Diet and Sleep (HEI)

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Background

This analysis seeks to assess whether diet influences sleep.

Data

Data from CM and DQ were combined for the purpose of this analysis. In order to establish a temporal order, each data about each patients' diets was collected prior to data on each patients' sleep qualities.

Variables

We are interested in the following predictors: caffeine, whole grains, refined grains, poultry, soy, legumes, red and processed meat, seaffod, saturated/unsaturated fat ratio, long chain omega 3 fatty acids, and the healthy eating index (HEI) total score. We are interested in the following outcome variables: sleep efficiency, total sleep time, wake after sleep onset, and sleep fragmentation index.

Some of the variables required by the provided `hei2015.score.macro` SAS macro needed to be derived. The variables and their derivations are as follows:

- `vtotalleg` (total veg plus legumes in cup eq.): `v_total` + `v_legumes`

- `vdrkgrleg` (intake of dark green veg plus legumes in cup eq.): `v_drkgr` + `v_legumes`

- `fwholefrt` (intake of whole fruit in cup eq.): `f_total` - `f_juice`

- `pfallprotleg` (intake of total protein [including legumes] in oz. eq.): `pf_total` + `pf_legumes`

- `pfseaplantleg` (intake of seafood, fish, and protein [includes legumes] in oz. eq.): `seafood` + `pf_soy` + `pf_nutsds` + `pf_legumes`

- `monopoly` (grams of mono fat plus poly fat): `mfat` + `pfat`

In addition, energy (kcal), age, sex, and BMI will be used as covariates.

Methodology

We will construct linear mixed effect models to conduct a preliminary assessment of the relationships between all variables of interest. First, we will regress the outcome variable of interest on one predictor and the four covariates, adding a random intercept for subject ID. We will then evaluate the significance of the coefficients associated with each of the three covariates. If any of the coefficients associated with age, sex, BMI, or condition are determined to not be significant (i.e., $p > 0.05$), the associated covariate will be removed from the model. The truncated model will then be run again and its result saved.

