

GroupProject

Group3

11/23/2021

Loading Packages

Data Cleaning and Variates Selection

```
varinterst = c("Age", "Gender", "Race1", "Depressed", "Diabetes", "BPSysAve", "BPDiaAve", "TotChol", "Testos
nh1 = nh[, varinterst]
nh1 <- nh1[ which(nh1$Age >= 18 & nh1$Age <= 59), ] #Due to Marijuana variable.
nh1 <- nh1 %>%
  mutate(HypT = if_else(nh1$BPSysAve >= 130 | nh1$BPDiaAve >= 80, 1, 0)) #Add hypertension variable
nh1 <- nh1 %>%
  mutate(Sex = ifelse(nh1$Gender == "female", 1, 0)) #Recode Sex into binary where female=1, male=0
nh1 <- nh1 %>%
  mutate(Diabete = ifelse(nh1$Diabetes == "No", 0, 1)) #Recode Diabetes into binary where No=0, Yes=1
nh1 <- nh1 %>%
  mutate(RegMarij = ifelse(nh1$RegularMarij == "No", 0, 1)) #Recode Regular Marij into binary where No=0, Yes=1
nh1 <- nh1 %>%
  mutate(Depress = ifelse(nh1$Depressed == "None", 0, 1)) #Recode Depressed into reports syptoms or does not
nh1$Incomplete = complete.cases(nh1)
nh1$Race1 = as.factor(nh1$Race1) #Race as factor
#Creates Sex Specific Data Sets
drops = c("Sex")
nhF = nh1[ which(nh1$Sex == 1), ]
nhM = nh1[ which(nh1$Sex == 0), ]
nhF = nhF[, !(names(nhF) %in% drops)]
nhM = nhM[, !(names(nhM) %in% drops)]
```

Complete/Incomplete Data Set

```
nh1[, c("Age", "Gender", "Race1", "Depressed", "Diabetes", "TotChol", "Testosterone", "RegularMarij", "Weight
tbl_summary(by = Incomplete,
            missing = "no",
            statistic = list(all_continuous() ~ "{mean} ({sd})",
                            all_categorical() ~ "{n} ({p}{\%})"),
            ) %>%
add_n %>%
add_p(test = list(Age ~ "t.test",
                  Race1 ~ "chisq.test",
                  Depressed ~ "chisq.test",
```

```

    Diabetes ~ "chisq.test",
    HypT ~ "chisq.test",
    TotChol ~ "t.test",
    Testosterone ~ "t.test",
    RegularMarij ~ "chisq.test",
    Weight ~ "t.test",
    Height ~ "t.test"),
  test.args = all_tests("t.test") ~ list(var.equal = TRUE),## Important argument!
  pvalue_fun = function(x) style_pvalue(x, digits = 2)) %>%
bold_p(t = 0.05) %>%
bold_labels

```

Table printed with ‘knitr::kable()‘, not {gt}. Learn why at
<http://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include ‘message = FALSE‘ in code chunk header.

Characteristic	N	FALSE, N = 3,395	TRUE, N = 2,247	p-value
Age	5,642	38 (12)	39 (12)	0.12
Gender	5,642			0.001
female		1,729 (51%)	1,045 (47%)	
male		1,666 (49%)	1,202 (53%)	
Race1	5,642			0.041
Black		426 (13%)	246 (11%)	
Hispanic		211 (6.2%)	144 (6.4%)	
Mexican		369 (11%)	208 (9.3%)	
White		2,089 (62%)	1,465 (65%)	
Other		300 (8.8%)	184 (8.2%)	
Depressed	4,984			0.002
None		2,072 (76%)	1,790 (80%)	
Several		472 (17%)	310 (14%)	
Most		193 (7.1%)	147 (6.5%)	
Diabetes	5,642	195 (5.7%)	134 (6.0%)	0.77
TotChol	5,349	5.05 (1.05)	5.00 (1.05)	0.074
Testosterone	2,586	172 (222)	233 (230)	<0.001
RegularMarij	4,941	734 (27%)	632 (28%)	0.51
Weight	5,607	82 (22)	83 (21)	0.24
Height	5,611	169 (10)	170 (10)	0.002
HypT	5,428	887 (28%)	646 (29%)	0.50

Female only Complete/Incomplete Data Set

```

## Shiny app
nhF[,c("Age","Gender","Race1","Depressed","Diabetes","TotChol", "Testosterone", "RegularMarij", "Weight"
tbl_summary(by = Incomplete,
  missing = "no",
  statistic = list(all_continuous() ~ "{mean} ({sd})",
                  all_categorical() ~ "{n} ({p}%)"),
  ) %>%
add_n %>%

```

```

add_p(test = list(Age ~ "t.test",
                  Race1 ~ "chisq.test",
                  Depressed ~ "chisq.test",
                  Diabetes ~ "chisq.test",
                  HypT ~ "chisq.test",
                  TotChol ~ "t.test",
                  Testosterone ~ "t.test",
                  RegularMarij ~ "chisq.test",
                  Weight ~ "t.test",
                  Height ~ "t.test"),
      test.args = all_tests("t.test") ~ list(var.equal = TRUE),## Important argument!
      pvalue_fun = function(x) style_pvalue(x, digits = 2)) %>%
bold_p(t = 0.05) %>%
bold_labels

```

Table printed with ‘knitr::kable()‘, not {gt}. Learn why at
 ## <http://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
 ## To suppress this message, include ‘message = FALSE‘ in code chunk header.

Characteristic	N	FALSE, N = 1,729	TRUE, N = 1,045	p-value
Age	2,774	38 (12)	39 (12)	0.55
Gender	2,774			>0.99
female		1,729 (100%)	1,045 (100%)	
male		0 (0%)	0 (0%)	
Race1	2,774			0.12
Black		225 (13%)	132 (13%)	
Hispanic		118 (6.8%)	68 (6.5%)	
Mexican		165 (9.5%)	86 (8.2%)	
White		1,050 (61%)	680 (65%)	
Other		171 (9.9%)	79 (7.6%)	
Depressed	2,367			0.001
None		943 (71%)	805 (77%)	
Several		269 (20%)	153 (15%)	
Most		110 (8.3%)	87 (8.3%)	
Diabetes	2,774	84 (4.9%)	52 (5.0%)	0.96
TotChol	2,626	5.02 (1.02)	5.08 (1.08)	0.15
Testosterone	1,253	23 (12)	26 (21)	0.067
RegularMarij	2,347	270 (21%)	237 (23%)	0.28
Weight	2,754	76 (22)	76 (20)	0.97
Height	2,754	163 (7)	163 (7)	0.39
HypT	2,644	319 (20%)	229 (22%)	0.24

##Exploratory Stats: Male only Complete/Incomplete Data Set

```

nhM[,c("Age","Gender","Race1","Depressed","Diabetes","TotChol", "Testosterone", "RegularMarij", "Weight"
tbl_summary(by = Incomplete,
            missing = "no",
            statistic = list(all_continuous() ~ "{mean} ({sd})",
                            all_categorical() ~ "{n} ({p}%)"),
            ) %>%
add_n %>%

```

```

add_p(test = list(Age ~ "t.test",
                  Race1 ~ "chisq.test",
                  Depressed ~ "chisq.test",
                  Diabetes ~ "chisq.test",
                  HypT ~ "chisq.test",
                  TotChol ~ "t.test",
                  Testosterone ~ "t.test",
                  RegularMarij ~ "chisq.test",
                  Weight ~ "t.test",
                  Height ~ "t.test"),
      test.args = all_tests("t.test") ~ list(var.equal = TRUE),## Important argument!
      pvalue_fun = function(x) style_pvalue(x, digits = 2)) %>%
bold_p(t = 0.05)

```

```

## Table printed with 'knitr::kable()', not {gt}. Learn why at
## http://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html
## To suppress this message, include 'message = FALSE' in code chunk header.

```

Characteristic	N	FALSE, N = 1,666	TRUE, N = 1,202	p-value
Age	2,868	38 (12)	39 (12)	0.13
Gender	2,868			>0.99
female		0 (0%)	0 (0%)	
male		1,666 (100%)	1,202 (100%)	
Race1	2,868			0.052
Black		201 (12%)	114 (9.5%)	
Hispanic		93 (5.6%)	76 (6.3%)	
Mexican		204 (12%)	122 (10%)	
White		1,039 (62%)	785 (65%)	
Other		129 (7.7%)	105 (8.7%)	
Depressed	2,617			0.36
None		1,129 (80%)	985 (82%)	
Several		203 (14%)	157 (13%)	
Most		83 (5.9%)	60 (5.0%)	
Diabetes	2,868	111 (6.7%)	82 (6.8%)	0.93
TotChol	2,723	5.08 (1.09)	4.93 (1.02)	<0.001
Testosterone	1,333	409 (189)	413 (168)	0.78
RegularMarij	2,594	464 (33%)	395 (33%)	0.83
Weight	2,853	89 (21)	89 (19)	0.79
Height	2,857	176 (7)	177 (8)	0.27
HypT	2,784	568 (36%)	417 (35%)	0.53

Our first limitation is that complete/incomplete data are significantly different. Even if we adjusted for gender, there is still significant difference between the two data set. Using the complete model can be biased. Not generalizable to US population.

```

nh2 = drop_na(nh1) #complete data set

```

Exploratory Stats: Testosterone (and other continuous) by Categorical Variables
Tables (assess) (NOT INCLUDE IN PAPER OR PRESENTATION DIRECTLY)
)

```
SummaryTestTable <- function(x){
nh3 = nh2[,c(all_of(x),"Testosterone", "Age", "TotChol", "Weight", "Height")]
nh3 %>%
 tbl_summary(by = all_of(x),
            missing = "no",
            statistic = list(all_continuous() ~ "{mean} ({sd})",
                             all_categorical() ~ "{n} ({p}%)"),
            ) %>%
  add_n %>%
  add_p(test = list(Testosterone ~ "t.test",
                    Age ~ "t.test",
                    TotChol ~ "t.test",
                    Weight ~ "t.test",
                    Height ~ "t.test"),
        test.args = all_tests("t.test") ~ list(var.equal = TRUE),## Important argument!
        pvalue_fun = function(x) style_pvalue(x, digits = 2)) %>%
bold_p(t = 0.05) %>%
bold_labels}
for (i in c("Gender","Diabetes", "HypT", "RegularMarij", "Depress")) {
  print(SummaryTestTable(i))
}
```

```
## <div id="fvahpcxlpb" style="overflow-x:auto;overflow-y:auto;width:auto;height:auto;">
##   <style>html {
##     font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'He
##   }
## 
## #fvahpcxlpb .gt_table {
##   display: table;
##   border-collapse: collapse;
##   margin-left: auto;
##   margin-right: auto;
##   color: #333333;
##   font-size: 16px;
##   font-weight: normal;
##   font-style: normal;
##   background-color: #FFFFFF;
##   width: auto;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #A8A8A8;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #A8A8A8;
##   border-left-style: none;
```

```

## border-left-width: 2px;
## border-left-color: #D3D3D3;
## }
##
## #fvahpcxlp .gt_heading {
##   background-color: #FFFFFF;
##   text-align: center;
##   border-bottom-color: #FFFFFF;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #fvahpcxlp .gt_title {
##   color: #333333;
##   font-size: 125%;
##   font-weight: initial;
##   padding-top: 4px;
##   padding-bottom: 4px;
##   border-bottom-color: #FFFFFF;
##   border-bottom-width: 0;
## }
##
## #fvahpcxlp .gt_subtitle {
##   color: #333333;
##   font-size: 85%;
##   font-weight: initial;
##   padding-top: 0;
##   padding-bottom: 6px;
##   border-top-color: #FFFFFF;
##   border-top-width: 0;
## }
##
## #fvahpcxlp .gt_bottom_border {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #fvahpcxlp .gt_col_headings {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;

```

```
## border-right-color: #D3D3D3;
## }
##
## #fvahpcxlpb .gt_col_heading {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 6px;
##   padding-left: 5px;
##   padding-right: 5px;
##   overflow-x: hidden;
## }
##
## #fvahpcxlpb .gt_column_spanner_outer {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   padding-top: 0;
##   padding-bottom: 0;
##   padding-left: 4px;
##   padding-right: 4px;
## }
##
## #fvahpcxlpb .gt_column_spanner_outer:first-child {
##   padding-left: 0;
## }
##
## #fvahpcxlpb .gt_column_spanner_outer:last-child {
##   padding-right: 0;
## }
##
## #fvahpcxlpb .gt_column_spanner {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 5px;
##   overflow-x: hidden;
##   display: inline-block;
##   width: 100%;
## }
```

```

##
## #fvahtpcxlbp .gt_group_heading {
##   padding: 8px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #fvahtpcxlbp .gt_empty_group_heading {
##   padding: 0.5px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #fvahtpcxlbp .gt_from_md > :first-child {
##   margin-top: 0;
## }
##
## #fvahtpcxlbp .gt_from_md > :last-child {
##   margin-bottom: 0;
## }
##
## #fvahtpcxlbp .gt_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   margin: 10px;
##   border-top-style: solid;
##   border-top-width: 1px;

```

```

## border-top-color: #D3D3D3;
## border-left-style: none;
## border-left-width: 1px;
## border-left-color: #D3D3D3;
## border-right-style: none;
## border-right-width: 1px;
## border-right-color: #D3D3D3;
## vertical-align: middle;
## overflow-x: hidden;
## }
##
## #fvahpcxlpb .gt_stub {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-right-style: solid;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   padding-left: 12px;
## }
##
## #fvahpcxlpb .gt_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #fvahpcxlpb .gt_first_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
## }
##
## #fvahpcxlpb .gt_grand_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #fvahpcxlpb .gt_first_grand_summary_row {

```

```

##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: double;
##   border-top-width: 6px;
##   border-top-color: #D3D3D3;
## }
##
## #fvahtpcxlpb .gt_striped {
##   background-color: rgba(128, 128, 128, 0.05);
## }
##
## #fvahtpcxlpb .gt_table_body {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #fvahtpcxlpb .gt_footnotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #fvahtpcxlpb .gt_footnote {
##   margin: 0px;
##   font-size: 90%;
##   padding: 4px;
## }
##
## #fvahtpcxlpb .gt_sourcenotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;

```

```

## }
##
## #fvahpcxlp .gt_sourcenote {
##   font-size: 90%;
##   padding: 4px;
## }
##
## #fvahpcxlp .gt_left {
##   text-align: left;
## }
##
## #fvahpcxlp .gt_center {
##   text-align: center;
## }
##
## #fvahpcxlp .gt_right {
##   text-align: right;
##   font-variant-numeric: tabular-nums;
## }
##
## #fvahpcxlp .gt_font_normal {
##   font-weight: normal;
## }
##
## #fvahpcxlp .gt_font_bold {
##   font-weight: bold;
## }
##
## #fvahpcxlp .gt_font_italic {
##   font-style: italic;
## }
##
## #fvahpcxlp .gt_super {
##   font-size: 65%;
## }
##
## #fvahpcxlp .gt_footnote_marks {
##   font-style: italic;
##   font-weight: normal;
##   font-size: 65%;
## }
##
## </style>
##   <table class="gt_table">
##
##     <thead class="gt_col_headings">
##       <tr>
##         <th class="gt_col_heading gt_columns_bottom_border gt_left" rowspan="1" colspan="1"><strong>Ch
##         <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>
##       </tr>
##     </thead>
##     <tbody class="gt_table_body">

```

```

##      <tr><td class="gt_row gt_left" style="font-weight: bold;">Testosterone</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">26 (21)</td>
## <td class="gt_row gt_center">413 (168)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##      <tr><td class="gt_row gt_left" style="font-weight: bold;">Age</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">39 (12)</td>
## <td class="gt_row gt_center">39 (12)</td>
## <td class="gt_row gt_center">0.34</td></tr>
##      <tr><td class="gt_row gt_left" style="font-weight: bold;">TotChol</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">5.08 (1.08)</td>
## <td class="gt_row gt_center">4.93 (1.02)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##      <tr><td class="gt_row gt_left" style="font-weight: bold;">Weight</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">76 (20)</td>
## <td class="gt_row gt_center">89 (19)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##      <tr><td class="gt_row gt_left" style="font-weight: bold;">Height</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">163 (7)</td>
## <td class="gt_row gt_center">177 (8)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##      </tbody>
##
##      <tfoot>
##          <tr class="gt_footnotes">
##              <td colspan="5">
##                  <p class="gt_footnote">
##                      <sup class="gt_footnote_marks">
##                          <em>1</em>
##                      </sup>
##                  <br />
##                  Mean (SD)
##                  <br />
##                  </p>
##                  <p class="gt_footnote">
##                      <sup class="gt_footnote_marks">
##                          <em>2</em>
##                      </sup>
##                  <br />
##                  Two Sample t-test
##                  <br />
##                  </p>
##              </td>
##          </tr>
##      </tfoot>
##  </table>
## </div>
## <div id="jfceoqkkdx" style="overflow-x:auto;overflow-y:auto;width:auto;height:auto;">
##     <style>html {
##         font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'Hei

```

```
## }
##
## #jfceoqkkdx .gt_table {
##   display: table;
##   border-collapse: collapse;
##   margin-left: auto;
##   margin-right: auto;
##   color: #333333;
##   font-size: 16px;
##   font-weight: normal;
##   font-style: normal;
##   background-color: #FFFFFF;
##   width: auto;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #A8A8A8;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #A8A8A8;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_heading {
##   background-color: #FFFFFF;
##   text-align: center;
##   border-bottom-color: #FFFFFF;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_title {
##   color: #333333;
##   font-size: 125%;
##   font-weight: initial;
##   padding-top: 4px;
##   padding-bottom: 4px;
##   border-bottom-color: #FFFFFF;
##   border-bottom-width: 0;
## }
##
## #jfceoqkkdx .gt_subtitle {
##   color: #333333;
##   font-size: 85%;
##   font-weight: initial;
##   padding-top: 0;
```

```

##   padding-bottom: 6px;
##   border-top-color: #FFFFFF;
##   border-top-width: 0;
## }
##
## #jfceoqkkdx .gt_bottom_border {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_col_headings {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_col_heading {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 6px;
##   padding-left: 5px;
##   padding-right: 5px;
##   overflow-x: hidden;
## }
##
## #jfceoqkkdx .gt_column_spinner_outer {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   padding-top: 0;
##   padding-bottom: 0;

