01_prepare_traits_demographic_data_bmi

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This example is for the first script of how I prepared my trait file. Feel free to skip this if your trait file is ready and has numeric data Load Packages

```
library(caret)
```

```
## Loading required package: ggplot2
```

```
## Loading required package: lattice
```

```
library(randomForest)
```

```
## randomForest 4.7-1.2
```

```
## Type rfNews() to see new features/changes/bug fixes.
```

```
##
## Attaching package: 'randomForest'
```

```
## The following object is masked from 'package:ggplot2':
##
##     margin
```

```
library(xgboost)
library(ggplot2)
library(readr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following object is masked from 'package:xgboost':
##
##     slice
```

```
## The following object is masked from 'package:randomForest':
##
##     combine
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
library(WGCNA)
```

```
## Loading required package: dynamicTreeCut
```

```
## Loading required package: fastcluster
```

```
##
## Attaching package: 'fastcluster'
```

```
## The following object is masked from 'package:stats':
##
##     hclust
```

```
##
```

```
##
## Attaching package: 'WGCNA'
```

```
## The following object is masked from 'package:stats':
##
##     cor
```

```r
library(writexl)
library(reshape2)
library(pheatmap)
library(viridis)
```

```
## Loading required package: viridisLite
```

```r
library(ComplexHeatmap)
```

```
## Loading required package: grid
```

```
## ========================================
## ComplexHeatmap version 2.20.0
## Bioconductor page: http://bioconductor.org/packages/ComplexHeatmap/
## Github page: https://github.com/jokergoo/ComplexHeatmap
## Documentation: http://jokergoo.github.io/ComplexHeatmap-reference
##
## If you use it in published research, please cite either one:
## - Gu, Z. Complex Heatmap Visualization. iMeta 2022.
## - Gu, Z. Complex heatmaps reveal patterns and correlations in multidimensional
```

```
##     genomic data. Bioinformatics 2016.
##
##
## The new InteractiveComplexHeatmap package can directly export static
## complex heatmaps into an interactive Shiny app with zero effort. Have a try!
##
## This message can be suppressed by:
##    suppressPackageStartupMessages(library(ComplexHeatmap))
## =========================================
## ! pheatmap() has been masked by ComplexHeatmap::pheatmap(). Most of the arguments
##    in the original pheatmap() are identically supported in the new function. You
##    can still use the original function by explicitly calling pheatmap::pheatmap().

##
## Attaching package: 'ComplexHeatmap'

## The following object is masked from 'package:pheatmap':
##
##     pheatmap
```

```r
library(circlize)
```

```
## =========================================
## circlize version 0.4.16
## CRAN page: https://cran.r-project.org/package=circlize
## Github page: https://github.com/jokergoo/circlize
## Documentation: https://jokergoo.github.io/circlize_book/book/
##
## If you use it in published research, please cite:
## Gu, Z. circlize implements and enhances circular visualization
##    in R. Bioinformatics 2014.
##
## This message can be suppressed by:
##    suppressPackageStartupMessages(library(circlize))
## =========================================
```

```r
library(openxlsx)
```

Load your data

```r
# Load your data
ID_Updated_Combined_Traits_apo <- read_csv("data_raw/growell_curated_deid_george.csv")
```

```
## Rows: 49 Columns: 218
## -- Column specification -----------------------------------------------------
## Delimiter: ","
## chr  (42): User_ID, group, postpart_visit_remote, apo_diagnosis, enroll_race...
## dbl  (95): age, gest_age, gest_age_at_birth, height_base, weight_base, weigh...
## lgl  (80): apo, preterm, apo_hdp, apo_gdm, apo_other, egwg, ppwr_e, adh_base...
## date  (1): infant_discharge_bbmr
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
head(ID_Updated_Combined_Traits_apo)
```

```
## # A tibble: 6 x 218
##   User_ID   group     age gest_age gest_age_at_birth postpart_visit_remote apo
##   <chr>     <chr>   <dbl>    <dbl>             <dbl> <chr>                 <lgl>
## 1 GROW-00092 Contr~  39.4    13.7                 39 <NA>                  NA
## 2 GROW-00104 Inter~  36.7     9.57                38 <NA>                  NA
## 3 GROW-00114 Contr~  35.9    11.9                 36 Unknown               TRUE
## 4 GROW-00117 Inter~  36.2    11.3                 39 <NA>                  NA
## 5 GROW-00120 Inter~  34.2     8.71                39 <NA>                  NA
## 6 GROW-00122 Contr~  39.5    10.3                 39 <NA>                  NA
## # i 211 more variables: preterm <lgl>, apo_hdp <lgl>, apo_gdm <lgl>,
## #   apo_other <lgl>, apo_diagnosis <chr>, height_base <dbl>, weight_base <dbl>,
## #   weight_wk26 <dbl>, weight_wk36 <dbl>, weight_mth3 <dbl>, weight_mth6 <dbl>,
## #   gwg <dbl>, egwg <lgl>, ppwr <dbl>, ppwr_e <lgl>, n_weights_pre <dbl>,
## #   n_weights_post <dbl>, n_weights_total <dbl>, bmi <dbl>, adh_base <lgl>,
## #   enroll_race_v2_base <chr>, enroll_hispanic_v2_base <chr>,
## #   enroll_hispanic_sub_v2_base <chr>, race_eth_new <chr>, ...
```

```
dim(ID_Updated_Combined_Traits_apo)
```

```
## [1]  49 218
```

Next we will clean up the data and create a sleep variables

```
#decided to remove prefix for GROW so that I can see numbers better
ID_Updated_Combined_Traits_apo$User_ID <- gsub("GROW-00+", "", ID_Updated_Combined_Traits_apo$User_ID)
```

```
colnames(ID_Updated_Combined_Traits_apo)
```

```
##  [1] "User_ID"
##  [2] "group"
##  [3] "age"
##  [4] "gest_age"
##  [5] "gest_age_at_birth"
##  [6] "postpart_visit_remote"
##  [7] "apo"
##  [8] "preterm"
##  [9] "apo_hdp"
## [10] "apo_gdm"
## [11] "apo_other"
## [12] "apo_diagnosis"
## [13] "height_base"
## [14] "weight_base"
## [15] "weight_wk26"
## [16] "weight_wk36"
## [17] "weight_mth3"
## [18] "weight_mth6"
## [19] "gwg"
## [20] "egwg"
```

```
##  [21] "ppwr"
##  [22] "ppwr_e"
##  [23] "n_weights_pre"
##  [24] "n_weights_post"
##  [25] "n_weights_total"
##  [26] "bmi"
##  [27] "adh_base"
##  [28] "enroll_race_v2_base"
##  [29] "enroll_hispanic_v2_base"
##  [30] "enroll_hispanic_sub_v2_base"
##  [31] "race_eth_new"
##  [32] "enroll_gender_base"
##  [33] "total_number_of_pregnancie_30f336_base"
##  [34] "total_number_abortions_base"
##  [35] "num_spontaneous_abortions_base"
##  [36] "number_of_therapeutic_abor_92de80_base"
##  [37] "number_of_ectopic_pregnanc_4b2a0e_base"
##  [38] "pregtype_conception_base"
##  [39] "pregtype_assistance_base"
##  [40] "pregtype_planned_base"
##  [41] "feeding_plan_base"
##  [42] "other_children_base"
##  [43] "moth_US_birth_base"
##  [44] "moth_marit_stat_base"
##  [45] "mother_s_education_base"
##  [46] "mother_s_occu_base"
##  [47] "father_s_age_at_enrollment_base"
##  [48] "fathers_country_of_birth_us_base"
##  [49] "father_s_race_base"
##  [50] "father_s_hispanic_base"
##  [51] "father_s_origin_base"
##  [52] "father_s_education_base"
##  [53] "father_s_occupation_base"
##  [54] "father_currently_employed_base"
##  [55] "second_hand_base"
##  [56] "second_hand_days_base"
##  [57] "second_hand_rules_base"
##  [58] "do_any_close_friends_or_re_base"
##  [59] "do_any_of_your_coworkers_s_base"
##  [60] "do_you_prepare_your_own_fo_base"
##  [61] "ever_have_trouble_being_ab_base"
##  [62] "follow_a_special_diet_eat_base"
##  [63] "how_willing_are_you_to_mak_base"
##  [64] "covid_essential_base"
##  [65] "covid_test_yes_base"
##  [66] "covid_schedule_base"
##  [67] "covid_sleep_base"
##  [68] "covid_sleep_less_base"
##  [69] "covid_sleep_more_base"
##  [70] "covid_wakeup_base"
##  [71] "covid_15_base"
##  [72] "covid_7_base"
##  [73] "covid_rested_base"
##  [74] "covid_mask_base"
```

```
##  [75] "covid_visit_base"
##  [76] "covid_wipe_base"
##  [77] "bmi_base"
##  [78] "parity_base"
##  [79] "reap_base"
##  [80] "ppaq_total_base"
##  [81] "ppaq_light_base"
##  [82] "ppaq_mod_base"
##  [83] "ppaq_house_base"
##  [84] "epds_base"
##  [85] "epds_3a_base"
##  [86] "rhodes_base"
##  [87] "adh_wk26"
##  [88] "do_you_prepare_your_own_fo_wk26"
##  [89] "ever_have_trouble_being_ab_wk26"
##  [90] "follow_a_special_diet_eat_wk26"
##  [91] "how_willing_are_you_to_mak_wk26"
##  [92] "reap_wk26"
##  [93] "rhodes_wk26"
##  [94] "adh_wk36"
##  [95] "do_you_prepare_your_own_fo_wk36"
##  [96] "ever_have_trouble_being_ab_wk36"
##  [97] "follow_a_special_diet_eat_wk36"
##  [98] "how_willing_are_you_to_mak_wk36"
##  [99] "covid_essential_wk36"
## [100] "covid_test_yes_wk36"
## [101] "covid_schedule_wk36"
## [102] "covid_sleep_wk36"
## [103] "covid_sleep_less_wk36"
## [104] "covid_sleep_more_wk36"
## [105] "covid_wakeup_wk36"
## [106] "covid_15_wk36"
## [107] "covid_7_wk36"
## [108] "covid_rested_wk36"
## [109] "covid_mask_wk36"
## [110] "covid_visit_wk36"
## [111] "covid_wipe_wk36"
## [112] "reap_wk36"
## [113] "rhodes_wk36"
## [114] "adh_mth3"
## [115] "postpart_visit_mth3"
## [116] "infant_gender_mth3"
## [117] "feeding_mth3"
## [118] "feeding_other_type__1_mth3"
## [119] "feeding_other_type__2_mth3"
## [120] "feeding_other_type__3_mth3"
## [121] "do_you_prepare_your_own_fo_mth3"
## [122] "ever_have_trouble_being_ab_mth3"
## [123] "follow_a_special_diet_eat_mth3"
## [124] "how_willing_are_you_to_mak_mth3"
## [125] "ex_feeding_mth3"
## [126] "reap_mth3"
## [127] "ppaq_total_mth3"
## [128] "ppaq_light_mth3"
```

```
## [129] "ppaq_mod_mth3"
## [130] "ppaq_house_mth3"
## [131] "epds_mth3"
## [132] "epds_3a_mth3"
## [133] "adh_mth6"
## [134] "postpart_visit_mth6"
## [135] "infant_gender_mth6"
## [136] "postpart_bp_mth6"
## [137] "feeding_mth6"
## [138] "feeding_other_type__1_mth6"
## [139] "feeding_other_type__2_mth6"
## [140] "feeding_other_type__3_mth6"
## [141] "do_you_prepare_your_own_fo_mth6"
## [142] "ever_have_trouble_being_ab_mth6"
## [143] "follow_a_special_diet_eat_mth6"
## [144] "how_willing_are_you_to_mak_mth6"
## [145] "covid_essential_mth6"
## [146] "covid_test_yes_mth6"
## [147] "covid_schedule_mth6"
## [148] "covid_sleep_mth6"
## [149] "covid_sleep_less_mth6"
## [150] "covid_sleep_more_mth6"
## [151] "covid_wakeup_mth6"
## [152] "covid_15_mth6"
## [153] "covid_7_mth6"
## [154] "covid_rested_mth6"
## [155] "ex_feeding_mth6"
## [156] "reap_mth6"
## [157] "ppaq_total_mth6"
## [158] "ppaq_light_mth6"
## [159] "ppaq_mod_mth6"
## [160] "ppaq_house_mth6"
## [161] "epds_mth6"
## [162] "epds_3a_mth6"
## [163] "postpart_visit_bbmr"
## [164] "infant_gender_bbmr"
## [165] "postpart_bp_bbmr"
## [166] "postpart_weight_bbmr"
## [167] "infant_weight_bbmr"
## [168] "infant_discharge_bbmr"
## [169] "infant_disposition_bbmr"
## [170] "breastfeeding"
## [171] "breastfeeding_continue"
## [172] "breastfeeding_amount"
## [173] "breastfeeding_partial_age_bcheck"
## [174] "KCAL_base"
## [175] "HEI2015C9_FATTYACID_base"
## [176] "HEI2015C12_SFAT_base"
## [177] "HEI2015_TOTAL_SCORE_base"
## [178] "KCAL_wk36"
## [179] "HEI2015C9_FATTYACID_wk36"
## [180] "HEI2015C12_SFAT_wk36"
## [181] "HEI2015_TOTAL_SCORE_wk36"
## [182] "KCAL_mth6"
```

```
## [183] "HEI2015C9_FATTYACID_mth6"
## [184] "HEI2015C12_SFAT_mth6"
## [185] "HEI2015_TOTAL_SCORE_mth6"
## [186] "tasks_comp_pre"
## [187] "tasks_fail_pre"
## [188] "total_tasks_pre"
## [189] "prop_tasks_pre"
## [190] "tasks_comp_post"
## [191] "tasks_fail_post"
## [192] "total_tasks_post"
## [193] "prop_tasks_post"
## [194] "n_goals_pre"
## [195] "n_achieved_pre"
## [196] "prop_achieved_pre"
## [197] "n_goals_post"
## [198] "n_achieved_post"
## [199] "prop_achieved_post"
## [200] "PM2.5_7Days_base"
## [201] "PM2.5_30Days_base"
## [202] "PM2.5_90Days_base"
## [203] "PM2.5_7Days_wk26"
## [204] "PM2.5_30Days_wk26"
## [205] "PM2.5_90Days_wk26"
## [206] "PM2.5_7Days_wk36"
## [207] "PM2.5_30Days_wk36"
## [208] "PM2.5_90Days_wk36"
## [209] "PM2.5_7Days_mth3"
## [210] "PM2.5_30Days_mth3"
## [211] "PM2.5_90Days_mth3"
## [212] "PM2.5_7Days_mth6"
## [213] "PM2.5_30Days_mth6"
## [214] "PM2.5_90Days_mth6"
## [215] "urbanicity"
## [216] "metro_area"
## [217] "low_income"
## [218] "low_access"
```

```r
base_sleep <- c("covid_sleep_base", "covid_sleep_less_base", "covid_sleep_more_base","covid_wakeup_base"
                "covid_15_base",  "covid_7_base",   "covid_rested_base")
wk_36_sleep <- c("covid_sleep_wk36", "covid_sleep_less_wk36", "covid_sleep_more_wk36",
                 "covid_wakeup_wk36", "covid_15_wk36", "covid_7_wk36", "covid_rested_wk36" )
mth6_sleep <- c("covid_sleep_mth6", "covid_sleep_less_mth6", "covid_sleep_more_mth6",
                "covid_wakeup_mth6", "covid_15_mth6" ,"covid_7_mth6", "covid_rested_mth6")

# Reverse scoring
ID_Updated_Combined_Traits_apo[, base_sleep[1:5]] <- !ID_Updated_Combined_Traits_apo[, base_sleep[1:5]]
ID_Updated_Combined_Traits_apo[, wk_36_sleep[1:5]] <- !ID_Updated_Combined_Traits_apo[, wk_36_sleep[1:5]
ID_Updated_Combined_Traits_apo[, mth6_sleep[1:5]] <- !ID_Updated_Combined_Traits_apo[, mth6_sleep[1:5]]
# Compute total score
ID_Updated_Combined_Traits_apo$sleep_base <- rowSums(ID_Updated_Combined_Traits_apo[, base_sleep])
ID_Updated_Combined_Traits_apo$sleep_wk36 <- rowSums(ID_Updated_Combined_Traits_apo[, wk_36_sleep])
ID_Updated_Combined_Traits_apo$sleep_mth6 <- rowSums(ID_Updated_Combined_Traits_apo[, mth6_sleep])
```

Set rownames, change the logical variables to factors. This is so we can do correlations with numbers instead

of character. Do the same for other character variables too

```
# Set rownames
ID_Updated_Combined_Traits_apo <- as.data.frame(ID_Updated_Combined_Traits_apo)
rownames(ID_Updated_Combined_Traits_apo) <- ID_Updated_Combined_Traits_apo$User_ID

#check which variables are numeric versus logical
str(ID_Updated_Combined_Traits_apo)
```