Results

Diet and Sleep

The results of regressing sleep outcome variables on diet predictors are as follows:

```
## Model 1: se vs. caff
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  7.727e+01  3.120e+00 2.683e+01  24.764    <2e-16 ***
## age          3.430e-01  1.002e-01 2.153e+01   3.422    0.0025 **
## kcal         9.482e-04  5.527e-04 1.916e+02   1.715    0.0879 .
## caff         4.378e-03  4.993e-03 1.516e+02   0.877    0.3820
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 2: tst vs. caff
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  4.034e+02  1.625e+01 1.047e+02  24.822    <2e-16 ***
## kcal         8.604e-03  7.091e-03 1.480e+02   1.213     0.227
## caff         3.254e-02  5.989e-02 8.720e+01   0.543     0.588
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 3: waso vs. caff
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  5.850e+01  8.338e+00 4.002e+01   7.016 1.77e-08 ***
## age         -8.374e-01  2.643e-01 3.178e+01  -3.168  0.00338 **
## kcal        -2.872e-05  1.608e-03 1.852e+02  -0.018  0.98577
## caff        -8.038e-03  1.430e-02 1.435e+02  -0.562  0.57499
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 4: sfi vs. caff
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  2.006e+01  2.208e+00 1.316e+02   9.086 1.35e-15 ***
## kcal        -1.091e-03  8.397e-04 1.967e+02  -1.299    0.195
## caff        -3.848e-03  7.765e-03 1.950e+02  -0.496    0.621
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 5: se vs. g_whole
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  7.765e+01  3.155e+00 2.712e+01  24.613  < 2e-16 ***
## age          3.422e-01  1.035e-01 2.270e+01   3.307  0.00312 **
## kcal         9.792e-04  5.583e-04 1.945e+02   1.754  0.08102 .
## g_whole     -1.599e-01  2.854e-01 1.970e+02  -0.560  0.57592
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 6: tst vs. g_whole
```

```
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    405.443027  16.078801 111.691273  25.216   <2e-16 ***
## kcal             0.009086   0.007162 147.352801   1.269    0.207
## g_whole         -0.997242   3.692085 167.292521  -0.270    0.787
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 7: waso vs. g_whole
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     5.769e+01  8.264e+00  3.985e+01   6.981 2.03e-08 ***
## age            -8.264e-01  2.674e-01  3.248e+01  -3.091  0.00408 **
## kcal           -7.716e-05  1.623e-03  1.870e+02  -0.048  0.96214
## g_whole         1.069e-01  8.348e-01  1.944e+02   0.128  0.89826
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 8: sfi vs. g_whole
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     1.976e+01  2.166e+00  1.314e+02   9.123  1.1e-15 ***
## kcal           -1.105e-03  8.455e-04  1.960e+02  -1.307    0.193
## g_whole         9.727e-02  4.269e-01  1.943e+02   0.228    0.820
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 9: se vs. g_refined
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     7.787e+01  3.165e+00  2.652e+01  24.600  < 2e-16 ***
## age             3.320e-01  1.033e-01  2.186e+01   3.214  0.00402 **
## kcal            1.091e-03  6.614e-04  1.969e+02   1.649  0.10077
## g_refined      -5.065e-02  1.207e-01  1.788e+02  -0.420  0.67517
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 10: tst vs. g_refined
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     4.049e+02  1.599e+01  1.134e+02  25.319   <2e-16 ***
## kcal            8.175e-03  8.588e-03  1.650e+02   0.952    0.343
## g_refined       2.359e-01  1.664e+00  1.978e+02   0.142    0.887
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 11: waso vs. g_refined
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    58.527410   8.044659  39.685570   7.275 8.14e-09 ***
## age            -0.851917   0.257794  31.566980  -3.305  0.00237 **
## kcal            0.001541   0.001917 191.604583   0.804  0.42251
## g_refined      -0.537291   0.357303 190.522934  -1.504  0.13430
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
##
## Model 12: sfi vs. g_refined
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    1.981e+01  2.150e+00  1.319e+02    9.215 6.38e-16 ***
## kcal          -8.290e-04  9.941e-04  1.941e+02   -0.834    0.405
## g_refined     -8.504e-02  1.776e-01  1.790e+02   -0.479    0.633
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 13: se vs. pf_poult
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    7.790e+01  3.128e+00  2.727e+01   24.900  < 2e-16 ***
## age            3.334e-01  1.016e-01  2.213e+01    3.281  0.00339 **
## kcal           8.453e-04  5.961e-04  1.958e+02    1.418  0.15779
## pf_poult       4.972e-02  1.087e-01  1.847e+02    0.457  0.64798
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 14: tst vs. pf_poult
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    4.060e+02  1.620e+01  1.156e+02   25.071   <2e-16 ***
## kcal           7.564e-03  7.707e-03  1.568e+02    0.981    0.328
## pf_poult       6.177e-01  1.487e+00  1.976e+02    0.415    0.678
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 15: waso vs. pf_poult
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    5.827e+01  8.236e+00  4.028e+01    7.075 1.42e-08 ***
## age           -8.288e-01  2.635e-01  3.188e+01   -3.145  0.00358 **
## kcal          -6.087e-04  1.734e-03  1.903e+02   -0.351  0.72593
## pf_poult       2.744e-01  3.213e-01  1.932e+02    0.854  0.39417
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 16: sfi vs. pf_poult
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    1.967e+01  2.167e+00  1.340e+02    9.077 1.25e-15 ***
## kcal          -9.134e-04  8.996e-04  1.949e+02   -1.015    0.311
## pf_poult      -8.447e-02  1.604e-01  1.809e+02   -0.527    0.599
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 17: se vs. pf_soy
##                Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    7.754e+01  3.119e+00  2.714e+01   24.864   <2e-16 ***
## age            3.398e-01  1.016e-01  2.228e+01    3.345   0.0029 **
## kcal           9.208e-04  5.515e-04  1.934e+02    1.670   0.0966 .
```

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```
## pf_soy        1.124e+00  7.543e-01 1.862e+02    1.489    0.1381
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 18: tst vs. pf_soy
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    404.968986  16.012373 112.755143  25.291   <2e-16 ***
## kcal             0.008858   0.007086 145.835586   1.250    0.213
## pf_soy          -0.274401  10.312541 194.576066  -0.027    0.979
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 19: waso vs. pf_soy
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     5.785e+01  8.259e+00  3.962e+01   7.005 1.94e-08 ***
## age            -8.268e-01  2.652e-01  3.176e+01  -3.117  0.00386 **
## kcal           -2.383e-05  1.610e-03  1.860e+02  -0.015  0.98821
## pf_soy         -1.173e+00  2.241e+00  1.943e+02  -0.523  0.60134
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 20: sfi vs. pf_soy
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    19.732619   2.152957 131.815997   9.165 8.48e-16 ***
## kcal           -0.001098   0.000839 196.369892  -1.308    0.192
## pf_soy          0.850725   1.119019 181.405800   0.760    0.448
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 21: se vs. pf_legumes
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     7.778e+01  3.128e+00  2.696e+01  24.870  < 2e-16 ***
## age             3.346e-01  1.019e-01  2.217e+01   3.283  0.00337 **
## kcal            9.791e-04  5.608e-04  1.938e+02   1.746  0.08240 .
## pf_legumes     -1.125e-01  2.789e-01  1.796e+02  -0.403  0.68717
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 22: tst vs. pf_legumes
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    404.970085  15.965334 112.632432  25.366   <2e-16 ***
## kcal             0.009575   0.007172 147.929614   1.335    0.184
## pf_legumes      -2.220688   3.857431 197.648000  -0.576    0.565
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 23: waso vs. pf_legumes
##                  Estimate Std. Error        df t value Pr(>|t|)
```

