

Linear Models

Linear Model - 1.1 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
##   -58.31358 -48.5052 36.15679
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept)      Residual
## StdDev:  0.02269256 0.04967875
##
## Fixed effects: PP ~ Day + NASA_summative
##              Value   Std.Error DF   t-value p-value
## (Intercept)  -4.352620 0.030198445 22 -144.13393 0.0000
## DayDay1       -0.023210 0.024535823 22  -0.94596 0.3544
## DayDay2        0.006003 0.026452585 22   0.22692 0.8226
## DayDay3       -0.015243 0.023506612 22  -0.64846 0.5234
## NASA_summative -0.000308 0.000480807 22  -0.64023 0.5286
## Correlation:
##              (Intr) DayDy1 DayDy2 DayDy3
## DayDay1       -0.132
## DayDay2       -0.023  0.542
## DayDay3       -0.455  0.450  0.406
## NASA_summative -0.798 -0.298 -0.401  0.086
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -2.1876591 -0.5160909 -0.0451628  0.4964136  1.8175238
##
## Number of Observations: 35
## Number of Groups: 9

##              numDF denDF   F-value p-value
## (Intercept)      1    22 149860.26 <.0001
## Day              3    22    0.62 0.6122
## NASA_summative   1    22    0.41 0.5286
```

Linear Model - 1.2 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
##  4.868297 14.43937 4.565852
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:  0.08679923 0.1340434
##
## Fixed effects: E4_HR ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)  3.731664 0.09058913 21 41.19329  0.0000
## DayDay1      0.094234 0.06699697 21  1.40655  0.1742
## DayDay2     -0.092558 0.07290947 21 -1.26949  0.2182
## DayDay3      0.009559 0.06654384 21  0.14365  0.8871
## NASA_summative -0.002097 0.00146275 21 -1.43373  0.1664
## Correlation:
##      (Intr) DayDy1 DayDy2 DayDy3
## DayDay1      -0.060
## DayDay2       0.053  0.555
## DayDay3      -0.475  0.389  0.332
## NASA_summative -0.809 -0.332 -0.440  0.177
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.6731979 -0.4189153  0.1115813  0.4660118  1.8285736
##
## Number of Observations: 34
## Number of Groups: 9

##              numDF denDF  F-value p-value
## (Intercept)      1    21 9550.352 <.0001
## Day            3    21   3.480  0.0341
## NASA_summative  1    21   2.056  0.1664
```

Linear Model - 1.3 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
##  54.23308 63.80415 -20.11654
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:  0.05842995 0.3499689
##
## Fixed effects: E4_EDA ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)   0.5322751 0.1935055 21   2.7506970  0.0120
## DayDay1       -0.1328865 0.1714113 21  -0.7752495  0.4468
## DayDay2        0.1145473 0.1835891 21   0.6239328  0.5394
## DayDay3        0.0035865 0.1713740 21   0.0209277  0.9835
## NASA_summative -0.0022356 0.0030563 21  -0.7314784  0.4726
## Correlation:
##      (Intr) DayDy1 DayDy2 DayDy3
## DayDay1      -0.195
## DayDay2      -0.086  0.534
## DayDay3      -0.504  0.431  0.388
## NASA_summative -0.791 -0.271 -0.375  0.118
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -4.53062323 -0.01546878  0.14197328  0.34538751  0.92793404
##
## Number of Observations: 34
## Number of Groups: 9

##              numDF denDF  F-value p-value
## (Intercept)      1    21 39.22373 <.0001
## Day             3    21  0.72211  0.5500
## NASA_summative   1    21  0.53506  0.4726
```

Linear Model - 1.4 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
##  17.56876 26.10089 -1.784378
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:   0.1267035 0.1559499
##
## Fixed effects: iWatch_HR ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)   3.654514 0.12626879 18 28.942340 0.0000
## DayDay1        0.104205 0.08622757 18  1.208490 0.2425
## DayDay2       -0.022618 0.09484593 18 -0.238469 0.8142
## DayDay3        0.065977 0.08176418 18  0.806917 0.4302
## NASA_summative -0.002997 0.00187799 18 -1.596015 0.1279
## Correlation:
##              (Intr) DayDy1 DayDy2 DayDy3
## DayDay1       -0.060
## DayDay2        0.063  0.588
## DayDay3       -0.431  0.471  0.415
## NASA_summative -0.806 -0.333 -0.450  0.105
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.86618714 -0.39151222  0.09050824  0.51898404  1.74615396
##
## Number of Observations: 30
## Number of Groups: 8

##              numDF denDF  F-value p-value
## (Intercept)      1    18 4355.414 <.0001
## Day            3    18   1.731 0.1966
## NASA_summative  1    18   2.547 0.1279
```