```
## 'data.frame':    49 obs. of  221 variables:
##  $ User_ID                           : chr  "92" "104" "114" "117" ...
##  $ group                             : chr  "Control" "Intervention" "Control" "Intervention" ..
##  $ age                               : num  39.4 36.7 35.9 36.2 34.2 ...
##  $ gest_age                          : num  13.71 9.57 11.86 11.29 8.71 ...
##  $ gest_age_at_birth                 : num  39 38 36 39 39 39 39 37 37 40 ...
##  $ postpart_visit_remote             : chr  NA NA "Unknown" NA ...
##  $ apo                               : logi  NA NA TRUE NA NA NA ...
##  $ preterm                           : logi  FALSE FALSE TRUE FALSE FALSE FALSE ...
##  $ apo_hdp                           : logi  NA NA FALSE NA NA NA ...
##  $ apo_gdm                           : logi  NA NA FALSE NA NA NA ...
##  $ apo_other                         : logi  NA NA FALSE NA NA NA ...
##  $ apo_diagnosis                     : chr  NA NA NA NA ...
##  $ height_base                       : num  1.6 1.5 1.7 1.65 1.6 ...
##  $ weight_base                       : num  104.8 72.6 87.1 83 64.7 ...
##  $ weight_wk26                       : num  NA 75.7 90.6 85.4 NA ...
##  $ weight_wk36                       : num  NA 77.1 94.5 89.6 73.6 ...
##  $ weight_mth3                       : num  114.8 68.5 87.5 86.4 68.9 ...
##  $ weight_mth6                       : num  115.7 68 88.8 86.4 68.9 ...
##  $ gwg                               : num  NA 4.54 7.44 6.67 8.89 ...
##  $ egwg                              : logi  NA FALSE FALSE FALSE FALSE FALSE ...
##  $ ppwr                              : num  10.89 -4.54 1.72 3.45 4.26 ...
##  $ ppwr_e                            : logi  TRUE FALSE FALSE FALSE TRUE TRUE ...
##  $ n_weights_pre                     : num  3 17 15 11 5 15 6 4 11 10 ...
##  $ n_weights_post                    : num  4 2 7 4 4 3 2 2 3 2 ...
##  $ n_weights_total                   : num  7 19 22 15 9 18 8 6 14 12 ...
##  $ bmi                               : num  39.9 33.4 27.4 29.1 27.4 26.6 28.3 35.7 26.8 30 ...
##  $ adh_base                          : logi  TRUE TRUE TRUE TRUE TRUE TRUE ...
##  $ enroll_race_v2_base               : chr  "More than one race" "White" "White" "White" ...
##  $ enroll_hispanic_v2_base           : chr  "Hispanic or Latino" "Hispanic or Latino" "Not Hispa
##  $ enroll_hispanic_sub_v2_base       : chr  "Puerto Rican" "Mexican" NA NA ...
##  $ race_eth_new                      : chr  "Hispanic" "Hispanic" "White" "White" ...
##  $ enroll_gender_base                : chr  "Female" "Female" "Female" "Female" ...
##  $ total_number_of_pregnancie_30f336_base: num  3 2 1 1 1 2 2 1 3 1 ...
##  $ total_number_abortions_base       : num  0 0 NA NA NA 0 0 NA 0 NA ...
##  $ num_spontaneous_abortions_base    : num  NA NA NA NA NA NA NA NA NA NA ...
##  $ number_of_therapeutic_abor_92de80_base: num  NA NA NA NA NA NA NA NA NA NA ...
##  $ number_of_ectopic_pregnanc_4b2a0e_base: num  0 0 NA NA NA 0 0 NA 0 NA ...
##  $ pregtype_conception_base          : chr  "Naturally" "Naturally" "Naturally" "Medical Help" .
##  $ pregtype_assistance_base          : chr  NA NA NA "IVF" ...
##  $ pregtype_planned_base             : chr  "Yes" "No" "Yes" "Yes" ...
##  $ feeding_plan_base                 : chr  "Breastfeed" "Breastfeed" "Breastfeed" "Breastfeed"
##  $ other_children_base               : logi  TRUE TRUE FALSE FALSE FALSE TRUE ...
##  $ moth_US_birth_base                : logi  NA NA NA NA NA NA ...
##  $ moth_marit_stat_base              : chr  "Married" "Married" "Single" "Married" ...
```

```
##  $ mother_s_education_base           : chr  "Post-Baccalaureate" "Post-Baccalaureate" "Some Colle
##  $ mother_s_occu_base                : chr  "Sr. Enterprise Customer Success Mananger" "Team Lead
##  $ father_s_age_at_enrollment_base   : num  44 40 36 37 33 35 38 33 40 37 ...
##  $ fathers_country_of_birth_us_base  : logi  TRUE TRUE TRUE TRUE TRUE TRUE ...
##  $ father_s_race_base                : chr  "White" "White" "White" "White" ...
##  $ father_s_hispanic_base            : chr  "Not Hispanic or Latino" "Not Hispanic or Latino" "No
##  $ father_s_origin_base              : chr  "Unknown" "US American" "US American" "US American" 
##  $ father_s_education_base           : chr  "Some College" "Post-Baccalaureate" "Post-Baccalaurea
##  $ father_s_occupation_base          : chr  "Testing, adjusting, balancing engineer" "Director o
##  $ father_currently_employed_base    : logi  TRUE TRUE TRUE TRUE TRUE TRUE ...
##  $ second_hand_base                  : num  0 0 0 0 0 0 0 0 0 0 ...
##  $ second_hand_days_base             : num  0 0 0 0 0 0 0 0 0 0 ...
##  $ second_hand_rules_base            : chr  "Not allowed anywhere" "Not allowed anywhere" "Not al
##  $ do_any_close_friends_or_re_base   : logi  FALSE TRUE FALSE FALSE FALSE FALSE ...
##  $ do_any_of_your_coworkers_s_base   : logi  FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ do_you_prepare_your_own_fo_base   : logi  TRUE TRUE TRUE TRUE FALSE TRUE ...
##  $ ever_have_trouble_being_ab_base   : logi  TRUE FALSE FALSE TRUE FALSE TRUE ...
##  $ follow_a_special_diet_eat_base    : logi  FALSE FALSE TRUE FALSE TRUE FALSE ...
##  $ how_willing_are_you_to_mak_base   : chr  "Very willing" "Very willing" "Somewhat willing" "Som
##  $ covid_essential_base              : logi  FALSE TRUE FALSE TRUE TRUE TRUE ...
##  $ covid_test_yes_base               : chr  "No" "Yes" NA NA ...
##  $ covid_schedule_base               : logi  TRUE TRUE TRUE TRUE TRUE FALSE ...
##  $ covid_sleep_base                  : logi  TRUE FALSE FALSE FALSE TRUE FALSE ...
##  $ covid_sleep_less_base             : logi  TRUE FALSE TRUE FALSE TRUE FALSE ...
##  $ covid_sleep_more_base             : logi  TRUE TRUE FALSE TRUE TRUE TRUE ...
##  $ covid_wakeup_base                 : logi  FALSE FALSE FALSE FALSE TRUE FALSE ...
##  $ covid_15_base                     : logi  TRUE FALSE TRUE TRUE TRUE TRUE ...
##  $ covid_7_base                      : logi  FALSE TRUE TRUE FALSE TRUE FALSE ...
##  $ covid_rested_base                 : logi  FALSE FALSE TRUE TRUE TRUE FALSE ...
##  $ covid_mask_base                   : logi  TRUE TRUE TRUE TRUE TRUE TRUE ...
##  $ covid_visit_base                  : logi  TRUE TRUE TRUE TRUE TRUE TRUE ...
##  $ covid_wipe_base                   : logi  FALSE FALSE TRUE TRUE FALSE FALSE ...
##  $ bmi_base                          : num  40.9 32.3 30.1 30.4 25.3 25.5 29.5 36 26.6 29.1 ...
##  $ parity_base                       : num  2 1 0 0 0 1 1 0 2 0 ...
##  $ reap_base                         : num  59 54 42 61 56 60 57 54 50 56 ...
##  $ ppaq_total_base                   : num  322.5 218.1 229.8 140.2 96.8 ...
##  $ ppaq_light_base                   : num  137.9 96.8 137.9 51.1 17.5 ...
##  $ ppaq_mod_base                     : num  178.8 80.8 70.3 77 33.6 ...
##  $ ppaq_house_base                   : num  277 172 182.5 38 13.1 ...
##  $ epds_base                         : num  4 13 5 11 3 11 11 10 1 9 ...
##  $ epds_3a_base                      : num  2 6 1 3 2 2 8 6 1 3 ...
##  $ rhodes_base                       : num  8 11 8 8 8 24 13 10 11 8 ...
##  $ adh_wk26                          : logi  FALSE TRUE TRUE TRUE FALSE TRUE ...
##  $ do_you_prepare_your_own_fo_wk26   : logi  NA TRUE TRUE TRUE NA TRUE ...
##  $ ever_have_trouble_being_ab_wk26   : logi  NA TRUE FALSE TRUE NA FALSE ...
##  $ follow_a_special_diet_eat_wk26    : logi  NA FALSE FALSE FALSE NA FALSE ...
##  $ how_willing_are_you_to_mak_wk26   : chr  NA "Somewhat willing" "Very willing" "Somewhat willin
##  $ reap_wk26                         : num  NA 51 43 61 NA 59 61 56 56 59 ...
##  $ rhodes_wk26                       : num  NA 8 8 8 NA 8 8 11 8 11 ...
##  $ adh_wk36                          : logi  FALSE TRUE TRUE TRUE TRUE TRUE ...
##  $ do_you_prepare_your_own_fo_wk36   : logi  NA TRUE TRUE TRUE FALSE TRUE ...
##  $ ever_have_trouble_being_ab_wk36   : logi  NA FALSE FALSE FALSE FALSE FALSE ...
##  $ follow_a_special_diet_eat_wk36    : logi  NA FALSE FALSE FALSE TRUE TRUE ...
##  $ how_willing_are_you_to_mak_wk36   : chr  NA "Somewhat willing" "Somewhat willing" "Somewhat wi
```

```
##  $ covid_essential_wk36                    : logi  NA TRUE FALSE TRUE TRUE TRUE ...
##   [list output truncated]

# Convert logical variables to factors with levels 0 for FALSE and 1 for TRUE, and labels "FALSE" and "
logical_vars <- sapply(ID_Updated_Combined_Traits_apo, is.logical)
ID_Updated_Combined_Traits_apo[, logical_vars] <- lapply(ID_Updated_Combined_Traits_apo[, logical_vars]


# Convert specific character variables to factors and set levels
ID_Updated_Combined_Traits_apo$group <- factor(ID_Updated_Combined_Traits_apo$group, levels = c("Control
ID_Updated_Combined_Traits_apo$race_eth_new <- factor(ID_Updated_Combined_Traits_apo$race_eth_new, level
#ID_Updated_Combined_Traits_apo$enroll_hispanic_v2_base <- factor(ID_Updated_Combined_Traits_apo$enroll_
ID_Updated_Combined_Traits_apo$pregtype_conception_base <- factor(ID_Updated_Combined_Traits_apo$pregtyp
ID_Updated_Combined_Traits_apo$pregtype_planned_base <- factor(ID_Updated_Combined_Traits_apo$pregtype_p
ID_Updated_Combined_Traits_apo$moth_marit_stat_base <- factor(ID_Updated_Combined_Traits_apo$moth_marit_
ID_Updated_Combined_Traits_apo$mother_s_education_base <- factor(ID_Updated_Combined_Traits_apo$mother_s
ID_Updated_Combined_Traits_apo$father_s_race_base <- factor(ID_Updated_Combined_Traits_apo$father_s_race
ID_Updated_Combined_Traits_apo$father_s_hispanic_base <- factor(ID_Updated_Combined_Traits_apo$father_s_
ID_Updated_Combined_Traits_apo$father_s_education_base <- factor(ID_Updated_Combined_Traits_apo$father_s
ID_Updated_Combined_Traits_apo$second_hand_rules_base <- factor(ID_Updated_Combined_Traits_apo$second_ha
ID_Updated_Combined_Traits_apo$how_willing_are_you_to_mak_base <- factor(ID_Updated_Combined_Traits_apo$
ID_Updated_Combined_Traits_apo$covid_test_yes_base <- factor(ID_Updated_Combined_Traits_apo$covid_test_y
ID_Updated_Combined_Traits_apo$how_willing_are_you_to_mak_wk26 <- factor(ID_Updated_Combined_Traits_apo$
ID_Updated_Combined_Traits_apo$how_willing_are_you_to_mak_wk36 <- factor(ID_Updated_Combined_Traits_apo$
ID_Updated_Combined_Traits_apo$infant_gender_mth3 <- factor(ID_Updated_Combined_Traits_apo$infant_gender
ID_Updated_Combined_Traits_apo$how_willing_are_you_to_mak_mth3 <- factor(ID_Updated_Combined_Traits_apo$
ID_Updated_Combined_Traits_apo$how_willing_are_you_to_mak_mth6 <- factor(ID_Updated_Combined_Traits_apo$
ID_Updated_Combined_Traits_apo$covid_test_yes_mth6 <- factor(ID_Updated_Combined_Traits_apo$covid_test_y
ID_Updated_Combined_Traits_apo$covid_test_yes_wk36 <- factor(ID_Updated_Combined_Traits_apo$covid_test_y
str(ID_Updated_Combined_Traits_apo)

## 'data.frame':    49 obs. of  221 variables:
##  $ User_ID                        : chr  "92" "104" "114" "117" ...
##  $ group                          : Factor w/ 2 levels "0","1": 1 2 1 2 2 1 2 2 2 2 ...
##  $ age                            : num  39.4 36.7 35.9 36.2 34.2 ...
##  $ gest_age                       : num  13.71 9.57 11.86 11.29 8.71 ...
##  $ gest_age_at_birth              : num  39 38 36 39 39 39 39 37 37 40 ...
##  $ postpart_visit_remote          : chr  NA NA "Unknown" NA ...
##  $ apo                            : Factor w/ 2 levels "0","1": NA NA 2 NA NA NA 2 2 2 NA ...
##  $ preterm                        : Factor w/ 2 levels "0","1": 1 1 2 1 1 1 1 2 2 1 ...
##  $ apo_hdp                        : Factor w/ 2 levels "0","1": NA NA 1 NA NA NA 2 1 1 NA ...
##  $ apo_gdm                        : Factor w/ 2 levels "0","1": NA NA 1 NA NA NA 1 1 1 NA ...
##  $ apo_other                      : Factor w/ 2 levels "0","1": NA NA 1 NA NA NA 1 1 1 NA ...
##  $ apo_diagnosis                  : chr  NA NA NA NA ...
##  $ height_base                    : num  1.6 1.5 1.7 1.65 1.6 ...
##  $ weight_base                    : num  104.8 72.6 87.1 83 64.7 ...
##  $ weight_wk26                    : num  NA 75.7 90.6 85.4 NA ...
##  $ weight_wk36                    : num  NA 77.1 94.5 89.6 73.6 ...
##  $ weight_mth3                    : num  114.8 68.5 87.5 86.4 68.9 ...
##  $ weight_mth6                    : num  115.7 68 88.8 86.4 68.9 ...
##  $ gwg                            : num  NA 4.54 7.44 6.67 8.89 ...
##  $ egwg                           : Factor w/ 2 levels "0","1": NA 1 1 1 1 1 NA 2 2 1 ...
##  $ ppwr                           : num  10.89 -4.54 1.72 3.45 4.26 ...
##  $ ppwr_e                         : Factor w/ 2 levels "0","1": 2 1 1 1 2 2 2 1 1 1 ...
```

```
##  $ n_weights_pre                    : num  3 17 15 11 5 15 6 4 11 10 ...
##  $ n_weights_post                   : num  4 2 7 4 4 3 2 2 3 2 ...
##  $ n_weights_total                  : num  7 19 22 15 9 18 8 6 14 12 ...
##  $ bmi                              : num  39.9 33.4 27.4 29.1 27.4 26.6 28.3 35.7 26.8 30 ...
##  $ adh_base                         : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 2 2 2 2 ...
##  $ enroll_race_v2_base              : chr  "More than one race" "White" "White" "White" ...
##  $ enroll_hispanic_v2_base          : chr  "Hispanic or Latino" "Hispanic or Latino" "Not Hispa
##  $ enroll_hispanic_sub_v2_base      : chr  "Puerto Rican" "Mexican" NA NA ...
##  $ race_eth_new                     : Factor w/ 5 levels "0","1","2","3",..: 2 2 5 5 5 5 1 5 5 5
##  $ enroll_gender_base               : chr  "Female" "Female" "Female" "Female" ...
##  $ total_number_of_pregnancie_30f336_base: num  3 2 1 1 1 2 2 1 3 1 ...
##  $ total_number_abortions_base      : num  0 0 NA NA NA 0 0 NA 0 NA ...
##  $ num_spontaneous_abortions_base   : num  NA NA NA NA NA NA NA NA NA NA ...
##  $ number_of_therapeutic_abor_92de80_base: num  NA NA NA NA NA NA NA NA NA NA ...
##  $ number_of_ectopic_pregnanc_4b2a0e_base: num  0 0 NA NA NA 0 0 NA 0 NA ...
##  $ pregtype_conception_base         : Factor w/ 2 levels "0","1": 2 2 2 1 1 2 1 2 2 2 ...
##  $ pregtype_assistance_base         : chr  NA NA NA "IVF" ...
##  $ pregtype_planned_base            : Factor w/ 2 levels "0","1": 2 1 2 2 2 2 2 2 2 1 ...
##  $ feeding_plan_base                : chr  "Breastfeed" "Breastfeed" "Breastfeed" "Breastfeed"
##  $ other_children_base              : Factor w/ 2 levels "0","1": 2 2 1 1 1 2 1 1 2 1 ...
##  $ moth_US_birth_base               : Factor w/ 2 levels "0","1": NA NA NA NA NA NA NA NA NA NA
##  $ moth_marit_stat_base             : Factor w/ 4 levels "0","1","2","3": 2 2 4 2 2 2 2 2 2 1 .
##  $ mother_s_education_base          : Factor w/ 3 levels "0","1","2": 2 2 3 2 2 3 2 2 2 2 ...
##  $ mother_s_occu_base               : chr  "Sr. Enterprise Customer Success Mananger" "Team Lea
##  $ father_s_age_at_enrollment_base  : num  44 40 36 37 33 35 38 33 40 37 ...
##  $ fathers_country_of_birth_us_base : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 2 2 2 2 ...
##  $ father_s_race_base               : Factor w/ 4 levels "0","1","2","3": 4 4 4 4 4 4 2 4 3 4 .
##  $ father_s_hispanic_base           : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 2 2 1 2 ...
##  $ father_s_origin_base             : chr  "Unknown" "US American" "US American" "US American"
##  $ father_s_education_base          : Factor w/ 3 levels "0","1","2": 3 2 2 3 3 3 2 2 3 2 ...
##  $ father_s_occupation_base         : chr  "Testing, adjusting, balancing engineer" "Director o
##  $ father_currently_employed_base   : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 2 2 2 2 ...
##  $ second_hand_base                 : num  0 0 0 0 0 0 0 0 0 0 ...
##  $ second_hand_days_base            : num  0 0 0 0 0 0 0 0 0 0 ...
##  $ second_hand_rules_base           : Factor w/ 3 levels "0","1","2": 3 3 3 3 3 3 3 3 3 3 ...
##  $ do_any_close_friends_or_re_base  : Factor w/ 2 levels "0","1": 1 2 1 1 1 1 1 2 1 2 ...
##  $ do_any_of_your_coworkers_s_base  : Factor w/ 2 levels "0","1": 1 1 1 1 1 1 1 1 1 1 1 ...
##  $ do_you_prepare_your_own_fo_base  : Factor w/ 2 levels "0","1": 2 2 2 2 1 2 2 2 2 2 ...
##  $ ever_have_trouble_being_ab_base  : Factor w/ 2 levels "0","1": 2 1 1 2 1 2 2 2 2 1 1 ...
##  $ follow_a_special_diet_eat_base   : Factor w/ 2 levels "0","1": 1 1 2 1 2 1 2 2 2 1 2 ...
##  $ how_willing_are_you_to_mak_base  : Factor w/ 4 levels "0","1","2","3": 4 4 2 2 4 2 4 4 2 2 .
##  $ covid_essential_base             : Factor w/ 2 levels "0","1": 1 2 1 2 2 2 1 2 2 1 ...
##  $ covid_test_yes_base              : Factor w/ 2 levels "0","1": 1 2 NA NA 1 NA 1 1 1 1 ...
##  $ covid_schedule_base              : Factor w/ 2 levels "0","1": 2 2 2 2 2 1 2 2 2 1 ...
##  $ covid_sleep_base                 : Factor w/ 2 levels "0","1": 2 1 1 1 2 1 1 1 1 1 ...
##  $ covid_sleep_less_base            : Factor w/ 2 levels "0","1": 2 1 2 1 2 1 1 2 1 2 ...
##  $ covid_sleep_more_base            : Factor w/ 2 levels "0","1": 2 2 1 2 2 2 2 1 2 1 ...
##  $ covid_wakeup_base                : Factor w/ 2 levels "0","1": 1 1 1 1 2 1 1 1 1 2 ...
##  $ covid_15_base                    : Factor w/ 2 levels "0","1": 2 1 2 2 2 2 2 1 2 2 ...
##  $ covid_7_base                     : Factor w/ 2 levels "0","1": 1 2 2 1 2 1 1 2 2 1 ...
##  $ covid_rested_base                : Factor w/ 2 levels "0","1": 1 1 2 2 2 1 1 1 1 2 ...
##  $ covid_mask_base                  : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 2 2 2 2 ...
##  $ covid_visit_base                 : Factor w/ 2 levels "0","1": 2 2 2 2 2 2 1 2 1 2 ...
##  $ covid_wipe_base                  : Factor w/ 2 levels "0","1": 1 1 2 2 1 1 1 1 1 2 2 ...
```

