.3207540	-0.713	0.4760
## race.ethnicity.5levelWhite	0.2412467	0.2535298	0.952	0.3414
## interview_age	0.0027944	0.0055972	0.499	0.6177
## bmi	0.0100094	0.0111187	0.900	0.3681
## household.income[>=200K]	-0.7517559	0.2960444	-2.539	0.0112 *
## household.income[100K-200K]	-0.6016709	0.2743596	-2.193	0.0284 *
## household.income[12K-16K]	-0.0738405	0.3555015	-0.208	0.8355
## household.income[16K-25K]	-0.4031889	0.3053641	-1.320	0.1869
## household.income[25K-35K]	-0.1079837	0.2872057	-0.376	0.7070
## household.income[35K-50K]	-0.3531059	0.2795852	-1.263	0.2067
## household.income[50K-75K]	-0.4789237	0.2736161	-1.750	0.0802 .
## household.income[5K-12K]	0.0596199	0.3110866	0.192	0.8480
## household.income[75K-100K]	-0.4886210	0.2783955	-1.755	0.0794 .
## high.educBachelor	-0.1105536	0.2581676	-0.428	0.6685
## high.educHS Diploma/GED	0.0399195	0.2590819	0.154	0.8776
## high.educPost Graduate Degree	0.0702587	0.2629264	0.267	0.7893
## high.educSome College	-0.0097467	0.2411010	-0.040	0.9678
## demo_race_hispanic1	-0.0413247	0.1237114	-0.334	0.7384

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.00877
## lmer.REML = 9048.8 Scale est. = 2.4586 n = 2223
```

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)	1.0018795	0.8526652	1.175	0.240113
## hormone_scr_ert_mean	0.0029559	0.0024208	1.221	0.222189
## hormone_sal_end_min_since_midnight	0.0004147	0.0002561	1.619	0.105603
## PDS_score	0.1158999	0.0840666	1.379	0.168127
## race.ethnicity.5levelBlack	-0.1566971	0.3423906	-0.458	0.647241
## race.ethnicity.5levelMixed	0.2127240	0.3338286	0.637	0.524039

```

## race.ethnicity.5levelOther      0.0433623  0.3793015   0.114 0.908993
## race.ethnicity.5levelWhite      0.1799112  0.3142412   0.573 0.567020
## interview_age                   0.0043261  0.0057221   0.756 0.449705
## bmi                             -0.0038919  0.0118826  -0.328 0.743297
## household.income[>=200K]        -1.1380149  0.3239396  -3.513 0.000451 ***
## household.income[100K-200K]     -1.1111185  0.3034001  -3.662 0.000255 ***
## household.income[12K-16K]       0.1196646  0.3924145   0.305 0.760435
## household.income[16K-25K]      -0.3681116  0.3251713  -1.132 0.257726
## household.income[25K-35K]      -0.5868862  0.3253235  -1.804 0.071357 .
## household.income[35K-50K]      -0.7289818  0.3085434  -2.363 0.018225 *
## household.income[50K-75K]      -0.7801064  0.2998939  -2.601 0.009345 **
## household.income[5K-12K]       -0.2111947  0.3352741  -0.630 0.528810
## household.income[75K-100K]     -0.9700392  0.3091516  -3.138 0.001723 **
## high.educBachelor              0.2846881  0.3023771   0.942 0.346544
## high.educHS Diploma/GED        -0.3791718  0.2995585  -1.266 0.205720
## high.educPost Graduate Degree   -0.0204365  0.3040233  -0.067 0.946412
## high.educSome College          0.3012938  0.2878271   1.047 0.295304
## demo_race_hispanic1            -0.1327680  0.1345204  -0.987 0.323756
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.026
## lmer.REML = 10335  Scale est. = 2.4297    n = 2402

```

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)    0.8037768   0.8131014   0.989   0.3230
## hormone_scr_ert_mean -0.0012351   0.0022655  -0.545   0.5857
## hormone_sal_end_min_since_midnight 0.0001333   0.0002406   0.554   0.5798
## pds_p_ss_categoryEarly 0.0117692   0.1089577   0.108   0.9140
## pds_p_ss_categoryLate 0.1408096   0.2773070   0.508   0.6117
## pds_p_ss_categoryMid 0.1546003   0.1068124   1.447   0.1479
## race.ethnicity.5levelBlack -0.1893051   0.2801163  -0.676   0.4992
## race.ethnicity.5levelMixed 0.2004811   0.2730743   0.734   0.4629
## race.ethnicity.5levelOther -0.2206535   0.3208408  -0.688   0.4917
## race.ethnicity.5levelWhite 0.2441351   0.2536279   0.963   0.3359
## interview_age    0.0030328   0.0057152   0.531   0.5957
## bmi             0.0086767   0.0115185   0.753   0.4514
## household.income[>=200K] -0.7481744   0.2964616  -2.524   0.0117 *

```

```

## household.income[100K-200K]      -0.5967619  0.2748119  -2.172  0.0300 *
## household.income[12K-16K]        -0.0959433  0.3553197  -0.270  0.7872
## household.income[16K-25K]        -0.4019625  0.3056582  -1.315  0.1886
## household.income[25K-35K]        -0.1161077  0.2874691  -0.404  0.6863
## household.income[35K-50K]        -0.3617134  0.2796349  -1.294  0.1960
## household.income[50K-75K]        -0.4788741  0.2738693  -1.749  0.0805 .
## household.income[5K-12K]         0.0602827  0.3115127   0.194  0.8466
## household.income[75K-100K]       -0.4907891  0.2786041  -1.762  0.0783 .
## high.educBachelor                -0.1180154  0.2585200  -0.457  0.6481
## high.educHS Diploma/GED          0.0408853  0.2591745   0.158  0.8747
## high.educPost Graduate Degree     0.0632737  0.2633491   0.240  0.8101
## high.educSome College             -0.0061747  0.2413435  -0.026  0.9796
## demo_race_hispanic1              -0.0481683  0.1237784  -0.389  0.6972
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0077
## lmer.REML = 9052.2  Scale est. = 2.4823    n = 2223

```

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)    1.1044212   0.8546220   1.292 0.196382
## hormone_scr_ert_mean 0.0030660   0.0024192   1.267 0.205148
## hormone_sal_end_min_since_midnight 0.0004091   0.0002562   1.597 0.110424
## pds_p_ss_categoryEarly 0.1861277   0.1062427   1.752 0.079918 .
## pds_p_ss_categoryLate 0.0017692   0.6419157   0.003 0.997801
## pds_p_ss_categoryMid 0.1526955   0.2008550   0.760 0.447194
## race.ethnicity.5levelBlack -0.1445579   0.3421068  -0.423 0.672661
## race.ethnicity.5levelMixed 0.2188331   0.3341181   0.655 0.512559
## race.ethnicity.5levelOther 0.0515696   0.3795273   0.136 0.891929
## race.ethnicity.5levelWhite 0.1964886   0.3146212   0.625 0.532343
## interview_age     0.0044051   0.0057055   0.772 0.440143
## bmi              -0.0040093   0.0118500  -0.338 0.735139
## household.income[>=200K] -1.1532304   0.3245368  -3.553 0.000388 ***
## household.income[100K-200K] -1.1241430   0.3040362  -3.697 0.000223 ***
## household.income[12K-16K]   0.1047160   0.3934166   0.266 0.790131
## household.income[16K-25K]  -0.3922205   0.3259821  -1.203 0.229020
## household.income[25K-35K]  -0.6165417   0.3270272  -1.885 0.059512 .
## household.income[35K-50K]  -0.7466508   0.3091653  -2.415 0.015808 *
## household.income[50K-75K]  -0.7929751   0.3004493  -2.639 0.008362 **
## household.income[5K-12K]   -0.2227228   0.3357024  -0.663 0.507105

```



```
## household.income[75K-100K]      -0.9879028  0.3096484  -3.190  0.001439 **
## high.educBachelor                0.2818940  0.3027029   0.931  0.351816
## high.educHS Diploma/GED         -0.3805805  0.3000911  -1.268  0.204845
## high.educPost Graduate Degree    -0.0231095  0.3043442  -0.076  0.939480
## high.educSome College            0.2958534  0.2883101   1.026  0.304919
## demo_race_hispanic1             -0.1344127  0.1346814  -0.998  0.318379
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0255
## lmer.REML = 10334  Scale est. = 2.4213    n = 2402
```

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_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)    -2.409e-01  3.539e-01  -0.681   0.496
## hormone_scr_ert_mean    -1.337e-03  1.134e-03  -1.180   0.238
## hormone_sal_end_min_since_midnight -1.533e-04  1.236e-04  -1.240   0.215
## interview_age         4.223e-03  2.808e-03   1.504   0.133
## MRI_minus_hormone_date_time    1.185e-06  2.634e-06   0.450   0.653
## bmi                -5.439e-03  5.499e-03  -0.989   0.323
##
##
## R-sq.(adj) =  0.000848
## lmer.REML = 4962.6  Scale est. = 0.7222    n = 1883
```

Male 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)    -1.960e-01  3.537e-01  -0.554  0.5796
## hormone_scr_ert_mean    -1.369e-03  1.231e-03  -1.113  0.2659
## hormone_sal_end_min_since_midnight  1.367e-04  1.251e-04   1.093  0.2747
## interview_age      2.756e-03  2.782e-03   0.991  0.3220
## MRI_minus_hormone_date_time    3.169e-07  2.885e-06   0.110  0.9125
## bmi             -1.054e-02  5.678e-03  -1.856  0.0636 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00143
## lmer.REML = 5034.5  Scale est. = 0.8233    n = 1875
```

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_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)    -2.777e-01  3.486e-01  -0.797  0.4258
## hormone_scr_ert_mean     6.491e-04  1.117e-03   0.581  0.5611
## hormone_sal_end_min_since_midnight -2.038e-04  1.214e-04  -1.678  0.0934 .
## interview_age      4.210e-03  2.766e-03   1.522  0.1281
## MRI_minus_hormone_date_time    1.306e-06  2.595e-06   0.503  0.6148
## bmi             -5.888e-03  5.455e-03  -1.079  0.2806
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00124
## lmer.REML = 4910.7  Scale est. = 0.63459    n = 1883
```

Male 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)    -2.607e-01  3.492e-01  -0.747   0.4554
## hormone_scr_ert_mean    -1.736e-03  1.217e-03  -1.426   0.1540
## hormone_sal_end_min_since_midnight  1.908e-04  1.235e-04   1.545   0.1226
## interview_age      3.156e-03  2.752e-03   1.147   0.2517
## MRI_minus_hormone_date_time    7.082e-07  2.859e-06   0.248   0.8044
## bmi             -1.048e-02  5.630e-03  -1.862   0.0628 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.003
## lmer.REML = 4993.6  Scale est. = 0.61855    n = 1875
```

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_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)    2.992e-01  2.776e-01   1.078   0.2813
## hormone_scr_ert_mean    -3.193e-04  8.860e-04  -0.360   0.7186
## hormone_sal_end_min_since_midnight -1.197e-04  9.373e-05  -1.277   0.2019
## interview_age    -3.460e-04  2.199e-03  -0.157   0.8750
## MRI_minus_hormone_date_time    -1.866e-07  2.049e-06  -0.091   0.9274
## bmi             -7.916e-03  4.348e-03  -1.820   0.0689 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.000378
## lmer.REML = 4048.3  Scale est. = 0.40874    n = 1877
```

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)    2.078e-01  2.803e-01   0.741   0.459
## hormone_scr_ert_mean -2.661e-04  9.778e-04  -0.272   0.786
## hormone_sal_end_min_since_midnight 6.422e-05  9.864e-05   0.651   0.515
## interview_age -1.458e-03  2.206e-03  -0.661   0.509
## MRI_minus_hormone_date_time -3.280e-06  2.337e-06  -1.404   0.161
## bmi -3.214e-03  4.496e-03  -0.715   0.475
##
##
## R-sq.(adj) = -0.000669
## lmer.REML = 4155.8  Scale est. = 0.45644  n = 1870
```

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)    1.115e-01  3.431e-01   0.325  0.74537
## hormone_scr_ert_mean -1.680e-04  1.095e-03  -0.154  0.87800
## hormone_sal_end_min_since_midnight -3.164e-04  1.200e-04  -2.636  0.00845 **
## interview_age  8.584e-04  2.721e-03   0.315  0.75248
## MRI_minus_hormone_date_time -4.142e-07  2.546e-06  -0.163  0.87076
## bmi  1.485e-03  5.326e-03   0.279  0.78033
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
```

```
## R-sq.(adj) = 0.0023
## lmer.REML = 4828 Scale est. = 0.66703 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)    2.168e-01  3.514e-01   0.617  0.5373
## hormone_scr_ert_mean -1.089e-03  1.218e-03  -0.894  0.3715
## hormone_sal_end_min_since_midnight -2.954e-04  1.204e-04  -2.453  0.0143 *
## interview_age    -3.983e-04  2.766e-03  -0.144  0.8855
## MRI_minus_hormone_date_time  3.306e-06  2.846e-06   1.161  0.2457
## bmi             4.882e-03  5.619e-03   0.869  0.3850
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) = 0.00146
## lmer.REML = 5025.4 Scale est. = 0.82169 n = 1876
```