```

```

##   padding-left: 4px;
##   padding-right: 4px;
## }
##
## #jfceoqkkdx .gt_column_spinner_outer:first-child {
##   padding-left: 0;
## }
##
## #jfceoqkkdx .gt_column_spinner_outer:last-child {
##   padding-right: 0;
## }
##
## #jfceoqkkdx .gt_column_spinner {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 5px;
##   overflow-x: hidden;
##   display: inline-block;
##   width: 100%;
## }
##
## #jfceoqkkdx .gt_group_heading {
##   padding: 8px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #jfceoqkkdx .gt_empty_group_heading {
##   padding: 0.5px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   border-top-style: solid;
##   border-top-width: 2px;

```

```

## border-top-color: #D3D3D3;
## border-bottom-style: solid;
## border-bottom-width: 2px;
## border-bottom-color: #D3D3D3;
## vertical-align: middle;
## }
##
## #jfceoqkkdx .gt_from_md > :first-child {
##   margin-top: 0;
## }
##
## #jfceoqkkdx .gt_from_md > :last-child {
##   margin-bottom: 0;
## }
##
## #jfceoqkkdx .gt_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   margin: 10px;
##   border-top-style: solid;
##   border-top-width: 1px;
##   border-top-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;
##   overflow-x: hidden;
## }
##
## #jfceoqkkdx .gt_stub {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-right-style: solid;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   padding-left: 12px;
## }
##
## #jfceoqkkdx .gt_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;

```

```

## }

##
## #jfceoqkkdx .gt_first_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_grand_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #jfceoqkkdx .gt_first_grand_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: double;
##   border-top-width: 6px;
##   border-top-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_striped {
##   background-color: rgba(128, 128, 128, 0.05);
## }
##
## #jfceoqkkdx .gt_table_body {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_footnotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
## }
```

```
## border-right-style: none;
## border-right-width: 2px;
## border-right-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_footnote {
##   margin: 0px;
##   font-size: 90%;
##   padding: 4px;
## }
##
## #jfceoqkkdx .gt_sourcenotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #jfceoqkkdx .gt_sourcenote {
##   font-size: 90%;
##   padding: 4px;
## }
##
## #jfceoqkkdx .gt_left {
##   text-align: left;
## }
##
## #jfceoqkkdx .gt_center {
##   text-align: center;
## }
##
## #jfceoqkkdx .gt_right {
##   text-align: right;
##   font-variant-numeric: tabular-nums;
## }
##
## #jfceoqkkdx .gt_font_normal {
##   font-weight: normal;
## }
##
## #jfceoqkkdx .gt_font_bold {
##   font-weight: bold;
## }
##
## #jfceoqkkdx .gt_font_italic {
##   font-style: italic;
## }
```

```

## 
## #jfceoqkkdx .gt_super {
##   font-size: 65%;
## }
## 
## #jfceoqkkdx .gt_footnote_marks {
##   font-style: italic;
##   font-weight: normal;
##   font-size: 65%;
## }
## </style>
##   <table class="gt_table">
##
##     <thead class="gt_col_headings">
##       <tr>
##         <th class="gt_col_heading gt_columns_bottom_border gt_left" rowspan="1" colspan="1"><strong>Ch</strong>
##         <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Testosterone</strong>
##         <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Age</strong>
##         <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>0.86</strong>
##         <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>0.001</strong>
##       </tr>
##     </thead>
##     <tbody class="gt_table_body">
##       <tr><td class="gt_row gt_left" style="font-weight: bold;">Testosterone</td>
##       <td class="gt_row gt_center">2,247</td>
##       <td class="gt_row gt_center">233 (231)</td>
##       <td class="gt_row gt_center">236 (211)</td>
##       <td class="gt_row gt_center">0.86</td></tr>
##       <tr><td class="gt_row gt_left" style="font-weight: bold;">Age</td>
##       <td class="gt_row gt_center">2,247</td>
##       <td class="gt_row gt_center">38 (12)</td>
##       <td class="gt_row gt_center">47 (10)</td>
##       <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##       <tr><td class="gt_row gt_left" style="font-weight: bold;">TotChol</td>
##       <td class="gt_row gt_center">2,247</td>
##       <td class="gt_row gt_center">4.99 (1.05)</td>
##       <td class="gt_row gt_center">5.09 (1.10)</td>
##       <td class="gt_row gt_center">0.28</td></tr>
##       <tr><td class="gt_row gt_left" style="font-weight: bold;">Weight</td>
##       <td class="gt_row gt_center">2,247</td>
##       <td class="gt_row gt_center">82 (21)</td>
##       <td class="gt_row gt_center">97 (21)</td>
##       <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##       <tr><td class="gt_row gt_left" style="font-weight: bold;">Height</td>
##       <td class="gt_row gt_center">2,247</td>
##       <td class="gt_row gt_center">170 (10)</td>
##       <td class="gt_row gt_center">170 (13)</td>
##       <td class="gt_row gt_center">0.83</td></tr>
##     </tbody>
## 
##     <tfoot>
##       <tr class="gt_footnotes">
##         <td colspan="5">
##           <p class="gt_footnote">

```

```

## <sup class="gt_footnote_marks">
##   <em>1</em>
## </sup>
##
## Mean (SD)
## <br />
## </p>
## <p class="gt_footnote">
##   <sup class="gt_footnote_marks">
##     <em>2</em>
##   </sup>
##
## Two Sample t-test
## <br />
## </p>
## </td>
## </tr>
## </tfoot>
## </table>
## </div>
## <div id="hfzfymspmn" style="overflow-x:auto;overflow-y:auto;width:auto;height:auto;">
##   <style>html {
##     font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'He
##   }
## 
## #hfzfymspmn .gt_table {
##   display: table;
##   border-collapse: collapse;
##   margin-left: auto;
##   margin-right: auto;
##   color: #333333;
##   font-size: 16px;
##   font-weight: normal;
##   font-style: normal;
##   background-color: #FFFFFF;
##   width: auto;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #A8A8A8;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #A8A8A8;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
## }
## 
## #hfzfymspmn .gt_heading {
##   background-color: #FFFFFF;
##   text-align: center;
##   border-bottom-color: #FFFFFF;

```

```

## border-left-style: none;
## border-left-width: 1px;
## border-left-color: #D3D3D3;
## border-right-style: none;
## border-right-width: 1px;
## border-right-color: #D3D3D3;
## }
##
## #hfzfymspmn .gt_title {
##   color: #333333;
##   font-size: 125%;
##   font-weight: initial;
##   padding-top: 4px;
##   padding-bottom: 4px;
##   border-bottom-color: #FFFFFF;
##   border-bottom-width: 0;
## }
##
## #hfzfymspmn .gt_subtitle {
##   color: #333333;
##   font-size: 85%;
##   font-weight: initial;
##   padding-top: 0;
##   padding-bottom: 6px;
##   border-top-color: #FFFFFF;
##   border-top-width: 0;
## }
##
## #hfzfymspmn .gt_bottom_border {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #hfzfymspmn .gt_col_headings {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #hfzfymspmn .gt_col_heading {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;

```

```

##  text-transform: inherit;
##  border-left-style: none;
##  border-left-width: 1px;
##  border-left-color: #D3D3D3;
##  border-right-style: none;
##  border-right-width: 1px;
##  border-right-color: #D3D3D3;
##  vertical-align: bottom;
##  padding-top: 5px;
##  padding-bottom: 6px;
##  padding-left: 5px;
##  padding-right: 5px;
##  overflow-x: hidden;
## }
##
## #hfzfymspmn .gt_column_spanner_outer {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   padding-top: 0;
##   padding-bottom: 0;
##   padding-left: 4px;
##   padding-right: 4px;
## }
##
## #hfzfymspmn .gt_column_spanner_outer:first-child {
##   padding-left: 0;
## }
##
## #hfzfymspmn .gt_column_spanner_outer:last-child {
##   padding-right: 0;
## }
##
## #hfzfymspmn .gt_column_spanner {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 5px;
##   overflow-x: hidden;
##   display: inline-block;
##   width: 100%;
## }
##
## #hfzfymspmn .gt_group_heading {
##   padding: 8px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;

```

```

## border-top-style: solid;
## border-top-width: 2px;
## border-top-color: #D3D3D3;
## border-bottom-style: solid;
## border-bottom-width: 2px;
## border-bottom-color: #D3D3D3;
## border-left-style: none;
## border-left-width: 1px;
## border-left-color: #D3D3D3;
## border-right-style: none;
## border-right-width: 1px;
## border-right-color: #D3D3D3;
## vertical-align: middle;
## }
##
## #hfzfymspmn .gt_empty_group_heading {
##   padding: 0.5px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #hfzfymspmn .gt_from_md > :first-child {
##   margin-top: 0;
## }
##
## #hfzfymspmn .gt_from_md > :last-child {
##   margin-bottom: 0;
## }
##
## #hfzfymspmn .gt_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   margin: 10px;
##   border-top-style: solid;
##   border-top-width: 1px;
##   border-top-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;

```

```

##   overflow-x: hidden;
## }
##
## #hfzfymspmn .gt_stub {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-right-style: solid;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   padding-left: 12px;
## }
##
## #hfzfymspmn .gt_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #hfzfymspmn .gt_first_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
## }
##
## #hfzfymspmn .gt_grand_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #hfzfymspmn .gt_first_grand_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: double;
##   border-top-width: 6px;
##   border-top-color: #D3D3D3;
## }

```

```

## 
## #hfzfymspmn .gt_striped {
##   background-color: rgba(128, 128, 128, 0.05);
## }
## 
## #hfzfymspmn .gt_table_body {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
## 
## #hfzfymspmn .gt_footnotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
## 
## #hfzfymspmn .gt_footnote {
##   margin: 0px;
##   font-size: 90%;
##   padding: 4px;
## }
## 
## #hfzfymspmn .gt_sourcenotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
## 
## #hfzfymspmn .gt_sourcenote {
##   font-size: 90%;
##   padding: 4px;
## }
## 
## #hfzfymspmn .gt_left {

```

```

##   text-align: left;
## }
##
## #hfzfymspmn .gt_center {
##   text-align: center;
## }
##
## #hfzfymspmn .gt_right {
##   text-align: right;
##   font-variant-numeric: tabular-nums;
## }
##
## #hfzfymspmn .gt_font_normal {
##   font-weight: normal;
## }
##
## #hfzfymspmn .gt_font_bold {
##   font-weight: bold;
## }
##
## #hfzfymspmn .gt_font_italic {
##   font-style: italic;
## }
##
## #hfzfymspmn .gt_super {
##   font-size: 65%;
## }
##
## #hfzfymspmn .gt_footnote_marks {
##   font-style: italic;
##   font-weight: normal;
##   font-size: 65%;
## }
##
</style>
<table class="gt_table">
##
<thead class="gt_col_headings">
##
<tr>
##   <th class="gt_col_heading gt_columns_bottom_border gt_left" rowspan="1" colspan="1"><strong>Ch
##   <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Testo
##   <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Age</
##   <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong></th>
##   <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong></th>
##   </tr>
## </thead>
## <tbody class="gt_table_body">
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Testosterone</td>
##   <td class="gt_row gt_center">2,247</td>
##   <td class="gt_row gt_center">222 (234)</td>
##   <td class="gt_row gt_center">259 (215)</td>
##   <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Age</td>
##   <td class="gt_row gt_center">2,247</td>
##   <td class="gt_row gt_center">37 (12)</td>

```

```

## <td class="gt_row gt_center">43 (11)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">TotChol</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">4.88 (1.02)</td>
## <td class="gt_row gt_center">5.30 (1.07)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Weight</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">81 (20)</td>
## <td class="gt_row gt_center">89 (22)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Height</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">170 (10)</td>
## <td class="gt_row gt_center">172 (10)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##   </tbody>
##
##   <tfoot>
##     <tr class="gt_footnotes">
##       <td colspan="5">
##         <p class="gt_footnote">
##           <sup class="gt_footnote_marks">
##             <em>1</em>
##           </sup>
##         <br />
##         Mean (SD)
##         <br />
##         </p>
##         <p class="gt_footnote">
##           <sup class="gt_footnote_marks">
##             <em>2</em>
##           </sup>
##         <br />
##         Two Sample t-test
##         <br />
##       </p>
##     </td>
##   </tr>
## </tfoot>
## </table>
## </div>
## <div id="qbiukknred" style="overflow-x:auto;overflow-y:auto;width:auto;height:auto;">
##   <style>html {
##     font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'He
##   }
## 
## #qbiukknred .gt_table {
##   display: table;
##   border-collapse: collapse;
##   margin-left: auto;
##   margin-right: auto;
##   color: #333333;

```

```

##  font-size: 16px;
##  font-weight: normal;
##  font-style: normal;
##  background-color: #FFFFFF;
##  width: auto;
##  border-top-style: solid;
##  border-top-width: 2px;
##  border-top-color: #A8A8A8;
##  border-right-style: none;
##  border-right-width: 2px;
##  border-right-color: #D3D3D3;
##  border-bottom-style: solid;
##  border-bottom-width: 2px;
##  border-bottom-color: #A8A8A8;
##  border-left-style: none;
##  border-left-width: 2px;
##  border-left-color: #D3D3D3;
## }
##
## #qbiukknred .gt_heading {
##   background-color: #FFFFFF;
##   text-align: center;
##   border-bottom-color: #FFFFFF;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #qbiukknred .gt_title {
##   color: #333333;
##   font-size: 125%;
##   font-weight: initial;
##   padding-top: 4px;
##   padding-bottom: 4px;
##   border-bottom-color: #FFFFFF;
##   border-bottom-width: 0;
## }
##
## #qbiukknred .gt_subtitle {
##   color: #333333;
##   font-size: 85%;
##   font-weight: initial;
##   padding-top: 0;
##   padding-bottom: 6px;
##   border-top-color: #FFFFFF;
##   border-top-width: 0;
## }
##
## #qbiukknred .gt_bottom_border {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;

```

```

## border-bottom-color: #D3D3D3;
## }
##
## #qbiukknred .gt_col_headings {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #qbiukknred .gt_col_heading {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 6px;
##   padding-left: 5px;
##   padding-right: 5px;
##   overflow-x: hidden;
## }
##
## #qbiukknred .gt_column_spinner_outer {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   padding-top: 0;
##   padding-bottom: 0;
##   padding-left: 4px;
##   padding-right: 4px;
## }
##
## #qbiukknred .gt_column_spinner_outer:first-child {
##   padding-left: 0;
## }
##

```

```

## #qbiukknred .gt_column_spacer_outer:last-child {
##   padding-right: 0;
## }
##
## #qbiukknred .gt_column_spacer {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 5px;
##   overflow-x: hidden;
##   display: inline-block;
##   width: 100%;
## }
##
## #qbiukknred .gt_group_heading {
##   padding: 8px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #qbiukknred .gt_empty_group_heading {
##   padding: 0.5px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #qbiukknred .gt_from_md > :first-child {

```

```

##    margin-top: 0;
## }
##
## #qbiukknred .gt_from_md > :last-child {
##    margin-bottom: 0;
## }
##
## #qbiukknred .gt_row {
##    padding-top: 8px;
##    padding-bottom: 8px;
##    padding-left: 5px;
##    padding-right: 5px;
##    margin: 10px;
##    border-top-style: solid;
##    border-top-width: 1px;
##    border-top-color: #D3D3D3;
##    border-left-style: none;
##    border-left-width: 1px;
##    border-left-color: #D3D3D3;
##    border-right-style: none;
##    border-right-width: 1px;
##    border-right-color: #D3D3D3;
##    vertical-align: middle;
##    overflow-x: hidden;
## }
##
## #qbiukknred .gt_stub {
##    color: #333333;
##    background-color: #FFFFFF;
##    font-size: 100%;
##    font-weight: initial;
##    text-transform: inherit;
##    border-right-style: solid;
##    border-right-width: 2px;
##    border-right-color: #D3D3D3;
##    padding-left: 12px;
## }
##
## #qbiukknred .gt_summary_row {
##    color: #333333;
##    background-color: #FFFFFF;
##    text-transform: inherit;
##    padding-top: 8px;
##    padding-bottom: 8px;
##    padding-left: 5px;
##    padding-right: 5px;
## }
##
## #qbiukknred .gt_first_summary_row {
##    padding-top: 8px;
##    padding-bottom: 8px;
##    padding-left: 5px;
##    padding-right: 5px;
##    border-top-style: solid;

```

```

## border-top-width: 2px;
## border-top-color: #D3D3D3;
## }
##
## #qbiukknred .gt_grand_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #qbiukknred .gt_first_grand_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: double;
##   border-top-width: 6px;
##   border-top-color: #D3D3D3;
## }
##
## #qbiukknred .gt_striped {
##   background-color: rgba(128, 128, 128, 0.05);
## }
##
## #qbiukknred .gt_table_body {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #qbiukknred .gt_footnotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #qbiukknred .gt_footnote {
##   margin: 0px;
##   font-size: 90%;