```
## $ bmi_base                          : num  40.9 32.3 30.1 30.4 25.3 25.5 29.5 36 26.6 29.1 ...
## $ parity_base                       : num  2 1 0 0 0 1 1 0 2 0 ...
## $ reap_base                         : num  59 54 42 61 56 60 57 54 50 56 ...
## $ ppaq_total_base                   : num  322.5 218.1 229.8 140.2 96.8 ...
## $ ppaq_light_base                   : num  137.9 96.8 137.9 51.1 17.5 ...
## $ ppaq_mod_base                     : num  178.8 80.8 70.3 77 33.6 ...
## $ ppaq_house_base                   : num  277 172 182.5 38 13.1 ...
## $ epds_base                         : num  4 13 5 11 3 11 11 10 1 9 ...
## $ epds_3a_base                      : num  2 6 1 3 2 2 8 6 1 3 ...
## $ rhodes_base                       : num  8 11 8 8 8 24 13 10 11 8 ...
## $ adh_wk26                          : Factor w/ 2 levels "0","1": 1 2 2 2 1 2 2 2 2 2 ...
## $ do_you_prepare_your_own_fo_wk26   : Factor w/ 2 levels "0","1": NA 2 2 2 NA 2 2 2 2 2 ...
## $ ever_have_trouble_being_ab_wk26   : Factor w/ 2 levels "0","1": NA 2 1 2 NA 1 1 2 1 1 ...
## $ follow_a_special_diet_eat_wk26    : Factor w/ 2 levels "0","1": NA 1 1 1 NA 1 2 1 1 2 ...
## $ how_willing_are_you_to_mak_wk26   : Factor w/ 3 levels "0","1","2": NA 1 3 1 NA 1 1 1 1 1 ...
## $ reap_wk26                         : num  NA 51 43 61 NA 59 61 56 56 59 ...
## $ rhodes_wk26                       : num  NA 8 8 8 NA 8 8 11 8 11 ...
## $ adh_wk36                          : Factor w/ 2 levels "0","1": 1 2 2 2 2 2 2 1 2 2 2 ...
## $ do_you_prepare_your_own_fo_wk36   : Factor w/ 2 levels "0","1": NA 2 2 2 1 2 NA 1 2 2 ...
## $ ever_have_trouble_being_ab_wk36   : Factor w/ 2 levels "0","1": NA 1 1 1 1 1 NA 1 2 1 ...
## $ follow_a_special_diet_eat_wk36    : Factor w/ 2 levels "0","1": NA 1 1 1 2 2 NA 1 1 2 ...
## $ how_willing_are_you_to_mak_wk36   : Factor w/ 5 levels "0","1","2","3",..: NA 3 3 3 5 3 NA 3 3
## $ covid_essential_wk36              : Factor w/ 2 levels "0","1": NA 2 1 2 2 2 NA 2 2 1 ...
##   [list output truncated]
```

Remove some variables that will not be used in this analysis

```
colnames(ID_Updated_Combined_Traits_apo)
```

```
##  [1] "User_ID"
##  [2] "group"
##  [3] "age"
##  [4] "gest_age"
##  [5] "gest_age_at_birth"
##  [6] "postpart_visit_remote"
##  [7] "apo"
##  [8] "preterm"
##  [9] "apo_hdp"
## [10] "apo_gdm"
## [11] "apo_other"
## [12] "apo_diagnosis"
## [13] "height_base"
## [14] "weight_base"
## [15] "weight_wk26"
## [16] "weight_wk36"
## [17] "weight_mth3"
## [18] "weight_mth6"
## [19] "gwg"
## [20] "egwg"
## [21] "ppwr"
## [22] "ppwr_e"
## [23] "n_weights_pre"
## [24] "n_weights_post"
```

```
##  [25] "n_weights_total"
##  [26] "bmi"
##  [27] "adh_base"
##  [28] "enroll_race_v2_base"
##  [29] "enroll_hispanic_v2_base"
##  [30] "enroll_hispanic_sub_v2_base"
##  [31] "race_eth_new"
##  [32] "enroll_gender_base"
##  [33] "total_number_of_pregnancie_30f336_base"
##  [34] "total_number_abortions_base"
##  [35] "num_spontaneous_abortions_base"
##  [36] "number_of_therapeutic_abor_92de80_base"
##  [37] "number_of_ectopic_pregnanc_4b2a0e_base"
##  [38] "pregtype_conception_base"
##  [39] "pregtype_assistance_base"
##  [40] "pregtype_planned_base"
##  [41] "feeding_plan_base"
##  [42] "other_children_base"
##  [43] "moth_US_birth_base"
##  [44] "moth_marit_stat_base"
##  [45] "mother_s_education_base"
##  [46] "mother_s_occu_base"
##  [47] "father_s_age_at_enrollment_base"
##  [48] "fathers_country_of_birth_us_base"
##  [49] "father_s_race_base"
##  [50] "father_s_hispanic_base"
##  [51] "father_s_origin_base"
##  [52] "father_s_education_base"
##  [53] "father_s_occupation_base"
##  [54] "father_currently_employed_base"
##  [55] "second_hand_base"
##  [56] "second_hand_days_base"
##  [57] "second_hand_rules_base"
##  [58] "do_any_close_friends_or_re_base"
##  [59] "do_any_of_your_coworkers_s_base"
##  [60] "do_you_prepare_your_own_fo_base"
##  [61] "ever_have_trouble_being_ab_base"
##  [62] "follow_a_special_diet_eat_base"
##  [63] "how_willing_are_you_to_mak_base"
##  [64] "covid_essential_base"
##  [65] "covid_test_yes_base"
##  [66] "covid_schedule_base"
##  [67] "covid_sleep_base"
##  [68] "covid_sleep_less_base"
##  [69] "covid_sleep_more_base"
##  [70] "covid_wakeup_base"
##  [71] "covid_15_base"
##  [72] "covid_7_base"
##  [73] "covid_rested_base"
##  [74] "covid_mask_base"
##  [75] "covid_visit_base"
##  [76] "covid_wipe_base"
##  [77] "bmi_base"
##  [78] "parity_base"
```

```
##  [79] "reap_base"
##  [80] "ppaq_total_base"
##  [81] "ppaq_light_base"
##  [82] "ppaq_mod_base"
##  [83] "ppaq_house_base"
##  [84] "epds_base"
##  [85] "epds_3a_base"
##  [86] "rhodes_base"
##  [87] "adh_wk26"
##  [88] "do_you_prepare_your_own_fo_wk26"
##  [89] "ever_have_trouble_being_ab_wk26"
##  [90] "follow_a_special_diet_eat_wk26"
##  [91] "how_willing_are_you_to_mak_wk26"
##  [92] "reap_wk26"
##  [93] "rhodes_wk26"
##  [94] "adh_wk36"
##  [95] "do_you_prepare_your_own_fo_wk36"
##  [96] "ever_have_trouble_being_ab_wk36"
##  [97] "follow_a_special_diet_eat_wk36"
##  [98] "how_willing_are_you_to_mak_wk36"
##  [99] "covid_essential_wk36"
## [100] "covid_test_yes_wk36"
## [101] "covid_schedule_wk36"
## [102] "covid_sleep_wk36"
## [103] "covid_sleep_less_wk36"
## [104] "covid_sleep_more_wk36"
## [105] "covid_wakeup_wk36"
## [106] "covid_15_wk36"
## [107] "covid_7_wk36"
## [108] "covid_rested_wk36"
## [109] "covid_mask_wk36"
## [110] "covid_visit_wk36"
## [111] "covid_wipe_wk36"
## [112] "reap_wk36"
## [113] "rhodes_wk36"
## [114] "adh_mth3"
## [115] "postpart_visit_mth3"
## [116] "infant_gender_mth3"
## [117] "feeding_mth3"
## [118] "feeding_other_type__1_mth3"
## [119] "feeding_other_type__2_mth3"
## [120] "feeding_other_type__3_mth3"
## [121] "do_you_prepare_your_own_fo_mth3"
## [122] "ever_have_trouble_being_ab_mth3"
## [123] "follow_a_special_diet_eat_mth3"
## [124] "how_willing_are_you_to_mak_mth3"
## [125] "ex_feeding_mth3"
## [126] "reap_mth3"
## [127] "ppaq_total_mth3"
## [128] "ppaq_light_mth3"
## [129] "ppaq_mod_mth3"
## [130] "ppaq_house_mth3"
## [131] "epds_mth3"
## [132] "epds_3a_mth3"
```

```
## [133] "adh_mth6"
## [134] "postpart_visit_mth6"
## [135] "infant_gender_mth6"
## [136] "postpart_bp_mth6"
## [137] "feeding_mth6"
## [138] "feeding_other_type__1_mth6"
## [139] "feeding_other_type__2_mth6"
## [140] "feeding_other_type__3_mth6"
## [141] "do_you_prepare_your_own_fo_mth6"
## [142] "ever_have_trouble_being_ab_mth6"
## [143] "follow_a_special_diet_eat_mth6"
## [144] "how_willing_are_you_to_mak_mth6"
## [145] "covid_essential_mth6"
## [146] "covid_test_yes_mth6"
## [147] "covid_schedule_mth6"
## [148] "covid_sleep_mth6"
## [149] "covid_sleep_less_mth6"
## [150] "covid_sleep_more_mth6"
## [151] "covid_wakeup_mth6"
## [152] "covid_15_mth6"
## [153] "covid_7_mth6"
## [154] "covid_rested_mth6"
## [155] "ex_feeding_mth6"
## [156] "reap_mth6"
## [157] "ppaq_total_mth6"
## [158] "ppaq_light_mth6"
## [159] "ppaq_mod_mth6"
## [160] "ppaq_house_mth6"
## [161] "epds_mth6"
## [162] "epds_3a_mth6"
## [163] "postpart_visit_bbmr"
## [164] "infant_gender_bbmr"
## [165] "postpart_bp_bbmr"
## [166] "postpart_weight_bbmr"
## [167] "infant_weight_bbmr"
## [168] "infant_discharge_bbmr"
## [169] "infant_disposition_bbmr"
## [170] "breastfeeding"
## [171] "breastfeeding_continue"
## [172] "breastfeeding_amount"
## [173] "breastfeeding_partial_age_bcheck"
## [174] "KCAL_base"
## [175] "HEI2015C9_FATTYACID_base"
## [176] "HEI2015C12_SFAT_base"
## [177] "HEI2015_TOTAL_SCORE_base"
## [178] "KCAL_wk36"
## [179] "HEI2015C9_FATTYACID_wk36"
## [180] "HEI2015C12_SFAT_wk36"
## [181] "HEI2015_TOTAL_SCORE_wk36"
## [182] "KCAL_mth6"
## [183] "HEI2015C9_FATTYACID_mth6"
## [184] "HEI2015C12_SFAT_mth6"
## [185] "HEI2015_TOTAL_SCORE_mth6"
## [186] "tasks_comp_pre"
```

```
## [187] "tasks_fail_pre"
## [188] "total_tasks_pre"
## [189] "prop_tasks_pre"
## [190] "tasks_comp_post"
## [191] "tasks_fail_post"
## [192] "total_tasks_post"
## [193] "prop_tasks_post"
## [194] "n_goals_pre"
## [195] "n_achieved_pre"
## [196] "prop_achieved_pre"
## [197] "n_goals_post"
## [198] "n_achieved_post"
## [199] "prop_achieved_post"
## [200] "PM2.5_7Days_base"
## [201] "PM2.5_30Days_base"
## [202] "PM2.5_90Days_base"
## [203] "PM2.5_7Days_wk26"
## [204] "PM2.5_30Days_wk26"
## [205] "PM2.5_90Days_wk26"
## [206] "PM2.5_7Days_wk36"
## [207] "PM2.5_30Days_wk36"
## [208] "PM2.5_90Days_wk36"
## [209] "PM2.5_7Days_mth3"
## [210] "PM2.5_30Days_mth3"
## [211] "PM2.5_90Days_mth3"
## [212] "PM2.5_7Days_mth6"
## [213] "PM2.5_30Days_mth6"
## [214] "PM2.5_90Days_mth6"
## [215] "urbanicity"
## [216] "metro_area"
## [217] "low_income"
## [218] "low_access"
## [219] "sleep_base"
## [220] "sleep_wk36"
## [221] "sleep_mth6"
```

```r
dim(ID_Updated_Combined_Traits_apo)
```

```
## [1]  49 221
```

```r
# Remove specified variables
remove_vars <- c( "apo_diagnosis", "enroll_race_v2_demo", "enroll_race_v2_base", "enroll_hispanic_v2_ba
                 "enroll_gender_base", "adh_base", "number_of_therapeutic_abor_92de80_base", "postpart_
                 "number_of_ectopic_pregnanc_4b2a0e_base", "pregtype_assistance_base", "num_spontaneous
                 "feeding_plan_base", "moth_US_birth_base", "mother_s_occu_base", "enroll_hispanic_sub_
                 "father_s_occupation_base", "postpart_visit_mth3", "feeding_other_type__1_mth3",
                 "feeding_other_type__2_mth3", "feeding_other_type__3_mth3", "postpart_visit_mth6",
                 "infant_gender_mth6", "feeding_other_type__1_mth6", "feeding_other_type__2_mth6",
                 "feeding_other_type__3_mth6", "postpart_visit_bbmr", "infant_gender_bbmr",
                 "postpart_weight_bbmr", "infant_discharge_bbmr", "infant_disposition_bbmr",
                 "urbanicity", "metro_area", "father_s_origin_base", "adh_wk26", "adh_wk36", "adh_mth3"
                 "postpart_bp_mth6",     "postpart_bp_bbmr",     "breastfeeding_amount","breastfeeding_
                 "breastfeeding_partial_age_bcheck", "covid_sleep_base", "covid_sleep_less_base", "covi
```

```
              "covid_15_base",  "covid_7_base",   "covid_rested_base", "covid_sleep_wk36", "covid_sle
              "covid_wakeup_wk36", "covid_15_wk36", "covid_7_wk36", "covid_rested_wk36" ,"covid_sleep
              "covid_wakeup_mth6", "covid_15_mth6" ,"covid_7_mth6", "covid_rested_mth6", "do_any_of_y

ID_Updated_Combined_Traits_apo_ana <- ID_Updated_Combined_Traits_apo[, !(names(ID_Updated_Combined_Trai

colnames(ID_Updated_Combined_Traits_apo_ana)
```

```
##   [1] "User_ID"
##   [2] "group"
##   [3] "age"
##   [4] "gest_age"
##   [5] "gest_age_at_birth"
##   [6] "apo"
##   [7] "preterm"
##   [8] "apo_hdp"
##   [9] "apo_gdm"
##  [10] "apo_other"
##  [11] "height_base"
##  [12] "weight_base"
##  [13] "weight_wk26"
##  [14] "weight_wk36"
##  [15] "weight_mth3"
##  [16] "weight_mth6"
##  [17] "gwg"
##  [18] "egwg"
##  [19] "ppwr"
##  [20] "ppwr_e"
##  [21] "n_weights_pre"
##  [22] "n_weights_post"
##  [23] "n_weights_total"
##  [24] "bmi"
##  [25] "race_eth_new"
##  [26] "total_number_of_pregnancie_30f336_base"
##  [27] "total_number_abortions_base"
##  [28] "pregtype_conception_base"
##  [29] "pregtype_planned_base"
##  [30] "other_children_base"
##  [31] "moth_marit_stat_base"
##  [32] "mother_s_education_base"
##  [33] "father_s_age_at_enrollment_base"
##  [34] "fathers_country_of_birth_us_base"
##  [35] "father_s_race_base"
##  [36] "father_s_hispanic_base"
##  [37] "father_s_education_base"
##  [38] "father_currently_employed_base"
##  [39] "second_hand_base"
##  [40] "second_hand_days_base"
##  [41] "second_hand_rules_base"
##  [42] "do_any_close_friends_or_re_base"
##  [43] "do_you_prepare_your_own_fo_base"
##  [44] "ever_have_trouble_being_ab_base"
##  [45] "follow_a_special_diet_eat_base"
```

```
##  [46] "how_willing_are_you_to_mak_base"
##  [47] "covid_essential_base"
##  [48] "covid_test_yes_base"
##  [49] "covid_schedule_base"
##  [50] "covid_mask_base"
##  [51] "covid_visit_base"
##  [52] "covid_wipe_base"
##  [53] "bmi_base"
##  [54] "parity_base"
##  [55] "reap_base"
##  [56] "ppaq_total_base"
##  [57] "ppaq_light_base"
##  [58] "ppaq_mod_base"
##  [59] "ppaq_house_base"
##  [60] "epds_base"
##  [61] "epds_3a_base"
##  [62] "rhodes_base"
##  [63] "do_you_prepare_your_own_fo_wk26"
##  [64] "ever_have_trouble_being_ab_wk26"
##  [65] "follow_a_special_diet_eat_wk26"
##  [66] "how_willing_are_you_to_mak_wk26"
##  [67] "reap_wk26"
##  [68] "rhodes_wk26"
##  [69] "do_you_prepare_your_own_fo_wk36"
##  [70] "ever_have_trouble_being_ab_wk36"
##  [71] "follow_a_special_diet_eat_wk36"
##  [72] "how_willing_are_you_to_mak_wk36"
##  [73] "covid_essential_wk36"
##  [74] "covid_test_yes_wk36"
##  [75] "covid_schedule_wk36"
##  [76] "covid_mask_wk36"
##  [77] "covid_visit_wk36"
##  [78] "covid_wipe_wk36"
##  [79] "reap_wk36"
##  [80] "rhodes_wk36"
##  [81] "infant_gender_mth3"
##  [82] "feeding_mth3"
##  [83] "do_you_prepare_your_own_fo_mth3"
##  [84] "ever_have_trouble_being_ab_mth3"
##  [85] "follow_a_special_diet_eat_mth3"
##  [86] "how_willing_are_you_to_mak_mth3"
##  [87] "ex_feeding_mth3"
##  [88] "reap_mth3"
##  [89] "ppaq_total_mth3"
##  [90] "ppaq_light_mth3"
##  [91] "ppaq_mod_mth3"
##  [92] "ppaq_house_mth3"
##  [93] "epds_mth3"
##  [94] "epds_3a_mth3"
##  [95] "feeding_mth6"
##  [96] "do_you_prepare_your_own_fo_mth6"
##  [97] "ever_have_trouble_being_ab_mth6"
##  [98] "follow_a_special_diet_eat_mth6"
##  [99] "how_willing_are_you_to_mak_mth6"
```

```
## [100] "covid_essential_mth6"
## [101] "covid_test_yes_mth6"
## [102] "covid_schedule_mth6"
## [103] "ex_feeding_mth6"
## [104] "reap_mth6"
## [105] "ppaq_total_mth6"
## [106] "ppaq_light_mth6"
## [107] "ppaq_mod_mth6"
## [108] "ppaq_house_mth6"
## [109] "epds_mth6"
## [110] "epds_3a_mth6"
## [111] "infant_weight_bbmr"
## [112] "breastfeeding"
## [113] "KCAL_base"
## [114] "HEI2015C9_FATTYACID_base"
## [115] "HEI2015C12_SFAT_base"
## [116] "HEI2015_TOTAL_SCORE_base"
## [117] "KCAL_wk36"
## [118] "HEI2015C9_FATTYACID_wk36"
## [119] "HEI2015C12_SFAT_wk36"
## [120] "HEI2015_TOTAL_SCORE_wk36"
## [121] "KCAL_mth6"
## [122] "HEI2015C9_FATTYACID_mth6"
## [123] "HEI2015C12_SFAT_mth6"
## [124] "HEI2015_TOTAL_SCORE_mth6"
## [125] "tasks_comp_pre"
## [126] "tasks_fail_pre"
## [127] "total_tasks_pre"
## [128] "prop_tasks_pre"
## [129] "tasks_comp_post"
## [130] "tasks_fail_post"
## [131] "total_tasks_post"
## [132] "prop_tasks_post"
## [133] "n_goals_pre"
## [134] "n_achieved_pre"
## [135] "prop_achieved_pre"
## [136] "n_goals_post"
## [137] "n_achieved_post"
## [138] "prop_achieved_post"
## [139] "PM2.5_7Days_base"
## [140] "PM2.5_30Days_base"
## [141] "PM2.5_90Days_base"
## [142] "PM2.5_7Days_wk26"
## [143] "PM2.5_30Days_wk26"
## [144] "PM2.5_90Days_wk26"
## [145] "PM2.5_7Days_wk36"
## [146] "PM2.5_30Days_wk36"
## [147] "PM2.5_90Days_wk36"
## [148] "PM2.5_7Days_mth3"
## [149] "PM2.5_30Days_mth3"
## [150] "PM2.5_90Days_mth3"
## [151] "PM2.5_7Days_mth6"
## [152] "PM2.5_30Days_mth6"
## [153] "PM2.5_90Days_mth6"
```

```
## [154] "low_income"
## [155] "low_access"
## [156] "sleep_base"
## [157] "sleep_wk36"
## [158] "sleep_mth6"
```

```
dim(ID_Updated_Combined_Traits_apo_ana)
```

```
## [1]  49 158
```

```
# Function to print the levels of factor variables along with their labels
print_factor_levels <- function(data) {
  factor_vars <- names(data)[sapply(data, is.factor)]
  for (var in factor_vars) {
    cat("Levels of", var, ":\n")
    print(levels(data[[var]]))
    cat("Labels of", var, ":\n")
    print(names(levels(data[[var]])))
    cat("\n")
  }
}
```

```
# Verify the changes by printing factor levels
print_factor_levels(ID_Updated_Combined_Traits_apo_ana)
```

```
## Levels of group :
## [1] "0" "1"
## Labels of group :
## NULL
##
## Levels of apo :
## [1] "0" "1"
## Labels of apo :
## NULL
##
## Levels of preterm :
## [1] "0" "1"
## Labels of preterm :
## NULL
##
## Levels of apo_hdp :
## [1] "0" "1"
## Labels of apo_hdp :
## NULL
##
## Levels of apo_gdm :
## [1] "0" "1"
## Labels of apo_gdm :
## NULL
##
## Levels of apo_other :
## [1] "0" "1"
## Labels of apo_other :
```

```
## NULL
##
## Levels of egwg :
## [1] "0" "1"
## Labels of egwg :
## NULL
##
## Levels of ppwr_e :
## [1] "0" "1"
## Labels of ppwr_e :
## NULL
##
## Levels of race_eth_new :
## [1] "0" "1" "2" "3" "4"
## Labels of race_eth_new :
## NULL
##
## Levels of pregtype_conception_base :
## [1] "0" "1"
## Labels of pregtype_conception_base :
## NULL
##
## Levels of pregtype_planned_base :
## [1] "0" "1"
## Labels of pregtype_planned_base :
## NULL
##
## Levels of other_children_base :
## [1] "0" "1"
## Labels of other_children_base :
## NULL
##
## Levels of moth_marit_stat_base :
## [1] "0" "1" "2" "3"
## Labels of moth_marit_stat_base :
## NULL
##
## Levels of mother_s_education_base :
## [1] "0" "1" "2"
## Labels of mother_s_education_base :
## NULL
##
## Levels of fathers_country_of_birth_us_base :
## [1] "0" "1"
## Labels of fathers_country_of_birth_us_base :
## NULL
##
## Levels of father_s_race_base :
## [1] "0" "1" "2" "3"
## Labels of father_s_race_base :
## NULL
##
## Levels of father_s_hispanic_base :
## [1] "0" "1"
```

```
## Labels of father_s_hispanic_base :
## NULL
##
## Levels of father_s_education_base :
## [1] "0" "1" "2"
## Labels of father_s_education_base :
## NULL
##
## Levels of father_currently_employed_base :
## [1] "0" "1"
## Labels of father_currently_employed_base :
## NULL
##
## Levels of second_hand_rules_base :
## [1] "0" "1" "2"
## Labels of second_hand_rules_base :
## NULL
##
## Levels of do_any_close_friends_or_re_base :
## [1] "0" "1"
## Labels of do_any_close_friends_or_re_base :
## NULL
##
## Levels of do_you_prepare_your_own_fo_base :
## [1] "0" "1"
## Labels of do_you_prepare_your_own_fo_base :
## NULL
##
## Levels of ever_have_trouble_being_ab_base :
## [1] "0" "1"
## Labels of ever_have_trouble_being_ab_base :
## NULL
##
## Levels of follow_a_special_diet_eat_base :
## [1] "0" "1"
## Labels of follow_a_special_diet_eat_base :
## NULL
##
## Levels of how_willing_are_you_to_mak_base :
## [1] "0" "1" "2" "3"
## Labels of how_willing_are_you_to_mak_base :
## NULL
##
## Levels of covid_essential_base :
## [1] "0" "1"
## Labels of covid_essential_base :
## NULL
##
## Levels of covid_test_yes_base :
## [1] "0" "1"
## Labels of covid_test_yes_base :
## NULL
##
## Levels of covid_schedule_base :
```

```
## [1] "0" "1"
## Labels of covid_schedule_base :
## NULL
##
## Levels of covid_mask_base :
## [1] "0" "1"
## Labels of covid_mask_base :
## NULL
##
## Levels of covid_visit_base :
## [1] "0" "1"
## Labels of covid_visit_base :
## NULL
##
## Levels of covid_wipe_base :
## [1] "0" "1"
## Labels of covid_wipe_base :
## NULL
##
## Levels of do_you_prepare_your_own_fo_wk26 :
## [1] "0" "1"
## Labels of do_you_prepare_your_own_fo_wk26 :
## NULL
##
## Levels of ever_have_trouble_being_ab_wk26 :
## [1] "0" "1"
## Labels of ever_have_trouble_being_ab_wk26 :
## NULL
##
## Levels of follow_a_special_diet_eat_wk26 :
## [1] "0" "1"
## Labels of follow_a_special_diet_eat_wk26 :
## NULL
##
## Levels of how_willing_are_you_to_mak_wk26 :
## [1] "0" "1" "2"
## Labels of how_willing_are_you_to_mak_wk26 :
## NULL
##
## Levels of do_you_prepare_your_own_fo_wk36 :
## [1] "0" "1"
## Labels of do_you_prepare_your_own_fo_wk36 :
## NULL
##
## Levels of ever_have_trouble_being_ab_wk36 :
## [1] "0" "1"
## Labels of ever_have_trouble_being_ab_wk36 :
## NULL
##
## Levels of follow_a_special_diet_eat_wk36 :
## [1] "0" "1"
## Labels of follow_a_special_diet_eat_wk36 :
## NULL
##
```

```
## Levels of how_willing_are_you_to_mak_wk36 :
## [1] "0" "1" "2" "3" "4"
## Labels of how_willing_are_you_to_mak_wk36 :
## NULL
##
## Levels of covid_essential_wk36 :
## [1] "0" "1"
## Labels of covid_essential_wk36 :
## NULL
##
## Levels of covid_test_yes_wk36 :
## [1] NA  "0" "1"
## Labels of covid_test_yes_wk36 :
## NULL
##
## Levels of covid_schedule_wk36 :
## [1] "0" "1"
## Labels of covid_schedule_wk36 :
## NULL
##
## Levels of covid_mask_wk36 :
## [1] "0" "1"
## Labels of covid_mask_wk36 :
## NULL
##
## Levels of covid_visit_wk36 :
## [1] "0" "1"
## Labels of covid_visit_wk36 :
## NULL
##
## Levels of covid_wipe_wk36 :
## [1] "0" "1"
## Labels of covid_wipe_wk36 :
## NULL
##
## Levels of infant_gender_mth3 :
## [1] "0" "1"
## Labels of infant_gender_mth3 :
## NULL
##
## Levels of feeding_mth3 :
## [1] "0" "1"
## Labels of feeding_mth3 :
## NULL
##
## Levels of do_you_prepare_your_own_fo_mth3 :
## [1] "0" "1"
## Labels of do_you_prepare_your_own_fo_mth3 :
## NULL
##
## Levels of ever_have_trouble_being_ab_mth3 :
## [1] "0" "1"
## Labels of ever_have_trouble_being_ab_mth3 :
## NULL
```

