

Linear Models

Linear Model - 1.1 -> Random Effect

```
## Linear mixed-effects model fit by REML
## Data: physiological_questionnaire_df
##      AIC      BIC    logLik
##   -57.42901 -47.3911 35.71451
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept)      Residual
## StdDev:  0.02804787 0.05173232
##
## Fixed effects: PP ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)  -4.348296 0.03248721 23 -133.84641  0.0000
## DayDay1       -0.021896 0.02562427 23  -0.85452  0.4016
## DayDay2       -0.006170 0.02705428 23  -0.22805  0.8216
## DayDay3       -0.015608 0.02448427 23  -0.63745  0.5301
## NASA_summative -0.000394 0.00051679 23   -0.76264  0.4534
## Correlation:
##              (Intr) DayDy1 DayDy2 DayDy3
## DayDay1       -0.112
## DayDay2        0.007  0.562
## DayDay3       -0.445  0.447  0.410
## NASA_summative -0.797 -0.307 -0.433  0.089
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -2.13097326 -0.45361955 -0.02882135  0.55151737  1.81100147
##
## Number of Observations: 36
## Number of Groups: 9

##              numDF denDF   F-value p-value
## (Intercept)      1    23 118729.57 <.0001
## Day             3    23    0.44 0.7284
## NASA_summative  1    23    0.58 0.4534
```

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
## 24.68752 33.4942 -5.343761
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:  0.1509235 0.1795277
##
## Fixed effects: iWatch_HR ~ Day + NASA_summative
##              Value Std.Error DF   t-value p-value
## (Intercept)  3.681317 0.14624245 19 25.172694  0.0000
## DayDay1      0.108629 0.09928633 19  1.094094  0.2876
## DayDay2     -0.087204 0.10658246 19 -0.818182  0.4234
## DayDay3      0.061471 0.09414374 19  0.652944  0.5216
## NASA_summative -0.003447 0.00216655 19 -1.590826  0.1282
## Correlation:
##      (Intr) DayDy1 DayDy2 DayDy3
## DayDay1      -0.058
## DayDay2       0.080  0.607
## DayDay3      -0.429  0.471  0.421
## NASA_summative -0.803 -0.333 -0.478  0.106
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -2.28782023 -0.42474653  0.04868245  0.40782078  1.47951302
##
## Number of Observations: 31
## Number of Groups: 8

##              numDF denDF   F-value p-value
## (Intercept)      1    19 3120.0210 <.0001
## Day             3    19   3.0708  0.0527
## NASA_summative  1    19   2.5307  0.1282
```

Linear Model - 2.1 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##           AIC           BIC    logLik
##    -369.0309   -359.8728   190.5155
##
## Random effects:
## Formula: ~1 | Participant_ID
##           (Intercept)      Residual
## StdDev: 0.000597435  0.0006463988
##
## Fixed effects: PP_Raw ~ Day
##              Value      Std.Error DF   t-value p-value
## (Intercept)  0.004010871  0.0002783451 25  14.409706  0.0000
## DayDay2      -0.000330285  0.0002890783 25  -1.142545  0.2641
## DayDay3      -0.000298709  0.0002994547 25  -0.997511  0.3281
## DayDay4      -0.000476035  0.0002994547 25  -1.589672  0.1245
## Correlation:
##           (Intr) DayDy2 DayDy3
## DayDay2 -0.519
## DayDay3 -0.501  0.483
## DayDay4 -0.501  0.483  0.482
##
## Standardized Within-Group Residuals:
##           Min           Q1           Med           Q3           Max
## -1.40784533 -0.50249013 -0.08419411  0.33714916  2.21169112
##
## Number of Observations: 38
## Number of Groups: 10

##           numDF denDF    F-value p-value
## (Intercept)     1    25  298.18002  <.0001
## Day           3    25   0.90928  0.4506
```

Linear Model - 2.2 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
## 234.5029 243.2973 -111.2515
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:      7.816469 4.962375
##
## Fixed effects: E4_HR_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) 74.37656  2.927838 23 25.403236  0.0000
## DayDay2      3.93321  2.297955 23  1.711614  0.1004
## DayDay3      2.60739  2.399525 23  1.086626  0.2885
## DayDay4      2.52628  2.305052 23  1.095974  0.2844
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.366
## DayDay3 -0.351  0.441
## DayDay4 -0.365  0.462  0.466
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.3637060 -0.5580683 -0.1525584  0.5701228  1.8958440
##
## Number of Observations: 36
## Number of Groups: 10

##              numDF denDF  F-value p-value
## (Intercept)      1    23 858.8382 <.0001
## Day           3    23  1.0406  0.3933
```

Linear Model - 2.3 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
##  51.44266 60.23707 -19.72133
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:   0.2973181 0.3216493
##
## Fixed effects: E4_EDA_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept)  0.4491980 0.1385122 23   3.243021  0.0036
## DayDay2      -0.2007228 0.1487305 23  -1.349574  0.1903
## DayDay3      -0.0062325 0.1548933 23  -0.040237  0.9683
## DayDay4      -0.1282369 0.1490152 23  -0.860562  0.3984
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.502
## DayDay3 -0.482  0.445
## DayDay4 -0.501  0.465  0.464
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.35211732 -0.45279591 -0.09430066  0.20949304  2.96637603
##
## Number of Observations: 36
## Number of Groups: 10

##              numDF denDF   F-value p-value
## (Intercept)      1    23 11.297105  0.0027
## Day            3    23  0.818692  0.4968
```


Linear Model - 2.4 -> Resting Baseline

```
## Linear mixed-effects model fit by REML
## Data: raw_rb_mean_df
##      AIC      BIC    logLik
## 216.8586 225.0624 -102.4293
##
## Random effects:
## Formula: ~1 | Participant_ID
##      (Intercept) Residual
## StdDev:      7.110863 5.471009
##
## Fixed effects: iWatch_HR_Raw ~ Day
##              Value Std.Error DF   t-value p-value
## (Intercept) 73.69167  2.990658 21 24.640622  0.0000
## DayDay2      4.10074  2.579058 21  1.590014  0.1268
## DayDay3      1.51060  2.688429 21  0.561888  0.5801
## DayDay4      1.52941  2.812642 21  0.543761  0.5923
## Correlation:
##      (Intr) DayDy2 DayDy3
## DayDay2 -0.431
## DayDay3 -0.414  0.480
## DayDay4 -0.395  0.458  0.461
##
## Standardized Within-Group Residuals:
##      Min      Q1      Med      Q3      Max
## -1.3474649 -0.5809207 -0.1335975  0.5925223  1.7796433
##
## Number of Observations: 33
## Number of Groups: 9

##              numDF denDF  F-value p-value
## (Intercept)      1    21 868.8318 <.0001
## Day           3    21  0.8672  0.4736
```