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)    3.506e-01  3.384e-01   1.036  0.30022
## hormone_scr_ert_mean  6.880e-04  1.083e-03   0.636  0.52515
## hormone_sal_end_min_since_midnight -3.509e-04  1.208e-04  -2.905  0.00371 **
## interview_age    -9.285e-04  2.682e-03  -0.346  0.72926
```

```
## MRI_minus_hormone_date_time      4.481e-07  2.527e-06  0.177  0.85925
## bmi                             1.985e-04  5.264e-03  0.038  0.96993
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00314
## lmer.REML = 4784.2  Scale est. = 0.70994  n = 1882
```

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)      4.163e-01  3.473e-01   1.199   0.231
## hormone_scr_ert_mean -1.504e-03  1.209e-03  -1.244   0.214
## hormone_sal_end_min_since_midnight -1.810e-04  1.272e-04  -1.423   0.155
## interview_age      -3.070e-03  2.733e-03  -1.123   0.262
## MRI_minus_hormone_date_time      2.155e-06  2.842e-06   0.758   0.448
## bmi                8.574e-03  5.561e-03   1.542   0.123
##
##
## R-sq.(adj) =  0.000645
## lmer.REML = 4971.9  Scale est. = 0.78526  n = 1880
```

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) -3.405e-01 2.737e-01 -1.244 0.214
## hormone_scr_ert_mean -7.442e-04 8.737e-04 -0.852 0.394
## hormone_sal_end_min_since_midnight -8.679e-05 9.611e-05 -0.903 0.367
## interview_age 2.946e-03 2.169e-03 1.358 0.174
## MRI_minus_hormone_date_time 7.288e-07 2.032e-06 0.359 0.720
## bmi 3.665e-03 4.255e-03 0.861 0.389
##
##
## R-sq.(adj) = -0.000193
## lmer.REML = 3977.6 Scale est. = 0.43779 n = 1878
```

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) 4.558e-02 2.847e-01 0.160 0.873
## hormone_scr_ert_mean -5.079e-05 9.918e-04 -0.051 0.959
## hormone_sal_end_min_since_midnight -1.148e-04 1.036e-04 -1.108 0.268
## interview_age -5.780e-04 2.241e-03 -0.258 0.797
## MRI_minus_hormone_date_time -2.009e-06 2.389e-06 -0.841 0.400
## bmi 7.005e-03 4.592e-03 1.526 0.127
##
##
## R-sq.(adj) = -0.000232
## lmer.REML = 4210.7 Scale est. = 0.48702 n = 1875
```

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_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)      1.841e-01  2.205e-01   0.835   0.4038
## hormone_scr_ert_mean      1.491e-03  7.079e-04   2.107   0.0353 *
## hormone_sal_end_min_since_midnight -7.359e-05  7.601e-05  -0.968   0.3331
## interview_age      -1.303e-03  1.748e-03  -0.745   0.4562
## MRI_minus_hormone_date_time      -1.757e-06  1.630e-06  -1.078   0.2813
## bmi      -7.956e-04  3.418e-03  -0.233   0.8160
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.00127
## lmer.REML = 3151.4  Scale est. = 0.30121    n = 1869

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

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_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)      3.170e-01  2.583e-01   1.227   0.220
## hormone_scr_ert_mean      1.245e-03  8.266e-04   1.506   0.132
## hormone_sal_end_min_since_midnight -2.778e-05  8.996e-05  -0.309   0.758
## interview_age      -2.712e-03  2.048e-03  -1.324   0.186
## MRI_minus_hormone_date_time      4.763e-07  1.911e-06   0.249   0.803
## bmi      -1.292e-03  4.001e-03  -0.323   0.747
##
##
## R-sq.(adj) = -0.000881
## lmer.REML = 3738.9  Scale est. = 0.4132    n = 1871

```

Male participants

```

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

##
## Family: gaussian
## Link function: identity
##
## Formula:
## lOFC_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)                   -4.222e-01  2.401e-01  -1.759   0.0788 .
## hormone_scr_ert_mean          -1.201e-03  8.343e-04  -1.439   0.1503
## hormone_sal_end_min_since_midnight 1.169e-04  8.559e-05   1.365   0.1723
## interview_age                 3.213e-03  1.891e-03   1.699   0.0895 .
## MRI_minus_hormone_date_time    -1.637e-06  2.016e-06  -0.812   0.4170
## bmi                          -2.476e-03  3.852e-03  -0.643   0.5204
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0015
## lmer.REML = 3556.3  Scale est. = 0.37781    n = 1863

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

##
## Family: gaussian
## Link function: identity
##
## Formula:
## mOFC_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)                  -1.760e-01  2.744e-01  -0.642   0.521
## hormone_scr_ert_mean          -4.029e-04  9.504e-04  -0.424   0.672
## hormone_sal_end_min_since_midnight 1.119e-04  9.436e-05   1.185   0.236
## interview_age                 8.756e-04  2.160e-03   0.405   0.685
## MRI_minus_hormone_date_time    -2.256e-06  2.281e-06  -0.989   0.323
## bmi                          -1.274e-03  4.376e-03  -0.291   0.771
##
##
## R-sq.(adj) = -0.00147
## lmer.REML = 4068.3  Scale est. = 0.49765    n = 1867

```

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)	1.029e-01	1.985e-01	0.518	0.604
## hormone_scr_ert_mean	8.350e-04	6.345e-04	1.316	0.188
## hormone_sal_end_min_since_midnight	-6.459e-05	6.829e-05	-0.946	0.344
## interview_age	-8.708e-04	1.576e-03	-0.552	0.581
## MRI_minus_hormone_date_time	-2.159e-06	1.471e-06	-1.468	0.142
## bmi	5.942e-05	3.084e-03	0.019	0.985

```
##
##
## R-sq.(adj) = 0.000721
## lmer.REML = 2794.1 Scale est. = 0.24819 n = 1878

## 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)	-4.512e-02	2.366e-01	-0.191	0.849
## hormone_scr_ert_mean	8.924e-04	7.557e-04	1.181	0.238
## hormone_sal_end_min_since_midnight	1.417e-05	7.995e-05	0.177	0.859
## interview_age	6.784e-05	1.878e-03	0.036	0.971
## MRI_minus_hormone_date_time	-9.897e-08	1.745e-06	-0.057	0.955
## bmi	-1.709e-03	3.679e-03	-0.464	0.642

```
##
##
## R-sq.(adj) = -0.00184
## lmer.REML = 3472.2 Scale est. = 0.34841 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)                1.656e-02  2.123e-01  0.078  0.9378
## hormone_scr_ert_mean       -4.353e-05  7.347e-04 -0.059  0.9528
## hormone_sal_end_min_since_midnight -1.499e-04  7.323e-05 -2.046  0.0409 *
## interview_age              3.239e-04  1.670e-03  0.194  0.8462
## MRI_minus_hormone_date_time 2.795e-06  1.725e-06  1.621  0.1053
## bmi                       3.118e-03  3.405e-03  0.916  0.3599
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.000991
## lmer.REML = 3097.2  Scale est. = 0.26238    n = 1860

## 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)    1.279e-01  2.496e-01  0.512  0.6084
## hormone_scr_ert_mean -6.811e-05  8.655e-04 -0.079  0.9373
## hormone_sal_end_min_since_midnight -1.837e-04  8.623e-05 -2.130  0.0333 *
## interview_age      2.597e-05  1.965e-03  0.013  0.9895
## MRI_minus_hormone_date_time 4.629e-07  2.085e-06  0.222  0.8243
## bmi              2.034e-03  4.006e-03  0.508  0.6116
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = -3.23e-05
## lmer.REML = 3719  Scale est. = 0.36675    n = 1866

```

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) -5.642e-01 3.552e-01 -1.588 0.1123
## hormone_scr_ert_mean -1.298e-03 1.146e-03 -1.132 0.2577
## hormone_sal_end_min_since_midnight -9.477e-05 1.170e-04 -0.810 0.4181
## interview_age 5.636e-03 2.816e-03 2.001 0.0455 *
## bmi 2.401e-03 5.402e-03 0.444 0.6568
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.000666
## lmer.REML = 5616.5 Scale est. = 0.73503 n = 2069

##
## 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) -5.884e-01 3.692e-01 -1.594 0.111
## hormone_scr_ert_mean -1.077e-03 1.194e-03 -0.902 0.367
## hormone_sal_end_min_since_midnight 3.632e-05 1.242e-04 0.292 0.770
## interview_age 3.866e-03 2.929e-03 1.320 0.187
## bmi 8.138e-03 5.607e-03 1.451 0.147
##
##
## R-sq.(adj) = 0.000119
## lmer.REML = 5765.6 Scale est. = 0.83877 n = 2069

```

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) -0.6865495 0.3336229 -2.058 0.0397 *
## hormone_scr_ert_mean -0.0011824 0.0011702 -1.010 0.3124
## hormone_sal_end_min_since_midnight 0.0001038 0.0001146 0.905 0.3654
## interview_age 0.0050443 0.0026495 1.904 0.0571 .
## bmi 0.0012407 0.0053442 0.232 0.8164
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##

```

```
## R-sq.(adj) = 0.000472
## lmer.REML = 5787.9 Scale est. = 0.84862 n = 2145

##
## 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) -3.731e-02 3.303e-01 -0.113 0.910
## hormone_scr_ert_mean -3.075e-04 1.156e-03 -0.266 0.790
## hormone_sal_end_min_since_midnight 3.782e-06 1.105e-04 0.034 0.973
## interview_age -1.175e-04 2.622e-03 -0.045 0.964
## bmi 2.200e-03 5.285e-03 0.416 0.677
##
##
## R-sq.(adj) = -0.00176
## lmer.REML = 5757.7 Scale est. = 0.83868 n = 2145
```

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) -0.3391990 0.3499311 -0.969 0.332475
## hormone_scr_ert_mean -0.0007180 0.0011453 -0.627 0.530757
## hormone_sal_end_min_since_midnight 0.0004154 0.0001219 3.408 0.000665 ***
## interview_age -0.0030156 0.0027696 -1.089 0.276352
## bmi 0.0189235 0.0053132 3.562 0.000376 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0124
## lmer.REML = 7010.3 Scale est. = 0.79417 n = 2467
```

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)    -2.185e-02  3.144e-01  -0.069  0.9446
## hormone_scr_ert_mean -2.276e-03  1.075e-03  -2.117  0.0343 *
## hormone_sal_end_min_since_midnight 1.173e-04  1.125e-04   1.043  0.2970
## interview_age      8.064e-05  2.502e-03   0.032  0.9743
## bmi               3.446e-03  4.950e-03   0.696  0.4864
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) =  0.000517
## lmer.REML = 7453.5   Scale est. = 0.7427    n = 2684
```

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)    -1.036e+00  2.589e+00  -0.400
## PDS_score        8.580e-01  2.027e-01   4.233
## hormone_sal_end_min_since_midnight -4.458e-05  7.958e-04  -0.056
## hormone_scr_ert_mean -3.385e-03  7.117e-03  -0.476
## accumbens_rvsnt_ant_z  3.951e-01  3.977e-01   0.993
## race.ethnicity.5levelBlack -7.031e-01  9.015e-01  -0.780
## race.ethnicity.5levelMixed  8.885e-01  8.677e-01   1.024
## race.ethnicity.5levelOther -4.640e-01  1.048e+00  -0.443
## race.ethnicity.5levelWhite  1.438e+00  8.032e-01   1.790
```