```
##
## Levels of follow_a_special_diet_eat_mth3 :
## [1] "0" "1"
## Labels of follow_a_special_diet_eat_mth3 :
## NULL
##
## Levels of how_willing_are_you_to_mak_mth3 :
## [1] "0" "1" "2" "3"
## Labels of how_willing_are_you_to_mak_mth3 :
## NULL
##
## Levels of ex_feeding_mth3 :
## [1] "0" "1"
## Labels of ex_feeding_mth3 :
## NULL
##
## Levels of feeding_mth6 :
## [1] "0" "1"
## Labels of feeding_mth6 :
## NULL
##
## Levels of do_you_prepare_your_own_fo_mth6 :
## [1] "0" "1"
## Labels of do_you_prepare_your_own_fo_mth6 :
## NULL
##
## Levels of ever_have_trouble_being_ab_mth6 :
## [1] "0" "1"
## Labels of ever_have_trouble_being_ab_mth6 :
## NULL
##
## Levels of follow_a_special_diet_eat_mth6 :
## [1] "0" "1"
## Labels of follow_a_special_diet_eat_mth6 :
## NULL
##
## Levels of how_willing_are_you_to_mak_mth6 :
## [1] "0" "1" "2" "3"
## Labels of how_willing_are_you_to_mak_mth6 :
## NULL
##
## Levels of covid_essential_mth6 :
## [1] "0" "1"
## Labels of covid_essential_mth6 :
## NULL
##
## Levels of covid_test_yes_mth6 :
## [1] NA  "0" "1"
## Labels of covid_test_yes_mth6 :
## NULL
##
## Levels of covid_schedule_mth6 :
## [1] "0" "1"
## Labels of covid_schedule_mth6 :
```

```
## NULL
##
## Levels of ex_feeding_mth6 :
## [1] "0" "1"
## Labels of ex_feeding_mth6 :
## NULL
##
## Levels of breastfeeding :
## [1] "0" "1"
## Labels of breastfeeding :
## NULL
##
## Levels of low_income :
## [1] "0" "1"
## Labels of low_income :
## NULL
##
## Levels of low_access :
## [1] "0" "1"
## Labels of low_access :
## NULL
```

```r
# Convert factors to numeric
ID_Updated_Combined_Traits_apo_ana[] <- lapply(ID_Updated_Combined_Traits_apo_ana, function(x) {
  if (is.factor(x)) as.numeric(as.character(x)) else x
})
```

```r
# Check for any remaining character variables
character_vars <- names(ID_Updated_Combined_Traits_apo_ana)[sapply(ID_Updated_Combined_Traits_apo_ana,
print(character_vars)  # Should return character(0) if no character variables are left
```

```
## [1] "User_ID"
```

```r
rownames(ID_Updated_Combined_Traits_apo_ana)
```

```
##  [1] "92"  "104" "114" "117" "120" "122" "129" "138" "139" "147" "149" "151"
## [13] "155" "162" "177" "179" "185" "190" "196" "197" "218" "233" "250" "258"
## [25] "261" "263" "266" "267" "269" "270" "273" "277" "283" "286" "287" "292"
## [37] "295" "297" "300" "304" "311" "315" "321" "323" "326" "330" "332" "336"
## [49] "340"
```

```r
colnames(ID_Updated_Combined_Traits_apo_ana)
```

```
##    [1] "User_ID"
##    [2] "group"
##    [3] "age"
##    [4] "gest_age"
##    [5] "gest_age_at_birth"
##    [6] "apo"
##    [7] "preterm"
##    [8] "apo_hdp"
##    [9] "apo_gdm"
```

```
##  [10] "apo_other"
##  [11] "height_base"
##  [12] "weight_base"
##  [13] "weight_wk26"
##  [14] "weight_wk36"
##  [15] "weight_mth3"
##  [16] "weight_mth6"
##  [17] "gwg"
##  [18] "egwg"
##  [19] "ppwr"
##  [20] "ppwr_e"
##  [21] "n_weights_pre"
##  [22] "n_weights_post"
##  [23] "n_weights_total"
##  [24] "bmi"
##  [25] "race_eth_new"
##  [26] "total_number_of_pregnancie_30f336_base"
##  [27] "total_number_abortions_base"
##  [28] "pregtype_conception_base"
##  [29] "pregtype_planned_base"
##  [30] "other_children_base"
##  [31] "moth_marit_stat_base"
##  [32] "mother_s_education_base"
##  [33] "father_s_age_at_enrollment_base"
##  [34] "fathers_country_of_birth_us_base"
##  [35] "father_s_race_base"
##  [36] "father_s_hispanic_base"
##  [37] "father_s_education_base"
##  [38] "father_currently_employed_base"
##  [39] "second_hand_base"
##  [40] "second_hand_days_base"
##  [41] "second_hand_rules_base"
##  [42] "do_any_close_friends_or_re_base"
##  [43] "do_you_prepare_your_own_fo_base"
##  [44] "ever_have_trouble_being_ab_base"
##  [45] "follow_a_special_diet_eat_base"
##  [46] "how_willing_are_you_to_mak_base"
##  [47] "covid_essential_base"
##  [48] "covid_test_yes_base"
##  [49] "covid_schedule_base"
##  [50] "covid_mask_base"
##  [51] "covid_visit_base"
##  [52] "covid_wipe_base"
##  [53] "bmi_base"
##  [54] "parity_base"
##  [55] "reap_base"
##  [56] "ppaq_total_base"
##  [57] "ppaq_light_base"
##  [58] "ppaq_mod_base"
##  [59] "ppaq_house_base"
##  [60] "epds_base"
##  [61] "epds_3a_base"
##  [62] "rhodes_base"
##  [63] "do_you_prepare_your_own_fo_wk26"
```

```
##  [64] "ever_have_trouble_being_ab_wk26"
##  [65] "follow_a_special_diet_eat_wk26"
##  [66] "how_willing_are_you_to_mak_wk26"
##  [67] "reap_wk26"
##  [68] "rhodes_wk26"
##  [69] "do_you_prepare_your_own_fo_wk36"
##  [70] "ever_have_trouble_being_ab_wk36"
##  [71] "follow_a_special_diet_eat_wk36"
##  [72] "how_willing_are_you_to_mak_wk36"
##  [73] "covid_essential_wk36"
##  [74] "covid_test_yes_wk36"
##  [75] "covid_schedule_wk36"
##  [76] "covid_mask_wk36"
##  [77] "covid_visit_wk36"
##  [78] "covid_wipe_wk36"
##  [79] "reap_wk36"
##  [80] "rhodes_wk36"
##  [81] "infant_gender_mth3"
##  [82] "feeding_mth3"
##  [83] "do_you_prepare_your_own_fo_mth3"
##  [84] "ever_have_trouble_being_ab_mth3"
##  [85] "follow_a_special_diet_eat_mth3"
##  [86] "how_willing_are_you_to_mak_mth3"
##  [87] "ex_feeding_mth3"
##  [88] "reap_mth3"
##  [89] "ppaq_total_mth3"
##  [90] "ppaq_light_mth3"
##  [91] "ppaq_mod_mth3"
##  [92] "ppaq_house_mth3"
##  [93] "epds_mth3"
##  [94] "epds_3a_mth3"
##  [95] "feeding_mth6"
##  [96] "do_you_prepare_your_own_fo_mth6"
##  [97] "ever_have_trouble_being_ab_mth6"
##  [98] "follow_a_special_diet_eat_mth6"
##  [99] "how_willing_are_you_to_mak_mth6"
## [100] "covid_essential_mth6"
## [101] "covid_test_yes_mth6"
## [102] "covid_schedule_mth6"
## [103] "ex_feeding_mth6"
## [104] "reap_mth6"
## [105] "ppaq_total_mth6"
## [106] "ppaq_light_mth6"
## [107] "ppaq_mod_mth6"
## [108] "ppaq_house_mth6"
## [109] "epds_mth6"
## [110] "epds_3a_mth6"
## [111] "infant_weight_bbmr"
## [112] "breastfeeding"
## [113] "KCAL_base"
## [114] "HEI2015C9_FATTYACID_base"
## [115] "HEI2015C12_SFAT_base"
## [116] "HEI2015_TOTAL_SCORE_base"
## [117] "KCAL_wk36"
```

```
## [118] "HEI2015C9_FATTYACID_wk36"
## [119] "HEI2015C12_SFAT_wk36"
## [120] "HEI2015_TOTAL_SCORE_wk36"
## [121] "KCAL_mth6"
## [122] "HEI2015C9_FATTYACID_mth6"
## [123] "HEI2015C12_SFAT_mth6"
## [124] "HEI2015_TOTAL_SCORE_mth6"
## [125] "tasks_comp_pre"
## [126] "tasks_fail_pre"
## [127] "total_tasks_pre"
## [128] "prop_tasks_pre"
## [129] "tasks_comp_post"
## [130] "tasks_fail_post"
## [131] "total_tasks_post"
## [132] "prop_tasks_post"
## [133] "n_goals_pre"
## [134] "n_achieved_pre"
## [135] "prop_achieved_pre"
## [136] "n_goals_post"
## [137] "n_achieved_post"
## [138] "prop_achieved_post"
## [139] "PM2.5_7Days_base"
## [140] "PM2.5_30Days_base"
## [141] "PM2.5_90Days_base"
## [142] "PM2.5_7Days_wk26"
## [143] "PM2.5_30Days_wk26"
## [144] "PM2.5_90Days_wk26"
## [145] "PM2.5_7Days_wk36"
## [146] "PM2.5_30Days_wk36"
## [147] "PM2.5_90Days_wk36"
## [148] "PM2.5_7Days_mth3"
## [149] "PM2.5_30Days_mth3"
## [150] "PM2.5_90Days_mth3"
## [151] "PM2.5_7Days_mth6"
## [152] "PM2.5_30Days_mth6"
## [153] "PM2.5_90Days_mth6"
## [154] "low_income"
## [155] "low_access"
## [156] "sleep_base"
## [157] "sleep_wk36"
## [158] "sleep_mth6"
```

```r
write.csv(ID_Updated_Combined_Traits_apo_ana, "ID_Updated_Combined_Traits.csv", row.names = TRUE)
```

```r
# View the updated dataframe
head(ID_Updated_Combined_Traits_apo_ana)
```

```
##     User_ID group      age  gest_age gest_age_at_birth apo preterm apo_hdp
## 92       92     0 39.42037 13.714286                39  NA       0      NA
## 104     104     1 36.72727  9.571429                38  NA       0      NA
## 114     114     0 35.89884 11.857143                36   1       1       0
## 117     117     1 36.18865 11.285714                39  NA       0      NA
## 120     120     1 34.18729  8.714286                39  NA       0      NA
```

```
## 122     122     0 39.48052 10.285714                    39 NA         0         NA
##     apo_gdm apo_other height_base weight_base weight_wk26 weight_wk36
## 92       NA        NA      1.6002   104.77984          NA          NA
## 104      NA        NA      1.4986    72.57478    75.74993    77.11070
## 114       0         0      1.7018    87.08974    90.62776    94.52865
## 117      NA        NA      1.6510    82.96204    85.36608    89.62985
## 120      NA        NA      1.6002    64.68227          NA    73.57268
## 122      NA        NA      1.6002    65.31730    69.21820    74.20771
##     weight_mth3 weight_mth6      gwg egwg       ppwr ppwr_e n_weights_pre
## 92    114.75887   115.66605       NA   NA 10.886217      1             3
## 104    68.49245    68.03886 4.535924    0 -4.535924      0            17
## 114    87.54333    88.81339 7.438915    0  1.723651      0            15
## 117    86.36399    86.40935 6.667808    0  3.447302      0            11
## 120    68.94604    68.94604 8.890410    0  4.263768      1             5
## 122    71.30472    71.93975 8.890410    0  6.622449      1            15
##     n_weights_post n_weights_total  bmi race_eth_new
## 92               4               7 39.9            1
## 104              2              19 33.4            1
## 114              7              22 27.4            4
## 117              4              15 29.1            4
## 120              4               9 27.4            4
## 122              3              18 26.6            4
##     total_number_of_pregnancie_30f336_base total_number_abortions_base
## 92                                       3                           0
## 104                                      2                           0
## 114                                      1                          NA
## 117                                      1                          NA
## 120                                      1                          NA
## 122                                      2                           0
##     pregtype_conception_base pregtype_planned_base other_children_base
## 92                         1                     1                   1
## 104                        1                     0                   1
## 114                        1                     1                   0
## 117                        0                     1                   0
## 120                        0                     1                   0
## 122                        1                     1                   1
##     moth_marit_stat_base mother_s_education_base
## 92                     1                       1
## 104                    1                       1
## 114                    3                       2
## 117                    1                       1
## 120                    1                       1
## 122                    1                       2
##     father_s_age_at_enrollment_base fathers_country_of_birth_us_base
## 92                               44                                1
## 104                              40                                1
## 114                              36                                1
## 117                              37                                1
## 120                              33                                1
## 122                              35                                1
##     father_s_race_base father_s_hispanic_base father_s_education_base
## 92                   3                      1                       2
## 104                  3                      1                       1
## 114                  3                      1                       1
```

```
## 117                           3                      1                      2
## 120                           3                      1                      2
## 122                           3                      1                      2
##     father_currently_employed_base second_hand_base second_hand_days_base
## 92                               1                0                      0
## 104                              1                0                      0
## 114                              1                0                      0
## 117                              1                0                      0
## 120                              1                0                      0
## 122                              1                0                      0
##     second_hand_rules_base do_any_close_friends_or_re_base
## 92                        2                               0
## 104                       2                               1
## 114                       2                               0
## 117                       2                               0
## 120                       2                               0
## 122                       2                               0
##     do_you_prepare_your_own_fo_base ever_have_trouble_being_ab_base
## 92                                1                               1
## 104                               1                               0
## 114                               1                               0
## 117                               1                               1
## 120                               0                               0
## 122                               1                               1
##     follow_a_special_diet_eat_base how_willing_are_you_to_mak_base
## 92                               0                               3
## 104                              0                               3
## 114                              1                               1
## 117                              0                               1
## 120                              1                               3
## 122                              0                               1
##     covid_essential_base covid_test_yes_base covid_schedule_base
## 92                     0                   0                   1
## 104                    1                   1                   1
## 114                    0                  NA                   1
## 117                    1                  NA                   1
## 120                    1                   0                   1
## 122                    1                  NA                   0
##     covid_mask_base covid_visit_base covid_wipe_base bmi_base parity_base
## 92                1                1               0     40.9           2
## 104               1                1               0     32.3           1
## 114               1                1               1     30.1           0
## 117               1                1               1     30.4           0
## 120               1                1               0     25.3           0
## 122               1                1               0     25.5           1
##     reap_base ppaq_total_base ppaq_light_base ppaq_mod_base ppaq_house_base
## 92         59         322.525         137.900        178.85         277.025
## 104        54         218.050          96.775         80.85         172.025
## 114        42         229.775         137.900         70.35         182.525
## 117        61         140.175          51.100         77.00          37.975
## 120        56          96.775          17.500         33.60          13.125
## 122        60         197.925          94.500         86.10         163.625
##     epds_base epds_3a_base rhodes_base do_you_prepare_your_own_fo_wk26
## 92          4            2           8                              NA
```

```
## 104          13          6          11                          1
## 114           5          1           8                          1
## 117          11          3           8                          1
## 120           3          2           8                         NA
## 122          11          2          24                          1
##     ever_have_trouble_being_ab_wk26 follow_a_special_diet_eat_wk26
## 92                               NA                             NA
## 104                               1                              0
## 114                               0                              0
## 117                               1                              0
## 120                              NA                             NA
## 122                               0                              0
##     how_willing_are_you_to_mak_wk26 reap_wk26 rhodes_wk26
## 92                               NA        NA          NA
## 104                               0        51           8
## 114                               2        43           8
## 117                               0        61           8
## 120                              NA        NA          NA
## 122                               0        59           8
##     do_you_prepare_your_own_fo_wk36 ever_have_trouble_being_ab_wk36
## 92                               NA                              NA
## 104                               1                               0
## 114                               1                               0
## 117                               1                               0
## 120                               0                               0
## 122                               1                               0
##     follow_a_special_diet_eat_wk36 how_willing_are_you_to_mak_wk36
## 92                              NA                              NA
## 104                              0                               2
## 114                              0                               2
## 117                              0                               2
## 120                              1                               4
## 122                              1                               2
##     covid_essential_wk36 covid_test_yes_wk36 covid_schedule_wk36
## 92                    NA                  NA                  NA
## 104                    1                   1                   1
## 114                    0                  NA                   1
## 117                    1                   0                   1
## 120                    1                   0                   1
## 122                    1                   0                   0
##     covid_mask_wk36 covid_visit_wk36 covid_wipe_wk36 reap_wk36 rhodes_wk36
## 92               NA               NA              NA        NA          NA
## 104               1                1               0        57           8
## 114               1                1               1        51           8
## 117               1                1               1        61           8
## 120               1                0               0        55           8
## 122               1                1               0        61          10
##     infant_gender_mth3 feeding_mth3 do_you_prepare_your_own_fo_mth3
## 92                   1            0                               1
## 104                   1            0                               1
## 114                   1            0                               1
## 117                   0            0                               1
## 120                   0            0                               0
## 122                   1            1                               1
```

```