```

```

##   padding: 4px;
## }
##
## #qbiukknred .gt_sourcenotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #qbiukknred .gt_sourcenote {
##   font-size: 90%;
##   padding: 4px;
## }
##
## #qbiukknred .gt_left {
##   text-align: left;
## }
##
## #qbiukknred .gt_center {
##   text-align: center;
## }
##
## #qbiukknred .gt_right {
##   text-align: right;
##   font-variant-numeric: tabular-nums;
## }
##
## #qbiukknred .gt_font_normal {
##   font-weight: normal;
## }
##
## #qbiukknred .gt_font_bold {
##   font-weight: bold;
## }
##
## #qbiukknred .gt_font_italic {
##   font-style: italic;
## }
##
## #qbiukknred .gt_super {
##   font-size: 65%;
## }
##
## #qbiukknred .gt_footnote_marks {
##   font-style: italic;
##   font-weight: normal;

```

```

##   font-size: 65%;
## }
## </style>
##   <table class="gt_table">
##
##   <thead class="gt_col_headings">
##     <tr>
##       <th class="gt_col_heading gt_columns_bottom_border gt_left" rowspan="1" colspan="1"><strong>Ch
##       <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>
##     </tr>
##   </thead>
##   <tbody class="gt_table_body">
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Testosterone</td>
##     <td class="gt_row gt_center">2,247</td>
##     <td class="gt_row gt_center">214 (219)</td>
##     <td class="gt_row gt_center">282 (248)</td>
##     <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Age</td>
##     <td class="gt_row gt_center">2,247</td>
##     <td class="gt_row gt_center">38 (12)</td>
##     <td class="gt_row gt_center">39 (12)</td>
##     <td class="gt_row gt_center">0.086</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">TotChol</td>
##     <td class="gt_row gt_center">2,247</td>
##     <td class="gt_row gt_center">5.03 (1.06)</td>
##     <td class="gt_row gt_center">4.91 (1.03)</td>
##     <td class="gt_row gt_center" style="font-weight: bold;">0.011</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Weight</td>
##     <td class="gt_row gt_center">2,247</td>
##     <td class="gt_row gt_center">83 (21)</td>
##     <td class="gt_row gt_center">84 (21)</td>
##     <td class="gt_row gt_center">0.34</td></tr>
##     <tr><td class="gt_row gt_left" style="font-weight: bold;">Height</td>
##     <td class="gt_row gt_center">2,247</td>
##     <td class="gt_row gt_center">170 (10)</td>
##     <td class="gt_row gt_center">172 (10)</td>
##     <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##   </tbody>
##
##   <tfoot>
##     <tr class="gt_footnotes">
##       <td colspan="5">
##         <p class="gt_footnote">
##           <sup class="gt_footnote_marks">
##             <em>1</em>
##           </sup>
##           Mean (SD)
##           <br />
##         </p>
##         <p class="gt_footnote">

```

```

## <sup class="gt_footnote_marks">
##   <em>2</em>
## </sup>
##
## Two Sample t-test
## <br />
## </p>
## </td>
## </tr>
## </tfoot>
## </table>
## </div>
## <div id="lpqsabvnob" style="overflow-x:auto;overflow-y:auto;width:auto;height:auto;">
##   <style>html {
##     font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'He
##   }
## 
## #lpqsabvnob .gt_table {
##   display: table;
##   border-collapse: collapse;
##   margin-left: auto;
##   margin-right: auto;
##   color: #333333;
##   font-size: 16px;
##   font-weight: normal;
##   font-style: normal;
##   background-color: #FFFFFF;
##   width: auto;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #A8A8A8;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #A8A8A8;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
## }
## 
## #lpqsabvnob .gt_heading {
##   background-color: #FFFFFF;
##   text-align: center;
##   border-bottom-color: #FFFFFF;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
## 
```

```

## #lpqsabvnob .gt_title {
##   color: #333333;
##   font-size: 125%;
##   font-weight: initial;
##   padding-top: 4px;
##   padding-bottom: 4px;
##   border-bottom-color: #FFFFFF;
##   border-bottom-width: 0;
## }
##
## #lpqsabvnob .gt_subtitle {
##   color: #333333;
##   font-size: 85%;
##   font-weight: initial;
##   padding-top: 0;
##   padding-bottom: 6px;
##   border-top-color: #FFFFFF;
##   border-top-width: 0;
## }
##
## #lpqsabvnob .gt_bottom_border {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_col_headings {
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_col_heading {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: bottom;

```

```

##   padding-top: 5px;
##   padding-bottom: 6px;
##   padding-left: 5px;
##   padding-right: 5px;
##   overflow-x: hidden;
## }
##
## #lpqsabvnob .gt_column_spinner_outer {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: normal;
##   text-transform: inherit;
##   padding-top: 0;
##   padding-bottom: 0;
##   padding-left: 4px;
##   padding-right: 4px;
## }
##
## #lpqsabvnob .gt_column_spinner_outer:first-child {
##   padding-left: 0;
## }
##
## #lpqsabvnob .gt_column_spinner_outer:last-child {
##   padding-right: 0;
## }
##
## #lpqsabvnob .gt_column_spinner {
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: bottom;
##   padding-top: 5px;
##   padding-bottom: 5px;
##   overflow-x: hidden;
##   display: inline-block;
##   width: 100%;
## }
##
## #lpqsabvnob .gt_group_heading {
##   padding: 8px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   text-transform: inherit;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;

```

```

## border-left-color: #D3D3D3;
## border-right-style: none;
## border-right-width: 1px;
## border-right-color: #D3D3D3;
## vertical-align: middle;
## }
##
## #lpqsabvnob .gt_empty_group_heading {
##   padding: 0.5px;
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
##   border-bottom-style: solid;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   vertical-align: middle;
## }
##
## #lpqsabvnob .gt_from_md > :first-child {
##   margin-top: 0;
## }
##
## #lpqsabvnob .gt_from_md > :last-child {
##   margin-bottom: 0;
## }
##
## #lpqsabvnob .gt_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   margin: 10px;
##   border-top-style: solid;
##   border-top-width: 1px;
##   border-top-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 1px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 1px;
##   border-right-color: #D3D3D3;
##   vertical-align: middle;
##   overflow-x: hidden;
## }
##
## #lpqsabvnob .gt_stub {
##   color: #333333;
##   background-color: #FFFFFF;
##   font-size: 100%;
##   font-weight: initial;

```

```

##   text-transform: inherit;
##   border-right-style: solid;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
##   padding-left: 12px;
## }
##
## #lpqsabvnob .gt_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #lpqsabvnob .gt_first_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: solid;
##   border-top-width: 2px;
##   border-top-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_grand_summary_row {
##   color: #333333;
##   background-color: #FFFFFF;
##   text-transform: inherit;
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
## }
##
## #lpqsabvnob .gt_first_grand_summary_row {
##   padding-top: 8px;
##   padding-bottom: 8px;
##   padding-left: 5px;
##   padding-right: 5px;
##   border-top-style: double;
##   border-top-width: 6px;
##   border-top-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_striped {
##   background-color: rgba(128, 128, 128, 0.05);
## }
##
## #lpqsabvnob .gt_table_body {
##   border-top-style: solid;
##   border-top-width: 2px;

```

```

## border-top-color: #D3D3D3;
## border-bottom-style: solid;
## border-bottom-width: 2px;
## border-bottom-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_footnotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_footnote {
##   margin: 0px;
##   font-size: 90%;
##   padding: 4px;
## }
##
## #lpqsabvnob .gt_sourcenotes {
##   color: #333333;
##   background-color: #FFFFFF;
##   border-bottom-style: none;
##   border-bottom-width: 2px;
##   border-bottom-color: #D3D3D3;
##   border-left-style: none;
##   border-left-width: 2px;
##   border-left-color: #D3D3D3;
##   border-right-style: none;
##   border-right-width: 2px;
##   border-right-color: #D3D3D3;
## }
##
## #lpqsabvnob .gt_sourcenote {
##   font-size: 90%;
##   padding: 4px;
## }
##
## #lpqsabvnob .gt_left {
##   text-align: left;
## }
##
## #lpqsabvnob .gt_center {
##   text-align: center;
## }
##
## #lpqsabvnob .gt_right {

```

```

##   text-align: right;
##   font-variant-numeric: tabular-nums;
## }
##
## #lpqsabvnob .gt_font_normal {
##   font-weight: normal;
## }
##
## #lpqsabvnob .gt_font_bold {
##   font-weight: bold;
## }
##
## #lpqsabvnob .gt_font_italic {
##   font-style: italic;
## }
##
## #lpqsabvnob .gt_super {
##   font-size: 65%;
## }
##
## #lpqsabvnob .gt_footnote_marks {
##   font-style: italic;
##   font-weight: normal;
##   font-size: 65%;
## }
##
</style>
<table class="gt_table">
##
<thead class="gt_col_headings">
##   <tr>
##     <th class="gt_col_heading gt_columns_bottom_border gt_left" rowspan="1" colspan="1"><strong>Cholesterol</strong></th>
##     <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Age</strong></th>
##     <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Testosterone</strong></th>
##     <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>Weight</strong></th>
##     <th class="gt_col_heading gt_columns_bottom_border gt_center" rowspan="1" colspan="1"><strong>TotChol</strong></th>
##   </tr>
## </thead>
<tbody class="gt_table_body">
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Testosterone</td>
##   <td class="gt_row gt_center">2,247</td>
##   <td class="gt_row gt_center">240 (231)</td>
##   <td class="gt_row gt_center">203 (220)</td>
##   <td class="gt_row gt_center" style="font-weight: bold;">0.002</td></tr>
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Age</td>
##   <td class="gt_row gt_center">2,247</td>
##   <td class="gt_row gt_center">38 (12)</td>
##   <td class="gt_row gt_center">40 (12)</td>
##   <td class="gt_row gt_center" style="font-weight: bold;">0.008</td></tr>
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">TotChol</td>
##   <td class="gt_row gt_center">2,247</td>
##   <td class="gt_row gt_center">4.96 (1.03)</td>
##   <td class="gt_row gt_center">5.16 (1.13)</td>
##   <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Weight</td>

```

```

## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">83 (21)</td>
## <td class="gt_row gt_center">83 (20)</td>
## <td class="gt_row gt_center">0.98</td></tr>
##   <tr><td class="gt_row gt_left" style="font-weight: bold;">Height</td>
## <td class="gt_row gt_center">2,247</td>
## <td class="gt_row gt_center">171 (10)</td>
## <td class="gt_row gt_center">169 (10)</td>
## <td class="gt_row gt_center" style="font-weight: bold;"><0.001</td></tr>
## </tbody>
##
## <tfoot>
##   <tr class="gt_footnotes">
##     <td colspan="5">
##       <p class="gt_footnote">
##         <sup class="gt_footnote_marks">
##           <em>1</em>
##         </sup>
##       Mean (SD)
##       <br />
##       </p>
##       <p class="gt_footnote">
##         <sup class="gt_footnote_marks">
##           <em>2</em>
##         </sup>
##       Two Sample t-test
##       <br />
##       </p>
##     </td>
##   </tr>
## </tfoot>
## </table>
## </div>

```

```

nh3 = nh2[,c("Race1", "Testosterone", "Age", "TotChol", "Weight", "Height")]
nh3 %>%
 tbl_summary(by = Race1,
            missing = "no",
            statistic = list(all_continuous() ~ "{mean} ({sd})",
                             all_categorical() ~ "{n} ({p}%)"),
            ) %>%
  add_n %>%
  add_p(test = list(Testosterone ~ "aov",
                    Age ~ "aov",
                    TotChol ~ "aov",
                    Weight ~ "aov",
                    Height ~ "aov"),
        pvalue_fun = function(x) style_pvalue(x, digits = 2)) %>%
bold_p(t = 0.05) %>%
bold_labels

```

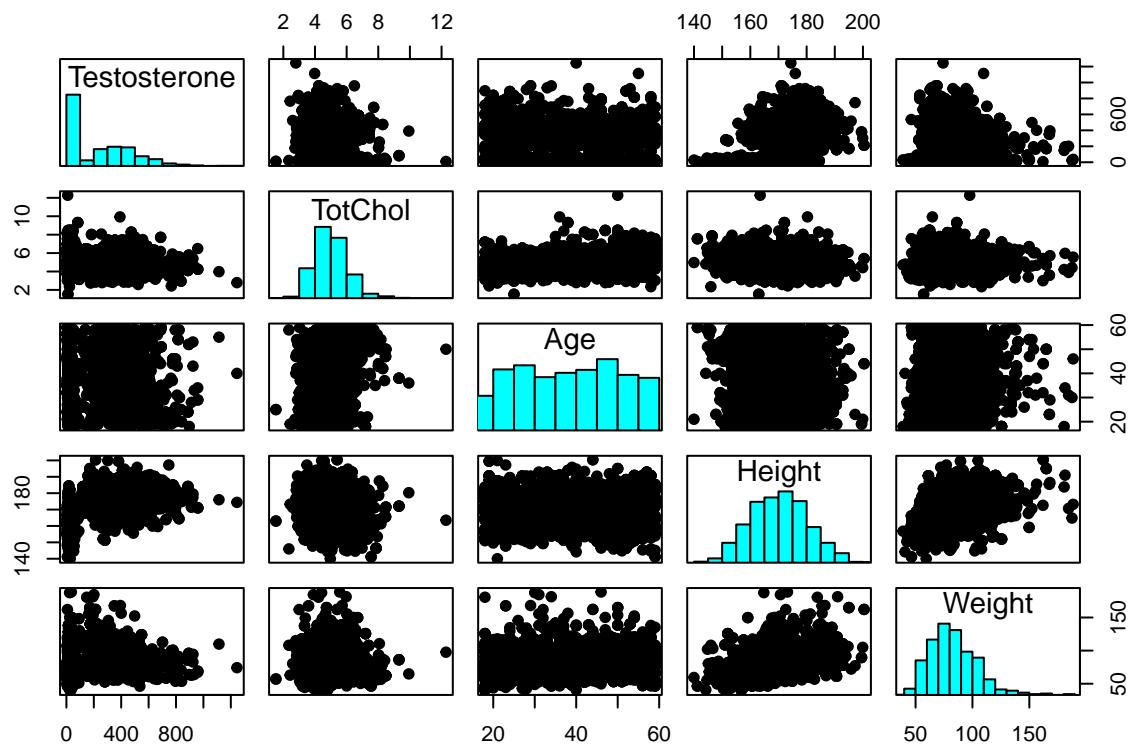
Table printed with ‘knitr::kable()’, not {gt}. Learn why at

```
## http://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html
## To suppress this message, include 'message = FALSE' in code chunk header.
```

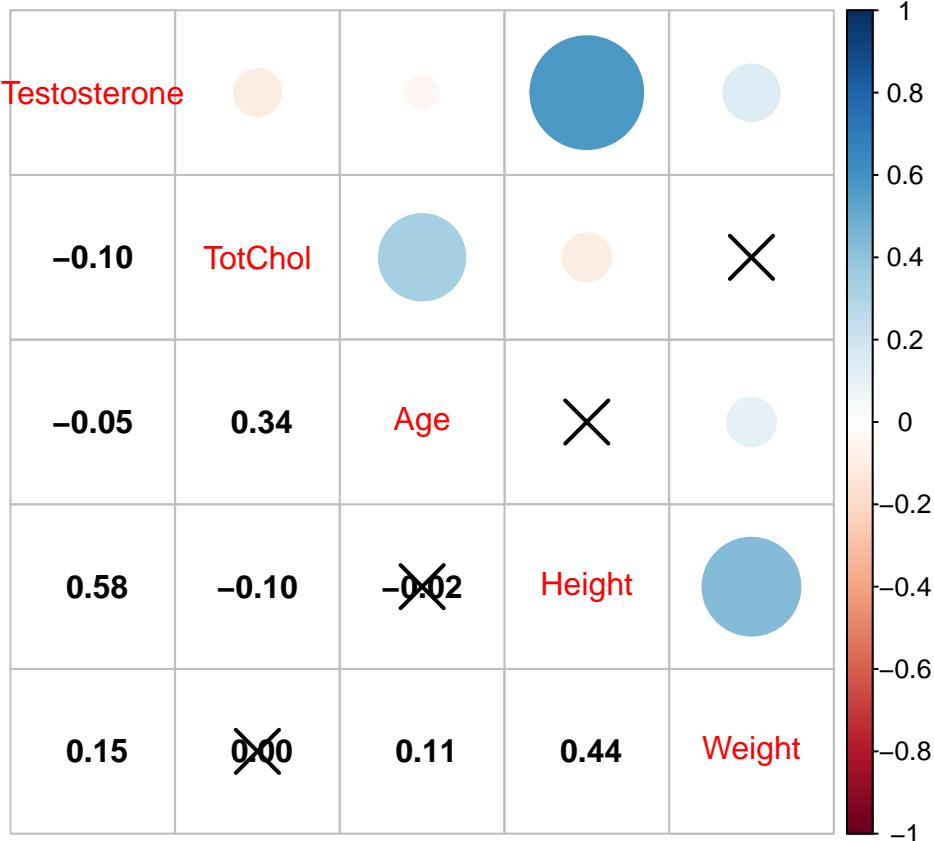
Characteristic	N	Black, N = 246	Hispanic, N = 144	Mexican, N = 208	White, N = 1,465	Other, N = 184	p-value
Testosterone	2,247	221 (241)	222 (225)	250 (233)	232 (226)	246 (244)	0.58
Age	2,247	38 (13)	36 (12)	35 (12)	40 (12)	37 (12)	<0.001
TotChol	2,247	4.83 (0.92)	4.92 (1.00)	4.91 (0.98)	5.07 (1.08)	4.78 (1.04)	<0.001
Weight	2,247	88 (25)	79 (18)	81 (19)	84 (20)	77 (23)	<0.001
Height	2,247	170 (9)	165 (9)	166 (9)	172 (10)	168 (10)	<0.001

Exploratory Stats: Continous Variables (NOT INCLUDE IN PAPER OR PRESENTATION DIRECTLY)

```
#Compare Y to continuous X
scatmatrixData = nh2[,c("Testosterone", "TotChol", "Age", "Height", "Weight")]
panel.hist <- function(x, ...)
{
  usr <- par("usr"); on.exit(par(usr))
  par(usr = c(usr[1:2], 0, 1.5) )
  h <- hist(x, plot = FALSE)
  breaks <- h$breaks; nB <- length(breaks)
  y <- h$counts; y <- y/max(y)
  rect(breaks[-nB], 0, breaks[-1], y, col = "cyan", ...)
}
pairs(scatmatrixData, pch = 19, diag.panel=panel.hist)
```



```
cormat = cor(scatmatrixData)
pres <- cor.mtest(scatmatrixData, conf.level = .95)
corrplot.mixed(cormat, lower.col = "black", number.cex = 1, p.mat = pres$p, sig.level = .05)
```



Now center continuous variables (Needed)

```
nh2$Weightc = (nh2$Weight-mean(nh2$Weight, na.rm = TRUE))/sd(nh2$Weight, na.rm = TRUE)
nh2$Heightc = (nh2$Height-mean(nh2$Height, na.rm = TRUE))/sd(nh2$Height, na.rm = TRUE)
nh2$Agec = (nh2$Age-mean(nh2$Age, na.rm = TRUE))/sd(nh2$Age, na.rm = TRUE)
nh2$TotCholc = (nh2$TotChol-mean(nh2$TotChol, na.rm = TRUE))/sd(nh2$TotChol, na.rm = TRUE)
```

Function to check assumptions

```
checka <- function (model) {
  car::avPlots(model)
  plot(model$fitted.values, rstudent(model))
  hist(rstudent(model))
  car::qqPlot(rstudent(model))
  shapiro.test(rstudent(model))
    ) ##Should we include shapiro wilk?????
}
```

Unrefined Model (what to say about this?)