```

## demo_race_hispanic1          -9.789e-02  4.027e-01  -0.243
## interview_age                 2.800e-02  1.804e-02   1.552
## MRI_minus_hormone_date_time  4.045e-05  1.636e-05   2.473
## bmi                          3.968e-02  3.641e-02   1.090
## household.income[>=200K]     -2.105e+00  9.794e-01  -2.149
## household.income[100K-200K]  -1.204e+00  9.086e-01  -1.326
## household.income[12K-16K]    -7.987e-03  1.137e+00  -0.007
## household.income[16K-25K]    -1.267e+00  1.040e+00  -1.218
## household.income[25K-35K]     3.794e-01  9.531e-01   0.398
## household.income[35K-50K]    -7.566e-01  9.299e-01  -0.814
## household.income[50K-75K]    -1.079e+00  9.141e-01  -1.181
## household.income[5K-12K]      6.143e-02  1.086e+00   0.057
## household.income[75K-100K]   -9.221e-01  9.194e-01  -1.003
## high.educBachelor            3.023e-01  8.704e-01   0.347
## high.educHS Diploma/GED     -3.498e-02  8.801e-01  -0.040
## high.educPost Graduate Degree  5.985e-01  8.850e-01   0.676
## high.educSome College        7.723e-01  8.192e-01   0.943
## hormone_scr_ert_mean:accumbens_rvsnt_z -1.756e-02  9.241e-03  -1.900
##                               Pr(>|t|)
## (Intercept)                  0.6892
## PDS_score                    2.43e-05 ***
## hormone_sal_end_min_since_midnight 0.9553
## hormone_scr_ert_mean         0.6344
## accumbens_rvsnt_z            0.3207
## race.ethnicity.5levelBlack    0.4356
## race.ethnicity.5levelMixed    0.3060
## race.ethnicity.5levelOther    0.6580
## race.ethnicity.5levelWhite    0.0736 .
## demo_race_hispanic1          0.8080
## interview_age                 0.1208
## MRI_minus_hormone_date_time  0.0135 *
## bmi                          0.2759
## household.income[>=200K]     0.0318 *
## household.income[100K-200K]  0.1851
## household.income[12K-16K]    0.9944
## household.income[16K-25K]    0.2233
## household.income[25K-35K]    0.6906
## household.income[35K-50K]    0.4160
## household.income[50K-75K]    0.2378
## household.income[5K-12K]     0.9549
## household.income[75K-100K]   0.3160
## high.educBachelor            0.7284
## high.educHS Diploma/GED     0.9683
## high.educPost Graduate Degree 0.4989
## high.educSome College        0.3459
## hormone_scr_ert_mean:accumbens_rvsnt_z 0.0576 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0321
## lmer.REML = 10373 Scale est. = 15.422    n = 1690

```

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_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
## (Intercept)	2.938e+00	2.690e+00	1.092
## PDS_score	7.348e-01	2.759e-01	2.663
## hormone_sal_end_min_since_midnight	6.673e-04	8.083e-04	0.826
## hormone_scr_ert_mean	1.745e-03	7.685e-03	0.227
## accumbens_rvs_n_ant_z	-1.775e-01	3.964e-01	-0.448
## race.ethnicity.5levelBlack	4.374e-02	1.131e+00	0.039
## race.ethnicity.5levelMixed	1.205e+00	1.100e+00	1.095
## race.ethnicity.5levelOther	5.013e-01	1.236e+00	0.406
## race.ethnicity.5levelWhite	1.400e+00	1.038e+00	1.349
## demo_race_hispanic1	-1.982e-02	4.226e-01	-0.047
## interview_age	6.345e-03	1.752e-02	0.362
## MRI_minus_hormone_date_time	2.208e-05	1.869e-05	1.181
## bmi	8.830e-03	3.770e-02	0.234
## household.income[>=200K]	-3.094e+00	1.028e+00	-3.010
## household.income[100K-200K]	-2.659e+00	9.723e-01	-2.735
## household.income[12K-16K]	-5.514e-01	1.257e+00	-0.439
## household.income[16K-25K]	3.503e-01	1.070e+00	0.327
## household.income[25K-35K]	-8.261e-01	1.049e+00	-0.787
## household.income[35K-50K]	-7.788e-01	1.018e+00	-0.765
## household.income[50K-75K]	-2.106e+00	9.694e-01	-2.173
## household.income[5K-12K]	1.986e-01	1.112e+00	0.179
## household.income[75K-100K]	-2.773e+00	9.901e-01	-2.801
## high.educBachelor	1.072e+00	9.799e-01	1.094
## high.educHS Diploma/GED	-1.200e+00	1.005e+00	-1.194
## high.educPost Graduate Degree	2.143e-01	9.821e-01	0.218
## high.educSome College	6.400e-01	9.364e-01	0.683
## hormone_scr_ert_mean:accumbens_rvs_n_ant_z	3.768e-03	1.141e-02	0.330

```
##
## Pr(>|t|)
## (Intercept)
## PDS_score
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## accumbens_rvs_n_ant_z
## race.ethnicity.5levelBlack
## race.ethnicity.5levelMixed
## race.ethnicity.5levelOther
## race.ethnicity.5levelWhite
```



```

## demo_race_hispanic1                0.96260
## interview_age                       0.71721
## MRI_minus_hormone_date_time         0.23775
## bmi                                0.81484
## household.income[>=200K]           0.00266 **
## household.income[100K-200K]         0.00631 **
## household.income[12K-16K]           0.66094
## household.income[16K-25K]           0.74342
## household.income[25K-35K]           0.43120
## household.income[35K-50K]           0.44423
## household.income[50K-75K]           0.02992 *
## household.income[5K-12K]            0.85834
## household.income[75K-100K]          0.00515 **
## high.educBachelor                   0.27396
## high.educHS Diploma/GED            0.23258
## high.educPost Graduate Degree       0.82728
## high.educSome College               0.49442
## hormone_scr_ert_mean:accumbens_rvsnt_z 0.74126
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0345
## lmer.REML = 10481 Scale est. = 13.509    n = 1687

```

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)   -5.936e-01  2.597e+00  -0.229   0.8192
## PDS_score       8.216e-01  2.031e-01   4.045 5.47e-05
## hormone_sal_end_min_since_midnight -8.066e-05  7.996e-04  -0.101   0.9197
## hormone_scr_ert_mean -3.738e-03  7.174e-03  -0.521   0.6024
## caudate_rvsnt_z  4.476e-01  3.002e-01   1.491   0.1361
## race.ethnicity.5levelBlack -7.032e-01  9.056e-01  -0.776   0.4376
## race.ethnicity.5levelMixed  8.952e-01  8.706e-01   1.028   0.3040
## race.ethnicity.5levelOther -4.115e-01  1.052e+00  -0.391   0.6958

```

```

## race.ethnicity.5levelWhite          1.475e+00  8.061e-01  1.829  0.0675
## demo_race_hispanic1                 -1.433e-01  4.033e-01 -0.355  0.7223
## interview_age                       2.583e-02  1.816e-02  1.423  0.1550
## MRI_minus_hormone_date_time         4.117e-05  1.645e-05  2.502  0.0124
## bmi                                5.147e-02  3.623e-02  1.421  0.1556
## household.income[>=200K]            -2.472e+00  9.763e-01 -2.532  0.0114
## household.income[100K-200K]         -1.550e+00  9.048e-01 -1.713  0.0869
## household.income[12K-16K]           -2.098e-01  1.142e+00 -0.184  0.8543
## household.income[16K-25K]           -1.566e+00  1.038e+00 -1.509  0.1315
## household.income[25K-35K]           -1.226e-02  9.480e-01 -0.013  0.9897
## household.income[35K-50K]           -1.099e+00  9.247e-01 -1.188  0.2350
## household.income[50K-75K]           -1.393e+00  9.093e-01 -1.532  0.1256
## household.income[5K-12K]            -2.737e-01  1.085e+00 -0.252  0.8008
## household.income[75K-100K]          -1.289e+00  9.166e-01 -1.407  0.1597
## high.educBachelor                   3.095e-01  8.690e-01  0.356  0.7218
## high.educHS Diploma/GED             3.316e-03  8.823e-01  0.004  0.9970
## high.educPost Graduate Degree        6.590e-01  8.833e-01  0.746  0.4557
## high.educSome College                7.519e-01  8.192e-01  0.918  0.3588
## hormone_scr_ert_mean:caudate_rvs_n_ant_z -1.065e-02  7.347e-03 -1.450  0.1473
##
## (Intercept)
## PDS_score                           ***
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## caudate_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:caudate_rvs_n_ant_z
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0295
## lmer.REML = 10410  Scale est. = 15.981    n = 1693

```

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)	2.670e+00	2.686e+00	0.994	0.32031
## PDS_score	7.230e-01	2.781e-01	2.600	0.00940
## hormone_sal_end_min_since_midnight	6.149e-04	8.076e-04	0.761	0.44654
## hormone_scr_ert_mean	3.983e-04	7.879e-03	0.051	0.95969
## caudate_rvsnt_ant_z	1.512e-01	2.934e-01	0.515	0.60650
## race.ethnicity.5levelBlack	7.687e-02	1.129e+00	0.068	0.94572
## race.ethnicity.5levelMixed	1.281e+00	1.100e+00	1.164	0.24458
## race.ethnicity.5levelOther	4.252e-01	1.235e+00	0.344	0.73076
## race.ethnicity.5levelWhite	1.433e+00	1.039e+00	1.379	0.16817
## demo_race_hispanic1	6.624e-02	4.253e-01	0.156	0.87626
## interview_age	7.016e-03	1.757e-02	0.399	0.68966
## MRI_minus_hormone_date_time	1.992e-05	1.824e-05	1.092	0.27493
## bmi	1.236e-02	3.786e-02	0.327	0.74407
## household.income[>=200K]	-2.962e+00	1.018e+00	-2.908	0.00368
## household.income[100K-200K]	-2.454e+00	9.619e-01	-2.552	0.01081
## household.income[12K-16K]	1.788e-02	1.259e+00	0.014	0.98867
## household.income[16K-25K]	6.702e-01	1.059e+00	0.633	0.52692
## household.income[25K-35K]	-5.749e-01	1.043e+00	-0.551	0.58148
## household.income[35K-50K]	-6.403e-01	1.009e+00	-0.635	0.52561
## household.income[50K-75K]	-1.824e+00	9.590e-01	-1.902	0.05735
## household.income[5K-12K]	5.383e-01	1.108e+00	0.486	0.62705
## household.income[75K-100K]	-2.503e+00	9.783e-01	-2.559	0.01059
## high.educBachelor	1.070e+00	9.646e-01	1.109	0.26741
## high.educHS Diploma/GED	-1.256e+00	9.903e-01	-1.268	0.20494
## high.educPost Graduate Degree	2.403e-01	9.678e-01	0.248	0.80392
## high.educSome College	6.157e-01	9.224e-01	0.668	0.50452
## hormone_scr_ert_mean:caudate_rvsnt_ant_z	-1.581e-03	8.069e-03	-0.196	0.84470

```
##
## (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) =  0.0354
## lmer.REML = 10518  Scale est. = 13.504    n = 1692

```

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)   -9.014e-01  2.598e+00  -0.347   0.7287
## PDS_score       8.284e-01  2.033e-01   4.075  4.82e-05
## hormone_sal_end_min_since_midnight  3.083e-05  7.981e-04   0.039   0.9692
## hormone_scr_ert_mean  -2.435e-03  7.132e-03  -0.341   0.7329
## putamen_rvsn_ant_z    3.109e-01  2.992e-01   1.039   0.2988
## race.ethnicity.5levelBlack  -7.084e-01  9.052e-01  -0.783   0.4340
## race.ethnicity.5levelMixed   9.295e-01  8.708e-01   1.067   0.2860
## race.ethnicity.5levelOther  -4.371e-01  1.051e+00  -0.416   0.6775

```