##     ever_have_trouble_being_ab_mth3 follow_a_special_diet_eat_mth3
## 92                                0                              0
## 104                               0                              0
## 114                               0                              0
## 117                               1                              1
## 120                               0                              1
## 122                               0                              0
##     how_willing_are_you_to_mak_mth3 ex_feeding_mth3 reap_mth3 ppaq_total_mth3
## 92                                1               1        58         260.575
## 104                               1               1        44         256.200
## 114                               1               1        41         223.475
## 117                               3               1        59         272.300
## 120                               3               1        51         149.450
## 122                               1               0        58         321.700
##     ppaq_light_mth3 ppaq_mod_mth3 ppaq_house_mth3 epds_mth3 epds_3a_mth3
## 92          152.600        105.35         208.600         3            2
## 104         145.950        107.10         243.075         9            4
## 114         149.800         56.35         189.175         3            2
## 117         143.675        116.55         239.050         5            3
## 120          97.650         42.35         130.025         1            0
## 122         175.700        127.10         298.425         4            1
##     feeding_mth6 do_you_prepare_your_own_fo_mth6
## 92             0                               1
## 104            0                               1
## 114            1                               1
## 117            0                               1
## 120            1                               0
## 122            1                               1
##     ever_have_trouble_being_ab_mth6 follow_a_special_diet_eat_mth6
## 92                                1                              1
## 104                               0                              0
## 114                               0                              0
## 117                               0                              0
## 120                               1                              1
## 122                               0                              0
##     how_willing_are_you_to_mak_mth6 covid_essential_mth6 covid_test_yes_mth6
## 92                                3                    0                   0
## 104                               1                    1                   1
## 114                               1                    1                   0
## 117                               1                    1                   0
## 120                               3                    1                   1
## 122                               1                    1                   1
##     covid_schedule_mth6 ex_feeding_mth6 reap_mth6 ppaq_total_mth6
## 92                    1               1        56         228.200
## 104                   1               1        50         274.575
## 114                   1               0        46         205.100
## 117                   1               1        58         258.300
## 120                   1               0        58         102.900
## 122                   0               0        59         377.125
##     ppaq_light_mth6 ppaq_mod_mth6 ppaq_house_mth6 epds_mth6 epds_3a_mth6
## 92          123.725        101.85         208.600         4            2
## 104         126.700        140.00         259.700        10            5
## 114         104.475         94.85         193.725         5            3
## 117         139.475        113.05         149.975         7            5
```

```
## 120            63.525            33.60            87.150            0            0
## 122           208.600           157.50           331.975            8            2
##      infant_weight_bbmr breastfeeding KCAL_base HEI2015C9_FATTYACID_base
## 92                   NA             1  2509.520                 2.855321
## 104                  NA             1  1635.760                10.000000
## 114                3850             1  1148.754                 0.000000
## 117                2920             1  2165.690                 0.000000
## 120                3620             1  1396.096                10.000000
## 122                3480             1  1387.345                 1.183180
##      HEI2015C12_SFAT_base HEI2015_TOTAL_SCORE_base KCAL_wk36
## 92               1.666322                 34.30931  2020.463
## 104              8.893878                 62.83485  1417.080
## 114              0.000000                 45.94168  1703.572
## 117              0.000000                 38.71160  2380.097
## 120             10.000000                 69.54867  2091.329
## 122              4.130327                 36.03584  2831.431
##      HEI2015C9_FATTYACID_wk36 HEI2015C12_SFAT_wk36 HEI2015_TOTAL_SCORE_wk36
## 92               8.134995970             5.314868                 63.88064
## 104              6.104587009             7.292247                 73.96853
## 114              0.000000000             0.000000                 25.81087
## 117              0.008120073             0.000000                 46.51803
## 120              0.000000000             3.863521                 47.11103
## 122              0.279851433             2.249060                 58.71778
##      KCAL_mth6 HEI2015C9_FATTYACID_mth6 HEI2015C12_SFAT_mth6
## 92          NA                       NA                   NA
## 104   2257.081                 8.953167             4.795311
## 114   1194.319                 8.081018             0.000000
## 117         NA                       NA                   NA
## 120   2187.465                 7.262954             9.187729
## 122   2922.693                 0.000000             1.412097
##      HEI2015_TOTAL_SCORE_mth6 tasks_comp_pre tasks_fail_pre total_tasks_pre
## 92                         NA             NA             NA              NA
## 104                  70.69237             83             10              93
## 114                  52.90383             NA             NA              NA
## 117                        NA             36              6              42
## 120                  47.87558              0              0               0
## 122                  42.78762             NA             NA              NA
##      prop_tasks_pre tasks_comp_post tasks_fail_post total_tasks_post
## 92               NA              NA              NA               NA
## 104            0.89              10               5               15
## 114              NA              NA              NA               NA
## 117            0.86               6               0                6
## 120              NA              25               0               25
## 122              NA              NA              NA               NA
##      prop_tasks_post n_goals_pre n_achieved_pre prop_achieved_pre n_goals_post
## 92                NA          NA             NA                NA           NA
## 104             0.67          83             26              0.31           10
## 114               NA          NA             NA                NA           NA
## 117             1.00          36             27              0.75            6
## 120             1.00           0             NA                NA           25
## 122               NA          NA             NA                NA           NA
##      n_achieved_post prop_achieved_post PM2.5_7Days_base PM2.5_30Days_base
## 92                NA                 NA          7.40000         13.484877
## 104                2               0.20         11.62035          9.302219
```

```
## 114            NA            NA       16.55839         21.927524
## 117             3          0.50       16.65833         13.281095
## 120            14          0.56       19.12714         12.230130
## 122            NA            NA       20.87143         13.856251
##     PM2.5_90Days_base PM2.5_7Days_wk26 PM2.5_30Days_wk26 PM2.5_90Days_wk26
## 92          15.047938              NA                NA                NA
## 104          7.988599        6.187339          8.831250          14.84334
## 114         13.585888       12.539560         17.268682          14.63097
## 117          9.594202       11.259677         13.495551          15.04815
## 120          9.192375              NA                NA                NA
## 122          9.894162        9.928571          8.881939          13.78394
##     PM2.5_7Days_wk36 PM2.5_30Days_wk36 PM2.5_90Days_wk36 PM2.5_7Days_mth3
## 92                NA                NA                NA          4.22500
## 104         20.05000         14.316628          15.18742         10.15714
## 114         16.26733         12.676121          11.67988         13.10000
## 117         14.28835         14.047186          11.71711          5.00000
## 120                NA                NA                NA                NA
## 122         14.72500          4.846878          11.06866          2.41250
##     PM2.5_30Days_mth3 PM2.5_90Days_mth3 PM2.5_7Days_mth6 PM2.5_30Days_mth6
## 92           5.368966          7.035876         5.787500          5.731250
## 104         11.690625         10.328571        11.257143         13.535484
## 114         15.246429          9.829688         5.100000          4.592308
## 117          6.003448          6.764425         2.228571          2.866667
## 120                NA                NA                NA                NA
## 122          3.458621          4.278409         7.812500          6.181250
##     PM2.5_90Days_mth6 low_income low_access sleep_base sleep_wk36 sleep_mth6
## 92           5.727632          0          0          4         NA          2
## 104         13.204348          0          1          2          1          1
## 114          5.493827          0          1          4          3          6
## 117          3.878889          0          0          3          3          3
## 120                NA          1          1          7          4          2
## 122          4.031461          1          1          2          1          2
```

```r
colnames(ID_Updated_Combined_Traits_apo_ana)
```

```
##  [1] "User_ID"
##  [2] "group"
##  [3] "age"
##  [4] "gest_age"
##  [5] "gest_age_at_birth"
##  [6] "apo"
##  [7] "preterm"
##  [8] "apo_hdp"
##  [9] "apo_gdm"
## [10] "apo_other"
## [11] "height_base"
## [12] "weight_base"
## [13] "weight_wk26"
## [14] "weight_wk36"
## [15] "weight_mth3"
## [16] "weight_mth6"
## [17] "gwg"
## [18] "egwg"
## [19] "ppwr"
```

```
##  [20] "ppwr_e"
##  [21] "n_weights_pre"
##  [22] "n_weights_post"
##  [23] "n_weights_total"
##  [24] "bmi"
##  [25] "race_eth_new"
##  [26] "total_number_of_pregnancie_30f336_base"
##  [27] "total_number_abortions_base"
##  [28] "pregtype_conception_base"
##  [29] "pregtype_planned_base"
##  [30] "other_children_base"
##  [31] "moth_marit_stat_base"
##  [32] "mother_s_education_base"
##  [33] "father_s_age_at_enrollment_base"
##  [34] "fathers_country_of_birth_us_base"
##  [35] "father_s_race_base"
##  [36] "father_s_hispanic_base"
##  [37] "father_s_education_base"
##  [38] "father_currently_employed_base"
##  [39] "second_hand_base"
##  [40] "second_hand_days_base"
##  [41] "second_hand_rules_base"
##  [42] "do_any_close_friends_or_re_base"
##  [43] "do_you_prepare_your_own_fo_base"
##  [44] "ever_have_trouble_being_ab_base"
##  [45] "follow_a_special_diet_eat_base"
##  [46] "how_willing_are_you_to_mak_base"
##  [47] "covid_essential_base"
##  [48] "covid_test_yes_base"
##  [49] "covid_schedule_base"
##  [50] "covid_mask_base"
##  [51] "covid_visit_base"
##  [52] "covid_wipe_base"
##  [53] "bmi_base"
##  [54] "parity_base"
##  [55] "reap_base"
##  [56] "ppaq_total_base"
##  [57] "ppaq_light_base"
##  [58] "ppaq_mod_base"
##  [59] "ppaq_house_base"
##  [60] "epds_base"
##  [61] "epds_3a_base"
##  [62] "rhodes_base"
##  [63] "do_you_prepare_your_own_fo_wk26"
##  [64] "ever_have_trouble_being_ab_wk26"
##  [65] "follow_a_special_diet_eat_wk26"
##  [66] "how_willing_are_you_to_mak_wk26"
##  [67] "reap_wk26"
##  [68] "rhodes_wk26"
##  [69] "do_you_prepare_your_own_fo_wk36"
##  [70] "ever_have_trouble_being_ab_wk36"
##  [71] "follow_a_special_diet_eat_wk36"
##  [72] "how_willing_are_you_to_mak_wk36"
##  [73] "covid_essential_wk36"
```

```
##  [74] "covid_test_yes_wk36"
##  [75] "covid_schedule_wk36"
##  [76] "covid_mask_wk36"
##  [77] "covid_visit_wk36"
##  [78] "covid_wipe_wk36"
##  [79] "reap_wk36"
##  [80] "rhodes_wk36"
##  [81] "infant_gender_mth3"
##  [82] "feeding_mth3"
##  [83] "do_you_prepare_your_own_fo_mth3"
##  [84] "ever_have_trouble_being_ab_mth3"
##  [85] "follow_a_special_diet_eat_mth3"
##  [86] "how_willing_are_you_to_mak_mth3"
##  [87] "ex_feeding_mth3"
##  [88] "reap_mth3"
##  [89] "ppaq_total_mth3"
##  [90] "ppaq_light_mth3"
##  [91] "ppaq_mod_mth3"
##  [92] "ppaq_house_mth3"
##  [93] "epds_mth3"
##  [94] "epds_3a_mth3"
##  [95] "feeding_mth6"
##  [96] "do_you_prepare_your_own_fo_mth6"
##  [97] "ever_have_trouble_being_ab_mth6"
##  [98] "follow_a_special_diet_eat_mth6"
##  [99] "how_willing_are_you_to_mak_mth6"
## [100] "covid_essential_mth6"
## [101] "covid_test_yes_mth6"
## [102] "covid_schedule_mth6"
## [103] "ex_feeding_mth6"
## [104] "reap_mth6"
## [105] "ppaq_total_mth6"
## [106] "ppaq_light_mth6"
## [107] "ppaq_mod_mth6"
## [108] "ppaq_house_mth6"
## [109] "epds_mth6"
## [110] "epds_3a_mth6"
## [111] "infant_weight_bbmr"
## [112] "breastfeeding"
## [113] "KCAL_base"
## [114] "HEI2015C9_FATTYACID_base"
## [115] "HEI2015C12_SFAT_base"
## [116] "HEI2015_TOTAL_SCORE_base"
## [117] "KCAL_wk36"
## [118] "HEI2015C9_FATTYACID_wk36"
## [119] "HEI2015C12_SFAT_wk36"
## [120] "HEI2015_TOTAL_SCORE_wk36"
## [121] "KCAL_mth6"
## [122] "HEI2015C9_FATTYACID_mth6"
## [123] "HEI2015C12_SFAT_mth6"
## [124] "HEI2015_TOTAL_SCORE_mth6"
## [125] "tasks_comp_pre"
## [126] "tasks_fail_pre"
## [127] "total_tasks_pre"
```

```
## [128] "prop_tasks_pre"
## [129] "tasks_comp_post"
## [130] "tasks_fail_post"
## [131] "total_tasks_post"
## [132] "prop_tasks_post"
## [133] "n_goals_pre"
## [134] "n_achieved_pre"
## [135] "prop_achieved_pre"
## [136] "n_goals_post"
## [137] "n_achieved_post"
## [138] "prop_achieved_post"
## [139] "PM2.5_7Days_base"
## [140] "PM2.5_30Days_base"
## [141] "PM2.5_90Days_base"
## [142] "PM2.5_7Days_wk26"
## [143] "PM2.5_30Days_wk26"
## [144] "PM2.5_90Days_wk26"
## [145] "PM2.5_7Days_wk36"
## [146] "PM2.5_30Days_wk36"
## [147] "PM2.5_90Days_wk36"
## [148] "PM2.5_7Days_mth3"
## [149] "PM2.5_30Days_mth3"
## [150] "PM2.5_90Days_mth3"
## [151] "PM2.5_7Days_mth6"
## [152] "PM2.5_30Days_mth6"
## [153] "PM2.5_90Days_mth6"
## [154] "low_income"
## [155] "low_access"
## [156] "sleep_base"
## [157] "sleep_wk36"
## [158] "sleep_mth6"
```

```r
# Create a new variable for White_vs_nonwhite using case_when
ID_Updated_Combined_Traits_apo_ana <- ID_Updated_Combined_Traits_apo_ana %>%
  mutate(
    White_vs_nonwhite = case_when(
      race_eth_new == 4 ~ 1,        # If Race is "White", White_vs_nonwhite is 1
      TRUE ~ 0                      # If Race is anything else, White_vs_nonwhite is 0
    )
  )
```

```r
#remove USER_ID
ID_Updated_Combined_Traits_apo_analy <-
  ID_Updated_Combined_Traits_apo_ana[, !colnames(ID_Updated_Combined_Traits_apo_ana) %in% "User_ID"]

# Create a new dataframe with reordered columns
ID_Updated_Combined_Traits_apo_analysis <- ID_Updated_Combined_Traits_apo_analy %>%
  select(
    # Group 1: Demographic and Basic Information
    group, age, gest_age, gest_age_at_birth, preterm, height_base, weight_base, weight_wk26, weight_wk36
    egwg,ppwr,ppwr_e, apo , apo_hdp, apo_gdm, apo_other,


    # Group 2: Parental and Socioeconomic Information
```

```r
    race_eth_new, White_vs_nonwhite, total_number_of_pregnancie_30f336_base, total_number_abortions_base
    other_children_base, moth_marit_stat_base, mother_s_education_base, father_s_age_at_enrollment_base
    father_s_hispanic_base, father_s_education_base, father_currently_employed_base,low_income, low_acce

    # Group 3: Smoking and Environmental Exposures
    second_hand_base, second_hand_days_base, second_hand_rules_base, PM2.5_7Days_base, PM2.5_30Days_base
    PM2.5_7Days_wk26, PM2.5_30Days_wk26, PM2.5_90Days_wk26, PM2.5_7Days_wk36, PM2.5_30Days_wk36, PM2.5_9
    PM2.5_30Days_mth3, PM2.5_90Days_mth3, PM2.5_7Days_mth6, PM2.5_30Days_mth6, PM2.5_90Days_mth6, do_any

    # Group 4: Dietary Information
    KCAL_base, HEI2015C9_FATTYACID_base, HEI2015C12_SFAT_base, HEI2015_TOTAL_SCORE_base, KCAL_wk36, HEI2
    HEI2015_TOTAL_SCORE_wk36, KCAL_mth6, HEI2015C9_FATTYACID_mth6, HEI2015C12_SFAT_mth6, HEI2015_TOTAL_S

    # Group 5: Physical Activity
    ppaq_total_base, ppaq_light_base, ppaq_mod_base, ppaq_house_base, ppaq_total_mth3, ppaq_light_mth3,
    ppaq_total_mth6, ppaq_light_mth6, ppaq_mod_mth6, ppaq_house_mth6,

    # Group 6: Psychological Measures
    epds_base, epds_3a_base, epds_mth3, epds_3a_mth3, epds_mth6, epds_3a_mth6,
    sleep_base, sleep_wk36, sleep_mth6, rhodes_base,rhodes_wk26, rhodes_wk36,

    # Group 7: COVID-related Information
    covid_essential_base, covid_test_yes_base, covid_schedule_base, covid_mask_base, covid_visit_base,
    covid_essential_wk36, covid_test_yes_wk36, covid_schedule_wk36, covid_mask_wk36, covid_visit_wk36,
    covid_essential_mth6, covid_test_yes_mth6, covid_schedule_mth6,

    # Group 8: Infant Information
    infant_gender_mth3, feeding_mth3, ex_feeding_mth3,feeding_mth6, ex_feeding_mth6, infant_weight_bbmr

    # Group 9: Tasks and Goals
    n_weights_pre, n_weights_post, n_weights_total, tasks_comp_pre, tasks_fail_pre, total_tasks_pre, pr
    n_goals_pre, n_achieved_pre, prop_achieved_pre, n_goals_post, n_achieved_post, prop_achieved_post,
    do_you_prepare_your_own_fo_base, ever_have_trouble_being_ab_base, follow_a_special_diet_eat_base, h
    do_you_prepare_your_own_fo_wk26, ever_have_trouble_being_ab_wk26, follow_a_special_diet_eat_wk26, h
    do_you_prepare_your_own_fo_wk36, ever_have_trouble_being_ab_wk36, follow_a_special_diet_eat_wk36, h
    do_you_prepare_your_own_fo_mth3, ever_have_trouble_being_ab_mth3, follow_a_special_diet_eat_mth3, h
    do_you_prepare_your_own_fo_mth6, ever_have_trouble_being_ab_mth6, follow_a_special_diet_eat_mth6, h

  )

# View the new dataframe
head(ID_Updated_Combined_Traits_apo_analysis)
```

```
##     group      age gest_age gest_age_at_birth preterm height_base weight_base
## 92      0 39.42037 13.714286                39       0      1.6002   104.77984
## 104     1 36.72727  9.571429                38       0      1.4986    72.57478
## 114     0 35.89884 11.857143                36       1      1.7018    87.08974
## 117     1 36.18865 11.285714                39       0      1.6510    82.96204
## 120     1 34.18729  8.714286                39       0      1.6002    64.68227
## 122     0 39.48052 10.285714                39       0      1.6002    65.31730
##     weight_wk26 weight_wk36 weight_mth3 weight_mth6  bmi bmi_base parity_base
## 92           NA          NA   114.75887   115.66605 39.9     40.9           2
## 104    75.74993    77.11070    68.49245    68.03886 33.4     32.3           1
```

```