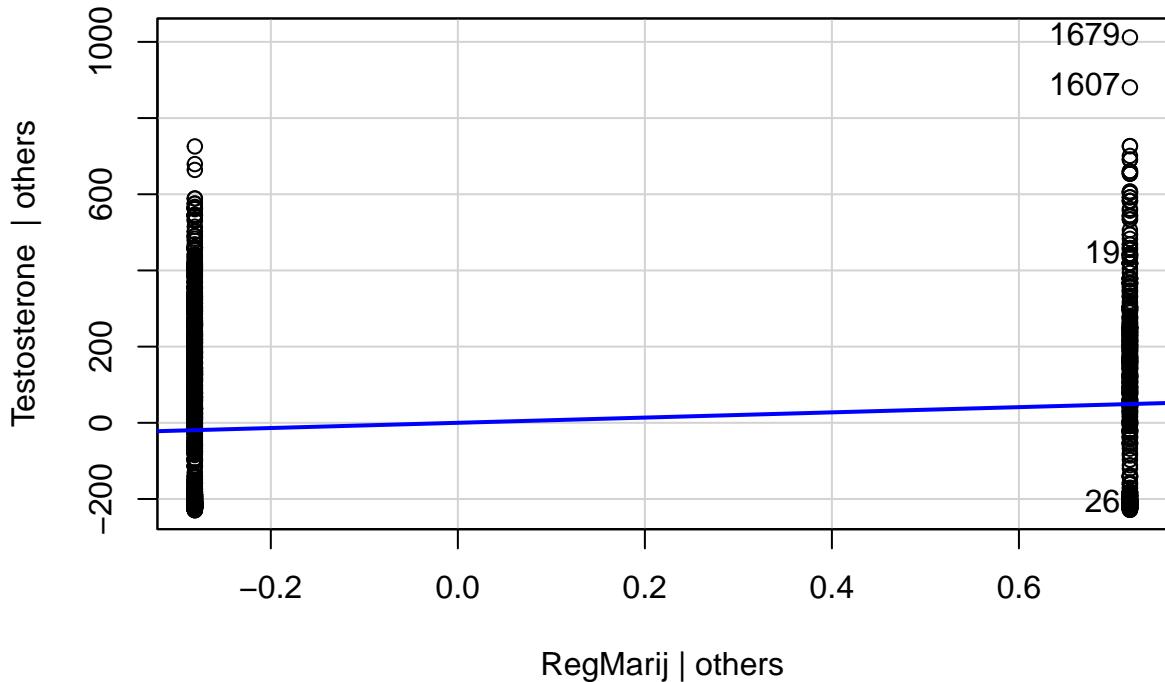
```
m_unrefined <- lm(Testosterone~RegMarij, data=nh2)
summary(m_unrefined)
```

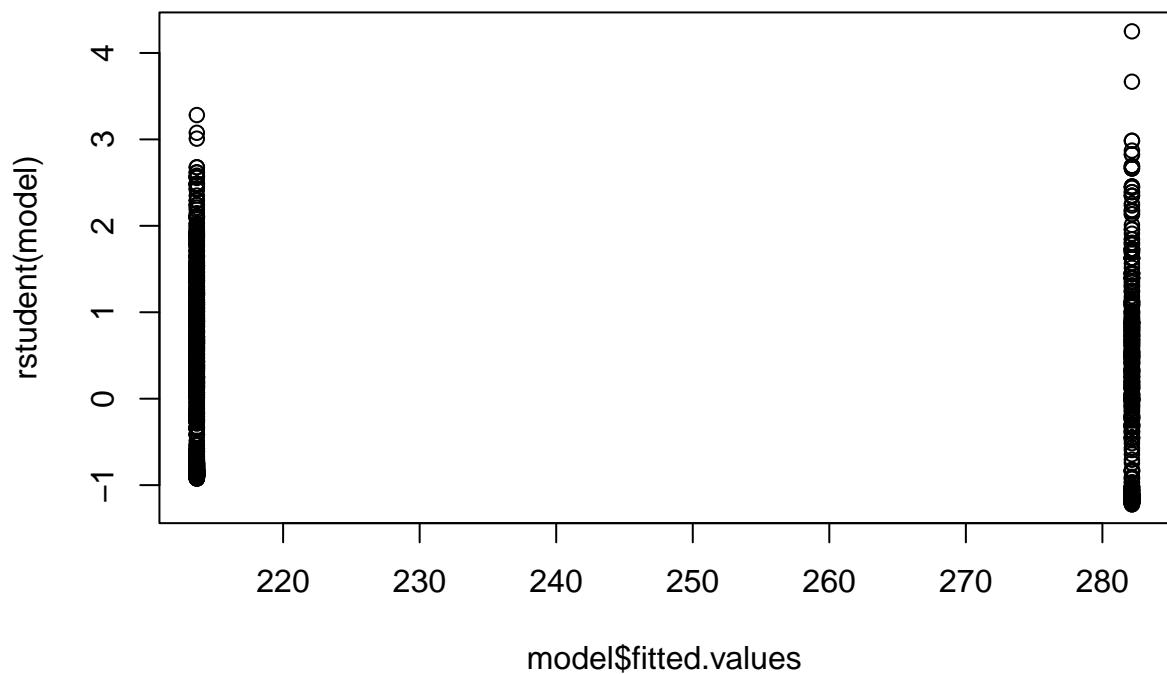
```

## 
## Call:
## lm(formula = Testosterone ~ RegMarij, data = nh2)
## 
## Residuals:
##      Min       1Q   Median       3Q      Max 
## -277.59  -195.04  -50.66  166.69  962.57 
## 
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 213.682     5.662  37.742 < 2e-16 ***
## RegMarij     68.481    10.676   6.415 1.71e-10 ***
## --- 
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 227.5 on 2245 degrees of freedom
## Multiple R-squared:  0.018, Adjusted R-squared:  0.01756 
## F-statistic: 41.15 on 1 and 2245 DF,  p-value: 1.715e-10

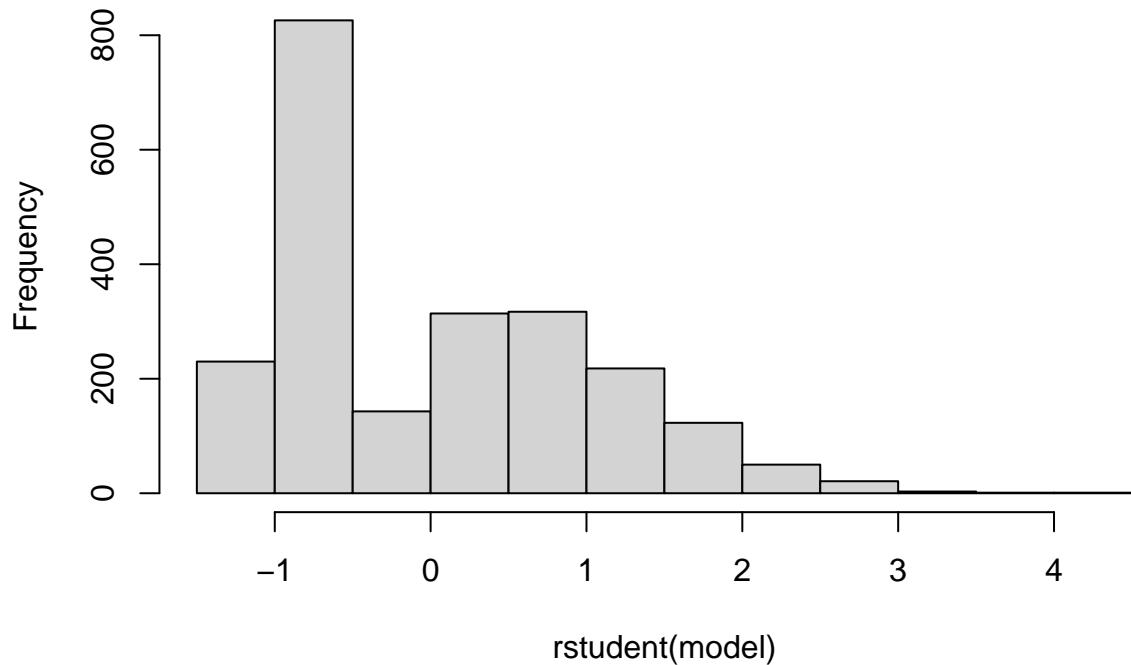
```

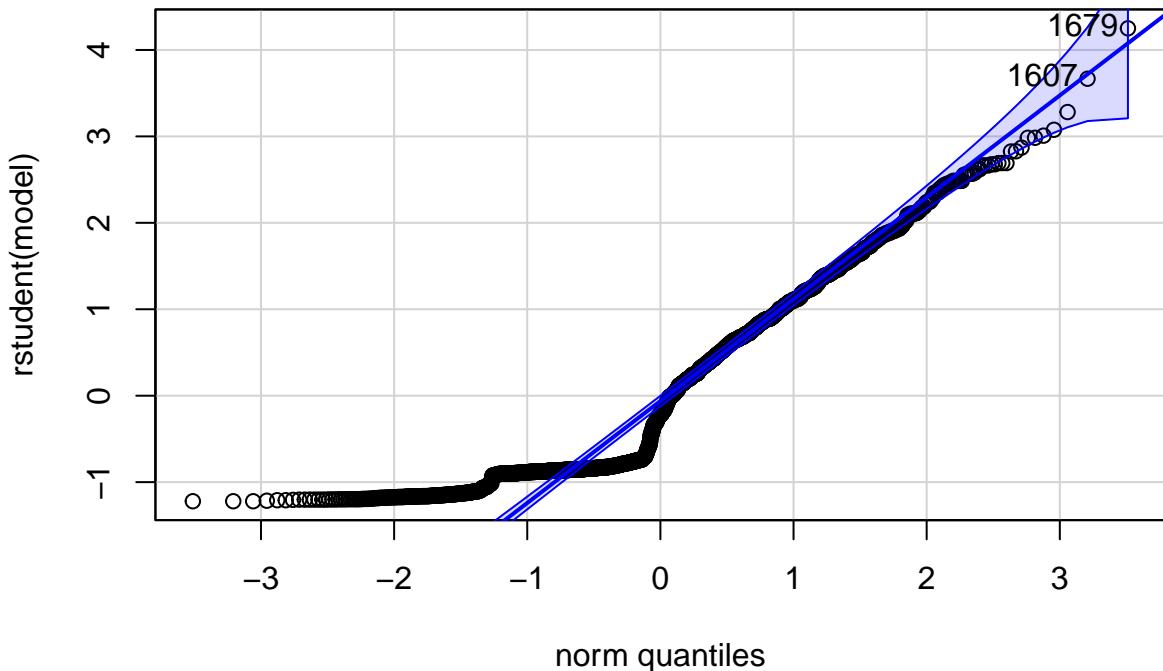
```
checka(m_unrefined) ##Comment on plots
```





Histogram of rstudent(model)





```
##  
## Shapiro-Wilk normality test  
##  
## data: rstudent(model)  
## W = 0.8943, p-value < 2.2e-16
```

Adjusted Model with no log

```
m_adjusted_nolog = lm(Testosterone~ RegMarij + Sex + Agec + Race1 + Depress + Weightc + Heightc +  
Diabete + HypT + TotCholc,  
data = nh2)  
summary(m_adjusted_nolog)
```