```

## race.ethnicity.5levelWhite          1.498e+00  8.062e-01  1.858  0.0633
## demo_race_hispanic1                 -1.326e-01  4.034e-01 -0.329  0.7424
## interview_age                        2.593e-02  1.814e-02  1.430  0.1530
## MRI_minus_hormone_date_time          4.024e-05  1.643e-05  2.449  0.0144
## bmi                                  4.828e-02  3.645e-02  1.325  0.1855
## household.income[>=200K]             -2.335e+00  9.829e-01 -2.376  0.0176
## household.income[100K-200K]          -1.380e+00  9.131e-01 -1.511  0.1309
## household.income[12K-16K]            -1.147e-01  1.144e+00 -0.100  0.9201
## household.income[16K-25K]            -1.308e+00  1.048e+00 -1.248  0.2123
## household.income[25K-35K]            1.611e-01  9.575e-01  0.168  0.8664
## household.income[35K-50K]            -8.786e-01  9.346e-01 -0.940  0.3473
## household.income[50K-75K]            -1.209e+00  9.176e-01 -1.318  0.1877
## household.income[5K-12K]             -7.454e-02  1.093e+00 -0.068  0.9457
## household.income[75K-100K]           -1.104e+00  9.242e-01 -1.195  0.2323
## high.educBachelor                    3.544e-01  8.651e-01  0.410  0.6821
## high.educHS Diploma/GED              1.994e-03  8.772e-01  0.002  0.9982
## high.educPost Graduate Degree         6.876e-01  8.795e-01  0.782  0.4345
## high.educSome College                 7.782e-01  8.146e-01  0.955  0.3396
## hormone_scr_ert_mean:putamen_rvsn_ant_z -4.890e-03  7.284e-03 -0.671  0.5021
##
## (Intercept)
## PDS_score                            ***
## hormone_sal_end_min_since_midnight
## hormone_scr_ert_mean
## putamen_rvsn_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_rvsn_ant_z
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0295
## lmer.REML = 10411 Scale est. = 15.871    n = 1693

```

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_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)    2.854e+00  2.690e+00   1.061  0.28892
## PDS_score       7.479e-01  2.795e-01   2.676  0.00753
## hormone_sal_end_min_since_midnight  6.376e-04  8.101e-04   0.787  0.43133
## hormone_scr_ert_mean    7.818e-04  7.807e-03   0.100  0.92024
## putamen_rvsnt_ant_z   -1.498e-01  3.150e-01  -0.476  0.63438
## race.ethnicity.5levelBlack    1.368e-01  1.131e+00   0.121  0.90377
## race.ethnicity.5levelMixed    1.256e+00  1.103e+00   1.138  0.25519
## race.ethnicity.5levelOther    4.495e-01  1.238e+00   0.363  0.71659
## race.ethnicity.5levelWhite    1.403e+00  1.042e+00   1.347  0.17802
## demo_race_hispanic1    4.462e-02  4.242e-01   0.105  0.91623
## interview_age    4.644e-03  1.760e-02   0.264  0.79198
## MRI_minus_hormone_date_time    2.237e-05  1.831e-05   1.222  0.22201
## bmi    1.059e-02  3.798e-02   0.279  0.78037
## household.income[>=200K]   -2.974e+00  1.018e+00  -2.921  0.00354
## household.income[100K-200K] -2.521e+00  9.616e-01  -2.621  0.00884
## household.income[12K-16K]   -2.394e-01  1.251e+00  -0.191  0.84822
## household.income[16K-25K]    5.645e-01  1.057e+00   0.534  0.59321
## household.income[25K-35K]   -6.635e-01  1.041e+00  -0.637  0.52405
## household.income[35K-50K]   -7.069e-01  1.009e+00  -0.701  0.48366
## household.income[50K-75K]   -1.875e+00  9.588e-01  -1.956  0.05064
## household.income[5K-12K]    2.405e-01  1.100e+00   0.219  0.82693
## household.income[75K-100K]  -2.539e+00  9.790e-01  -2.593  0.00959
## high.educBachelor    1.223e+00  9.583e-01   1.276  0.20200
## high.educHS Diploma/GED   -1.160e+00  9.841e-01  -1.178  0.23881
## high.educPost Graduate Degree    3.907e-01  9.619e-01   0.406  0.68464
## high.educSome College    7.316e-01  9.146e-01   0.800  0.42383
## hormone_scr_ert_mean:putamen_rvsnt_ant_z  2.453e-03  8.901e-03   0.276  0.78293
##
## (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_rvsn_ant_z
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0336
## lmer.REML = 10530 Scale est. = 13.681    n = 1693

```

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)   -9.234e-01  2.603e+00
## PDS_score       8.083e-01  2.045e-01
## hormone_sal_end_min_since_midnight  4.858e-05  8.000e-04
## hormone_scr_ert_mean   -2.842e-03  7.186e-03
## accumbens_posvsneg_feedback_z    3.127e-01  4.027e-01
## race.ethnicity.5levelBlack   -6.449e-01  9.081e-01
## race.ethnicity.5levelMixed    9.574e-01  8.719e-01
## race.ethnicity.5levelOther   -3.402e-01  1.049e+00

```

```

## race.ethnicity.5levelWhite          1.489e+00  8.065e-01
## demo_race_hispanic1                 -1.704e-01  4.072e-01
## interview_age                        2.621e-02  1.818e-02
## MRI_minus_hormone_date_time          3.958e-05  1.643e-05
## bmi                                 4.751e-02  3.640e-02
## household.income[>=200K]             -2.263e+00  9.832e-01
## household.income[100K-200K]          -1.268e+00  9.127e-01
## household.income[12K-16K]            -4.706e-02  1.143e+00
## household.income[16K-25K]            -1.316e+00  1.046e+00
## household.income[25K-35K]             2.361e-01  9.561e-01
## household.income[35K-50K]            -8.051e-01  9.353e-01
## household.income[50K-75K]            -1.115e+00  9.189e-01
## household.income[5K-12K]             -1.485e-01  1.099e+00
## household.income[75K-100K]           -9.881e-01  9.254e-01
## high.educBachelor                    2.910e-01  8.756e-01
## high.educHS Diploma/GED             -3.888e-02  8.852e-01
## high.educPost Graduate Degree         6.426e-01  8.908e-01
## high.educSome College                 7.223e-01  8.238e-01
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z -2.271e-03  9.488e-03
##                                     t value Pr(>|t|)
## (Intercept)                          -0.355   0.7228
## PDS_score                             3.952 8.08e-05 ***
## hormone_sal_end_min_since_midnight     0.061   0.9516
## hormone_scr_ert_mean                   -0.396   0.6925
## accumbens_posvsneg_feedback_z          0.776   0.4376
## race.ethnicity.5levelBlack             -0.710   0.4777
## race.ethnicity.5levelMixed              1.098   0.2724
## race.ethnicity.5levelOther             -0.324   0.7458
## race.ethnicity.5levelWhite              1.846   0.0650 .
## demo_race_hispanic1                   -0.418   0.6757
## interview_age                          1.442   0.1496
## MRI_minus_hormone_date_time            2.409   0.0161 *
## bmi                                    1.305   0.1921
## household.income[>=200K]               -2.302   0.0215 *
## household.income[100K-200K]            -1.390   0.1648
## household.income[12K-16K]             -0.041   0.9672
## household.income[16K-25K]             -1.259   0.2083
## household.income[25K-35K]              0.247   0.8050
## household.income[35K-50K]             -0.861   0.3895
## household.income[50K-75K]             -1.214   0.2250
## household.income[5K-12K]              -0.135   0.8925
## household.income[75K-100K]            -1.068   0.2858
## high.educBachelor                      0.332   0.7397
## high.educHS Diploma/GED              -0.044   0.9650
## high.educPost Graduate Degree          0.721   0.4708
## high.educSome College                  0.877   0.3807
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z -0.239   0.8109
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0279
## lmer.REML = 10393 Scale est. = 15.817    n = 1690

```


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)    3.336e+00  2.704e+00
## PDS_score       7.401e-01  2.766e-01
## hormone_sal_end_min_since_midnight  5.356e-04  8.080e-04
## hormone_scr_ert_mean -4.977e-05  8.070e-03
## accumbens_posvsneg_feedback_z -1.992e-01  3.328e-01
## race.ethnicity.5levelBlack -5.196e-02  1.146e+00
## race.ethnicity.5levelMixed  1.238e+00  1.118e+00
## race.ethnicity.5levelOther  3.508e-01  1.250e+00
## race.ethnicity.5levelWhite  1.404e+00  1.057e+00
## demo_race_hispanic1  5.056e-02  4.215e-01
## interview_age  2.253e-03  1.756e-02
## MRI_minus_hormone_date_time  2.031e-05  1.872e-05
## bmi  3.117e-02  3.791e-02
## household.income[>=200K] -3.374e+00  1.040e+00
## household.income[100K-200K] -3.003e+00  9.836e-01
## household.income[12K-16K] -7.067e-01  1.255e+00
## household.income[16K-25K]  1.461e-01  1.077e+00
## household.income[25K-35K] -1.047e+00  1.063e+00
## household.income[35K-50K] -1.069e+00  1.029e+00
## household.income[50K-75K] -2.338e+00  9.817e-01
## household.income[5K-12K] -7.725e-02  1.134e+00
## household.income[75K-100K] -3.021e+00  1.002e+00
## high.educBachelor  1.235e+00  9.630e-01
## high.educHS Diploma/GED -1.152e+00  9.897e-01
## high.educPost Graduate Degree  4.226e-01  9.658e-01
## high.educSome College  7.720e-01  9.193e-01
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z -1.517e-03  8.951e-03
##
##               t value Pr(>|t|)
## (Intercept)    1.234  0.21756
## PDS_score       2.675  0.00754 **
## hormone_sal_end_min_since_midnight  0.663  0.50752
## hormone_scr_ert_mean -0.006  0.99508
## accumbens_posvsneg_feedback_z -0.598  0.54959
## race.ethnicity.5levelBlack -0.045  0.96385
## race.ethnicity.5levelMixed  1.107  0.26830
## race.ethnicity.5levelOther  0.281  0.77895
## race.ethnicity.5levelWhite  1.328  0.18450
```

```

## demo_race_hispanic1                0.120  0.90453
## interview_age                       0.128  0.89793
## MRI_minus_hormone_date_time        1.085  0.27802
## bmi                                0.822  0.41098
## household.income[>=200K]           -3.244  0.00120 **
## household.income[100K-200K]        -3.053  0.00230 **
## household.income[12K-16K]          -0.563  0.57358
## household.income[16K-25K]          0.136  0.89215
## household.income[25K-35K]          -0.985  0.32482
## household.income[35K-50K]          -1.039  0.29893
## household.income[50K-75K]          -2.381  0.01736 *
## household.income[5K-12K]           -0.068  0.94569
## household.income[75K-100K]         -3.015  0.00261 **
## high.educBachelor                  1.282  0.19994
## high.educHS Diploma/GED           -1.164  0.24458
## high.educPost Graduate Degree       0.438  0.66174
## high.educSome College              0.840  0.40115
## hormone_scr_ert_mean:accumbens_posvsneg_feedback_z -0.169  0.86548
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0365
## lmer.REML = 10511  Scale est. = 13.329    n = 1691

```

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)    -7.006e-01  2.592e+00  -0.270
## PDS_score        8.054e-01  2.033e-01   3.962
## hormone_sal_end_min_since_midnight -6.526e-05  7.988e-04  -0.082
## hormone_scr_ert_mean -2.270e-03  7.132e-03  -0.318
## caudate_posvsneg_feedback_z -5.550e-02  3.233e-01  -0.172
## race.ethnicity.5levelBlack -7.936e-01  9.084e-01  -0.874
## race.ethnicity.5levelMixed  8.854e-01  8.718e-01   1.016
## race.ethnicity.5levelOther -4.350e-01  1.049e+00  -0.415

```

```

## race.ethnicity.5levelWhite          1.475e+00  8.072e-01  1.828
## demo_race_hispanic1                 -1.277e-01  4.039e-01 -0.316
## interview_age                        2.695e-02  1.815e-02  1.484
## MRI_minus_hormone_date_time          4.010e-05  1.642e-05  2.442
## bmi                                 4.877e-02  3.639e-02  1.340
## household.income[>=200K]             -2.474e+00  9.765e-01 -2.534
## household.income[100K-200K]          -1.571e+00  9.048e-01 -1.736
## household.income[12K-16K]            -3.890e-01  1.135e+00 -0.343
## household.income[16K-25K]            -1.570e+00  1.042e+00 -1.507
## household.income[25K-35K]            -4.411e-02  9.484e-01 -0.047
## household.income[35K-50K]            -1.118e+00  9.281e-01 -1.204
## household.income[50K-75K]            -1.435e+00  9.086e-01 -1.579
## household.income[5K-12K]             -3.093e-01  1.086e+00 -0.285
## household.income[75K-100K]           -1.293e+00  9.157e-01 -1.412
## high.educBachelor                    3.613e-01  8.715e-01  0.415
## high.educHS Diploma/GED              9.764e-02  8.827e-01  0.111
## high.educPost Graduate Degree         6.493e-01  8.860e-01  0.733
## high.educSome College                 8.151e-01  8.204e-01  0.993
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z -3.531e-04  7.987e-03 -0.044
##                                     Pr(>|t|)
## (Intercept)                          0.7870
## PDS_score                             7.74e-05 ***
## hormone_sal_end_min_since_midnight    0.9349
## hormone_scr_ert_mean                  0.7504
## caudate_posvsneg_feedback_z           0.8637
## race.ethnicity.5levelBlack            0.3824
## race.ethnicity.5levelMixed            0.3100
## race.ethnicity.5levelOther            0.6783
## race.ethnicity.5levelWhite            0.0677 .
## demo_race_hispanic1                  0.7520
## interview_age                         0.1379
## MRI_minus_hormone_date_time           0.0147 *
## bmi                                  0.1804
## household.income[>=200K]              0.0114 *
## household.income[100K-200K]           0.0828 .
## household.income[12K-16K]            0.7319
## household.income[16K-25K]            0.1320
## household.income[25K-35K]            0.9629
## household.income[35K-50K]            0.2287
## household.income[50K-75K]            0.1145
## household.income[5K-12K]             0.7758
## household.income[75K-100K]           0.1580
## high.educBachelor                    0.6785
## high.educHS Diploma/GED              0.9119
## high.educPost Graduate Degree         0.4638
## high.educSome College                 0.3206
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z 0.9647
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0284
## lmer.REML = 10405 Scale est. = 15.952 n = 1692

```

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)	3.134e+00	2.695e+00	1.163
## PDS_score	7.201e-01	2.760e-01	2.609
## hormone_sal_end_min_since_midnight	8.403e-04	8.052e-04	1.044
## hormone_scr_ert_mean	-1.233e-07	7.663e-03	0.000
## caudate_posvsneg_feedback_z	-6.839e-02	3.204e-01	-0.213
## race.ethnicity.5levelBlack	8.852e-03	1.137e+00	0.008
## race.ethnicity.5levelMixed	1.179e+00	1.105e+00	1.067
## race.ethnicity.5levelOther	3.435e-01	1.241e+00	0.277
## race.ethnicity.5levelWhite	1.311e+00	1.045e+00	1.254
## demo_race_hispanic1	4.502e-02	4.214e-01	0.107
## interview_age	2.870e-03	1.757e-02	0.163
## MRI_minus_hormone_date_time	2.009e-05	1.819e-05	1.104
## bmi	1.342e-02	3.773e-02	0.356
## household.income[>=200K]	-3.019e+00	1.024e+00	-2.948
## household.income[100K-200K]	-2.606e+00	9.676e-01	-2.693
## household.income[12K-16K]	-3.907e-01	1.246e+00	-0.314
## household.income[16K-25K]	4.542e-01	1.066e+00	0.426
## household.income[25K-35K]	-6.689e-01	1.047e+00	-0.639
## household.income[35K-50K]	-7.096e-01	1.014e+00	-0.700
## household.income[50K-75K]	-1.974e+00	9.653e-01	-2.044
## household.income[5K-12K]	-5.525e-02	1.117e+00	-0.049
## household.income[75K-100K]	-2.639e+00	9.849e-01	-2.680
## high.educBachelor	1.190e+00	9.646e-01	1.234
## high.educHS Diploma/GED	-1.144e+00	9.950e-01	-1.149
## high.educPost Graduate Degree	3.379e-01	9.674e-01	0.349
## high.educSome College	6.875e-01	9.199e-01	0.747
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z	-7.623e-04	9.096e-03	-0.084