## 114     90.62776     94.52865     87.54333     88.81339 27.4     30.1              0
## 117     85.36608     89.62985     86.36399     86.40935 29.1     30.4              0
## 120           NA     73.57268     68.94604     68.94604 27.4     25.3              0
## 122     69.21820     74.20771     71.30472     71.93975 26.6     25.5              1
##          gwg egwg       ppwr ppwr_e apo apo_hdp apo_gdm apo_other race_eth_new
## 92       NA   NA 10.886217      1  NA      NA      NA        NA            1
## 104 4.535924    0 -4.535924      0  NA      NA      NA        NA            1
## 114 7.438915    0  1.723651      0   1       0       0         0            4
## 117 6.667808    0  3.447302      0  NA      NA      NA        NA            4
## 120 8.890410    0  4.263768      1  NA      NA      NA        NA            4
## 122 8.890410    0  6.622449      1  NA      NA      NA        NA            4
##     White_vs_nonwhite total_number_of_pregnancie_30f336_base
## 92                  0                                      3
## 104                 0                                      2
## 114                 1                                      1
## 117                 1                                      1
## 120                 1                                      1
## 122                 1                                      2
##     total_number_abortions_base pregtype_conception_base pregtype_planned_base
## 92                            0                        1                     1
## 104                           0                        1                     0
## 114                          NA                        1                     1
## 117                          NA                        0                     1
## 120                          NA                        0                     1
## 122                           0                        1                     1
##     other_children_base moth_marit_stat_base mother_s_education_base
## 92                    1                    1                       1
## 104                   1                    1                       1
## 114                   0                    3                       2
## 117                   0                    1                       1
## 120                   0                    1                       1
## 122                   1                    1                       2
##     father_s_age_at_enrollment_base fathers_country_of_birth_us_base
## 92                               44                                1
## 104                              40                                1
## 114                              36                                1
## 117                              37                                1
## 120                              33                                1
## 122                              35                                1
##     father_s_race_base father_s_hispanic_base father_s_education_base
## 92                   3                      1                       2
## 104                  3                      1                       1
## 114                  3                      1                       1
## 117                  3                      1                       2
## 120                  3                      1                       2
## 122                  3                      1                       2
##     father_currently_employed_base low_income low_access second_hand_base
## 92                                1          0          0                0
## 104                               1          0          1                0
## 114                               1          0          1                0
## 117                               1          0          0                0
## 120                               1          1          1                0
## 122                               1          1          1                0
##     second_hand_days_base second_hand_rules_base PM2.5_7Days_base
```

```
## 92                        0                   2          7.40000
## 104                       0                   2         11.62035
## 114                       0                   2         16.55839
## 117                       0                   2         16.65833
## 120                       0                   2         19.12714
## 122                       0                   2         20.87143
##      PM2.5_30Days_base PM2.5_90Days_base PM2.5_7Days_wk26 PM2.5_30Days_wk26
## 92           13.484877         15.047938               NA                NA
## 104           9.302219          7.988599         6.187339          8.831250
## 114          21.927524         13.585888        12.539560         17.268682
## 117          13.281095          9.594202        11.259677         13.495551
## 120          12.230130          9.192375               NA                NA
## 122          13.856251          9.894162         9.928571          8.881939
##      PM2.5_90Days_wk26 PM2.5_7Days_wk36 PM2.5_30Days_wk36 PM2.5_90Days_wk36
## 92                  NA               NA                NA                NA
## 104           14.84334         20.05000         14.316628          15.18742
## 114           14.63097         16.26733         12.676121          11.67988
## 117           15.04815         14.28835         14.047186          11.71711
## 120                 NA               NA                NA                NA
## 122           13.78394         14.72500          4.846878          11.06866
##      PM2.5_7Days_mth3 PM2.5_30Days_mth3 PM2.5_90Days_mth3 PM2.5_7Days_mth6
## 92            4.22500          5.368966          7.035876         5.787500
## 104          10.15714         11.690625         10.328571        11.257143
## 114          13.10000         15.246429          9.829688         5.100000
## 117           5.00000          6.003448          6.764425         2.228571
## 120                NA               NA                NA               NA
## 122           2.41250          3.458621          4.278409         7.812500
##      PM2.5_30Days_mth6 PM2.5_90Days_mth6 do_any_close_friends_or_re_base
## 92            5.731250          5.727632                               0
## 104          13.535484         13.204348                               1
## 114           4.592308          5.493827                               0
## 117           2.866667          3.878889                               0
## 120                 NA                NA                               0
## 122           6.181250          4.031461                               0
##      KCAL_base HEI2015C9_FATTYACID_base HEI2015C12_SFAT_base
## 92    2509.520                 2.855321             1.666322
## 104   1635.760                10.000000             8.893878
## 114   1148.754                 0.000000             0.000000
## 117   2165.690                 0.000000             0.000000
## 120   1396.096                10.000000            10.000000
## 122   1387.345                 1.183180             4.130327
##      HEI2015_TOTAL_SCORE_base KCAL_wk36 HEI2015C9_FATTYACID_wk36
## 92                   34.30931  2020.463               8.134995970
## 104                  62.83485  1417.080               6.104587009
## 114                  45.94168  1703.572               0.000000000
## 117                  38.71160  2380.097               0.008120073
## 120                  69.54867  2091.329               0.000000000
## 122                  36.03584  2831.431               0.279851433
##      HEI2015C12_SFAT_wk36 HEI2015_TOTAL_SCORE_wk36 KCAL_mth6
## 92               5.314868                 63.88064        NA
## 104              7.292247                 73.96853  2257.081
## 114              0.000000                 25.81087  1194.319
## 117              0.000000                 46.51803        NA
## 120              3.863521                 47.11103  2187.465
```

```
## 122                 2.249060                       58.71778  2922.693
##      HEI2015C9_FATTYACID_mth6 HEI2015C12_SFAT_mth6 HEI2015_TOTAL_SCORE_mth6
## 92                         NA                   NA                       NA
## 104                  8.953167             4.795311                 70.69237
## 114                  8.081018             0.000000                 52.90383
## 117                        NA                   NA                       NA
## 120                  7.262954             9.187729                 47.87558
## 122                  0.000000             1.412097                 42.78762
##      reap_base reap_wk26 reap_wk36 reap_mth3 reap_mth6 ppaq_total_base
## 92          59        NA        NA        58        56         322.525
## 104         54        51        57        44        50         218.050
## 114         42        43        51        41        46         229.775
## 117         61        61        61        59        58         140.175
## 120         56        NA        55        51        58          96.775
## 122         60        59        61        58        59         197.925
##      ppaq_light_base ppaq_mod_base ppaq_house_base ppaq_total_mth3
## 92           137.900        178.85         277.025         260.575
## 104           96.775         80.85         172.025         256.200
## 114          137.900         70.35         182.525         223.475
## 117           51.100         77.00          37.975         272.300
## 120           17.500         33.60          13.125         149.450
## 122           94.500         86.10         163.625         321.700
##      ppaq_light_mth3 ppaq_mod_mth3 ppaq_house_mth3 ppaq_total_mth6
## 92           152.600        105.35         208.600         228.200
## 104          145.950        107.10         243.075         274.575
## 114          149.800         56.35         189.175         205.100
## 117          143.675        116.55         239.050         258.300
## 120           97.650         42.35         130.025         102.900
## 122          175.700        127.10         298.425         377.125
##      ppaq_light_mth6 ppaq_mod_mth6 ppaq_house_mth6 epds_base epds_3a_base
## 92           123.725        101.85         208.600         4            2
## 104          126.700        140.00         259.700        13            6
## 114          104.475         94.85         193.725         5            1
## 117          139.475        113.05         149.975        11            3
## 120           63.525         33.60          87.150         3            2
## 122          208.600        157.50         331.975        11            2
##      epds_mth3 epds_3a_mth3 epds_mth6 epds_3a_mth6 sleep_base sleep_wk36
## 92           3            2         4            2          4         NA
## 104          9            4        10            5          2          1
## 114          3            2         5            3          4          3
## 117          5            3         7            5          3          3
## 120          1            0         0            0          7          4
## 122          4            1         8            2          2          1
##      sleep_mth6 rhodes_base rhodes_wk26 rhodes_wk36 covid_essential_base
## 92            2           8          NA          NA                     0
## 104           1          11           8           8                     1
## 114           6           8           8           8                     0
## 117           3           8           8           8                     1
## 120           2           8          NA           8                     1
## 122           2          24           8          10                     1
##      covid_test_yes_base covid_schedule_base covid_mask_base covid_visit_base
## 92                     0                   1               1                1
## 104                    1                   1               1                1
## 114                   NA                   1               1                1
```

```
## 117                NA                 1                  1                          1
## 120                 0                 1                  1                          1
## 122                NA                 0                  1                          1
##      covid_wipe_base covid_essential_wk36 covid_test_yes_wk36
## 92                 0                   NA                  NA
## 104                0                    1                   1
## 114                1                    0                  NA
## 117                1                    1                   0
## 120                0                    1                   0
## 122                0                    1                   0
##      covid_schedule_wk36 covid_mask_wk36 covid_visit_wk36 covid_wipe_wk36
## 92                    NA              NA               NA              NA
## 104                    1               1                1               0
## 114                    1               1                1               1
## 117                    1               1                1               1
## 120                    1               1                0               0
## 122                    0               1                1               0
##      covid_essential_mth6 covid_test_yes_mth6 covid_schedule_mth6
## 92                      0                   0                   1
## 104                     1                   1                   1
## 114                     1                   0                   1
## 117                     1                   0                   1
## 120                     1                   1                   1
## 122                     1                   1                   0
##      infant_gender_mth3 feeding_mth3 ex_feeding_mth3 feeding_mth6
## 92                    1            0               1            0
## 104                   1            0               1            0
## 114                   1            0               1            1
## 117                   0            0               1            0
## 120                   0            0               1            1
## 122                   1            1               0            1
##      ex_feeding_mth6 infant_weight_bbmr breastfeeding n_weights_pre
## 92                 1                 NA             1             3
## 104                1                 NA             1            17
## 114                0               3850             1            15
## 117                1               2920             1            11
## 120                0               3620             1             5
## 122                0               3480             1            15
##      n_weights_post n_weights_total tasks_comp_pre tasks_fail_pre
## 92                4               7             NA             NA
## 104               2              19             83             10
## 114               7              22             NA             NA
## 117               4              15             36              6
## 120               4               9              0              0
## 122               3              18             NA             NA
##      total_tasks_pre prop_tasks_pre tasks_comp_post tasks_fail_post
## 92                NA             NA              NA              NA
## 104               93           0.89              10               5
## 114               NA             NA              NA              NA
## 117               42           0.86               6               0
## 120                0             NA              25               0
## 122               NA             NA              NA              NA
##      total_tasks_post prop_tasks_post n_goals_pre n_achieved_pre
## 92                 NA              NA          NA             NA
```

```
## 104                 15            0.67           83             26
## 114                 NA             NA            NA             NA
## 117                  6            1.00           36             27
## 120                 25            1.00            0             NA
## 122                 NA             NA            NA             NA
##      prop_achieved_pre n_goals_post n_achieved_post prop_achieved_post
## 92                  NA           NA              NA                 NA
## 104               0.31           10               2               0.20
## 114                 NA           NA              NA                 NA
## 117               0.75            6               3               0.50
## 120                 NA           25              14               0.56
## 122                 NA           NA              NA                 NA
##      do_you_prepare_your_own_fo_base ever_have_trouble_being_ab_base
## 92                                 1                               1
## 104                                1                               0
## 114                                1                               0
## 117                                1                               1
## 120                                0                               0
## 122                                1                               1
##      follow_a_special_diet_eat_base how_willing_are_you_to_mak_base
## 92                                0                               3
## 104                               0                               3
## 114                               1                               1
## 117                               0                               1
## 120                               1                               3
## 122                               0                               1
##      do_you_prepare_your_own_fo_wk26 ever_have_trouble_being_ab_wk26
## 92                                NA                              NA
## 104                                1                               1
## 114                                1                               0
## 117                                1                               1
## 120                               NA                              NA
## 122                                1                               0
##      follow_a_special_diet_eat_wk26 how_willing_are_you_to_mak_wk26
## 92                               NA                              NA
## 104                               0                               0
## 114                               0                               2
## 117                               0                               0
## 120                              NA                              NA
## 122                               0                               0
##      do_you_prepare_your_own_fo_wk36 ever_have_trouble_being_ab_wk36
## 92                                NA                              NA
## 104                                1                               0
## 114                                1                               0
## 117                                1                               0
## 120                                0                               0
## 122                                1                               0
##      follow_a_special_diet_eat_wk36 how_willing_are_you_to_mak_wk36
## 92                               NA                              NA
## 104                               0                               2
## 114                               0                               2
## 117                               0                               2
## 120                               1                               4
## 122                               1                               2
```

```
##     do_you_prepare_your_own_fo_mth3 ever_have_trouble_being_ab_mth3
## 92                                1                               0
## 104                               1                               0
## 114                               1                               0
## 117                               1                               1
## 120                               0                               0
## 122                               1                               0
##     follow_a_special_diet_eat_mth3 how_willing_are_you_to_mak_mth3
## 92                                0                               1
## 104                               0                               1
## 114                               0                               1
## 117                               1                               3
## 120                               1                               3
## 122                               0                               1
##     do_you_prepare_your_own_fo_mth6 ever_have_trouble_being_ab_mth6
## 92                                1                               1
## 104                               1                               0
## 114                               1                               0
## 117                               1                               0
## 120                               0                               1
## 122                               1                               0
##     follow_a_special_diet_eat_mth6 how_willing_are_you_to_mak_mth6
## 92                                1                               3
## 104                               0                               1
## 114                               0                               1
## 117                               0                               1
## 120                               1                               3
## 122                               0                               1
```

```r
#check to see if you have all the variables.