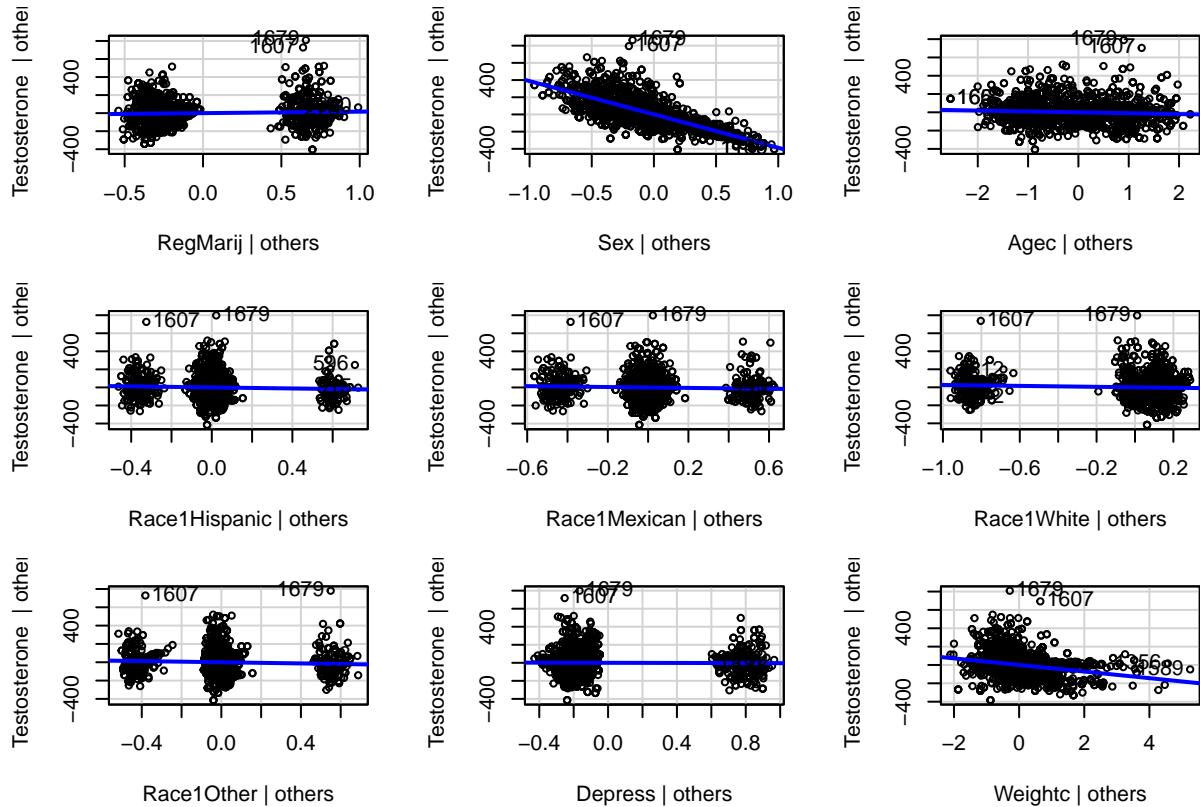
```
##  
## Call:  
## lm(formula = Testosterone ~ RegMarij + Sex + Agec + Race1 + Depress +  
##      Weightc + Heightc + Diabete + HypT + TotCholc, data = nh2)  
##  
## Residuals:  
##      Min       1Q   Median       3Q      Max  
## -415.38   -53.31    -6.88   40.59  798.41  
##  
## Coefficients:
```

```

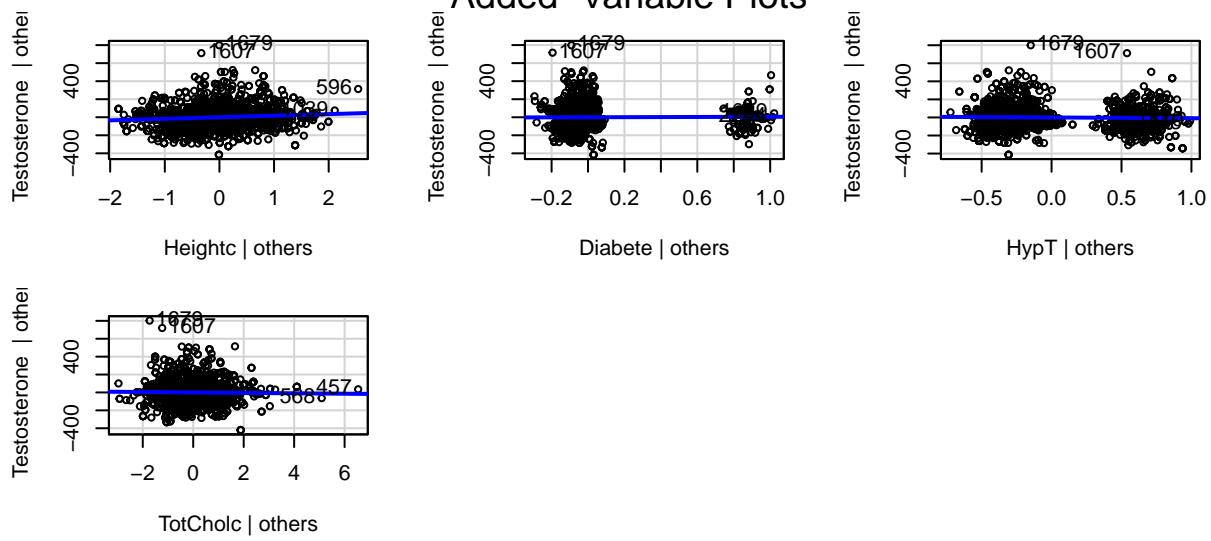
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 435.119    9.059  48.032 < 2e-16 ***
## RegMarij     17.009   5.649   3.011 0.002633 **
## Sex        -387.711   7.057 -54.938 < 2e-16 ***
## Agec       -9.661   2.783  -3.471 0.000528 ***
## Race1Hispanic -29.419  12.657 -2.324 0.020201 *
## Race1Mexican  -24.401  11.423 -2.136 0.032778 *
## Race1White   -26.143   8.230 -3.177 0.001510 **
## Race1Other   -32.226  11.679 -2.759 0.005838 **
## Depress      -3.631   6.275  -0.579 0.562889
## Weightc     -35.945  2.872 -12.515 < 2e-16 ***
## Heightc      17.223   3.809   4.522 6.45e-06 ***
## Diabete       5.109  10.894   0.469 0.639120
## HypT        -8.305   5.830  -1.425 0.154437
## TotCholc    -2.453   2.706  -0.906 0.364847
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 118.1 on 2233 degrees of freedom
## Multiple R-squared:  0.737, Adjusted R-squared:  0.7355
## F-statistic: 481.4 on 13 and 2233 DF, p-value: < 2.2e-16

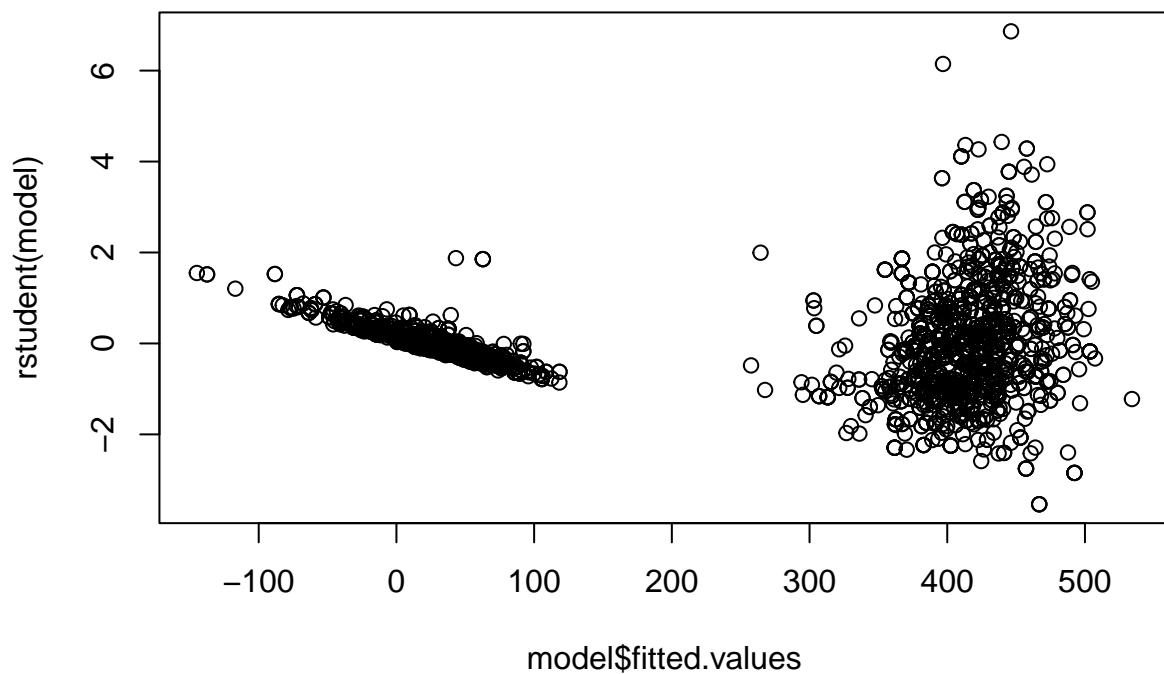
```

checka(m_adjusted_nolog) *##Constant variance. We think the two clusters are due to sex. Also trend with weight.*

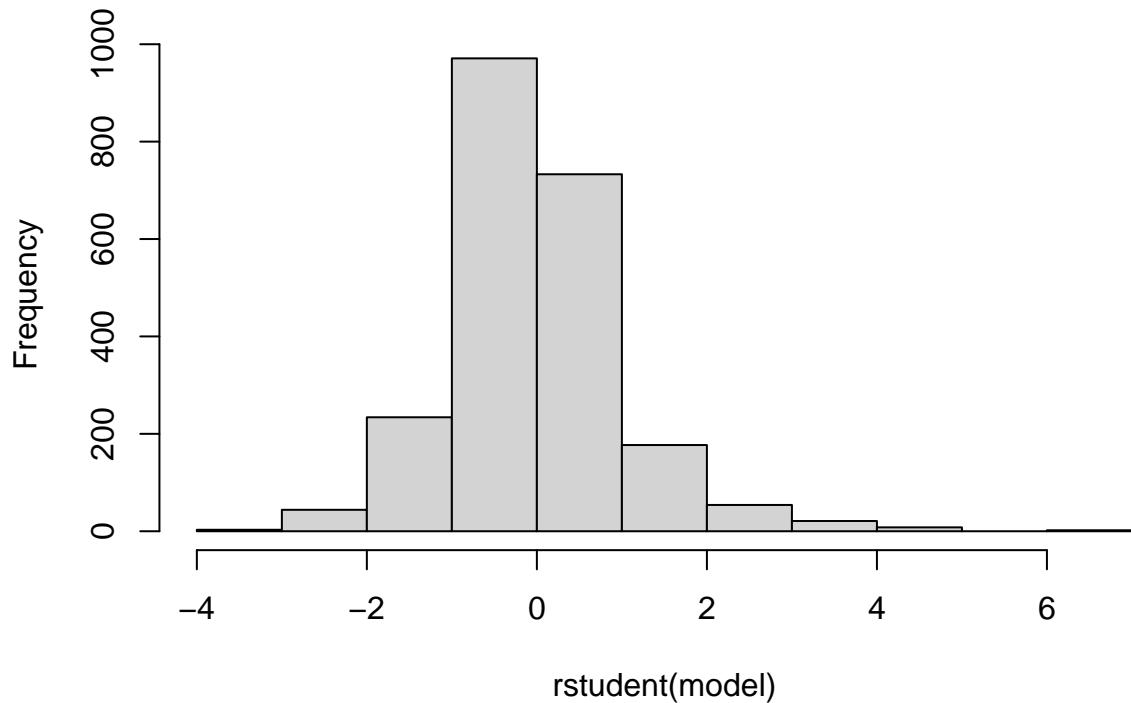


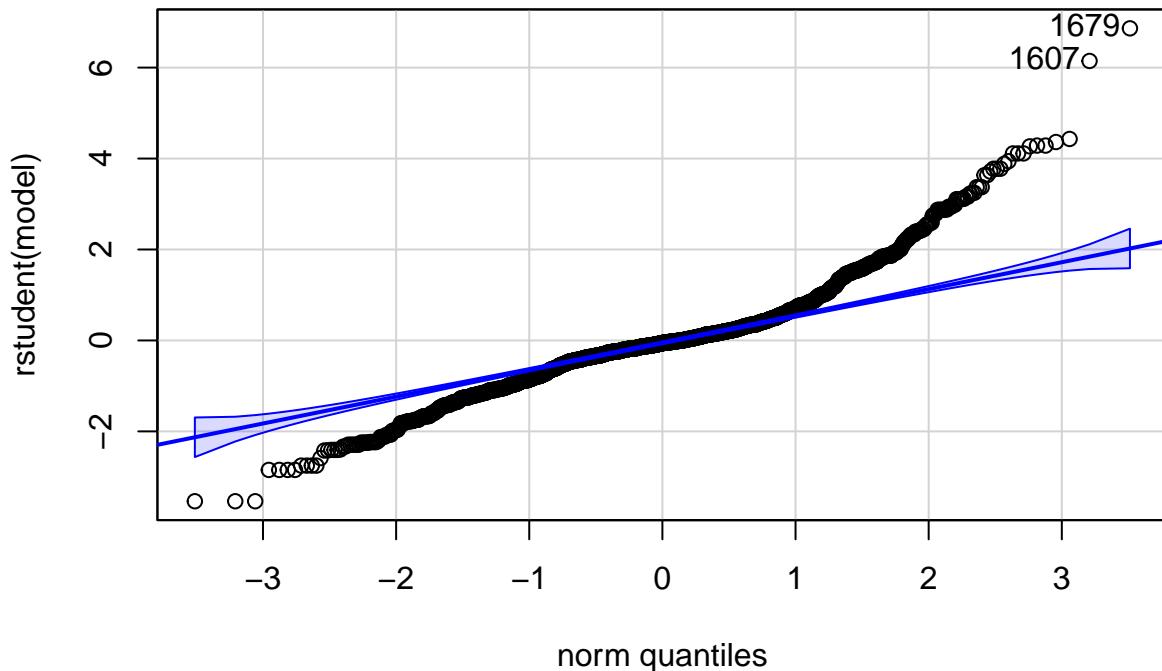
Added-Variable Plots





Histogram of rstudent(model)





```
##  
## Shapiro-Wilk normality test  
##  
## data: rstudent(model)  
## W = 0.92958, p-value < 2.2e-16
```

Both models above had linear trend in plots, so we adjusted model log(Y)-THIS IS FINAL MAIN EFFECTS MODEL

```
m_adjust <- lm(log(Testosterone) ~ RegMarij + Sex + Agec + Race1 + Depress + Weightc + Heightc +  
Diabete + HypT + TotCholc, data = nh2)  
summary(m_adjust)
```

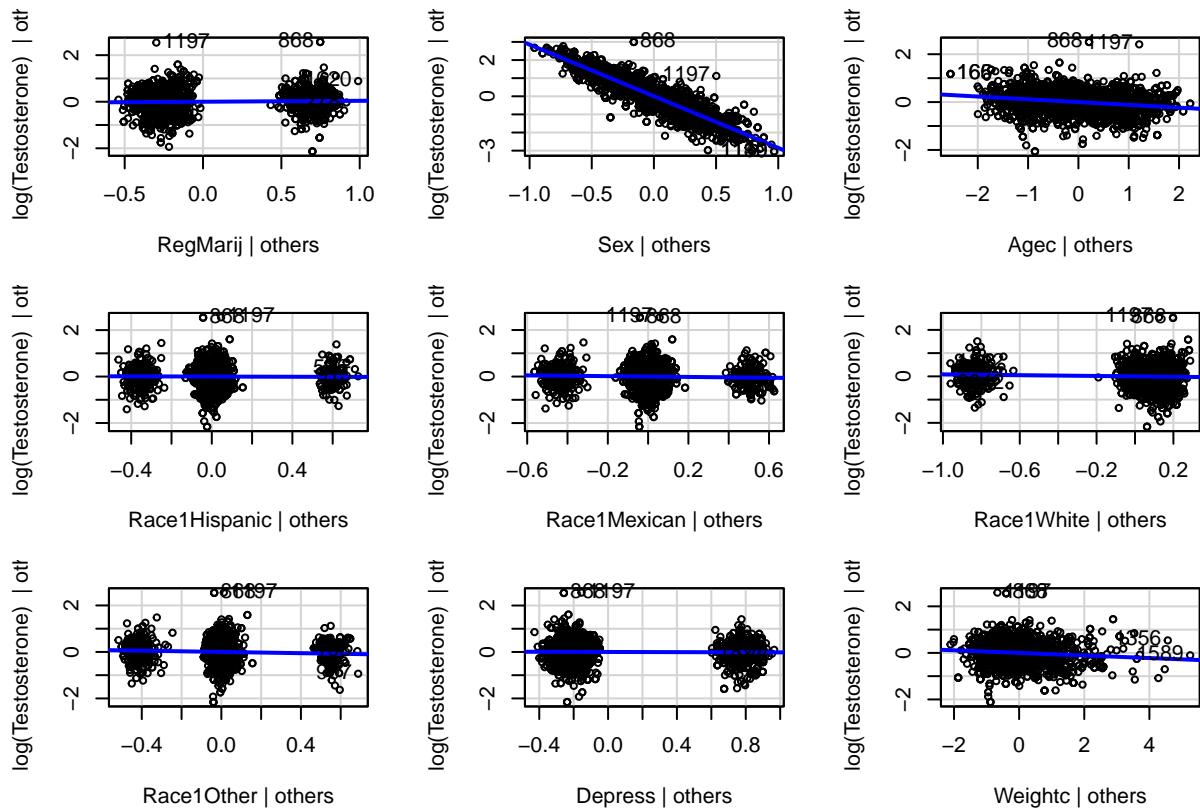
```
##  
## Call:  
## lm(formula = log(Testosterone) ~ RegMarij + Sex + Agec + Race1 +  
##      Depress + Weightc + Heightc + Diabete + HypT + TotCholc,  
##      data = nh2)  
##  
## Residuals:  
##      Min        1Q    Median        3Q       Max  
## -2.16195 -0.27606  0.01975  0.30368  2.55213  
##
```

```

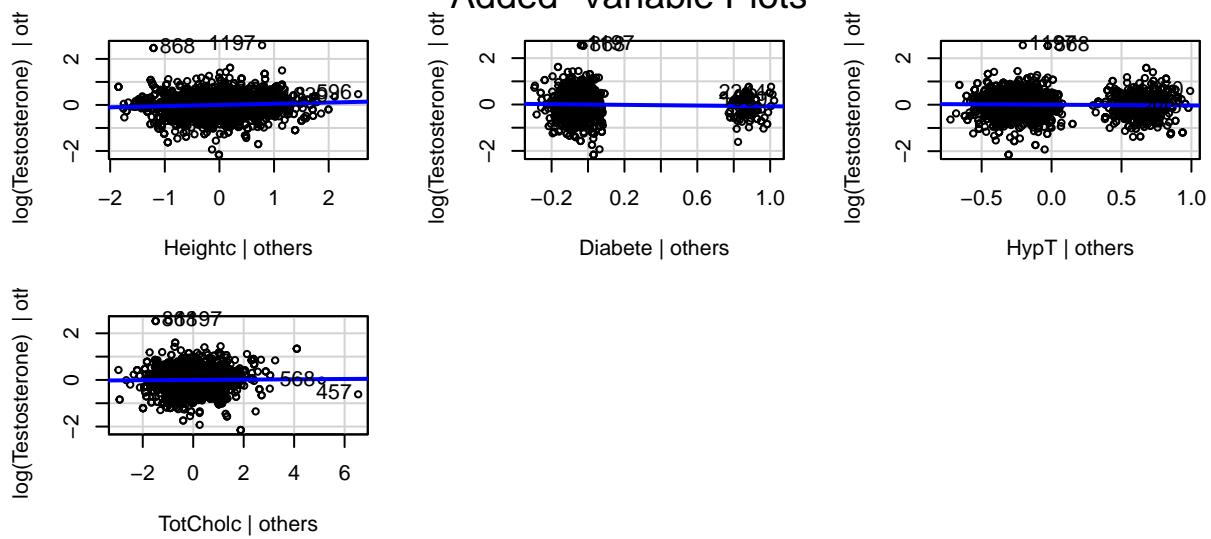
## Coefficients:
##                               Estimate Std. Error t value Pr(>|t|)
## (Intercept)           6.008396   0.036897 162.844 < 2e-16 ***
## RegMarij              0.040059   0.023008   1.741 0.081804 .
## Sex                  -2.849736   0.028744 -99.143 < 2e-16 ***
## Agec                 -0.115816   0.011337 -10.216 < 2e-16 ***
## Race1Hispanic        -0.022528   0.051553  -0.437 0.662164
## Race1Mexican         -0.085709   0.046525  -1.842 0.065577 .
## Race1White             -0.086492   0.033519  -2.580 0.009932 **
## Race1Other             -0.135437   0.047566  -2.847 0.004449 **
## Depress                -0.018457   0.025556  -0.722 0.470249
## Weightc               -0.055488   0.011698  -4.743 2.23e-06 ***
## Heightc                0.051861   0.015513   3.343 0.000843 ***
## Diabete                -0.075805   0.044369  -1.709 0.087681 .
## HypT                  -0.032210   0.023745  -1.357 0.175073
## TotCholc              0.006758   0.011023   0.613 0.539866
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4808 on 2233 degrees of freedom
## Multiple R-squared:  0.9004, Adjusted R-squared:  0.8998
## F-statistic: 1552 on 13 and 2233 DF, p-value: < 2.2e-16

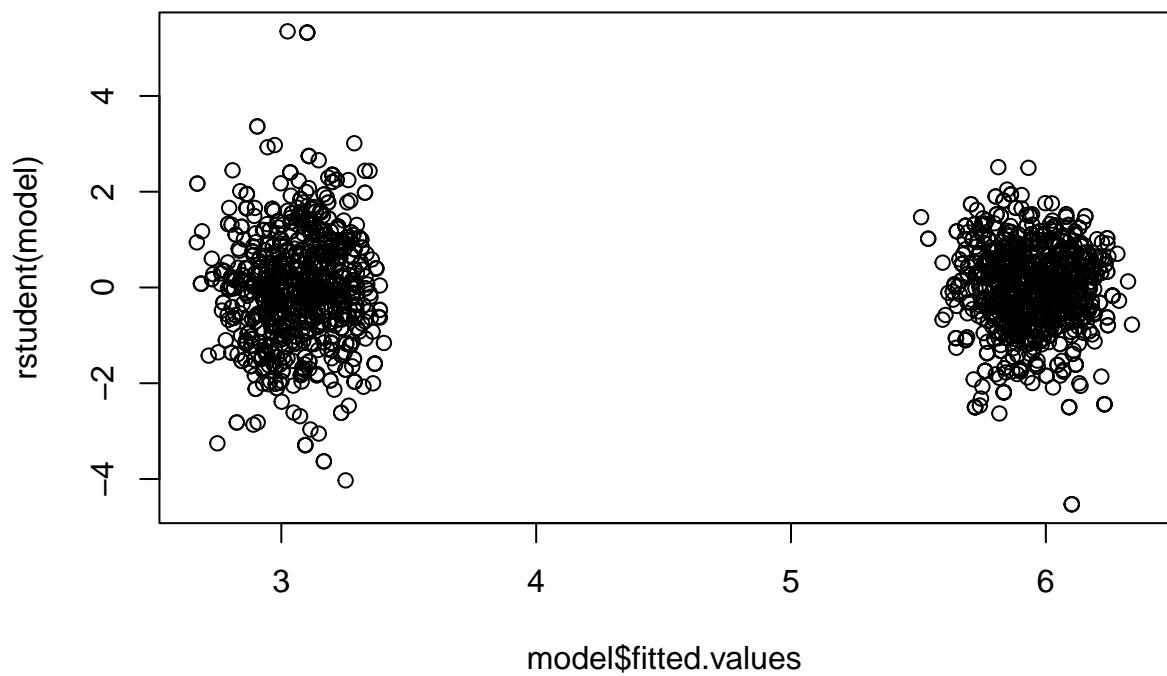
```

```
checka(m_adjust)
```

