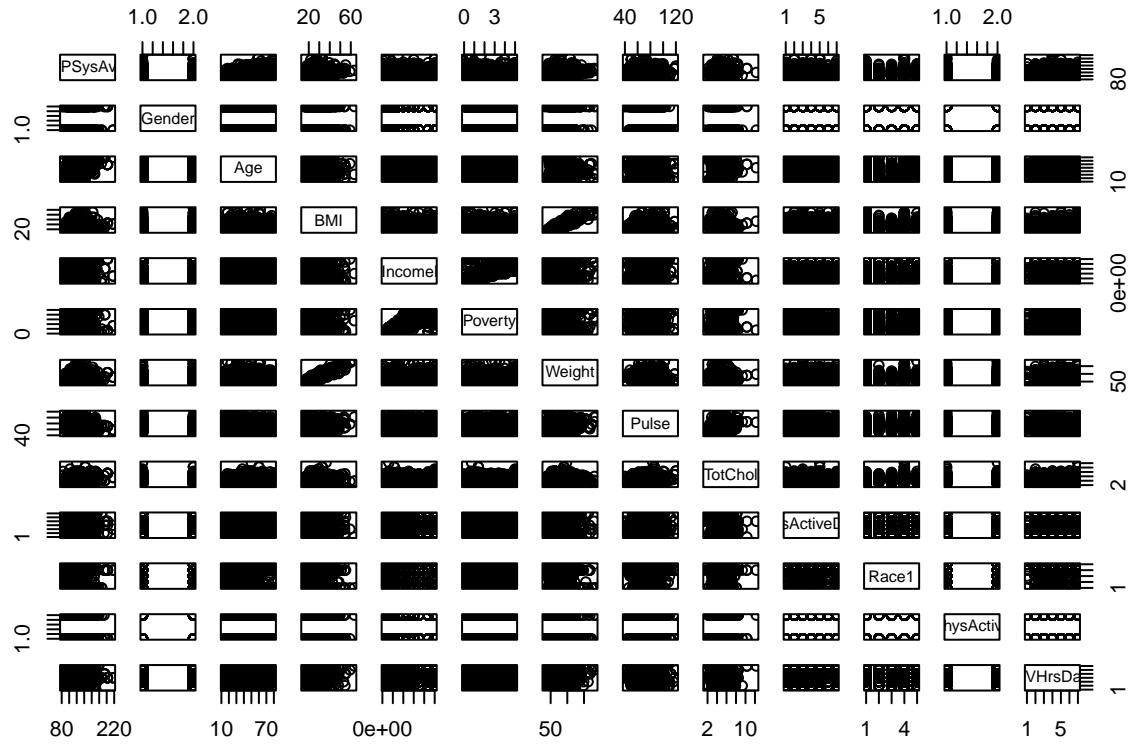


# STA302 Report

Group 173: Oscar Heath, Evelyn Hughes, Amy Ye

```
library(NHANES)
data(NHANES)
# select columns we want from NHANES
data <- subset(as.data.frame(NHANES),
               select = c(BPSysAve, Gender, Age, BMI,
                          HHIncomeMid, Poverty, Weight, Pulse, TotChol, PhysActiveDays, Race1, PhysActiv
data = na.omit(data)
plot(data)
```



```
# Fit a model with our predictors, as well as some interesting interaction terms
model = lm(BPSysAve ~ . + Gender:Age + Gender:BM + Age:TotChol, data=data)
summary(model)
```

```

##
## Call:
## lm(formula = BPSysAve ~ . + Gender:Age + Gender:BMI + Age:TotChol,
##      data = data)
##
## Residuals:
##    Min     1Q Median     3Q    Max 
## -49.884 -8.593 -0.827  7.356 75.763 
##
## Coefficients:
##                               Estimate Std. Error t value Pr(>|t|)    
## (Intercept)             8.860e+01  6.292e+00 14.083 < 2e-16 ***
## Gendermale              1.511e+01  3.424e+00  4.412 1.09e-05 ***
## Age                     2.703e-01  9.934e-02  2.721 0.006574 **  
## BMI                     1.938e-01  1.557e-01  1.245 0.213490  
## HHIncomeMid             1.123e-04  2.328e-05  4.825 1.53e-06 *** 
## Poverty                 -3.336e+00 4.701e-01 -7.096 1.91e-12 *** 
## Weight                  4.019e-02  5.077e-02  0.792 0.428760  
## Pulse                   8.174e-02  3.156e-02  2.590 0.009682 **  
## TotChol                 -1.812e+00 9.757e-01 -1.857 0.063429 .  
## PhysActiveDays           -2.732e-01 1.924e-01 -1.420 0.155913  
## Race1Hispanic            -6.355e+00 1.925e+00 -3.302 0.000980 *** 
## Race1Mexican             -4.583e+00 1.669e+00 -2.747 0.006089 **  
## Race1White                -4.419e+00 1.199e+00 -3.687 0.000234 *** 
## Race1Other                -3.676e+00 1.689e+00 -2.176 0.029681 *  
## PhysActiveYes             7.830e-01 7.810e-01  1.003 0.316187  
## TVHrsDay0_to_1_hr        4.234e+00 2.798e+00  1.513 0.130445  
## TVHrsDay1_hr              4.575e+00 2.745e+00  1.667 0.095717 .  
## TVHrsDay2_hr              5.845e+00 2.702e+00  2.163 0.030698 *  
## TVHrsDay3_hr              5.344e+00 2.746e+00  1.947 0.051754 .  
## TVHrsDay4_hr              5.138e+00 2.818e+00  1.824 0.068412 .  
## TVHrsDayMore_4_hr         4.446e+00 2.784e+00  1.597 0.110494  
## Gendermale:Age            -1.561e-01 3.872e-02 -4.033 5.76e-05 *** 
## Gendermale:BMI             -1.254e-01 1.162e-01 -1.079 0.280906  
## Age:TotChol               6.605e-02 1.952e-02  3.384 0.000731 *** 
## ---                        
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 14.19 on 1609 degrees of freedom
## Multiple R-squared:  0.3465, Adjusted R-squared:  0.3372 
## F-statistic:  37.1 on 23 and 1609 DF,  p-value: < 2.2e-16

```