# Find variables in ID_Updated_Combined_Traits that are not in ID_Updated_Combined_Traits_apo_analysis
vars_only_in_original <- setdiff(colnames(ID_Updated_Combined_Traits_apo_analy), colnames(ID_Updated_Con

# Find variables in ID_Updated_Combined_Traits_apo_analysis that are not in ID_Updated_Combined_Traits
vars_only_in_reordered <- setdiff(colnames(ID_Updated_Combined_Traits_apo_analysis), colnames(ID_Updated

# Display the results
cat("Variables only in ID_Updated_Combined_Traits:\n")
```

```
## Variables only in ID_Updated_Combined_Traits:
```

```r
print(vars_only_in_original)
```

```
## character(0)
```

```r
cat("\nVariables only in ID_Updated_Combined_Traits_apo_analysis:\n")
```

```
##
## Variables only in ID_Updated_Combined_Traits_apo_analysis:
```

```
print(vars_only_in_reordered)
```

```
## character(0)
```

```
#save your file
# Sort dataset by row names in ascending order
ID_Updated_Combined_Traits_apo_analysis <- ID_Updated_Combined_Traits_apo_analysis[order(rownames(ID_Up

dim(ID_Updated_Combined_Traits_apo_analysis)
```

```
## [1]  49 158
```

```
write.csv(ID_Updated_Combined_Traits_apo_analysis, "data_raw/ID_Updated_Combined_Traits_apo_analysis.csv
```

Next we want to separate these files into smaller subsets so that it is easier to visualize on WGCNA. This data im referring to as demographic_data is what was used in the publication #this is what we will use in this analysis

```
# Load your data

traits <- read.csv(
  "data_raw/ID_Updated_Combined_Traits_apo_analysis.csv",
  row.names = 1
)

rownames(ID_Updated_Combined_Traits_apo_analysis)
```

```
##  [1] "104" "114" "117" "120" "122" "129" "138" "139" "147" "149" "151" "155"
## [13] "162" "177" "179" "185" "190" "196" "197" "218" "233" "250" "258" "261"
## [25] "263" "266" "267" "269" "270" "273" "277" "283" "286" "287" "292" "295"
## [37] "297" "300" "304" "311" "315" "321" "323" "326" "330" "332" "336" "340"
## [49] "92"
```

```
# Sort dataset by row names in ascending order
ID_Updated_Combined_Traits_apo_analysis <- ID_Updated_Combined_Traits_apo_analysis[order(rownames(ID_Up

# View first few rows
head(ID_Updated_Combined_Traits_apo_analysis)
```

```
##     group      age gest_age gest_age_at_birth preterm height_base weight_base
## 104     1 36.72727  9.571429                38       0      1.4986    72.57478
## 114     0 35.89884 11.857143                36       1      1.7018    87.08974
## 117     1 36.18865 11.285714                39       0      1.6510    82.96204
## 120     1 34.18729  8.714286                39       0      1.6002    64.68227
## 122     0 39.48052 10.285714                39       0      1.6002    65.31730
## 129     1 33.68968  8.000000                39       0      1.5240    68.49245
##     weight_wk26 weight_wk36 weight_mth3 weight_mth6  bmi bmi_base parity_base
## 104    75.74993    77.11070    68.49245    68.03886 33.4     32.3           1
## 114    90.62776    94.52865    87.54333    88.81339 27.4     30.1           0
## 117    85.36608    89.62985    86.36399    86.40935 29.1     30.4           0
```

```
## 120           NA    73.57268    68.94604      68.94604 27.4     25.3           0
## 122     69.21820    74.20771    71.30472      71.93975 26.6     25.5           1
## 129     82.37237          NA    80.92088      82.55381 28.3     29.5           1
##           gwg egwg       ppwr ppwr_e apo apo_hdp apo_gdm apo_other race_eth_new
## 104 4.535924    0  -4.535924      0  NA      NA      NA        NA            1
## 114 7.438915    0   1.723651      0   1       0       0         0            4
## 117 6.667808    0   3.447302      0  NA      NA      NA        NA            4
## 120 8.890410    0   4.263768      1  NA      NA      NA        NA            4
## 122 8.890410    0   6.622449      1  NA      NA      NA        NA            4
## 129       NA   NA  14.061363      1   1       1       0         0            0
##     White_vs_nonwhite total_number_of_pregnancie_30f336_base
## 104                 0                                      2
## 114                 1                                      1
## 117                 1                                      1
## 120                 1                                      1
## 122                 1                                      2
## 129                 0                                      2
##     total_number_abortions_base pregtype_conception_base pregtype_planned_base
## 104                           0                        1                     0
## 114                          NA                        1                     1
## 117                          NA                        0                     1
## 120                          NA                        0                     1
## 122                           0                        1                     1
## 129                           0                        0                     1
##     other_children_base moth_marit_stat_base mother_s_education_base
## 104                   1                    1                       1
## 114                   0                    3                       2
## 117                   0                    1                       1
## 120                   0                    1                       1
## 122                   1                    1                       2
## 129                   0                    1                       1
##     father_s_age_at_enrollment_base fathers_country_of_birth_us_base
## 104                              40                                1
## 114                              36                                1
## 117                              37                                1
## 120                              33                                1
## 122                              35                                1
## 129                              38                                1
##     father_s_race_base father_s_hispanic_base father_s_education_base
## 104                  3                      1                       1
## 114                  3                      1                       1
## 117                  3                      1                       2
## 120                  3                      1                       2
## 122                  3                      1                       2
## 129                  1                      1                       1
##     father_currently_employed_base low_income low_access second_hand_base
## 104                              1          0          1                0
## 114                              1          0          1                0
## 117                              1          0          0                0
## 120                              1          1          1                0
## 122                              1          1          1                0
## 129                              1          0          0                0
##     second_hand_days_base second_hand_rules_base PM2.5_7Days_base
## 104                     0                      2         11.62035
```

```
## 114                      0                 2        16.55839
## 117                      0                 2        16.65833
## 120                      0                 2        19.12714
## 122                      0                 2        20.87143
## 129                      0                 2        23.90901
##     PM2.5_30Days_base PM2.5_90Days_base PM2.5_7Days_wk26 PM2.5_30Days_wk26
## 104          9.302219          7.988599         6.187339          8.831250
## 114         21.927524         13.585888        12.539560         17.268682
## 117         13.281095          9.594202        11.259677         13.495551
## 120         12.230130          9.192375               NA               NA
## 122         13.856251          9.894162         9.928571          8.881939
## 129         18.599259         11.937610               NA               NA
##     PM2.5_90Days_wk26 PM2.5_7Days_wk36 PM2.5_30Days_wk36 PM2.5_90Days_wk36
## 104          14.84334         20.05000         14.316628          15.18742
## 114          14.63097         16.26733         12.676121          11.67988
## 117          15.04815         14.28835         14.047186          11.71711
## 120                NA               NA                NA                NA
## 122          13.78394         14.72500          4.846878          11.06866
## 129                NA               NA                NA                NA
##     PM2.5_7Days_mth3 PM2.5_30Days_mth3 PM2.5_90Days_mth3 PM2.5_7Days_mth6
## 104         10.15714         11.690625          10.328571         11.257143
## 114         13.10000         15.246429           9.829688          5.100000
## 117          5.00000          6.003448           6.764425          2.228571
## 120               NA                NA                 NA                NA
## 122          2.41250          3.458621           4.278409          7.812500
## 129               NA                NA                 NA                NA
##     PM2.5_30Days_mth6 PM2.5_90Days_mth6 do_any_close_friends_or_re_base
## 104         13.535484         13.204348                               1
## 114          4.592308          5.493827                               0
## 117          2.866667          3.878889                               0
## 120                NA                NA                               0
## 122          6.181250          4.031461                               0
## 129                NA                NA                               0
##     KCAL_base HEI2015C9_FATTYACID_base HEI2015C12_SFAT_base
## 104 1635.7600                10.000000             8.893878
## 114 1148.7539                 0.000000             0.000000
## 117 2165.6900                 0.000000             0.000000
## 120 1396.0960                10.000000            10.000000
## 122 1387.3446                 1.183180             4.130327
## 129  739.3075                 5.634376             4.786785
##     HEI2015_TOTAL_SCORE_base KCAL_wk36 HEI2015C9_FATTYACID_wk36
## 104                 62.83485  1417.080              6.104587009
## 114                 45.94168  1703.572              0.000000000
## 117                 38.71160  2380.097              0.008120073
## 120                 69.54867  2091.329              0.000000000
## 122                 36.03584  2831.431              0.279851433
## 129                 48.66336   907.855             10.000000000
##     HEI2015C12_SFAT_wk36 HEI2015_TOTAL_SCORE_wk36 KCAL_mth6
## 104             7.292247                 73.96853  2257.081
## 114             0.000000                 25.81087  1194.319
## 117             0.000000                 46.51803        NA
## 120             3.863521                 47.11103  2187.465
## 122             2.249060                 58.71778  2922.693
## 129             6.449558                 53.56782  1382.513
```

```
##     HEI2015C9_FATTYACID_mth6 HEI2015C12_SFAT_mth6 HEI2015_TOTAL_SCORE_mth6
## 104                 8.953167             4.795311                 70.69237
## 114                 8.081018             0.000000                 52.90383
## 117                       NA                   NA                       NA
## 120                 7.262954             9.187729                 47.87558
## 122                 0.000000             1.412097                 42.78762
## 129                10.000000            10.000000                 66.68871
##     reap_base reap_wk26 reap_wk36 reap_mth3 reap_mth6 ppaq_total_base
## 104        54        51        57        44        50         218.050
## 114        42        43        51        41        46         229.775
## 117        61        61        61        59        58         140.175
## 120        56        NA        55        51        58          96.775
## 122        60        59        61        58        59         197.925
## 129        57        61        NA        51        54         136.500
##     ppaq_light_base ppaq_mod_base ppaq_house_base ppaq_total_mth3
## 104          96.775         80.85         172.025         256.200
## 114         137.900         70.35         182.525         223.475
## 117          51.100         77.00          37.975         272.300
## 120          17.500         33.60          13.125         149.450
## 122          94.500         86.10         163.625         321.700
## 129          74.025         16.80          74.025         182.700
##     ppaq_light_mth3 ppaq_mod_mth3 ppaq_house_mth3 ppaq_total_mth6
## 104         145.950        107.10         243.075         274.575
## 114         149.800         56.35         189.175         205.100
## 117         143.675        116.55         239.050         258.300
## 120          97.650         42.35         130.025         102.900
## 122         175.700        127.10         298.425         377.125
## 129          82.425         89.25         171.675         167.125
##     ppaq_light_mth6 ppaq_mod_mth6 ppaq_house_mth6 epds_base epds_3a_base
## 104         126.700        140.00         259.700        13            6
## 114         104.475         94.85         193.725         5            1
## 117         139.475        113.05         149.975        11            3
## 120          63.525         33.60          87.150         3            2
## 122         208.600        157.50         331.975        11            2
## 129          98.350         63.00         161.350        11            8
##     epds_mth3 epds_3a_mth3 epds_mth6 epds_3a_mth6 sleep_base sleep_wk36
## 104         9            4        10            5          2          1
## 114         3            2         5            3          4          3
## 117         5            3         7            5          3          3
## 120         1            0         0            0          7          4
## 122         4            1         8            2          2          1
## 129        12            5        11            3          2         NA
##     sleep_mth6 rhodes_base rhodes_wk26 rhodes_wk36 covid_essential_base
## 104          1          11           8           8                    1
## 114          6           8           8           8                    0
## 117          3           8           8           8                    1
## 120          2           8          NA           8                    1
## 122          2          24           8          10                    1
## 129          2          13           8          NA                    0
##     covid_test_yes_base covid_schedule_base covid_mask_base covid_visit_base
## 104                   1                   1               1                1
## 114                  NA                   1               1                1
## 117                  NA                   1               1                1
## 120                   0                   1               1                1
```

```
## 122                    NA                0                1                1
## 129                     0                1                1                0
##     covid_wipe_base covid_essential_wk36 covid_test_yes_wk36
## 104               0                    1                   1
## 114               1                    0                  NA
## 117               1                    1                   0
## 120               0                    1                   0
## 122               0                    1                   0
## 129               0                   NA                  NA
##     covid_schedule_wk36 covid_mask_wk36 covid_visit_wk36 covid_wipe_wk36
## 104                   1               1                1               0
## 114                   1               1                1               1
## 117                   1               1                1               1
## 120                   1               1                0               0
## 122                   0               1                1               0
## 129                  NA              NA               NA              NA
##     covid_essential_mth6 covid_test_yes_mth6 covid_schedule_mth6
## 104                    1                   1                   1
## 114                    1                   0                   1
## 117                    1                   0                   1
## 120                    1                   1                   1
## 122                    1                   1                   0
## 129                    0                   0                   1
##     infant_gender_mth3 feeding_mth3 ex_feeding_mth3 feeding_mth6
## 104                  1            0               1            0
## 114                  1            0               1            1
## 117                  0            0               1            0
## 120                  0            0               1            1
## 122                  1            1               0            1
## 129                  0            1               0            1
##     ex_feeding_mth6 infant_weight_bbmr breastfeeding n_weights_pre
## 104               1                 NA             1            17
## 114               0               3850             1            15
## 117               1               2920             1            11
## 120               0               3620             1             5
## 122               0               3480             1            15
## 129               0               2920             1             6
##     n_weights_post n_weights_total tasks_comp_pre tasks_fail_pre
## 104              2              19             83             10
## 114              7              22             NA             NA
## 117              4              15             36              6
## 120              4               9              0              0
## 122              3              18             NA             NA
## 129              2               8             28             70
##     total_tasks_pre prop_tasks_pre tasks_comp_post tasks_fail_post
## 104              93           0.89              10               5
## 114              NA             NA              NA              NA
## 117              42           0.86               6               0
## 120               0             NA              25               0
## 122              NA             NA              NA              NA
## 129              98           0.29               2              20
##     total_tasks_post prop_tasks_post n_goals_pre n_achieved_pre
## 104               15            0.67          83             26
## 114               NA              NA          NA             NA
```

```
## 117                     6         1.00       36             27
## 120                    25         1.00        0             NA
## 122                    NA           NA       NA             NA
## 129                    22         0.09       28             15
##     prop_achieved_pre n_goals_post n_achieved_post prop_achieved_post
## 104              0.31           10               2               0.20
## 114                NA           NA              NA                 NA
## 117              0.75            6               3               0.50
## 120                NA           25              14               0.56
## 122                NA           NA              NA                 NA
## 129              0.54            2               1               0.50
##     do_you_prepare_your_own_fo_base ever_have_trouble_being_ab_base
## 104                               1                               0
## 114                               1                               0
## 117                               1                               1
## 120                               0                               0
## 122                               1                               1
## 129                               1                               1
##     follow_a_special_diet_eat_base how_willing_are_you_to_mak_base
## 104                              0                               3
## 114                              1                               1
## 117                              0                               1
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
##     do_you_prepare_your_own_fo_wk26 ever_have_trouble_being_ab_wk26
## 104                               1                               1
## 114                               1                               0
## 117                               1                               1
## 120                              NA                              NA
## 122                               1                               0
## 129                               1                               0
##     follow_a_special_diet_eat_wk26 how_willing_are_you_to_mak_wk26
## 104                              0                               0
## 114                              0                               2
## 117                              0                               0
## 120                             NA                              NA
## 122                              0                               0
## 129                              1                               0
##     do_you_prepare_your_own_fo_wk36 ever_have_trouble_being_ab_wk36
## 104                               1                               0
## 114                               1                               0
## 117                               1                               0
## 120                               0                               0
## 122                               1                               0
## 129                              NA                              NA
##     follow_a_special_diet_eat_wk36 how_willing_are_you_to_mak_wk36
## 104                              0                               2
## 114                              0                               2
## 117                              0                               2
## 120                              1                               4
## 122                              1                               2
## 129                             NA                              NA
##     do_you_prepare_your_own_fo_mth3 ever_have_trouble_being_ab_mth3
```

```
## 104                                        1                                    0
## 114                                        1                                    0
## 117                                        1                                    1
## 120                                        0                                    0
## 122                                        1                                    0
## 129                                        1                                    1
##     follow_a_special_diet_eat_mth3 how_willing_are_you_to_mak_mth3
## 104                              0                               1
## 114                              0                               1
## 117                              1                               3
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
##     do_you_prepare_your_own_fo_mth6 ever_have_trouble_being_ab_mth6
## 104                               1                               0
## 114                               1                               0
## 117                               1                               0
## 120                               0                               1
## 122                               1                               0
## 129                               0                               1
##     follow_a_special_diet_eat_mth6 how_willing_are_you_to_mak_mth6
## 104                              0                               1
## 114                              0                               1
## 117                              0                               1
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
```

```r
# Group 1: Demographic and Basic Information #gest_age, for now removed
#gest_age, this variable is gest_age when signing up, I dont think it is
#informative
demographic_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(group, age, gest_age_at_birth, preterm, height_base, weight_base,
         weight_wk26, weight_wk36, weight_mth3, weight_mth6, bmi, bmi_base, parity_base,
         gwg, egwg, ppwr, ppwr_e, apo , apo_hdp, apo_gdm, apo_other)

write.csv(demographic_data, "demographic_data.csv", row.names = TRUE)

#group 1b
#add bmi for the different timepoints
demographic_data_bmi <- demographic_data %>%
  mutate(
    bmi_wk26 = weight_wk26 / (height_base^2),
    bmi_wk36 = weight_wk36 / (height_base^2),
    bmi_mth3 = weight_mth3 / (height_base^2),
    bmi_mth6 = weight_mth6 / (height_base^2)
  )


demographic_data_bmi <- demographic_data_bmi %>%
  select(
    group, age, gest_age_at_birth, preterm,
    height_base, weight_base, weight_wk26, weight_wk36, weight_mth3, weight_mth6,
    # Move all bmi-related columns here
```

```r
    bmi, bmi_base, bmi_wk26, bmi_wk36, bmi_mth3, bmi_mth6,
    # Then keep the rest
    parity_base, gwg, egwg, ppwr, ppwr_e,
    apo, apo_hdp, apo_gdm, apo_other
  )


write.xlsx(demographic_data_bmi, file = "data_processed/demographic_data_bmi.xlsx", rowNames = TRUE)

# Group 2: Parental and Socioeconomic Information
parental_socioeconomic_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(race_eth_new, White_vs_nonwhite, total_number_of_pregnancie_30f336_base,
         total_number_abortions_base, pregtype_conception_base, pregtype_planned_base,
         other_children_base, moth_marit_stat_base, mother_s_education_base,
         father_s_age_at_enrollment_base, fathers_country_of_birth_us_base,
         father_s_race_base, father_s_hispanic_base, father_s_education_base,
         father_currently_employed_base, low_income, low_access)

# Group 3: Smoking and Environmental Exposures
smoking_environmental_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(second_hand_base, second_hand_days_base, second_hand_rules_base,
         PM2.5_7Days_base, PM2.5_30Days_base, PM2.5_90Days_base, PM2.5_7Days_wk26,
         PM2.5_30Days_wk26, PM2.5_90Days_wk26, PM2.5_7Days_wk36, PM2.5_30Days_wk36,
         PM2.5_90Days_wk36, PM2.5_7Days_mth3, PM2.5_30Days_mth3, PM2.5_90Days_mth3,
         PM2.5_7Days_mth6, PM2.5_30Days_mth6, PM2.5_90Days_mth6, do_any_close_friends_or_re_base)

# Group 4: Dietary Information
dietary_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(KCAL_base, HEI2015C9_FATTYACID_base, HEI2015C12_SFAT_base,
         HEI2015_TOTAL_SCORE_base, KCAL_wk36, HEI2015C9_FATTYACID_wk36,
         HEI2015C12_SFAT_wk36, HEI2015_TOTAL_SCORE_wk36, KCAL_mth6,
         HEI2015C9_FATTYACID_mth6, HEI2015C12_SFAT_mth6, HEI2015_TOTAL_SCORE_mth6,
         reap_base, reap_wk26, reap_wk36, reap_mth3, reap_mth6)