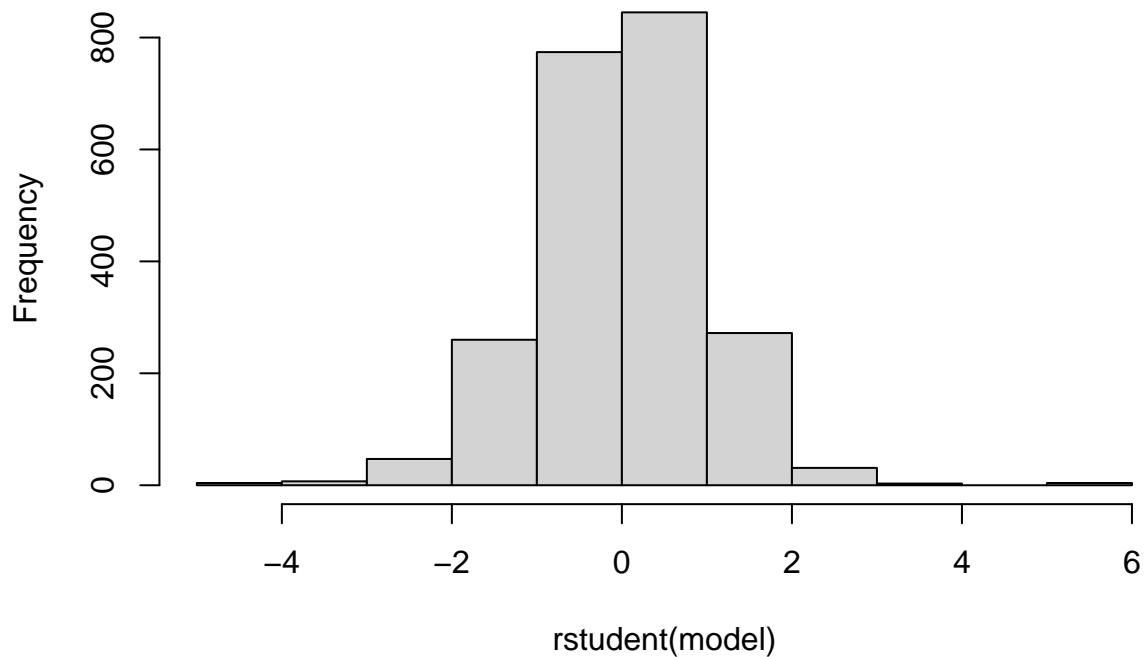


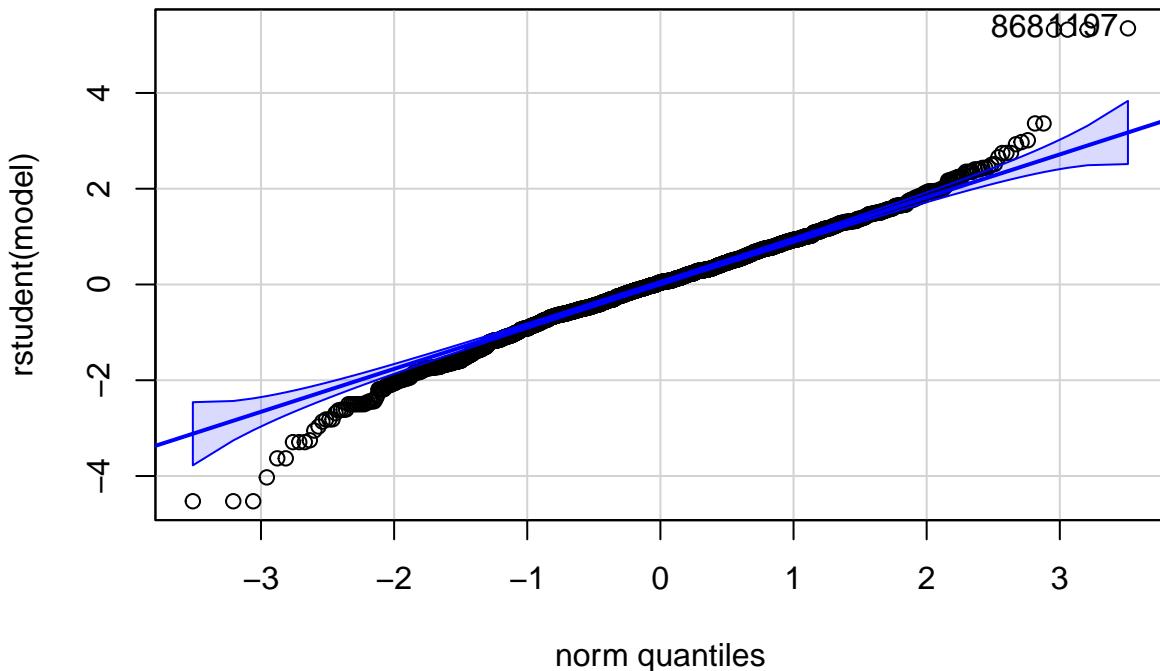
Added-Variable Plots





Histogram of rstudent(model)





```
##
## Shapiro-Wilk normality test
##
## data: rstudent(model)
## W = 0.98214, p-value = 3.535e-16
```

Due to constant variance plot having clusters and literature, we think that TT distribution by sex underlies the trend. Test this by stratifying model. See that in stratified models, this is eliminated

```
nhFemale = nh2[ which(nh2$Sex == 1), ]
nhMale = nh2[ which(nh2$Sex == 0), ]
m_F = lm(log(Testosterone) ~ RegMarij + Agec + Race1 + Depress + Weightc + Heightc +
          Diabete + HypT + TotCholc,
          data = nhFemale)
summary(m_F)
```

```
##
## Call:
## lm(formula = log(Testosterone) ~ RegMarij + Agec + Race1 + Depress +
##     Weightc + Heightc + Diabete + HypT + TotCholc, data = nhFemale)
##
## Residuals:
```

```

##      Min     1Q   Median     3Q     Max
## -1.89704 -0.29545 -0.00775  0.30405  2.71637
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 3.1132300  0.0512814 60.709 < 2e-16 ***
## RegMarij    0.0195351  0.0392456  0.498 0.618755
## Agec       -0.2075484  0.0184817 -11.230 < 2e-16 ***
## Race1Hispanic 0.1780629  0.0797391  2.233 0.025758 *
## Race1Mexican -0.0154863  0.0738236 -0.210 0.833885
## Race1White   -0.0076547  0.0506123 -0.151 0.879814
## Race1Other    -0.0596064  0.0765196 -0.779 0.436177
## Depress      -0.0531885  0.0388554 -1.369 0.171334
## Weightc       0.0864876  0.0183900  4.703 2.91e-06 ***
## Heightc      -0.0009671  0.0253610 -0.038 0.969590
## Diabete      -0.2989161  0.0784031 -3.813 0.000146 ***
## HypT        -0.0323136  0.0422939 -0.764 0.445027
## TotCholc     0.0357328  0.0175339  2.038 0.041811 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5206 on 1032 degrees of freedom
## Multiple R-squared:  0.169, Adjusted R-squared:  0.1594
## F-statistic: 17.49 on 12 and 1032 DF, p-value: < 2.2e-16

plot(m_F$fitted.values, m_F$residuals)
m_M = lm(log(Testosterone)~ RegMarij + Agec + Race1 + Depress + Weightc + Heightc +
          Diabete + HypT + TotCholc,
          data = nhMale)
summary(m_M)

##
## Call:
## lm(formula = log(Testosterone) ~ RegMarij + Agec + Race1 + Depress +
##     Weightc + Heightc + Diabete + HypT + TotCholc, data = nhMale)
##
## Residuals:
##      Min     1Q   Median     3Q     Max
## -2.23100 -0.24223  0.03502  0.27506  1.20166
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 6.01093   0.04194 143.316 < 2e-16 ***
## RegMarij    0.04066   0.02481   1.639  0.1015
## Agec       -0.02981   0.01274  -2.340  0.0194 *
## Race1Hispanic -0.10475  0.06042  -1.734  0.0832 .
## Race1Mexican -0.06914  0.05363  -1.289  0.1976
## Race1White   -0.09479  0.04040  -2.346  0.0191 *
## Race1Other    -0.09599  0.05439  -1.765  0.0778 .
## Depress      -0.02035  0.03039  -0.670  0.5033
## Weightc      -0.19147  0.01367 -14.009 < 2e-16 ***
## Heightc       0.10140  0.01754   5.780 9.52e-09 ***
## Diabete       0.01353  0.04746   0.285  0.7756
## HypT        -0.02100  0.02503  -0.839  0.4017

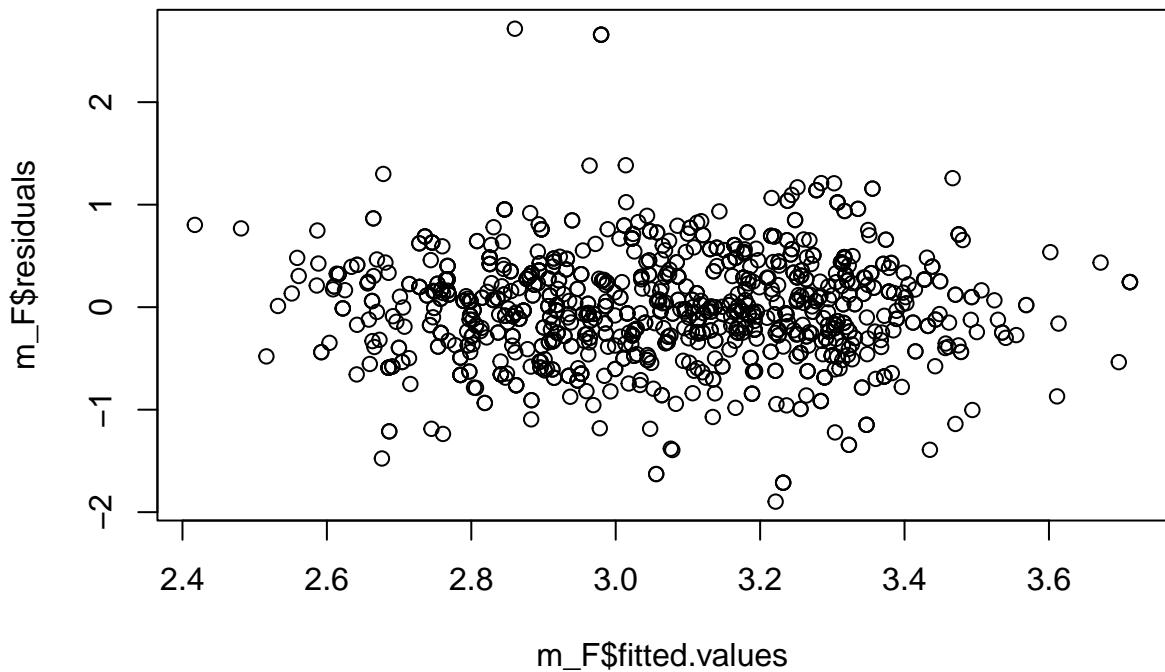
```

```

## TotCholc      -0.01173     0.01258   -0.932    0.3514
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.3985 on 1189 degrees of freedom
## Multiple R-squared:  0.1723, Adjusted R-squared:  0.1639
## F-statistic: 20.62 on 12 and 1189 DF,  p-value: < 2.2e-16

plot(m_F$fitted.values, m_F$residuals)

```



Multicollinearity check

```
car::vif(m_adjusted_nolog)
```

```

##              GVIF Df GVIF^(1/(2*Df))
## RegMarij  1.039990  1      1.019799
## Sex       1.997513  1      1.413334
## Agec      1.248448  1      1.117340
## Race1     1.214469  4      1.024586
## Depress   1.028377  1      1.014089
## Weightc   1.329264  1      1.152937
## Heightc   2.337791  1      1.528983
## Diabete   1.072891  1      1.035805

```

```

## HypT      1.122416  1      1.059441
## TotCholc 1.180220  1      1.086379

##Adding interactions. Based on analysis and stratified models, we assume Sex has effect modification on
variables.

m_int <- lm(log(Testosterone) ~ RegMarij + Sex + Agec + Race1 + Depress + Weightc + Heightc +
             Diabete + HypT + TotCholc + Sex*(RegMarij + Agec + Race1 + Depress + Weightc + Heightc +
             Diabete + HypT + TotCholc), data = nh2)
summary(m_int)

##
## Call:
## lm(formula = log(Testosterone) ~ RegMarij + Sex + Agec + Race1 +
##     Depress + Weightc + Heightc + Diabete + HypT + TotCholc +
##     Sex * (RegMarij + Agec + Race1 + Depress + Weightc + Heightc +
##             Diabete + HypT + TotCholc), data = nh2)
##
## Residuals:
##      Min        1Q        Median        3Q        Max
## -2.23100 -0.25470  0.02054  0.29052  2.71637
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 6.01093   0.04834 124.342 < 2e-16 ***
## RegMarij    0.04066   0.02859  1.422 0.155140
## Sex         -2.89770   0.06621 -43.766 < 2e-16 ***
## Agec        -0.02981   0.01468 -2.030 0.042431 *
## Race1Hispanic -0.10475   0.06964 -1.504 0.132688
## Race1Mexican  -0.06914   0.06182 -1.118 0.263496
## Race1White   -0.09479   0.04657 -2.035 0.041930 *
## Race1Other   -0.09599   0.06269 -1.531 0.125846
## Depress      -0.02035   0.03503 -0.581 0.561384
## Weightc      -0.19147   0.01575 -12.154 < 2e-16 ***
## Heightc       0.10140   0.02022  5.015 5.72e-07 ***
## Diabete       0.01353   0.05470  0.247 0.804658
## HypT          -0.02100   0.02885 -0.728 0.466837
## TotCholc     -0.01173   0.01450 -0.809 0.418701
## RegMarij:Sex -0.02113   0.04490 -0.470 0.638056
## Sex:Agec     -0.17774   0.02194 -8.102 8.85e-16 ***
## Sex:Race1Hispanic 0.28281   0.09899  2.857 0.004315 **
## Sex:Race1Mexican 0.05365   0.08979  0.598 0.550231
## Sex:Race1White 0.08713   0.06452  1.351 0.176975
## Sex:Race1Other 0.03638   0.09212  0.395 0.692922
## Sex:Depress    -0.03284   0.04901 -0.670 0.502892
## Sex:Weightc    0.27796   0.02261 12.291 < 2e-16 ***
## Sex:Heightc   -0.10237   0.03016 -3.395 0.000699 ***
## Sex:Diabete    -0.31245   0.08818 -3.543 0.000404 ***
## Sex:HypT       -0.01132   0.04716 -0.240 0.810389
## Sex:TotCholc   0.04746   0.02120  2.239 0.025282 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ',' 1
##

```

```

## Residual standard error: 0.4593 on 2221 degrees of freedom
## Multiple R-squared:  0.9096, Adjusted R-squared:  0.9086
## F-statistic:   894 on 25 and 2221 DF,  p-value: < 2.2e-16

