

```
> for (var in var_names) {
+   formula <- as.formula(paste("WASO ~", var, "+ (1 | id)"))
+   model <- lmer(formula, data = standardized_data)
+   print(summary(model))
+   p = round(2*pnorm(abs(coef(summary(model))[,3]), lower.tail = FALSE),3)
+   print('p-values:')
+   print(p)
+ }
```

```
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ TIR + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 559.5

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.2750 | -0.6410 | -0.1534 | 0.4982 | 3.9931 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.1896 | 0.4354 |
| Residual | | 0.7565 | 0.8698 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.06338 | 0.11147 | -0.569 |
| TIR | 0.07145 | 0.07226 | 0.989 |

Correlation of Fixed Effects:

```
(Intr)
TIR -0.013
[1] "p-values:"
(Intercept)      TIR
0.570          0.323
```

```
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ TAR + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 558.9

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.3361 | -0.6591 | -0.1538 | 0.4981 | 3.8995 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.1845 | 0.4295 |
| Residual | | 0.7553 | 0.8691 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.05959 | 0.11042 | -0.540 |
| TAR | -0.09099 | 0.06972 | -1.305 |

Correlation of Fixed Effects:

```
(Intr)
TAR -0.015
[1] "p-values:"
(Intercept)      TAR
0.589          0.192
```

```
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ TBR + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 560

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.4114 | -0.6360 | -0.1473 | 0.5042 | 3.9255 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.2056 | 0.4534 |
| Residual | | 0.7528 | 0.8676 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.05697 | 0.11471 | -0.497 |
| TBR | 0.05437 | 0.06626 | 0.821 |

Correlation of Fixed Effects:

(Intr)
TBR 0.063
[1] "p-values:"
(Intercept) TBR
0.619 0.412
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ min + (1 | id)
Data: standardized_data

REML criterion at convergence: 554.8

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.3990 | -0.6223 | -0.1592 | 0.5267 | 3.8220 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.1728 | 0.4157 |
| Residual | | 0.7423 | 0.8616 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.05202 | 0.10780 | -0.483 |
| min | -0.16154 | 0.06544 | -2.468 |

Correlation of Fixed Effects:

(Intr)
min -0.034
[1] "p-values:"
(Intercept) min
0.629 0.014
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ max + (1 | id)
Data: standardized_data

REML criterion at convergence: 559.2

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.2648 | -0.5894 | -0.1361 | 0.4796 | 4.1018 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.2240 | 0.4733 |
| Residual | | 0.7448 | 0.8630 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.06653 | 0.11781 | -0.565 |
| max | 0.08128 | 0.06763 | 1.202 |

Correlation of Fixed Effects:

```
(Intr)
max -0.019
[1] "p-values:"
(Intercept)      max
0.572      0.229
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ mean + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 559

```
Scaled residuals:
  Min      1Q  Median      3Q      Max
-2.3556 -0.6433 -0.1742  0.5025  3.8707
```

```
Random effects:
 Groups   Name      Variance Std.Dev.
 id       (Intercept) 0.1884   0.4340
Residual                0.7542   0.8684
Number of obs: 207, groups: id, 23
```

```
Fixed effects:
 Estimate Std. Error t value
(Intercept) -0.05827    0.11120  -0.524
mean        -0.08740    0.06789  -1.287
```

```
Correlation of Fixed Effects:
(Intr)
mean -0.026
[1] "p-values:"
(Intercept)      mean
0.600      0.198
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ median + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 558.7

```
Scaled residuals:
  Min      1Q  Median      3Q      Max
-2.3330 -0.6331 -0.1505  0.5020  3.8516
```

```
Random effects:
 Groups   Name      Variance Std.Dev.
 id       (Intercept) 0.1870   0.4324
Residual                0.7533   0.8680
Number of obs: 207, groups: id, 23
```

```
Fixed effects:
 Estimate Std. Error t value
(Intercept) -0.05829    0.11089  -0.526
median      -0.09530    0.06754  -1.411
```

```
Correlation of Fixed Effects:
(Intr)
median -0.023
[1] "p-values:"
(Intercept)      median
0.599      0.158
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ std + (1 | id)
Data: standardized_data
```

REML criterion at convergence: 554.3

```
Scaled residuals:
  Min      1Q  Median      3Q      Max
-2.3643 -0.6202 -0.1333  0.4906  4.1807
```

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.2165 | 0.4653 |
| Residual | | 0.7274 | 0.8529 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.06308 | 0.11597 | -0.544 |
| std | 0.16320 | 0.06377 | 2.559 |

Correlation of Fixed Effects:

(Intr)
std 0.002
[1] "p-values:"
(Intercept) std
0.586 0.010
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ cv + (1 | id)
Data: standardized_data

REML criterion at convergence: 553.2

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.4420 | -0.6462 | -0.1205 | 0.4886 | 4.0318 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.1956 | 0.4422 |
| Residual | | 0.7290 | 0.8538 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.05448 | 0.11201 | -0.486 |
| cv | 0.17560 | 0.06345 | 2.768 |

Correlation of Fixed Effects:

(Intr)
cv 0.027
[1] "p-values:"
(Intercept) cv
0.627 0.006
Linear mixed model fit by REML ['lmerMod']
Formula: WASO ~ delta.IG + (1 | id)
Data: standardized_data

REML criterion at convergence: 552.2

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -2.2797 | -0.5895 | -0.1232 | 0.4834 | 4.1553 |

Random effects:

| Groups | Name | Variance | Std.Dev. |
|----------|-------------|----------|----------|
| id | (Intercept) | 0.2155 | 0.4643 |
| Residual | | 0.7199 | 0.8485 |

Number of obs: 207, groups: id, 23

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.06219 | 0.11561 | -0.538 |
| delta.IG | 0.18815 | 0.06390 | 2.944 |

Correlation of Fixed Effects:

(Intr)
delta.IG 0.005
[1] "p-values:"

```
(Intercept)      delta.IG  
0.591         0.003  
>
```