```
## (Intercept)      5.753e+01  8.110e+00  3.911e+01   7.095 1.56e-08 ***
## age             -8.203e-01  2.601e-01  3.122e+01  -3.154  0.00355 **
## kcal            -2.982e-04  1.624e-03  1.849e+02  -0.184  0.85449
## pf_legumes       7.905e-01  8.272e-01  1.900e+02   0.956  0.34047
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 24: sfi vs. pf_legumes
##                  Estimate Std. Error       df t value Pr(>|t|)
## (Intercept)      1.982e+01  2.156e+00  1.306e+02   9.193 7.78e-16 ***
## kcal            -1.011e-03  8.487e-04  1.960e+02  -1.191    0.235
## pf_legumes      -2.282e-01  4.100e-01  1.777e+02  -0.557    0.578
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 25: se vs. red_processed_meat
##                  Estimate Std. Error       df t value Pr(>|t|)
## (Intercept)      7.821e+01  3.107e+00  2.795e+01  25.177  < 2e-16 ***
## age              3.258e-01  1.008e-01  2.255e+01   3.232  0.00375 **
## kcal             1.069e-03  5.589e-04  1.916e+02   1.914  0.05717 .
## red_processed   -2.057e-01  1.537e-01  1.892e+02  -1.338  0.18239
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 26: tst vs. red_processed_meat
##                  Estimate Std. Error       df t value Pr(>|t|)
## (Intercept)    405.488890  16.127416 116.160046  25.143   <2e-16 ***
## kcal             0.009243   0.007136 139.820223   1.295    0.197
## red_processed   -0.632278   2.083472 193.245290  -0.303    0.762
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 27: waso vs. red_processed_meat
##                  Estimate Std. Error       df t value Pr(>|t|)
## (Intercept)      5.721e+01  8.298e+00  4.070e+01   6.895 2.41e-08 ***
## age             -8.139e-01  2.655e-01  3.202e+01  -3.065  0.00439 **
## kcal            -1.525e-04  1.629e-03  1.842e+02  -0.094  0.92555
## red_processed    1.822e-01  4.553e-01  1.952e+02   0.400  0.68948
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 28: sfi vs. red_processed_meat
##                  Estimate Std. Error       df t value Pr(>|t|)
## (Intercept)      1.944e+01  2.137e+00  1.342e+02   9.097  1.1e-15 ***
## kcal            -1.356e-03  8.445e-04  1.970e+02  -1.606   0.1098
## red_processed    4.337e-01  2.263e-01  1.844e+02   1.916   0.0569 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## 
## Model 29: se vs. seafood
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     7.762e+01  3.137e+00 2.730e+01  24.744  < 2e-16 ***
## age             3.359e-01  1.021e-01 2.241e+01   3.289  0.00329 **
## kcal            9.400e-04  5.532e-04 1.936e+02   1.699  0.09089 .
## seafood         1.739e-01  1.844e-01 1.794e+02   0.943  0.34692
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## 
## Model 30: tst vs. seafood
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     4.049e+02  1.604e+01 1.112e+02  25.236   <2e-16 ***
## kcal            8.861e-03  7.086e-03 1.472e+02   1.251    0.213
## seafood         4.021e-02  2.557e+00 1.977e+02   0.016    0.987
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## 
## Model 31: waso vs. seafood
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     5.767e+01  8.248e+00 3.927e+01   6.991 2.13e-08 ***
## age            -8.221e-01  2.646e-01 3.141e+01  -3.106    0.004 **
## kcal           -4.736e-05  1.610e-03 1.858e+02  -0.029    0.977
## seafood        -6.489e-02  5.486e-01 1.895e+02  -0.118    0.906
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## 
## Model 32: sfi vs. seafood
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     1.988e+01  2.164e+00 1.319e+02   9.187 7.47e-16 ***
## kcal           -1.086e-03  8.399e-04 1.965e+02  -1.293    0.198
## seafood        -8.530e-02  2.720e-01 1.780e+02  -0.314    0.754
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## 
## Model 33: se vs. saturated_unsaturated_ratio
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     7.904e+01  3.294e+00 3.200e+01  23.996  < 2e-16 ***
## age             3.364e-01  1.034e-01 2.237e+01   3.254  0.00358 **
## kcal            9.465e-04  5.522e-04 1.942e+02   1.714  0.08814 .
## saturated_uns  -2.355e+00  1.707e+00 1.746e+02  -1.379  0.16951
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## 
## Model 34: tst vs. saturated_unsaturated_ratio
##                  Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)     3.949e+02  2.116e+01 1.846e+02  18.666   <2e-16 ***
## kcal            8.996e-03  7.078e-03 1.473e+02   1.271    0.206
## saturated_uns  1.745e+01  2.394e+01 1.952e+02   0.729    0.467
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 35: waso vs. saturated_unsaturated_ratio
##                 Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    5.742e+01  8.675e+00  4.862e+01   6.619 2.67e-08 ***
## age           -8.218e-01  2.643e-01  3.171e+01  -3.110  0.00394 **
## kcal          -5.079e-05  1.609e-03  1.855e+02  -0.032  0.97486
## saturated_uns  3.458e-01  5.112e+00  1.862e+02   0.068  0.94614
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 36: sfi vs. saturated_unsaturated_ratio
##                 Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    19.219671   2.545145 175.645856   7.552 2.26e-12 ***
## kcal           -0.001094   0.000840 196.548042  -1.302    0.194
## saturated_uns   1.094887   2.522180 175.840099   0.434    0.665
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 37: se vs. omega3_fa
##                 Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    7.772e+01  3.136e+00 2.722e+01  24.785  < 2e-16 ***
## age            3.361e-01  1.021e-01 2.233e+01   3.292  0.00328 **
## kcal           9.383e-04  5.545e-04 1.936e+02   1.692  0.09225 .
## omega3_fa      1.982e-01  6.294e-01 1.674e+02   0.315  0.75317
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 38: tst vs. omega3_fa
##                 Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)    405.096584  15.972820 111.460013  25.362   <2e-16 ***
## kcal             0.009086   0.007081 146.106632   1.283    0.201
## omega3_fa       -3.372362   8.879205 188.983801  -0.380    0.705
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 39: waso vs. omega3_fa
##                 Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)    5.756e+01  8.235e+00  3.984e+01   6.990 1.98e-08 ***
## age           -8.206e-01  2.642e-01  3.189e+01  -3.106  0.00397 **
## kcal          -5.627e-05  1.611e-03  1.860e+02  -0.035  0.97217
## omega3_fa      1.516e-01  1.879e+00  1.797e+02   0.081  0.93579
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 40: sfi vs. omega3_fa
##                 Estimate Std. Error         df t value Pr(>|t|)
```