```
##
## Pr(>|t|)
## (Intercept) 0.24514
## PDS_score 0.00917 **
## hormone_sal_end_min_since_midnight 0.29685
## hormone_scr_ert_mean 0.99999
## caudate_posvsneg_feedback_z 0.83098
## race.ethnicity.5levelBlack 0.99379
## race.ethnicity.5levelMixed 0.28618
## race.ethnicity.5levelOther 0.78192
## race.ethnicity.5levelWhite 0.20989
```

```

## demo_race_hispanic1                0.91493
## interview_age                       0.87024
## MRI_minus_hormone_date_time        0.26959
## bmi                                0.72212
## household.income[>=200K]           0.00324 **
## household.income[100K-200K]        0.00715 **
## household.income[12K-16K]          0.75389
## household.income[16K-25K]          0.67014
## household.income[25K-35K]          0.52295
## household.income[35K-50K]          0.48394
## household.income[50K-75K]          0.04106 *
## household.income[5K-12K]           0.96057
## household.income[75K-100K]         0.00744 **
## high.educBachelor                  0.21739
## high.educHS Diploma/GED           0.25060
## high.educPost Graduate Degree      0.72690
## high.educSome College              0.45493
## hormone_scr_ert_mean:caudate_posvsneg_feedback_z 0.93322
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0331
## lmer.REML = 10513  Scale est. = 13.246    n = 1691

```

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)   -8.287e-01  2.594e+00  -0.319
## PDS_score       8.591e-01  2.038e-01   4.216
## hormone_sal_end_min_since_midnight -3.923e-05  8.008e-04  -0.049
## hormone_scr_ert_mean -2.577e-03  7.141e-03  -0.361
## putamen_posvsneg_feedback_z       6.895e-02  3.161e-01   0.218
## race.ethnicity.5levelBlack -6.743e-01  9.056e-01  -0.745
## race.ethnicity.5levelMixed  9.208e-01  8.707e-01   1.058
## race.ethnicity.5levelOther -5.111e-01  1.050e+00  -0.487

```

```

## race.ethnicity.5levelWhite          1.504e+00  8.060e-01  1.865
## demo_race_hispanic1                 -5.250e-02  4.050e-01 -0.130
## interview_age                        2.606e-02  1.811e-02  1.439
## MRI_minus_hormone_date_time         4.046e-05  1.641e-05  2.465
## bmi                                 4.087e-02  3.640e-02  1.123
## household.income[>=200K]            -2.286e+00  9.806e-01 -2.331
## household.income[100K-200K]         -1.348e+00  9.103e-01 -1.481
## household.income[12K-16K]           -1.290e-01  1.142e+00 -0.113
## household.income[16K-25K]           -1.308e+00  1.044e+00 -1.254
## household.income[25K-35K]           2.268e-01  9.540e-01  0.238
## household.income[35K-50K]           -8.415e-01  9.336e-01 -0.901
## household.income[50K-75K]           -1.162e+00  9.161e-01 -1.268
## household.income[5K-12K]            -1.513e-02  1.091e+00 -0.014
## household.income[75K-100K]          -1.091e+00  9.215e-01 -1.184
## high.educBachelor                   3.667e-01  8.708e-01  0.421
## high.educHS Diploma/GED            -4.515e-02  8.818e-01 -0.051
## high.educPost Graduate Degree        6.810e-01  8.842e-01  0.770
## high.educSome College               7.804e-01  8.193e-01  0.953
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z -5.417e-03  7.452e-03 -0.727
##                                     Pr(>|t|)
## (Intercept)                         0.7494
## PDS_score                           2.62e-05 ***
## hormone_sal_end_min_since_midnight   0.9609
## hormone_scr_ert_mean                 0.7182
## putamen_posvsneg_feedback_z          0.8274
## race.ethnicity.5levelBlack           0.4566
## race.ethnicity.5levelMixed           0.2904
## race.ethnicity.5levelOther           0.6265
## race.ethnicity.5levelWhite           0.0623 .
## demo_race_hispanic1                 0.8969
## interview_age                        0.1504
## MRI_minus_hormone_date_time          0.0138 *
## bmi                                 0.2617
## household.income[>=200K]             0.0199 *
## household.income[100K-200K]          0.1387
## household.income[12K-16K]           0.9101
## household.income[16K-25K]           0.2101
## household.income[25K-35K]           0.8121
## household.income[35K-50K]           0.3675
## household.income[50K-75K]           0.2050
## household.income[5K-12K]            0.9889
## household.income[75K-100K]          0.2365
## high.educBachelor                   0.6737
## high.educHS Diploma/GED            0.9592
## high.educPost Graduate Degree        0.4413
## high.educSome College               0.3410
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z 0.4674
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0297
## lmer.REML = 10403 Scale est. = 16.377 n = 1692

```

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)	3.183e+00	2.709e+00	1.175
## PDS_score	7.023e-01	2.766e-01	2.539
## hormone_sal_end_min_since_midnight	7.726e-04	8.049e-04	0.960
## hormone_scr_ert_mean	5.367e-04	7.748e-03	0.069
## putamen_posvsneg_feedback_z	1.702e-01	3.192e-01	0.533
## race.ethnicity.5levelBlack	4.287e-02	1.138e+00	0.038
## race.ethnicity.5levelMixed	1.232e+00	1.108e+00	1.112
## race.ethnicity.5levelOther	3.960e-01	1.243e+00	0.319
## race.ethnicity.5levelWhite	1.370e+00	1.047e+00	1.309
## demo_race_hispanic1	1.264e-03	4.208e-01	0.003
## interview_age	3.314e-03	1.758e-02	0.189
## MRI_minus_hormone_date_time	1.933e-05	1.822e-05	1.061
## bmi	1.844e-02	3.766e-02	0.490
## household.income[>=200K]	-3.107e+00	1.031e+00	-3.014
## household.income[100K-200K]	-2.716e+00	9.744e-01	-2.787
## household.income[12K-16K]	-4.710e-01	1.251e+00	-0.376
## household.income[16K-25K]	3.500e-01	1.076e+00	0.325
## household.income[25K-35K]	-7.586e-01	1.054e+00	-0.720
## household.income[35K-50K]	-7.962e-01	1.020e+00	-0.781
## household.income[50K-75K]	-2.028e+00	9.725e-01	-2.086
## household.income[5K-12K]	-1.731e-01	1.125e+00	-0.154
## household.income[75K-100K]	-2.714e+00	9.920e-01	-2.736
## high.educBachelor	1.068e+00	9.708e-01	1.100
## high.educHS Diploma/GED	-1.259e+00	1.001e+00	-1.258
## high.educPost Graduate Degree	2.660e-01	9.735e-01	0.273
## high.educSome College	6.059e-01	9.268e-01	0.654
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z	-3.054e-03	9.207e-03	-0.332

```
##
## Pr(>|t|)
## (Intercept) 0.24017
## PDS_score 0.01119 *
## hormone_sal_end_min_since_midnight 0.33726
## hormone_scr_ert_mean 0.94478
## putamen_posvsneg_feedback_z 0.59380
## race.ethnicity.5levelBlack 0.96996
## race.ethnicity.5levelMixed 0.26626
## race.ethnicity.5levelOther 0.75006
## race.ethnicity.5levelWhite 0.19084
```

```
## demo_race_hispanic1 0.99760
## interview_age 0.85050
## MRI_minus_hormone_date_time 0.28888
## bmi 0.62440
## household.income[>=200K] 0.00262 **
## household.income[100K-200K] 0.00538 **
## household.income[12K-16K] 0.70667
## household.income[16K-25K] 0.74511
## household.income[25K-35K] 0.47183
## household.income[35K-50K] 0.43520
## household.income[50K-75K] 0.03715 *
## household.income[5K-12K] 0.87774
## household.income[75K-100K] 0.00628 **
## high.educBachelor 0.27128
## high.educHS Diploma/GED 0.20870
## high.educPost Graduate Degree 0.78469
## high.educSome College 0.51335
## hormone_scr_ert_mean:putamen_posvsneg_feedback_z 0.74013
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0326
## lmer.REML = 10542 Scale est. = 13.541 n = 1695
```

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_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) -5.604e-01 2.615e+00 -0.214 0.830327
## PDS_score    7.958e-01 2.057e-01  3.868 0.000114 ***
## hormone_sal_end_min_since_midnight -1.416e-04 8.014e-04 -0.177 0.859784
## hormone_scr_ert_mean -3.822e-03 7.233e-03 -0.529 0.597219
## lOFC_rvsn_ant_z    6.434e-01 4.953e-01  1.299 0.194115
## race.ethnicity.5levelBlack -6.959e-01 9.091e-01 -0.766 0.444072
## race.ethnicity.5levelMixed  9.286e-01 8.736e-01  1.063 0.287944
## race.ethnicity.5levelOther -2.956e-01 1.053e+00 -0.281 0.779051
```