Linear Model - 1.5 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
## 369.2323 379.0407 -177.6162
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:      87.99181 47.18932
##
## Fixed effects: RR ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)  827.0537  43.92582 22  18.828417  0.0000
## DayDay1       1.6644  23.88893 22   0.069673  0.9451
## DayDay2      19.0357  26.14564 22   0.728064  0.4743
## DayDay3     -20.7378  22.37600 22  -0.926787  0.3641
## NASA_summative -0.2774   0.57206 22  -0.484964  0.6325
## Correlation:
##              (Intr) DayDy1 DayDy2 DayDy3
## DayDay1         0.002
## DayDay2         0.089  0.566
## DayDay3        -0.322  0.424  0.373
## NASA_summative -0.653 -0.365 -0.466  0.108
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.47592735 -0.52875728  0.02920536  0.57399103  1.89147003
##
## Number of Observations: 35
## Number of Groups: 9

##              numDF denDF  F-value p-value
## (Intercept)      1    22 710.3701 <.0001
## Day            3    22   0.6832  0.5718
## NASA_summative  1    22   0.2352  0.6325
```

Linear Model - 2.1 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
##  8.207476 17.36564 1.896262
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:   0.1486837 0.1671509
##
## Fixed effects: PP_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) -5.562851 0.07074337 25 -78.63424 0.0000
## DayDay2      -0.089330 0.07475213 25  -1.19502 0.2433
## DayDay3      -0.061896 0.07741727 25  -0.79951 0.4315
## DayDay4      -0.105668 0.07741727 25  -1.36492 0.1844
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.528
## DayDay3 -0.510 0.483
## DayDay4 -0.510 0.483 0.482
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.691344169 -0.473027585 -0.002778675 0.359745432 2.054884222
##
## Number of Observations: 38
## Number of Groups: 10

##              numDF denDF   F-value p-value
## (Intercept)      1    25 10667.368 <.0001
## Day           3    25    0.746 0.5346
```

Linear Model - 2.2 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
## -44.30006 -35.50564 28.15003
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept)    Residual
## StdDev:  0.1012673 0.06343109
##
## Fixed effects: E4_HR_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) 4.302330 0.03778700 23 113.85741  0.0000
## DayDay2      0.051978 0.02937413 23   1.76950  0.0901
## DayDay3      0.032134 0.03067396 23   1.04760  0.3057
## DayDay4      0.032346 0.02946555 23   1.09775  0.2837
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.362
## DayDay3 -0.347  0.441
## DayDay4 -0.361  0.462  0.466
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.4511526 -0.5519462 -0.1399821  0.4686882  1.8872548
##
## Number of Observations: 36
## Number of Groups: 10

##              numDF denDF   F-value p-value
## (Intercept)      1    23 16418.984 <.0001
## Day            3    23    1.091  0.3728
```


Linear Model - 2.3 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
##  99.00355 107.798 -43.50177
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:   0.6298319 0.6749252
##
## Fixed effects: E4_EDA_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) -1.4356459 0.2919267 23 -4.917829  0.0001
## DayDay2      -0.2624528 0.3120959 23 -0.840936  0.4090
## DayDay3       0.2272724 0.3250469 23  0.699199  0.4914
## DayDay4      -0.0969698 0.3127006 23 -0.310104  0.7593
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.500
## DayDay3 -0.480  0.445
## DayDay4 -0.499  0.464  0.464
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.50599089 -0.66043291 -0.08693279  0.51833206  2.90658267
##
## Number of Observations: 36
## Number of Groups: 10

##              numDF denDF  F-value p-value
## (Intercept)      1    23 41.41102 <.0001
## Day            3    23  0.74746  0.5349
```

Linear Model - 2.4 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
##   -35.75318 -27.54941 23.87659
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept)   Residual
## StdDev:  0.09496066 0.06937745
##
## Fixed effects: iWatch_HR_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) 4.293064 0.03920141 21 109.51299 0.0000
## DayDay2      0.052866 0.03270484 21   1.61646 0.1209
## DayDay3      0.019974 0.03410046 21   0.58575 0.5643
## DayDay4      0.021575 0.03568073 21   0.60468 0.5519
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.417
## DayDay3 -0.400  0.480
## DayDay4 -0.382  0.458  0.461
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.4471429 -0.5496050 -0.1467693  0.6158468  1.7278043
##
## Number of Observations: 33
## Number of Groups: 9

##              numDF denDF   F-value p-value
## (Intercept)      1    21 16149.733 <.0001
## Day            3    21   0.889 0.4629
```

Linear Model - 2.5 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: rr_rb_df
##      AIC      BIC    logLik
## 381.8265 390.6209 -184.9132
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:      91.90395 46.88521
##
## Fixed effects: RR ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) 813.3578  32.62600 23 24.929744  0.0000
## DayDay2     -26.9481  21.71900 23 -1.240759  0.2272
## DayDay3     -11.0620  22.69451 23 -0.487431  0.6306
## DayDay4     -30.9632  21.79342 23 -1.420757  0.1688
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.310
## DayDay3 -0.297  0.440
## DayDay4 -0.309  0.461  0.467
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.7192780 -0.4915017  0.1269971  0.4879462  1.4949022
##
## Number of Observations: 36
## Number of Groups: 10

##              numDF denDF  F-value p-value
## (Intercept)      1    23 698.5064 <.0001
## Day           3    23   0.8726  0.4696
```