```
## (Intercept)     1.977e+01  2.154e+00  1.321e+02   9.177 7.86e-16 ***
## kcal            -1.091e-03 8.401e-04  1.964e+02  -1.298    0.196
## omega3_fa        3.134e-01 9.200e-01  1.722e+02   0.341    0.734
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 41: se vs. hei2015_total_score
##               Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  7.718e+01  3.421e+00 3.621e+01  22.560  < 2e-16 ***
## age          3.322e-01  1.028e-01 2.228e+01   3.232  0.00379 **
## kcal         9.493e-04  5.545e-04 1.935e+02   1.712  0.08853 .
## hei2015_total 1.186e-02 2.651e-02 1.919e+02   0.447  0.65521
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 42: tst vs. hei2015_total_score
##               Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  421.210699  25.521993 151.867809  16.504   <2e-16 ***
## kcal           0.008637   0.007091 146.687903   1.218    0.225
## hei2015_total -0.285527   0.355579 190.717268  -0.803    0.423
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 43: waso vs. hei2015_total_score
##               Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  5.599e+01  9.112e+00  5.431e+01   6.145 9.78e-08 ***
## age          -8.285e-01 2.643e-01  3.184e+01  -3.135  0.00369 **
## kcal         -3.329e-05 1.609e-03  1.850e+02  -0.021  0.98352
## hei2015_total 3.189e-02 7.812e-02  1.967e+02   0.408  0.68353
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Model 44: sfi vs. hei2015_total_score
##               Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)  2.164e+01  3.112e+00  1.874e+02   6.953 5.76e-11 ***
## kcal         -1.110e-03 8.393e-04  1.966e+02  -1.322    0.188
## hei2015_total -3.197e-02 3.934e-02  1.864e+02  -0.813    0.417
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

GitHub Repository

All code for this report can be found in this Github repository.