```
## race.ethnicity.5levelWhite          1.488e+00  8.080e-01  1.842 0.065702 .
## demo_race_hispanic1                 -1.554e-01  4.056e-01 -0.383 0.701667
## interview_age                       2.751e-02  1.825e-02  1.507 0.132012
## MRI_minus_hormone_date_time         3.992e-05  1.649e-05  2.422 0.015559 *
## bmi                                5.175e-02  3.647e-02  1.419 0.156039
## household.income[>=200K]            -2.660e+00  9.898e-01 -2.688 0.007270 **
## household.income[100K-200K]         -1.748e+00  9.196e-01 -1.901 0.057514 .
## household.income[12K-16K]           -3.862e-01  1.151e+00 -0.336 0.737280
## household.income[16K-25K]           -1.683e+00  1.051e+00 -1.601 0.109537
## household.income[25K-35K]           -2.182e-01  9.635e-01 -0.226 0.820857
## household.income[35K-50K]           -1.217e+00  9.417e-01 -1.292 0.196514
## household.income[50K-75K]           -1.519e+00  9.235e-01 -1.645 0.100234
## household.income[5K-12K]            -4.631e-01  1.101e+00 -0.420 0.674211
## household.income[75K-100K]          -1.456e+00  9.303e-01 -1.565 0.117865
## high.educBachelor                   3.469e-01  8.903e-01  0.390 0.696851
## high.educHS Diploma/GED            -1.424e-02  9.020e-01 -0.016 0.987404
## high.educPost Graduate Degree        7.118e-01  9.052e-01  0.786 0.431731
## high.educSome College                7.654e-01  8.389e-01  0.912 0.361659
## hormone_scr_ert_mean:lOFC_rvs_n_ant_z -1.102e-02  1.254e-02 -0.879 0.379582
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.029
## lmer.REML = 10341 Scale est. = 15.842    n = 1681
```

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)    2.456e+00  2.687e+00  0.914   0.3609
## PDS_score       6.501e-01  2.791e-01  2.329   0.0200 *
## hormone_sal_end_min_since_midnight  5.157e-04  8.089e-04  0.638   0.5239
## hormone_scr_ert_mean  6.603e-04  7.756e-03  0.085   0.9322
## lOFC_rvs_n_ant_z    2.521e-01  4.635e-01  0.544   0.5865
## race.ethnicity.5levelBlack -4.067e-03  1.143e+00 -0.004   0.9972
## race.ethnicity.5levelMixed  1.212e+00  1.110e+00  1.092   0.2751
## race.ethnicity.5levelOther  4.615e-01  1.241e+00  0.372   0.7101
## race.ethnicity.5levelWhite  1.380e+00  1.049e+00  1.316   0.1883
## demo_race_hispanic1 -2.762e-03  4.233e-01 -0.007   0.9948
```

```
## interview_age          7.902e-03  1.746e-02  0.452  0.6510
## MRI_minus_hormone_date_time 2.263e-05  1.870e-05  1.210  0.2264
## bmi                    9.962e-03  3.752e-02  0.265  0.7907
## household.income[>=200K] -2.461e+00  1.042e+00 -2.362  0.0183 *
## household.income[100K-200K] -2.030e+00  9.873e-01 -2.057  0.0399 *
## household.income[12K-16K]  1.648e-01  1.276e+00  0.129  0.8973
## household.income[16K-25K]  1.097e+00  1.084e+00  1.012  0.3117
## household.income[25K-35K] -1.928e-01  1.062e+00 -0.182  0.8560
## household.income[35K-50K] -1.910e-01  1.030e+00 -0.186  0.8528
## household.income[50K-75K] -1.469e+00  9.855e-01 -1.490  0.1363
## household.income[5K-12K]   5.713e-01  1.129e+00  0.506  0.6130
## household.income[75K-100K] -2.125e+00  1.004e+00 -2.116  0.0345 *
## high.educBachelor        1.033e+00  9.516e-01  1.085  0.2780
## high.educHS Diploma/GED -1.142e+00  9.876e-01 -1.157  0.2475
## high.educPost Graduate Degree 1.685e-01  9.543e-01  0.177  0.8599
## high.educSome College     5.203e-01  9.092e-01  0.572  0.5672
## hormone_scr_ert_mean:lOFC_rvsnt_ant_z -1.211e-02  1.262e-02 -0.960  0.3372
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.033
## lmer.REML = 10418  Scale est. = 13.465    n = 1681
```

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_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)  -7.550e-01  2.613e+00  -0.289  0.772639
## PDS_score      7.898e-01  2.060e-01   3.834  0.000131 ***
## hormone_sal_end_min_since_midnight -1.469e-04  8.012e-04  -0.183  0.854593
## hormone_scr_ert_mean -3.520e-03  7.193e-03  -0.489  0.624653
## mOFC_rvsnt_ant_z  5.183e-01  4.299e-01   1.206  0.228132
## race.ethnicity.5levelBlack -6.873e-01  9.084e-01  -0.757  0.449383
## race.ethnicity.5levelMixed  8.988e-01  8.741e-01   1.028  0.303979
## race.ethnicity.5levelOther -3.087e-01  1.052e+00  -0.294  0.769152
## race.ethnicity.5levelWhite  1.509e+00  8.078e-01   1.868  0.061904 .
```

```

## demo_race_hispanic1          -1.804e-01  4.057e-01 -0.445 0.656691
## interview_age                 2.830e-02  1.825e-02  1.551 0.121111
## MRI_minus_hormone_date_time  3.954e-05  1.647e-05  2.400 0.016487 *
## bmi                          5.394e-02  3.646e-02  1.479 0.139254
## household.income[>=200K]     -2.798e+00  9.893e-01 -2.828 0.004741 **
## household.income[100K-200K] -1.792e+00  9.193e-01 -1.949 0.051412 .
## household.income[12K-16K]    -5.008e-01  1.145e+00 -0.438 0.661759
## household.income[16K-25K]    -1.692e+00  1.050e+00 -1.611 0.107373
## household.income[25K-35K]    -2.222e-01  9.602e-01 -0.231 0.816978
## household.income[35K-50K]    -1.287e+00  9.418e-01 -1.367 0.171965
## household.income[50K-75K]    -1.589e+00  9.225e-01 -1.723 0.085112 .
## household.income[5K-12K]     -5.095e-01  1.102e+00 -0.462 0.643815
## household.income[75K-100K]   -1.518e+00  9.299e-01 -1.632 0.102794
## high.educBachelor            4.820e-01  8.845e-01  0.545 0.585901
## high.educHS Diploma/GED     9.315e-02  8.937e-01  0.104 0.917004
## high.educPost Graduate Degree 8.319e-01  9.000e-01  0.924 0.355411
## high.educSome College        8.598e-01  8.323e-01  1.033 0.301736
## hormone_scr_ert_mean:mOFC_rvsnt_z -7.987e-03  1.066e-02 -0.749 0.453734
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0297
## lmer.REML = 10346 Scale est. = 15.65 n = 1682

```

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_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)    2.820e+00  2.696e+00  1.046  0.29559
## PDS_score       7.249e-01  2.794e-01  2.594  0.00956 **
## hormone_sal_end_min_since_midnight 3.841e-04  8.101e-04  0.474  0.63546
## hormone_scr_ert_mean 1.307e-03  7.745e-03  0.169  0.86601
## mOFC_rvsnt_z    -9.729e-02  3.989e-01 -0.244  0.80736
## race.ethnicity.5levelBlack 1.026e-01  1.149e+00  0.089  0.92889
## race.ethnicity.5levelMixed 1.191e+00  1.115e+00  1.068  0.28570
## race.ethnicity.5levelOther 4.989e-01  1.250e+00  0.399  0.68980
## race.ethnicity.5levelWhite 1.398e+00  1.055e+00  1.326  0.18512
## demo_race_hispanic1 -2.226e-02  4.241e-01 -0.052  0.95815
## interview_age    8.414e-03  1.755e-02  0.479  0.63167

```

```

## MRI_minus_hormone_date_time      2.147e-05  1.872e-05   1.147  0.25146
## bmi                             1.094e-02  3.766e-02   0.291  0.77143
## household.income[>=200K]        -3.077e+00  1.034e+00  -2.976  0.00296 **
## household.income[100K-200K]     -2.688e+00  9.784e-01  -2.747  0.00608 **
## household.income[12K-16K]       -4.925e-01  1.252e+00  -0.393  0.69410
## household.income[16K-25K]       3.765e-01  1.074e+00   0.351  0.72595
## household.income[25K-35K]      -9.465e-01  1.056e+00  -0.897  0.36998
## household.income[35K-50K]      -7.921e-01  1.022e+00  -0.775  0.43855
## household.income[50K-75K]      -2.132e+00  9.751e-01  -2.186  0.02893 *
## household.income[5K-12K]       -5.711e-02  1.123e+00  -0.051  0.95946
## household.income[75K-100K]     -2.738e+00  9.954e-01  -2.751  0.00601 **
## high.educBachelor               1.163e+00  9.553e-01   1.217  0.22362
## high.educHS Diploma/GED        -1.132e+00  9.890e-01  -1.145  0.25238
## high.educPost Graduate Degree   3.410e-01  9.580e-01   0.356  0.72190
## high.educSome College           7.339e-01  9.112e-01   0.805  0.42069
## hormone_scr_ert_mean:mOFC_rvsn_ant_z -2.881e-03  1.103e-02  -0.261  0.79402
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0321
## lmer.REML = 10477  Scale est. = 13.409    n = 1687

```

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)    -7.804e-01  2.598e+00  -0.300
## PDS_score       7.584e-01  2.051e-01   3.698
## hormone_sal_end_min_since_midnight -1.689e-04  8.005e-04  -0.211
## hormone_scr_ert_mean -2.675e-03  7.153e-03  -0.374
## lOFC_posvsneg_feedback_z -3.142e-02  5.123e-01  -0.061
## race.ethnicity.5levelBlack -6.449e-01  9.086e-01  -0.710
## race.ethnicity.5levelMixed  9.647e-01  8.717e-01   1.107
## race.ethnicity.5levelOther -4.866e-01  1.051e+00  -0.463
## race.ethnicity.5levelWhite  1.476e+00  8.065e-01   1.830
## demo_race_hispanic1    -1.525e-01  4.070e-01  -0.375

```

```

## interview_age                2.882e-02  1.821e-02  1.582
## MRI_minus_hormone_date_time  4.158e-05  1.645e-05  2.527
## bmi                          4.944e-02  3.637e-02  1.359
## household.income[>=200K]     -2.553e+00  9.756e-01 -2.617
## household.income[100K-200K]  -1.583e+00  9.047e-01 -1.750
## household.income[12K-16K]    -3.525e-01  1.137e+00 -0.310
## household.income[16K-25K]    -1.539e+00  1.038e+00 -1.482
## household.income[25K-35K]     3.475e-02  9.504e-01  0.037
## household.income[35K-50K]    -9.941e-01  9.291e-01 -1.070
## household.income[50K-75K]    -1.369e+00  9.097e-01 -1.505
## household.income[5K-12K]     -4.506e-01  1.091e+00 -0.413
## household.income[75K-100K]   -1.316e+00  9.161e-01 -1.437
## high.educBachelor            3.302e-01  8.649e-01  0.382
## high.educHS Diploma/GED      8.826e-02  8.777e-01  0.101
## high.educPost Graduate Degree 6.831e-01  8.798e-01  0.776
## high.educSome College        7.253e-01  8.139e-01  0.891
## hormone_scr_ert_mean:lOFC_posvsneg_feedback_z 1.689e-03  1.242e-02  0.136
##                               Pr(>|t|)
## (Intercept)                  0.763958
## PDS_score                     0.000225 ***
## hormone_sal_end_min_since_midnight 0.832970
## hormone_scr_ert_mean          0.708416
## lOFC_posvsneg_feedback_z      0.951102
## race.ethnicity.5levelBlack    0.477979
## race.ethnicity.5levelMixed    0.268580
## race.ethnicity.5levelOther    0.643510
## race.ethnicity.5levelWhite    0.067485 .
## demo_race_hispanic1          0.707991
## interview_age                 0.113818
## MRI_minus_hormone_date_time   0.011583 *
## bmi                           0.174213
## household.income[>=200K]       0.008955 **
## household.income[100K-200K]    0.080275 .
## household.income[12K-16K]     0.756586
## household.income[16K-25K]     0.138410
## household.income[25K-35K]     0.970841
## household.income[35K-50K]     0.284830
## household.income[50K-75K]     0.132528
## household.income[5K-12K]      0.679537
## household.income[75K-100K]    0.150905
## high.educBachelor             0.702729
## high.educHS Diploma/GED      0.919908
## high.educPost Graduate Degree 0.437585
## high.educSome College         0.372976
## hormone_scr_ert_mean:lOFC_posvsneg_feedback_z 0.891894
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0267
## lmer.REML = 10379  Scale est. = 16.178    n = 1688

```

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_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)	2.925e+00	2.693e+00	1.086
## PDS_score	6.832e-01	2.790e-01	2.449
## hormone_sal_end_min_since_midnight	6.360e-04	8.105e-04	0.785
## hormone_scr_ert_mean	7.309e-04	7.634e-03	0.096
## lOFC_posvsneg_feedback_z	1.120e-01	5.279e-01	0.212
## race.ethnicity.5levelBlack	2.173e-02	1.144e+00	0.019
## race.ethnicity.5levelMixed	1.242e+00	1.114e+00	1.115
## race.ethnicity.5levelOther	3.786e-01	1.246e+00	0.304
## race.ethnicity.5levelWhite	1.410e+00	1.054e+00	1.338
## demo_race_hispanic1	5.439e-02	4.246e-01	0.128
## interview_age	3.336e-03	1.753e-02	0.190
## MRI_minus_hormone_date_time	2.225e-05	1.825e-05	1.219
## bmi	1.891e-02	3.778e-02	0.501
## household.income[>=200K]	-2.863e+00	1.069e+00	-2.679
## household.income[100K-200K]	-2.461e+00	1.015e+00	-2.424
## household.income[12K-16K]	-3.755e-01	1.287e+00	-0.292
## household.income[16K-25K]	7.651e-01	1.118e+00	0.684
## household.income[25K-35K]	-8.363e-01	1.095e+00	-0.764
## household.income[35K-50K]	-6.359e-01	1.057e+00	-0.601
## household.income[50K-75K]	-1.836e+00	1.014e+00	-1.810
## household.income[5K-12K]	3.964e-01	1.147e+00	0.345
## household.income[75K-100K]	-2.525e+00	1.032e+00	-2.447
## high.educBachelor	1.168e+00	9.672e-01	1.208
## high.educHS Diploma/GED	-9.123e-01	9.968e-01	-0.915
## high.educPost Graduate Degree	3.476e-01	9.696e-01	0.358
## high.educSome College	7.412e-01	9.240e-01	0.802
## hormone_scr_ert_mean:lOFC_posvsneg_feedback_z	-1.145e-03	1.468e-02	-0.078