```

Remove all insig interactions, and checks assumptions (not linearity, as this is checked only for main effects (see above))

```

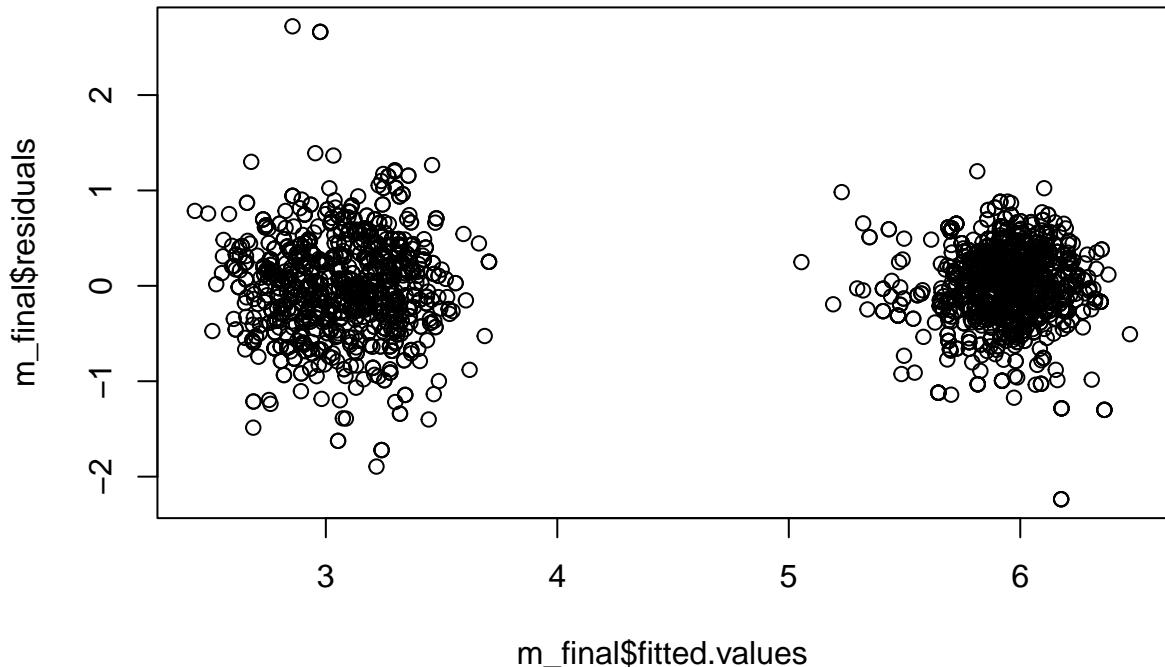
m_final <- lm(log(Testosterone) ~ RegMarij + Sex + Agec + Race1 + Depress + Weightc + Heightc +
  Diabete + HypT + TotCholc + Sex*(Agec + Race1 + RegMarij + Weightc + Heightc +
  Diabete + TotCholc), data = nh2)
summary(m_final)

##
## Call:
## lm(formula = log(Testosterone) ~ RegMarij + Sex + Agec + Race1 +
##     Depress + Weightc + Heightc + Diabete + HypT + TotCholc +
##     Sex * (Agec + Race1 + RegMarij + Weightc + Heightc + Diabete +
##             TotCholc), data = nh2)
##
## Residuals:
##      Min        1Q        Median        3Q        Max 
## -2.23678 -0.25606  0.01645  0.29577  2.72053 
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 6.01414   0.04781 125.788 < 2e-16 ***
## RegMarij    0.04187   0.02852   1.468 0.142192    
## Sex         -2.90672   0.06391 -45.482 < 2e-16 ***
## Agec        -0.02924   0.01464  -1.998 0.045867 *  
## Race1Hispanic -0.10328   0.06959  -1.484 0.137889    
## Race1Mexican -0.06812   0.06169  -1.104 0.269563    
## Race1White   -0.09392   0.04652  -2.019 0.043613 *  
## Race1Other    -0.09510   0.06264  -1.518 0.129087    
## Depress      -0.03696   0.02448  -1.510 0.131303    
## Weightc      -0.19136   0.01572 -12.173 < 2e-16 *** 
## Heightc       0.10096   0.02020   4.997 6.28e-07 ***
## Diabete       0.01495   0.05461   0.274 0.784314    
## HypT          -0.02464   0.02280  -1.081 0.279842    
## TotCholc     -0.01103   0.01445  -0.763 0.445414    
## Sex:Agec     -0.17916   0.02152  -8.324 < 2e-16 *** 
## Sex:Race1Hispanic 0.27959   0.09884   2.829 0.004715 ** 
## Sex:Race1Mexican 0.05260   0.08966   0.587 0.557475    
## Sex:Race1White  0.08729   0.06446   1.354 0.175789    
## Sex:Race1Other  0.03682   0.09202   0.400 0.689061    
## RegMarij:Sex   -0.02366   0.04462  -0.530 0.595962    
## Sex:Weightc    0.27701   0.02248  12.323 < 2e-16 *** 
## Sex:Heightc    -0.10166   0.03013  -3.374 0.000753 *** 
## Sex:Diabete    -0.31372   0.08813  -3.560 0.000379 *** 
## Sex:TotCholc   0.04590   0.02097  2.189 0.028727 *  
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##

```

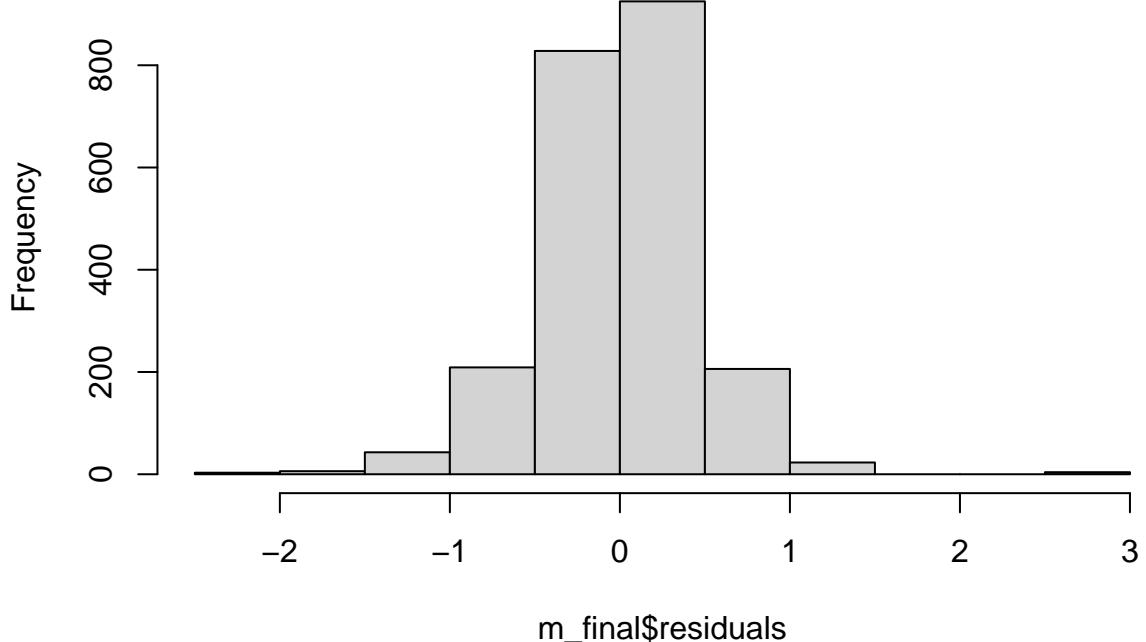
```
## Residual standard error: 0.4591 on 2223 degrees of freedom  
## Multiple R-squared:  0.9096, Adjusted R-squared:  0.9086  
## F-statistic: 972.3 on 23 and 2223 DF,  p-value: < 2.2e-16
```

```
plot(m_final$fitted.values, m_final$residuals)
```

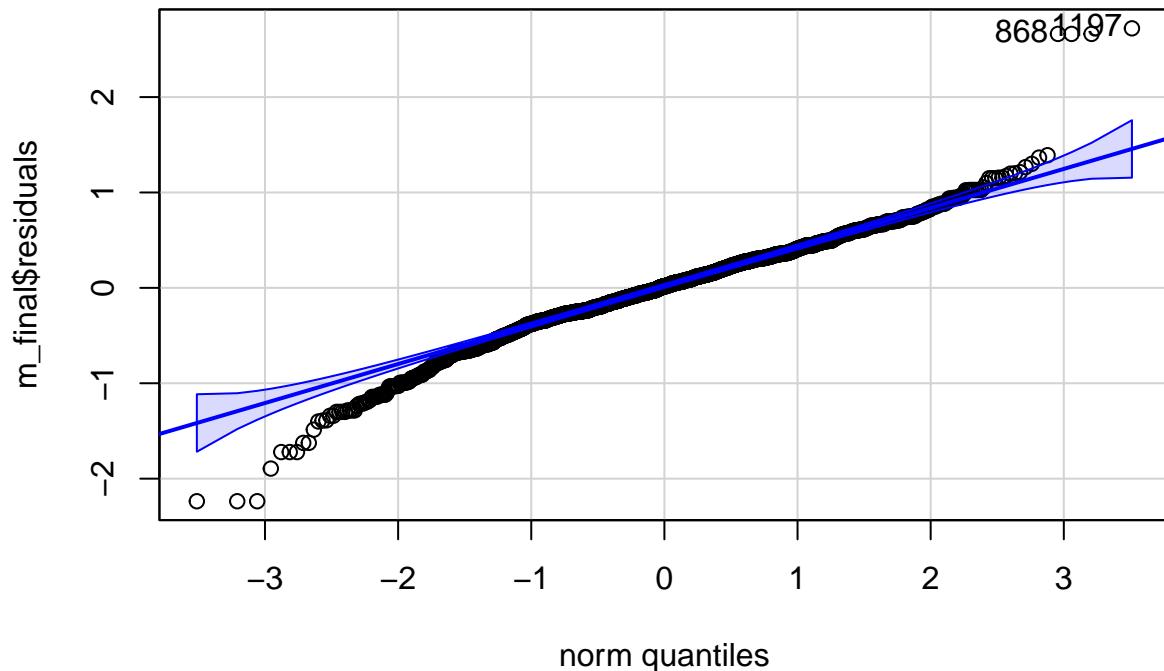


```
hist(m_final$residuals)
```

Histogram of m_final\$residuals



```
car::qqPlot(m_final$residuals)
```



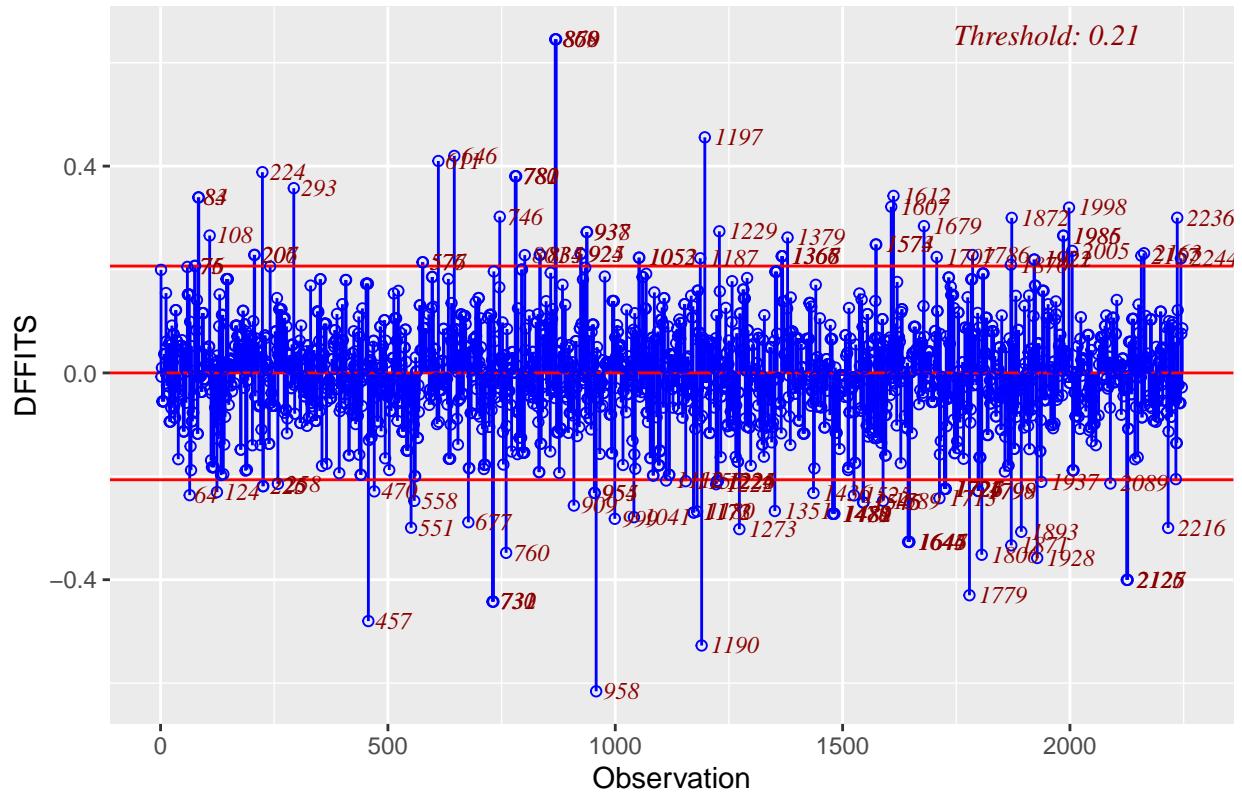
```
## [1] 1197 868
```

```
shapiro.test(m_final$residuals)
```

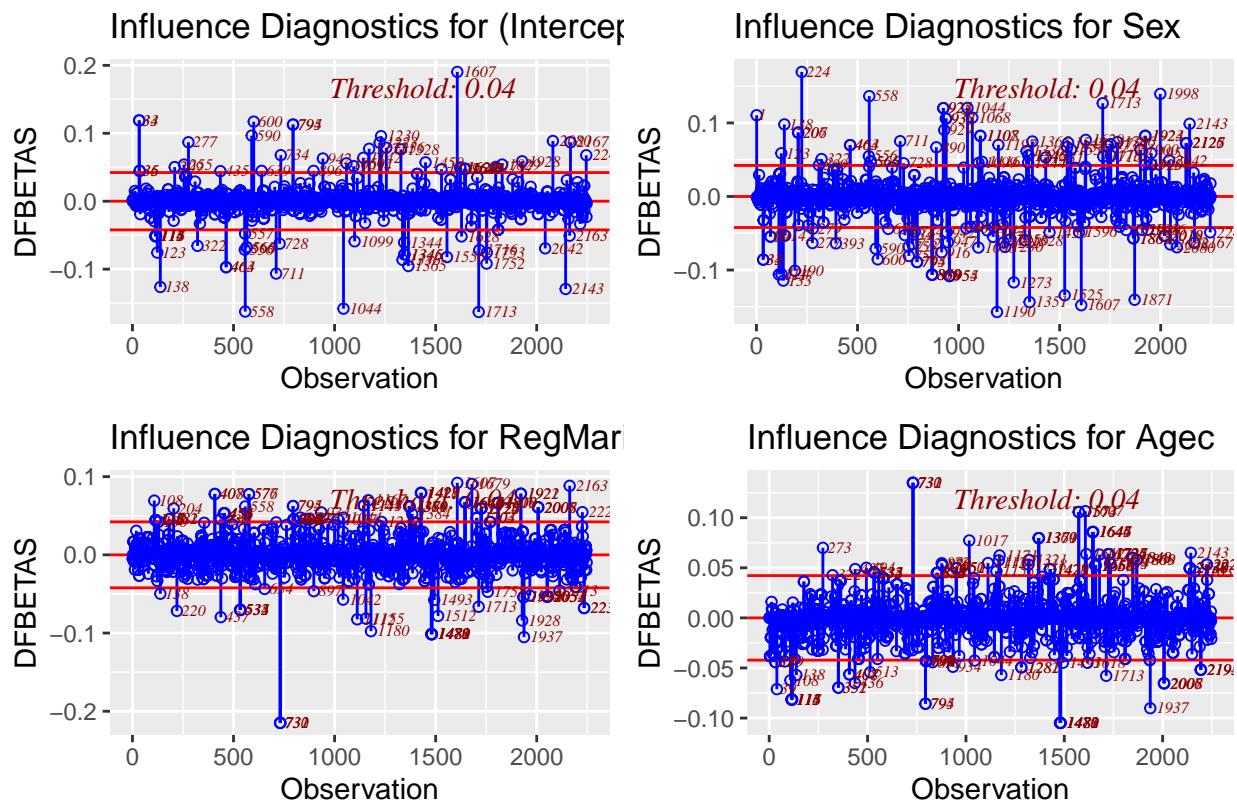
```
##
## Shapiro-Wilk normality test
##
## data: m_final$residuals
## W = 0.97064, p-value < 2.2e-16
```

```
olsrr::ols_plot_dffits(m_final)
```

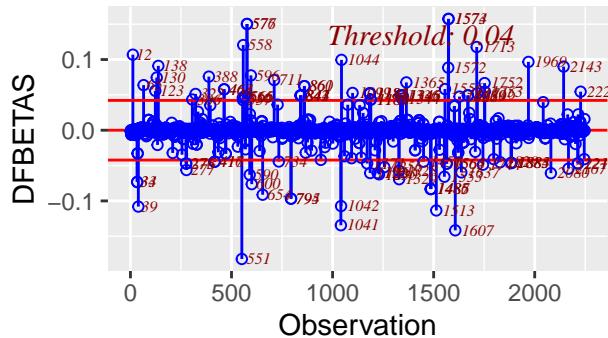
Influence Diagnostics for log(Testosterone)