# Group 5: Physical Activity
physical_activity_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(ppaq_total_base, ppaq_light_base, ppaq_mod_base, ppaq_house_base,
         ppaq_total_mth3, ppaq_light_mth3, ppaq_mod_mth3, ppaq_house_mth3,
         ppaq_total_mth6, ppaq_light_mth6, ppaq_mod_mth6, ppaq_house_mth6)

# Group 6: Psychological Measures
psychological_measures_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(epds_base, epds_3a_base, epds_mth3, epds_3a_mth3, epds_mth6, epds_3a_mth6,
         sleep_base, sleep_wk36, sleep_mth6, rhodes_base, rhodes_wk26, rhodes_wk36)

# Group 7: COVID-related Information
covid_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(covid_essential_base, covid_test_yes_base, covid_schedule_base,
         covid_mask_base, covid_visit_base, covid_wipe_base, covid_essential_wk36,
         covid_test_yes_wk36, covid_schedule_wk36, covid_mask_wk36, covid_visit_wk36,
         covid_wipe_wk36, covid_essential_mth6, covid_test_yes_mth6, covid_schedule_mth6)

# Group 8: Infant Information
```

```r
infant_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(infant_gender_mth3, feeding_mth3, ex_feeding_mth3, feeding_mth6,
         ex_feeding_mth6, infant_weight_bbmr, breastfeeding)

# Group 9: Tasks and Goals
tasks_goals_data <- ID_Updated_Combined_Traits_apo_analysis %>%
  select(n_weights_pre, n_weights_post, n_weights_total, tasks_comp_pre,
         tasks_fail_pre, total_tasks_pre, prop_tasks_pre, tasks_comp_post,
         tasks_fail_post, total_tasks_post, prop_tasks_post, n_goals_pre,
         n_achieved_pre, prop_achieved_pre, n_goals_post, n_achieved_post,
         prop_achieved_post)

write.csv(tasks_goals_data, "data_processed/tasks_goals_data.csv", row.names = TRUE)


# Group 10: Readiness to change
readines_data <- ID_Updated_Combined_Traits_apo_analysis   %>%
  select (do_you_prepare_your_own_fo_base,
          ever_have_trouble_being_ab_base, follow_a_special_diet_eat_base,
          how_willing_are_you_to_mak_base, do_you_prepare_your_own_fo_wk26,
          ever_have_trouble_being_ab_wk26, follow_a_special_diet_eat_wk26,
          how_willing_are_you_to_mak_wk26, do_you_prepare_your_own_fo_wk36,
          ever_have_trouble_being_ab_wk36, follow_a_special_diet_eat_wk36,
          how_willing_are_you_to_mak_wk36, do_you_prepare_your_own_fo_mth3,
          ever_have_trouble_being_ab_mth3, follow_a_special_diet_eat_mth3,
          how_willing_are_you_to_mak_mth3, do_you_prepare_your_own_fo_mth6,
          ever_have_trouble_being_ab_mth6, follow_a_special_diet_eat_mth6,
          how_willing_are_you_to_mak_mth6)

write.csv(readines_data, "data_processed/readines_data.csv", row.names = TRUE)

# Check each dataset
head(demographic_data)
```

```
##      group       age gest_age_at_birth preterm height_base weight_base
## 104      1 36.72727                38       0      1.4986    72.57478
## 114      0 35.89884                36       1      1.7018    87.08974
## 117      1 36.18865                39       0      1.6510    82.96204
## 120      1 34.18729                39       0      1.6002    64.68227
## 122      0 39.48052                39       0      1.6002    65.31730
## 129      1 33.68968                39       0      1.5240    68.49245
##      weight_wk26 weight_wk36 weight_mth3 weight_mth6  bmi bmi_base parity_base
## 104     75.74993    77.11070    68.49245    68.03886 33.4     32.3           1
## 114     90.62776    94.52865    87.54333    88.81339 27.4     30.1           0
## 117     85.36608    89.62985    86.36399    86.40935 29.1     30.4           0
## 120           NA    73.57268    68.94604    68.94604 27.4     25.3           0
## 122     69.21820    74.20771    71.30472    71.93975 26.6     25.5           1
## 129     82.37237          NA    80.92088    82.55381 28.3     29.5           1
##           gwg egwg      ppwr ppwr_e apo apo_hdp apo_gdm apo_other
## 104  4.535924    0 -4.535924      0  NA      NA      NA        NA
## 114  7.438915    0  1.723651      0   1       0       0         0
## 117  6.667808    0  3.447302      0  NA      NA      NA        NA
## 120  8.890410    0  4.263768      1  NA      NA      NA        NA
```

```
## 122 8.890410    0  6.622449     1 NA        NA        NA           NA
## 129        NA   NA 14.061363     1  1         1         0            0
```

head(demographic_data_bmi)

```
##       group      age gest_age_at_birth preterm height_base weight_base
## 104      1 36.72727                38       0      1.4986    72.57478
## 114      0 35.89884                36       1      1.7018    87.08974
## 117      1 36.18865                39       0      1.6510    82.96204
## 120      1 34.18729                39       0      1.6002    64.68227
## 122      0 39.48052                39       0      1.6002    65.31730
## 129      1 33.68968                39       0      1.5240    68.49245
##      weight_wk26 weight_wk36 weight_mth3 weight_mth6  bmi bmi_base bmi_wk26
## 104     75.74993    77.11070    68.49245    68.03886 33.4     32.3 33.72957
## 114     90.62776    94.52865    87.54333    88.81339 27.4     30.1 31.29278
## 117     85.36608    89.62985    86.36399    86.40935 29.1     30.4 31.31780
## 120          NA    73.57268    68.94604    68.94604 27.4     25.3       NA
## 122     69.21820    74.20771    71.30472    71.93975 26.6     25.5 27.03160
## 129     82.37237          NA    80.92088    82.55381 28.3     29.5 35.46595
##      bmi_wk36 bmi_mth3 bmi_mth6 parity_base      gwg egwg       ppwr ppwr_e apo
## 104 34.33549 30.49799 30.29602           1 4.535924    0 -4.535924      0  NA
## 114 32.63972 30.22776 30.66630           0 7.438915    0  1.723651      0   1
## 117 32.88202 31.68389 31.70053           0 6.667808    0  3.447302      0  NA
## 120 28.73215 26.92532 26.92532           0 8.890410    0  4.263768      1  NA
## 122 28.98014 27.84644 28.09444           1 8.890410    0  6.622449      1  NA
## 129       NA 34.84100 35.54407           1       NA   NA 14.061363      1   1
##      apo_hdp apo_gdm apo_other
## 104      NA      NA        NA
## 114       0       0         0
## 117      NA      NA        NA
## 120      NA      NA        NA
## 122      NA      NA        NA
## 129       1       0         0
```

head(parental_socioeconomic_data)

```
##       race_eth_new White_vs_nonwhite total_number_of_pregnancie_30f336_base
## 104              1                 0                                      2
## 114              4                 1                                      1
## 117              4                 1                                      1
## 120              4                 1                                      1
## 122              4                 1                                      2
## 129              0                 0                                      2
##      total_number_abortions_base pregtype_conception_base pregtype_planned_base
## 104                            0                        1                     0
## 114                           NA                        1                     1
## 117                           NA                        0                     1
## 120                           NA                        0                     1
## 122                            0                        1                     1
## 129                            0                        0                     1
##      other_children_base moth_marit_stat_base mother_s_education_base
## 104                    1                    1                       1
## 114                    0                    3                       2
```

```
## 117                       0                    1                        1
## 120                       0                    1                        1
## 122                       1                    1                        2
## 129                       0                    1                        1
##     father_s_age_at_enrollment_base fathers_country_of_birth_us_base
## 104                              40                                1
## 114                              36                                1
## 117                              37                                1
## 120                              33                                1
## 122                              35                                1
## 129                              38                                1
##     father_s_race_base father_s_hispanic_base father_s_education_base
## 104                  3                      1                       1
## 114                  3                      1                       1
## 117                  3                      1                       2
## 120                  3                      1                       2
## 122                  3                      1                       2
## 129                  1                      1                       1
##     father_currently_employed_base low_income low_access
## 104                               1          0          1
## 114                               1          0          1
## 117                               1          0          0
## 120                               1          1          1
## 122                               1          1          1
## 129                               1          0          0
```

```r
head(smoking_environmental_data)
```

```
##     second_hand_base second_hand_days_base second_hand_rules_base
## 104                0                     0                      2
## 114                0                     0                      2
## 117                0                     0                      2
## 120                0                     0                      2
## 122                0                     0                      2
## 129                0                     0                      2
##     PM2.5_7Days_base PM2.5_30Days_base PM2.5_90Days_base PM2.5_7Days_wk26
## 104         11.62035          9.302219          7.988599         6.187339
## 114         16.55839         21.927524         13.585888        12.539560
## 117         16.65833         13.281095          9.594202        11.259677
## 120         19.12714         12.230130          9.192375               NA
## 122         20.87143         13.856251          9.894162         9.928571
## 129         23.90901         18.599259         11.937610               NA
##     PM2.5_30Days_wk26 PM2.5_90Days_wk26 PM2.5_7Days_wk36 PM2.5_30Days_wk36
## 104          8.831250          14.84334         20.05000         14.316628
## 114         17.268682          14.63097         16.26733         12.676121
## 117         13.495551          15.04815         14.28835         14.047186
## 120                NA                NA               NA                NA
## 122          8.881939          13.78394         14.72500          4.846878
## 129                NA                NA               NA                NA
##     PM2.5_90Days_wk36 PM2.5_7Days_mth3 PM2.5_30Days_mth3 PM2.5_90Days_mth3
## 104          15.18742         10.15714         11.690625         10.328571
## 114          11.67988         13.10000         15.246429          9.829688
## 117          11.71711          5.00000          6.003448          6.764425
## 120                NA               NA                NA                NA
```

```
## 122         11.06866          2.41250          3.458621          4.278409
## 129              NA               NA                NA                NA
##      PM2.5_7Days_mth6 PM2.5_30Days_mth6 PM2.5_90Days_mth6
## 104        11.257143         13.535484         13.204348
## 114         5.100000          4.592308          5.493827
## 117         2.228571          2.866667          3.878889
## 120               NA                NA                NA
## 122         7.812500          6.181250          4.031461
## 129               NA                NA                NA
##      do_any_close_friends_or_re_base
## 104                               1
## 114                               0
## 117                               0
## 120                               0
## 122                               0
## 129                               0
```

head(dietary_data)

```
##      KCAL_base HEI2015C9_FATTYACID_base HEI2015C12_SFAT_base
## 104 1635.7600                10.000000             8.893878
## 114 1148.7539                 0.000000             0.000000
## 117 2165.6900                 0.000000             0.000000
## 120 1396.0960                10.000000            10.000000
## 122 1387.3446                 1.183180             4.130327
## 129  739.3075                 5.634376             4.786785
##      HEI2015_TOTAL_SCORE_base KCAL_wk36 HEI2015C9_FATTYACID_wk36
## 104                 62.83485  1417.080              6.104587009
## 114                 45.94168  1703.572              0.000000000
## 117                 38.71160  2380.097              0.008120073
## 120                 69.54867  2091.329              0.000000000
## 122                 36.03584  2831.431              0.279851433
## 129                 48.66336   907.855             10.000000000
##      HEI2015C12_SFAT_wk36 HEI2015_TOTAL_SCORE_wk36 KCAL_mth6
## 104             7.292247                 73.96853  2257.081
## 114             0.000000                 25.81087  1194.319
## 117             0.000000                 46.51803        NA
## 120             3.863521                 47.11103  2187.465
## 122             2.249060                 58.71778  2922.693
## 129             6.449558                 53.56782  1382.513
##      HEI2015C9_FATTYACID_mth6 HEI2015C12_SFAT_mth6 HEI2015_TOTAL_SCORE_mth6
## 104                 8.953167             4.795311                 70.69237
## 114                 8.081018             0.000000                 52.90383
## 117                       NA                   NA                       NA
## 120                 7.262954             9.187729                 47.87558
## 122                 0.000000             1.412097                 42.78762
## 129                10.000000            10.000000                 66.68871
##      reap_base reap_wk26 reap_wk36 reap_mth3 reap_mth6
## 104         54        51        57        44        50
## 114         42        43        51        41        46
## 117         61        61        61        59        58
## 120         56        NA        55        51        58
## 122         60        59        61        58        59
## 129         57        61        NA        51        54
```

```r
head(physical_activity_data)
```

```
##     ppaq_total_base ppaq_light_base ppaq_mod_base ppaq_house_base
## 104         218.050          96.775         80.85         172.025
## 114         229.775         137.900         70.35         182.525
## 117         140.175          51.100         77.00          37.975
## 120          96.775          17.500         33.60          13.125
## 122         197.925          94.500         86.10         163.625
## 129         136.500          74.025         16.80          74.025
##     ppaq_total_mth3 ppaq_light_mth3 ppaq_mod_mth3 ppaq_house_mth3
## 104         256.200         145.950        107.10         243.075
## 114         223.475         149.800         56.35         189.175
## 117         272.300         143.675        116.55         239.050
## 120         149.450          97.650         42.35         130.025
## 122         321.700         175.700        127.10         298.425
## 129         182.700          82.425         89.25         171.675
##     ppaq_total_mth6 ppaq_light_mth6 ppaq_mod_mth6 ppaq_house_mth6
## 104         274.575         126.700        140.00         259.700
## 114         205.100         104.475         94.85         193.725
## 117         258.300         139.475        113.05         149.975
## 120         102.900          63.525         33.60          87.150
## 122         377.125         208.600        157.50         331.975
## 129         167.125          98.350         63.00         161.350
```

```r
head(psychological_measures_data)
```

```
##     epds_base epds_3a_base epds_mth3 epds_3a_mth3 epds_mth6 epds_3a_mth6
## 104        13            6         9            4        10            5
## 114         5            1         3            2         5            3
## 117        11            3         5            3         7            5
## 120         3            2         1            0         0            0
## 122        11            2         4            1         8            2
## 129        11            8        12            5        11            3
##     sleep_base sleep_wk36 sleep_mth6 rhodes_base rhodes_wk26 rhodes_wk36
## 104          2          1          1          11           8           8
## 114          4          3          6           8           8           8
## 117          3          3          3           8           8           8
## 120          7          4          2           8          NA           8
## 122          2          1          2          24           8          10
## 129          2         NA          2          13           8          NA
```

```r
head(covid_data)
```

```
##     covid_essential_base covid_test_yes_base covid_schedule_base
## 104                    1                   1                   1
## 114                    0                  NA                   1
## 117                    1                  NA                   1
## 120                    1                   0                   1
## 122                    1                  NA                   0
## 129                    0                   0                   1
##     covid_mask_base covid_visit_base covid_wipe_base covid_essential_wk36
## 104               1                1               0                    1
```

```
## 114                1                1                1                0
## 117                1                1                1                1
## 120                1                1                0                1
## 122                1                1                0                1
## 129                1                0                0               NA
##     covid_test_yes_wk36 covid_schedule_wk36 covid_mask_wk36 covid_visit_wk36
## 104                   1                   1               1                1
## 114                  NA                   1               1                1
## 117                   0                   1               1                1
## 120                   0                   1               1                0
## 122                   0                   0               1                1
## 129                  NA                  NA              NA               NA
##     covid_wipe_wk36 covid_essential_mth6 covid_test_yes_mth6
## 104               0                    1                   1
## 114               1                    1                   0
## 117               1                    1                   0
## 120               0                    1                   1
## 122               0                    1                   1
## 129              NA                    0                   0
##     covid_schedule_mth6
## 104                   1
## 114                   1
## 117                   1
## 120                   1
## 122                   0
## 129                   1
```

head(infant_data)

```
##     infant_gender_mth3 feeding_mth3 ex_feeding_mth3 feeding_mth6
## 104                  1            0               1            0
## 114                  1            0               1            1
## 117                  0            0               1            0
## 120                  0            0               1            1
## 122                  1            1               0            1
## 129                  0            1               0            1
##     ex_feeding_mth6 infant_weight_bbmr breastfeeding
## 104               1                 NA             1
## 114               0               3850             1
## 117               1               2920             1
## 120               0               3620             1
## 122               0               3480             1
## 129               0               2920             1
```

head(tasks_goals_data)

```
##     n_weights_pre n_weights_post n_weights_total tasks_comp_pre tasks_fail_pre
## 104            17              2              19             83             10
## 114            15              7              22             NA             NA
## 117            11              4              15             36              6
## 120             5              4               9              0              0
## 122            15              3              18             NA             NA
## 129             6              2               8             28             70
```

```
##     total_tasks_pre prop_tasks_pre tasks_comp_post tasks_fail_post
## 104              93           0.89              10               5
## 114              NA             NA              NA              NA
## 117              42           0.86               6               0
## 120               0             NA              25               0
## 122              NA             NA              NA              NA
## 129              98           0.29               2              20
##     total_tasks_post prop_tasks_post n_goals_pre n_achieved_pre
## 104               15            0.67          83             26
## 114               NA              NA          NA             NA
## 117                6            1.00          36             27
## 120               25            1.00           0             NA
## 122               NA              NA          NA             NA
## 129               22            0.09          28             15
##     prop_achieved_pre n_goals_post n_achieved_post prop_achieved_post
## 104              0.31           10               2               0.20
## 114                NA           NA              NA                 NA
## 117              0.75            6               3               0.50
## 120                NA           25              14               0.56
## 122                NA           NA              NA                 NA
## 129              0.54            2               1               0.50
```

```
head(readines_data)
```

```
##     do_you_prepare_your_own_fo_base ever_have_trouble_being_ab_base
## 104                               1                               0
## 114                               1                               0
## 117                               1                               1
## 120                               0                               0
## 122                               1                               1
## 129                               1                               1
##     follow_a_special_diet_eat_base how_willing_are_you_to_mak_base
## 104                              0                               3
## 114                              1                               1
## 117                              0                               1
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
##     do_you_prepare_your_own_fo_wk26 ever_have_trouble_being_ab_wk26
## 104                               1                               1
## 114                               1                               0
## 117                               1                               1
## 120                              NA                              NA
## 122                               1                               0
## 129                               1                               0
##     follow_a_special_diet_eat_wk26 how_willing_are_you_to_mak_wk26
## 104                              0                               0
## 114                              0                               2
## 117                              0                               0
## 120                             NA                              NA
## 122                              0                               0
## 129                              1                               0
##     do_you_prepare_your_own_fo_wk36 ever_have_trouble_being_ab_wk36
## 104                               1                               0
```

```
## 114                            1                            0
## 117                            1                            0
## 120                            0                            0
## 122                            1                            0
## 129                           NA                           NA
##     follow_a_special_diet_eat_wk36 how_willing_are_you_to_mak_wk36
## 104                              0                               2
## 114                              0                               2
## 117                              0                               2
## 120                              1                               4
## 122                              1                               2
## 129                             NA                              NA
##     do_you_prepare_your_own_fo_mth3 ever_have_trouble_being_ab_mth3
## 104                               1                               0
## 114                               1                               0
## 117                               1                               1
## 120                               0                               0
## 122                               1                               0
## 129                               1                               1
##     follow_a_special_diet_eat_mth3 how_willing_are_you_to_mak_mth3
## 104                              0                               1
## 114                              0                               1
## 117                              1                               3
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
##     do_you_prepare_your_own_fo_mth6 ever_have_trouble_being_ab_mth6
## 104                               1                               0
## 114                               1                               0
## 117                               1                               0
## 120                               0                               1
## 122                               1                               0
## 129                               0                               1
##     follow_a_special_diet_eat_mth6 how_willing_are_you_to_mak_mth6
## 104                              0                               1
## 114                              0                               1
## 117                              0                               1
## 120                              1                               3
## 122                              0                               1
## 129                              1                               3
```