```
## Pr(>|t|)
## (Intercept) 0.27748
## PDS_score 0.01444 *
## hormone_sal_end_min_since_midnight 0.43279
## hormone_scr_ert_mean 0.92374
## lOFC_posvsneg_feedback_z 0.83205
## race.ethnicity.5levelBlack 0.98485
## race.ethnicity.5levelMixed 0.26516
## race.ethnicity.5levelOther 0.76128
## race.ethnicity.5levelWhite 0.18099
```

```
## demo_race_hispanic1 0.89810
## interview_age 0.84907
## MRI_minus_hormone_date_time 0.22297
## bmi 0.61667
## household.income[>=200K] 0.00745 **
## household.income[100K-200K] 0.01545 *
## household.income[12K-16K] 0.77057
## household.income[16K-25K] 0.49404
## household.income[25K-35K] 0.44515
## household.income[35K-50K] 0.54765
## household.income[50K-75K] 0.07044 .
## household.income[5K-12K] 0.72981
## household.income[75K-100K] 0.01451 *
## high.educBachelor 0.22726
## high.educHS Diploma/GED 0.36023
## high.educPost Graduate Degree 0.72003
## high.educSome College 0.42253
## hormone_scr_ert_mean:lOFC_posvsneg_feedback_z 0.93784
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0325
## lmer.REML = 10415 Scale est. = 13.448 n = 1678
```

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) -7.155e-01 2.594e+00 -0.276
## PDS_score    7.882e-01 2.043e-01 3.859
## hormone_sal_end_min_since_midnight -9.504e-05 7.994e-04 -0.119
## hormone_scr_ert_mean -2.973e-03 7.143e-03 -0.416
## mOFC_posvsneg_feedback_z 2.979e-01 4.781e-01 0.623
## race.ethnicity.5levelBlack -6.171e-01 9.085e-01 -0.679
## race.ethnicity.5levelMixed 9.949e-01 8.717e-01 1.141
## race.ethnicity.5levelOther -4.683e-01 1.052e+00 -0.445
```

```

## race.ethnicity.5levelWhite          1.510e+00  8.069e-01  1.871
## demo_race_hispanic1                 -1.627e-01  4.060e-01 -0.401
## interview_age                        2.675e-02  1.816e-02  1.473
## MRI_minus_hormone_date_time          4.075e-05  1.643e-05  2.481
## bmi                                  5.246e-02  3.629e-02  1.445
## household.income[>=200K]             -2.525e+00  9.754e-01 -2.589
## household.income[100K-200K]          -1.530e+00  9.043e-01 -1.692
## household.income[12K-16K]            -3.194e-01  1.135e+00 -0.281
## household.income[16K-25K]            -1.541e+00  1.040e+00 -1.482
## household.income[25K-35K]            4.362e-02  9.497e-01  0.046
## household.income[35K-50K]            -1.024e+00  9.280e-01 -1.103
## household.income[50K-75K]            -1.343e+00  9.090e-01 -1.477
## household.income[5K-12K]             -4.451e-01  1.090e+00 -0.408
## household.income[75K-100K]           -1.303e+00  9.162e-01 -1.422
## high.educBachelor                    3.079e-01  8.643e-01  0.356
## high.educHS Diploma/GED              5.897e-02  8.771e-01  0.067
## high.educPost Graduate Degree         6.668e-01  8.793e-01  0.758
## high.educSome College                 7.269e-01  8.136e-01  0.893
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z -1.304e-03  1.226e-02 -0.106
##                                     Pr(>|t|)
## (Intercept)                          0.782726
## PDS_score                             0.000118 ***
## hormone_sal_end_min_since_midnight    0.905382
## hormone_scr_ert_mean                  0.677358
## mOFC_posvsneg_feedback_z              0.533286
## race.ethnicity.5levelBlack            0.497072
## race.ethnicity.5levelMixed            0.253873
## race.ethnicity.5levelOther            0.656164
## race.ethnicity.5levelWhite            0.061453 .
## demo_race_hispanic1                  0.688683
## interview_age                         0.140808
## MRI_minus_hormone_date_time           0.013204 *
## bmi                                   0.148557
## household.income[>=200K]              0.009722 **
## household.income[100K-200K]           0.090863 .
## household.income[12K-16K]            0.778473
## household.income[16K-25K]            0.138461
## household.income[25K-35K]            0.963374
## household.income[35K-50K]            0.270202
## household.income[50K-75K]            0.139773
## household.income[5K-12K]             0.683182
## household.income[75K-100K]           0.155266
## high.educBachelor                    0.721750
## high.educHS Diploma/GED              0.946402
## high.educPost Graduate Degree         0.448349
## high.educSome College                 0.371735
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z 0.915329
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0283
## lmer.REML = 10410 Scale est. = 16          n = 1693

```


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)	2.806e+00	2.682e+00	1.046
## PDS_score	6.878e-01	2.780e-01	2.474
## hormone_sal_end_min_since_midnight	6.420e-04	8.076e-04	0.795
## hormone_scr_ert_mean	7.218e-04	7.624e-03	0.095
## mOFC_posvsneg_feedback_z	-4.108e-01	4.322e-01	-0.950
## race.ethnicity.5levelBlack	-5.486e-02	1.141e+00	-0.048
## race.ethnicity.5levelMixed	1.247e+00	1.111e+00	1.122
## race.ethnicity.5levelOther	3.794e-01	1.242e+00	0.306
## race.ethnicity.5levelWhite	1.404e+00	1.051e+00	1.336
## demo_race_hispanic1	3.313e-02	4.214e-01	0.079
## interview_age	4.634e-03	1.747e-02	0.265
## MRI_minus_hormone_date_time	2.206e-05	1.872e-05	1.178
## bmi	2.059e-02	3.760e-02	0.548
## household.income[>=200K]	-2.931e+00	1.059e+00	-2.767
## household.income[100K-200K]	-2.516e+00	1.005e+00	-2.502
## household.income[12K-16K]	-3.255e-01	1.269e+00	-0.257
## household.income[16K-25K]	6.944e-01	1.097e+00	0.633
## household.income[25K-35K]	-8.917e-01	1.086e+00	-0.821
## household.income[35K-50K]	-6.756e-01	1.048e+00	-0.645
## household.income[50K-75K]	-1.870e+00	1.003e+00	-1.864
## household.income[5K-12K]	3.505e-01	1.138e+00	0.308
## household.income[75K-100K]	-2.571e+00	1.022e+00	-2.515
## high.educBachelor	1.150e+00	9.567e-01	1.202
## high.educHS Diploma/GED	-9.435e-01	9.848e-01	-0.958
## high.educPost Graduate Degree	3.498e-01	9.593e-01	0.365
## high.educSome College	7.338e-01	9.126e-01	0.804
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z	9.152e-03	1.197e-02	0.764

```
##
## Pr(>|t|)
## (Intercept) 0.29555
## PDS_score 0.01347 *
## hormone_sal_end_min_since_midnight 0.42671
## hormone_scr_ert_mean 0.92458
## mOFC_posvsneg_feedback_z 0.34204
## race.ethnicity.5levelBlack 0.96164
## race.ethnicity.5levelMixed 0.26194
## race.ethnicity.5levelOther 0.75999
## race.ethnicity.5levelWhite 0.18179
```

```
## demo_race_hispanic1 0.93735
## interview_age 0.79089
## MRI_minus_hormone_date_time 0.23878
## bmi 0.58403
## household.income[>=200K] 0.00572 **
## household.income[100K-200K] 0.01244 *
## household.income[12K-16K] 0.79758
## household.income[16K-25K] 0.52698
## household.income[25K-35K] 0.41167
## household.income[35K-50K] 0.51923
## household.income[50K-75K] 0.06248 .
## household.income[5K-12K] 0.75815
## household.income[75K-100K] 0.01199 *
## high.educBachelor 0.22943
## high.educHS Diploma/GED 0.33819
## high.educPost Graduate Degree 0.71545
## high.educSome College 0.42150
## hormone_scr_ert_mean:mOFC_posvsneg_feedback_z 0.44475
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0331
## lmer.REML = 10448 Scale est. = 13.458 n = 1684
```

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) -1.8308109  2.4389443  -0.751 0.452940
## PDS_score    0.6918743  0.1784870   3.876 0.000109
## hormone_sal_end_min_since_midnight 0.0004665  0.0006983   0.668 0.504158
## hormone_scr_ert_mean 0.0224479  0.0224797   0.999 0.318108
## bisbas_ss_basm_rr 0.0738759  0.1015582   0.727 0.467044
## race.ethnicity.5levelBlack -0.8173107  0.8130936  -1.005 0.314918
## race.ethnicity.5levelMixed 1.0263881  0.7903367   1.299 0.194193
## race.ethnicity.5levelOther -0.4166465  0.9279798  -0.449 0.653489
## race.ethnicity.5levelWhite 1.1114718  0.7339106   1.514 0.130056
## demo_race_hispanic1 0.0078376  0.3598907   0.022 0.982627
## interview_age 0.0293286  0.0161038   1.821 0.068710
## bmi          0.0438535  0.0320512   1.368 0.171380
```

```

## household.income[>=200K] -2.7862299 0.8564336 -3.253 0.001158
## household.income[100K-200K] -1.9025637 0.7930809 -2.399 0.016525
## household.income[12K-16K] -0.4001558 1.0278711 -0.389 0.697088
## household.income[16K-25K] -1.4272274 0.8829785 -1.616 0.106157
## household.income[25K-35K] -0.4127121 0.8299687 -0.497 0.619054
## household.income[35K-50K] -1.3981410 0.8076142 -1.731 0.083557
## household.income[50K-75K] -1.5043130 0.7910864 -1.902 0.057357
## household.income[5K-12K] -0.3987567 0.8993055 -0.443 0.657516
## household.income[75K-100K] -1.6252823 0.8047398 -2.020 0.043543
## high.educBachelor 1.2302069 0.7491345 1.642 0.100698
## high.educHS Diploma/GED 1.1812338 0.7521009 1.571 0.116425
## high.educPost Graduate Degree 1.6175351 0.7633469 2.119 0.034202
## high.educSome College 1.4661799 0.6995451 2.096 0.036205
## hormone_scr_ert_mean:bisbas_ss_basm_rr -0.0032566 0.0025299 -1.287 0.198147
##
## (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) = 0.0246
## lmer.REML = 13661 Scale est. = 17.45 n = 2216

```

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)      3.0452122   2.4188206   1.259 0.208167
## PDS_score         0.5912015   0.2205685   2.680 0.007405
## hormone_sal_end_min_since_midnight 0.0011642   0.0006789   1.715 0.086499
## hormone_scr_ert_mean 0.0222857   0.0265323   0.840 0.401024
## bisbas_ss_basm_rr -0.0265963   0.1054670  -0.252 0.800927
## race.ethnicity.5levelBlack -0.7126074   0.8996292  -0.792 0.428375
## race.ethnicity.5levelMixed  1.0296832   0.8753238   1.176 0.239575
## race.ethnicity.5levelOther  0.0928043   0.9940025   0.093 0.925622
## race.ethnicity.5levelWhite  0.9730689   0.8242044   1.181 0.237874
## demo_race_hispanic1 -0.0545210   0.3565392  -0.153 0.878477
## interview_age      0.0034173   0.0150014   0.228 0.819825
## bmi                0.0310235   0.0311417   0.996 0.319253
## household.income[>=200K] -3.1471104   0.8500060  -3.702 0.000218
## household.income[100K-200K] -2.5720031   0.7957395  -3.232 0.001245
## household.income[12K-16K] -0.1607593   1.0348926  -0.155 0.876567
## household.income[16K-25K]  0.0381000   0.8519225   0.045 0.964332
## household.income[25K-35K] -0.6861414   0.8523506  -0.805 0.420901
## household.income[35K-50K] -1.2442571   0.8099603  -1.536 0.124624
## household.income[50K-75K] -1.6685058   0.7862255  -2.122 0.033927
## household.income[5K-12K] -0.1344957   0.8783680  -0.153 0.878317
## household.income[75K-100K] -2.6892438   0.8105169  -3.318 0.000921
## high.educBachelor  1.2858439   0.7937985   1.620 0.105395
## high.educHS Diploma/GED -0.7496076   0.7855980  -0.954 0.340086
## high.educPost Graduate Degree 0.5437176   0.7974823   0.682 0.495437
## high.educSome College 0.8972126   0.7556532   1.187 0.235215
## hormone_scr_ert_mean:bisbas_ss_basm_rr -0.0019331   0.0029359  -0.658 0.510312
##
## (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) =  0.0349
## lmer.REML = 14861 Scale est. = 15.899 n = 2392
```

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)	-5.783e-01	2.466e+00	-0.235
## PDS_score	8.814e-01	1.970e-01	4.475
## hormone_sal_end_min_since_midnight	-8.294e-05	7.543e-04	-0.110
## hormone_scr_ert_mean	-5.461e-03	6.967e-03	-0.784
## rt_diff_large_neutral_z	-8.889e-02	2.935e-01	-0.303
## race.ethnicity.5levelBlack	-1.091e+00	8.679e-01	-1.258
## race.ethnicity.5levelMixed	5.667e-01	8.368e-01	0.677
## race.ethnicity.5levelOther	-6.539e-01	9.808e-01	-0.667
## race.ethnicity.5levelWhite	1.132e+00	7.757e-01	1.459
## demo_race_hispanic1	-8.035e-02	3.880e-01	-0.207
## interview_age	2.880e-02	1.748e-02	1.648
## bmi	3.661e-02	3.440e-02	1.064
## household.income[>=200K]	-2.297e+00	9.330e-01	-2.462
## household.income[100K-200K]	-1.399e+00	8.661e-01	-1.615
## household.income[12K-16K]	-2.543e-01	1.110e+00	-0.229
## household.income[16K-25K]	-1.227e+00	9.698e-01	-1.265
## household.income[25K-35K]	2.614e-01	9.061e-01	0.289
## household.income[35K-50K]	-8.242e-01	8.804e-01	-0.936
## household.income[50K-75K]	-1.210e+00	8.659e-01	-1.397
## household.income[5K-12K]	2.031e-01	1.033e+00	0.196
## household.income[75K-100K]	-1.204e+00	8.801e-01	-1.368

```

## high.educBachelor          3.996e-01  8.151e-01  0.490
## high.educHS Diploma/GED    4.214e-01  8.269e-01  0.510
## high.educPost Graduate Degree 8.394e-01  8.303e-01  1.011
## high.educSome College       9.446e-01  7.657e-01  1.234
## hormone_scr_ert_mean:rt_diff_large_neutral_z 7.887e-03  7.334e-03  1.075
##                               Pr(>|t|)
## (Intercept)                 0.8146
## PDS_score                    8.11e-06 ***
## hormone_sal_end_min_since_midnight 0.9125
## hormone_scr_ert_mean         0.4333
## rt_diff_large_neutral_z      0.7620
## race.ethnicity.5levelBlack    0.2087
## race.ethnicity.5levelMixed    0.4984
## race.ethnicity.5levelOther    0.5050
## race.ethnicity.5levelWhite    0.1446
## demo_race_hispanic1          0.8360
## interview_age                 0.0995 .
## bmi                           0.2873
## household.income[>=200K]      0.0139 *
## household.income[100K-200K]   0.1064
## household.income[12K-16K]     0.8188
## household.income[16K-25K]     0.2061
## household.income[25K-35K]     0.7730
## household.income[35K-50K]     0.3493
## household.income[50K-75K]     0.1625
## household.income[5K-12K]      0.8442
## household.income[75K-100K]    0.1716
## high.educBachelor            0.6241
## high.educHS Diploma/GED      0.6104
## high.educPost Graduate Degree 0.3122
## high.educSome College         0.2175
## hormone_scr_ert_mean:rt_diff_large_neutral_z 0.2824
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0302
## lmer.REML = 11478  Scale est. = 16.54    n = 1867

```

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)	1.2079430	2.5356216	0.476
## PDS_score	0.7726076	0.2528294	3.056
## hormone_sal_end_min_since_midnight	0.0012042	0.0007489	1.608
## hormone_scr_ert_mean	0.0035338	0.0072899	0.485
## rt_diff_large_neutral_z	-0.1933502	0.2892424	-0.668
## race.ethnicity.5levelBlack	-0.6974965	1.0918154	-0.639
## race.ethnicity.5levelMixed	0.7108551	1.0668086	0.666
## race.ethnicity.5levelOther	-0.1171684	1.1827097	-0.099
## race.ethnicity.5levelWhite	0.8594635	1.0102058	0.851
## demo_race_hispanic1	-0.0165276	0.3962907	-0.042
## interview_age	0.0051666	0.0164938	0.313
## bmi	0.0284580	0.0352814	0.807
## household.income[>=200K]	-1.9490655	0.9722481	-2.005
## household.income[100K-200K]	-1.5972310	0.9183431	-1.739
## household.income[12K-16K]	1.0729800	1.1635366	0.922
## household.income[16K-25K]	1.5626059	1.0036772	1.557
## household.income[25K-35K]	0.3576706	0.9866835	0.362
## household.income[35K-50K]	0.3402717	0.9391754	0.362
## household.income[50K-75K]	-0.7860684	0.9114050	-0.862
## household.income[5K-12K]	0.9176560	1.0345895	0.887
## household.income[75K-100K]	-1.5718755	0.9340489	-1.683
## high.educBachelor	1.5318995	0.9097029	1.684
## high.educHS Diploma/GED	-0.0698078	0.9194642	-0.076
## high.educPost Graduate Degree	0.7954022	0.9107201	0.873
## high.educSome College	0.9896073	0.8648969	1.144
## hormone_scr_ert_mean:rt_diff_large_neutral_z	0.0046946	0.0079892	0.588
##	Pr(> t)		
## (Intercept)	0.63385		
## PDS_score	0.00228	**	
## hormone_sal_end_min_since_midnight	0.10800		
## hormone_scr_ert_mean	0.62791		
## rt_diff_large_neutral_z	0.50391		
## race.ethnicity.5levelBlack	0.52300		
## race.ethnicity.5levelMixed	0.50528		
## race.ethnicity.5levelOther	0.92109		
## race.ethnicity.5levelWhite	0.39500		
## demo_race_hispanic1	0.96674		
## interview_age	0.75413		
## bmi	0.42000		
## household.income[>=200K]	0.04514	*	
## household.income[100K-200K]	0.08215	.	
## household.income[12K-16K]	0.35656		
## household.income[16K-25K]	0.11967		
## household.income[25K-35K]	0.71702		
## household.income[35K-50K]	0.71716		
## household.income[50K-75K]	0.38853		
## household.income[5K-12K]	0.37520		
## household.income[75K-100K]	0.09257	.	
## high.educBachelor	0.09235	.	
## high.educHS Diploma/GED	0.93949		
## high.educPost Graduate Degree	0.38257		
## high.educSome College	0.25269		
## hormone_scr_ert_mean:rt_diff_large_neutral_z	0.55686		
## ---			

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) =  0.0338
## lmer.REML = 11904  Scale est. = 12.654    n = 1920
```

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)    -0.5520425  2.4664193  -0.224
## PDS_score        0.8933849  0.1969258   4.537
## hormone_sal_end_min_since_midnight -0.0001280  0.0007541  -0.170
## hormone_scr_ert_mean -0.0050999  0.0069590  -0.733
## rt_diff_large_small_z  0.2350970  0.2721610   0.864
## race.ethnicity.5levelBlack -1.0517876  0.8684633  -1.211
## race.ethnicity.5levelMixed  0.6125749  0.8374193   0.732
## race.ethnicity.5levelOther -0.6097658  0.9810845  -0.622
## race.ethnicity.5levelWhite  1.1748308  0.7758337   1.514
## demo_race_hispanic1 -0.0862368  0.3882809  -0.222
## interview_age     0.0289652  0.0174693   1.658
## bmi               0.0341813  0.0344348   0.993
## household.income[>=200K] -2.3566422  0.9335397  -2.524
## household.income[100K-200K] -1.4753589  0.8660071  -1.704
## household.income[12K-16K] -0.2799346  1.1097057  -0.252
## household.income[16K-25K] -1.3132975  0.9700996  -1.354
## household.income[25K-35K]  0.2420571  0.9062299   0.267
## household.income[35K-50K] -0.9046927  0.8806887  -1.027
## household.income[50K-75K] -1.2846384  0.8662124  -1.483
## household.income[5K-12K]  0.1584675  1.0341913   0.153
## household.income[75K-100K] -1.2850186  0.8801519  -1.460
## high.educBachelor  0.4331076  0.8155276   0.531
## high.educHS Diploma/GED  0.4294921  0.8275583   0.519
## high.educPost Graduate Degree 0.8788390  0.8318674   1.056
## high.educSome College  0.9927691  0.7667305   1.295
## hormone_scr_ert_mean:rt_diff_large_small_z -0.0006677  0.0070226  -0.095
##
##               Pr(>|t|)
## (Intercept)      0.8229
## PDS_score        6.08e-06 ***
## hormone_sal_end_min_since_midnight  0.8652
```



```

## hormone_scr_ert_mean 0.4637
## rt_diff_large_small_z 0.3878
## race.ethnicity.5levelBlack 0.2260
## race.ethnicity.5levelMixed 0.4646
## race.ethnicity.5levelOther 0.5343
## race.ethnicity.5levelWhite 0.1301
## demo_race_hispanic1 0.8243
## interview_age 0.0975 .
## bmi 0.3210
## household.income[>=200K] 0.0117 *
## household.income[100K-200K] 0.0886 .
## household.income[12K-16K] 0.8009
## household.income[16K-25K] 0.1760
## household.income[25K-35K] 0.7894
## household.income[35K-50K] 0.3044
## household.income[50K-75K] 0.1382
## household.income[5K-12K] 0.8782
## household.income[75K-100K] 0.1445
## high.educBachelor 0.5954
## high.educHS Diploma/GED 0.6038
## high.educPost Graduate Degree 0.2909
## high.educSome College 0.1955
## hormone_scr_ert_mean:rt_diff_large_small_z 0.9243
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0301
## lmer.REML = 11478 Scale est. = 16.499 n = 1867

```

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) 1.2629944 2.5341263 0.498
## PDS_score 0.7803009 0.2528177 3.086
## hormone_sal_end_min_since_midnight 0.0011856 0.0007488 1.583
## hormone_scr_ert_mean 0.0035743 0.0073302 0.488
## rt_diff_large_small_z 0.1113230 0.2788887 0.399
## race.ethnicity.5levelBlack -0.6921263 1.0918345 -0.634
## race.ethnicity.5levelMixed 0.7202937 1.0664254 0.675
## race.ethnicity.5levelOther -0.1087161 1.1829589 -0.092
## race.ethnicity.5levelWhite 0.8803271 1.0095366 0.872

```

```

## demo_race_hispanic1 -0.0124135 0.3967489 -0.031
## interview_age 0.0047951 0.0164824 0.291
## bmi 0.0281270 0.0352882 0.797
## household.income[>=200K] -1.9812439 0.9720740 -2.038
## household.income[100K-200K] -1.6219452 0.9188200 -1.765
## household.income[12K-16K] 1.0698830 1.1637602 0.919
## household.income[16K-25K] 1.5191279 1.0059324 1.510
## household.income[25K-35K] 0.3389505 0.9878259 0.343
## household.income[35K-50K] 0.2964422 0.9392291 0.316
## household.income[50K-75K] -0.8151025 0.9113197 -0.894
## household.income[5K-12K] 0.9143109 1.0348073 0.884
## household.income[75K-100K] -1.6027230 0.9345787 -1.715
## high.educBachelor 1.5340874 0.9097128 1.686
## high.educHS Diploma/GED -0.0447472 0.9185345 -0.049
## high.educPost Graduate Degree 0.8025344 0.9106402 0.881
## high.educSome College 0.9996967 0.8646029 1.156
## hormone_scr_ert_mean:rt_diff_large_small_z -0.0037414 0.0076857 -0.487
## Pr(>|t|)
## (Intercept) 0.61826
## PDS_score 0.00206 **
## hormone_sal_end_min_since_midnight 0.11350
## hormone_scr_ert_mean 0.62588
## rt_diff_large_small_z 0.68982
## race.ethnicity.5levelBlack 0.52622
## race.ethnicity.5levelMixed 0.49949
## race.ethnicity.5levelOther 0.92679
## race.ethnicity.5levelWhite 0.38331
## demo_race_hispanic1 0.97504
## interview_age 0.77114
## bmi 0.42551
## household.income[>=200K] 0.04167 *
## household.income[100K-200K] 0.07768 .
## household.income[12K-16K] 0.35804
## household.income[16K-25K] 0.13117
## household.income[25K-35K] 0.73154
## household.income[35K-50K] 0.75232
## household.income[50K-75K] 0.37121
## household.income[5K-12K] 0.37705
## household.income[75K-100K] 0.08652 .
## high.educBachelor 0.09189 .
## high.educHS Diploma/GED 0.96115
## high.educPost Graduate Degree 0.37827
## high.educSome College 0.24772
## hormone_scr_ert_mean:rt_diff_large_small_z 0.62645
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## R-sq.(adj) = 0.0337
## lmer.REML = 11904 Scale est. = 12.631 n = 1920

```