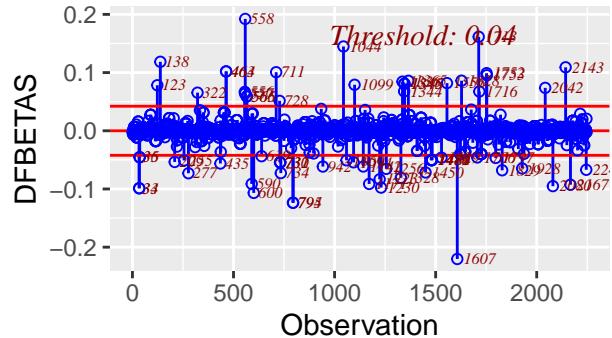
```
olsrr::ols_plot_dfbetas(m_final)
```



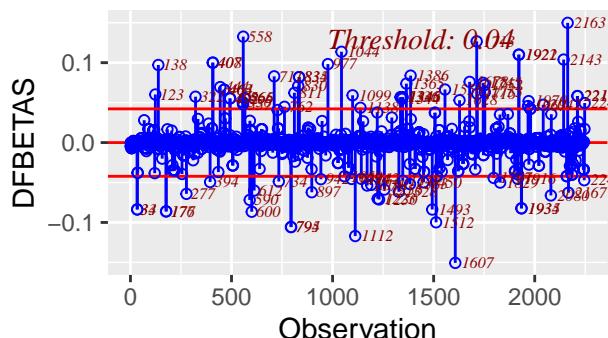
Influence Diagnostics for Race1H



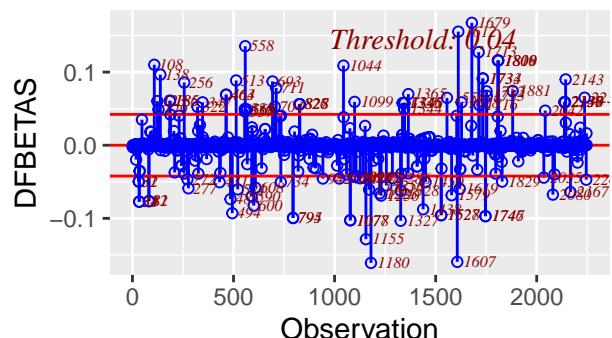
Influence Diagnostics for Race1W



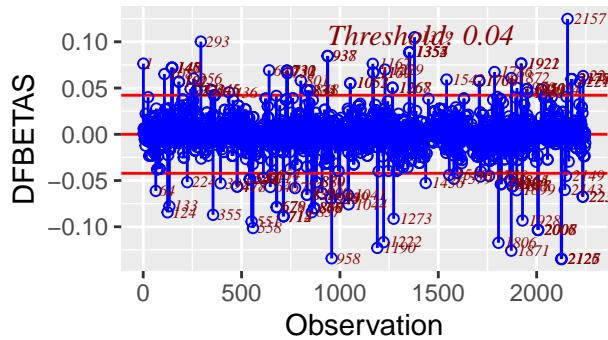
Influence Diagnostics for Race1M



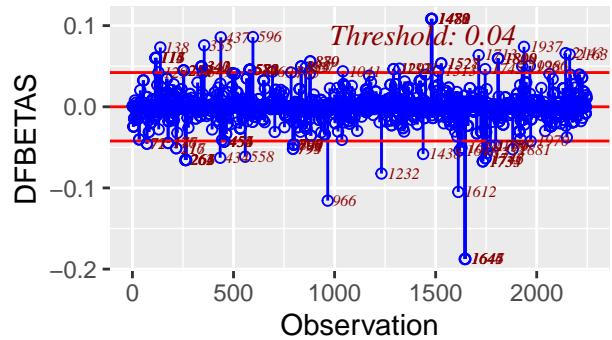
Influence Diagnostics for Race1O



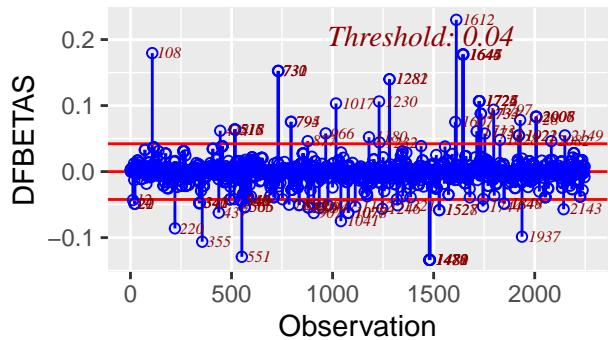
Influence Diagnostics for Depres



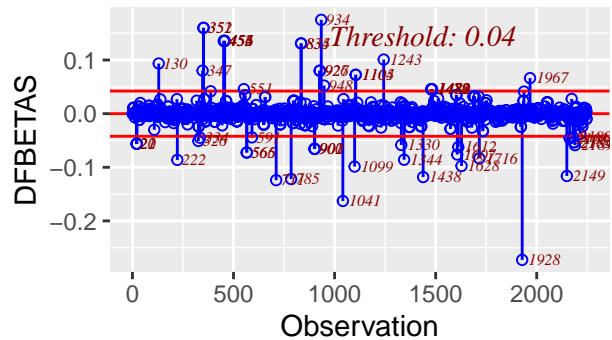
Influence Diagnostics for Heightc

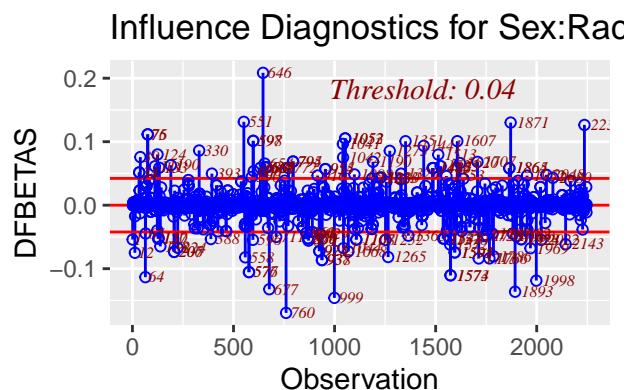
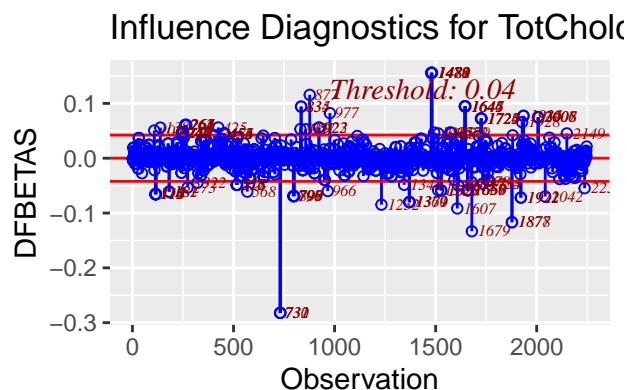
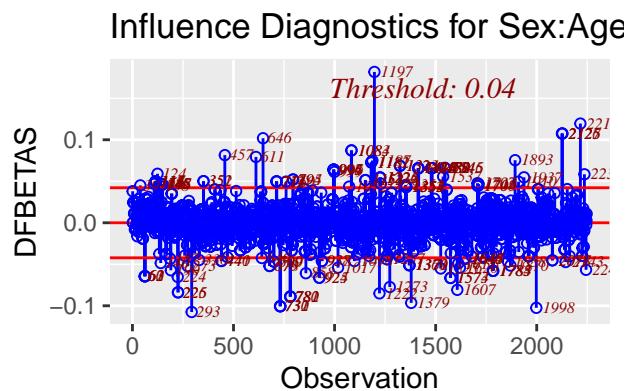
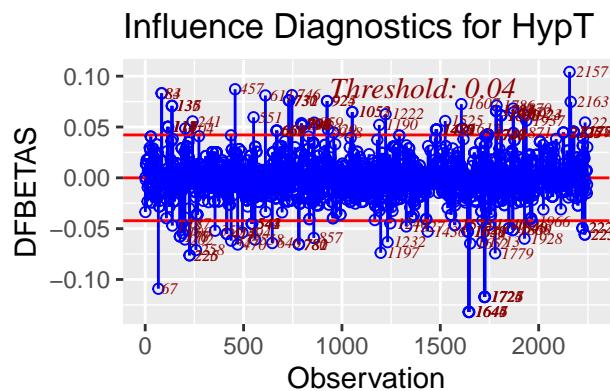


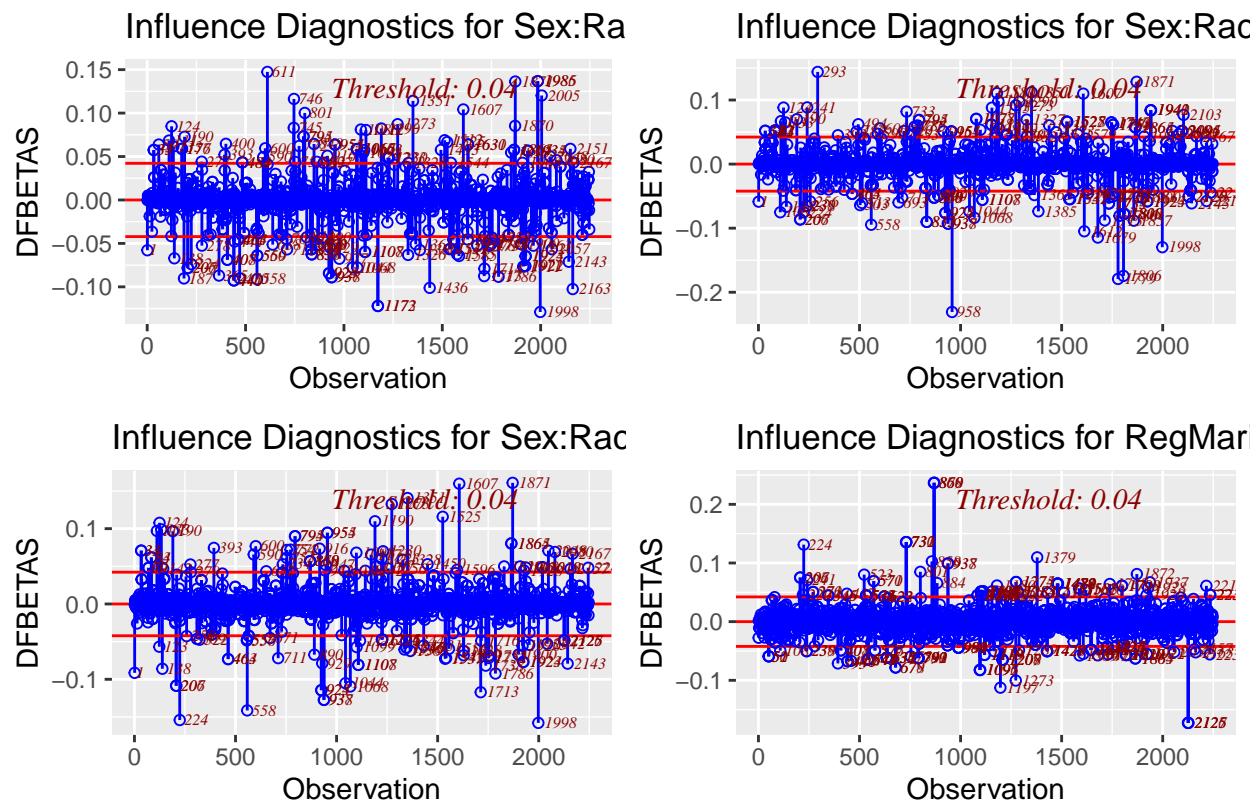
Influence Diagnostics for Weightc

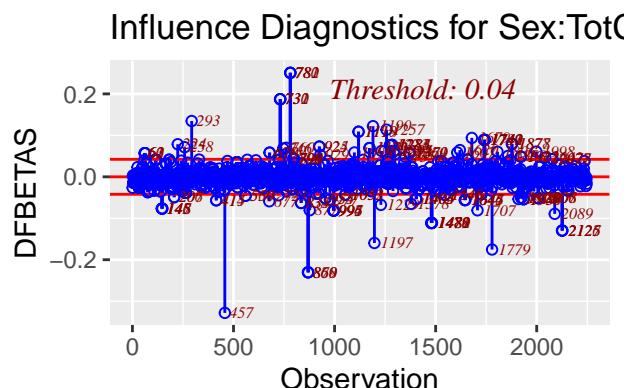
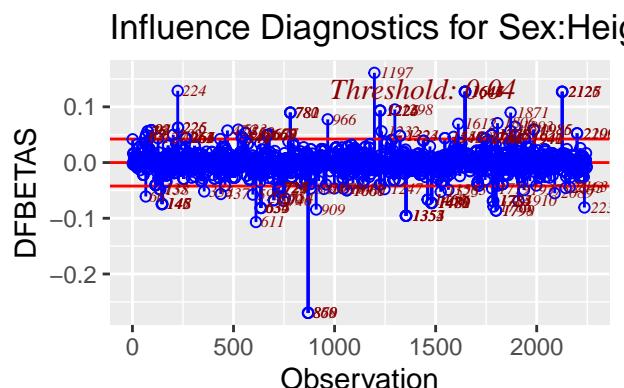
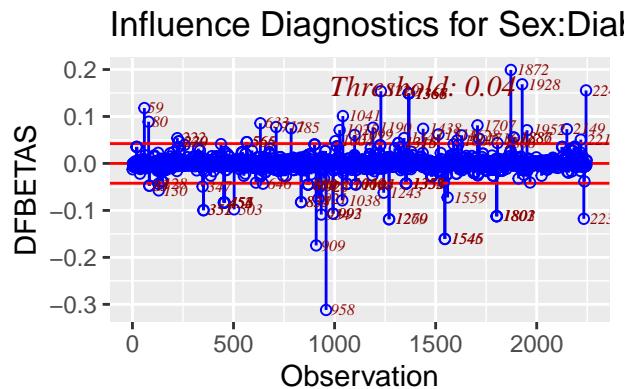
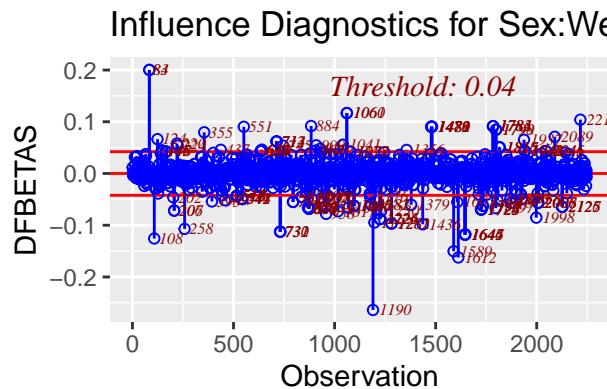


Influence Diagnostics for Diabete



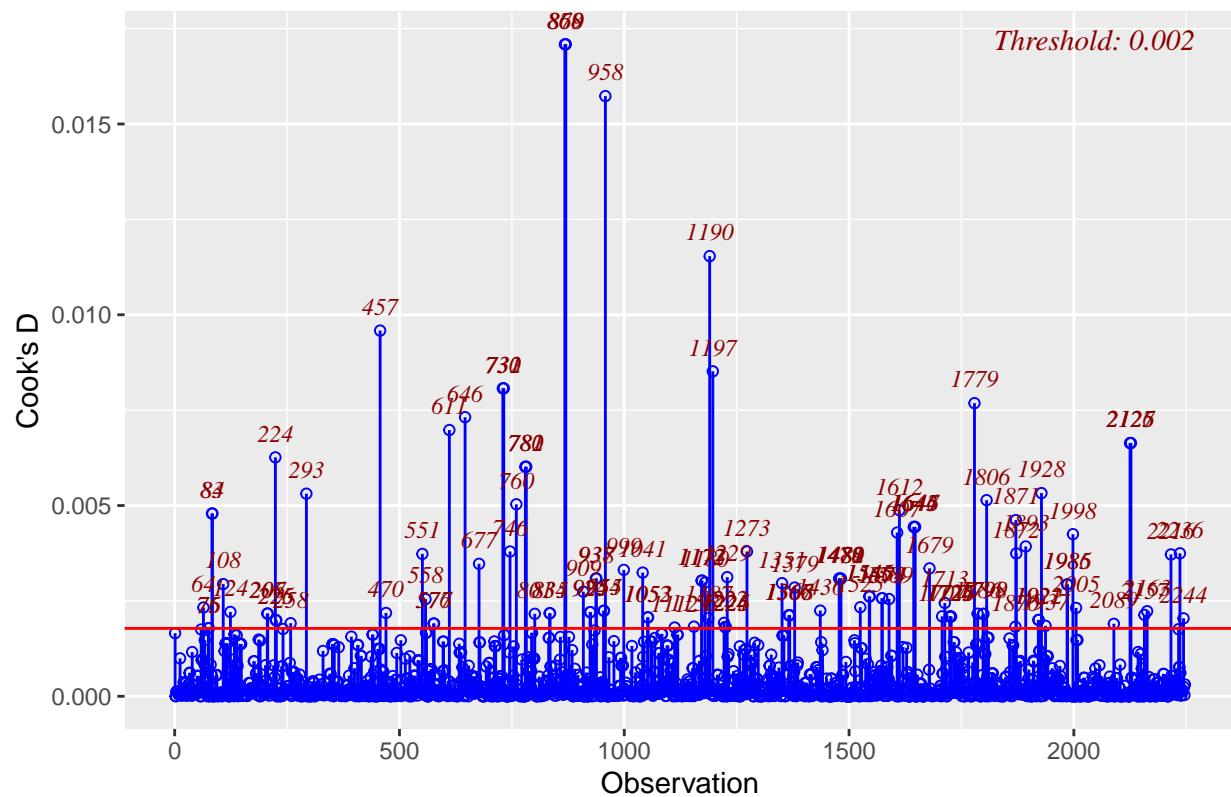




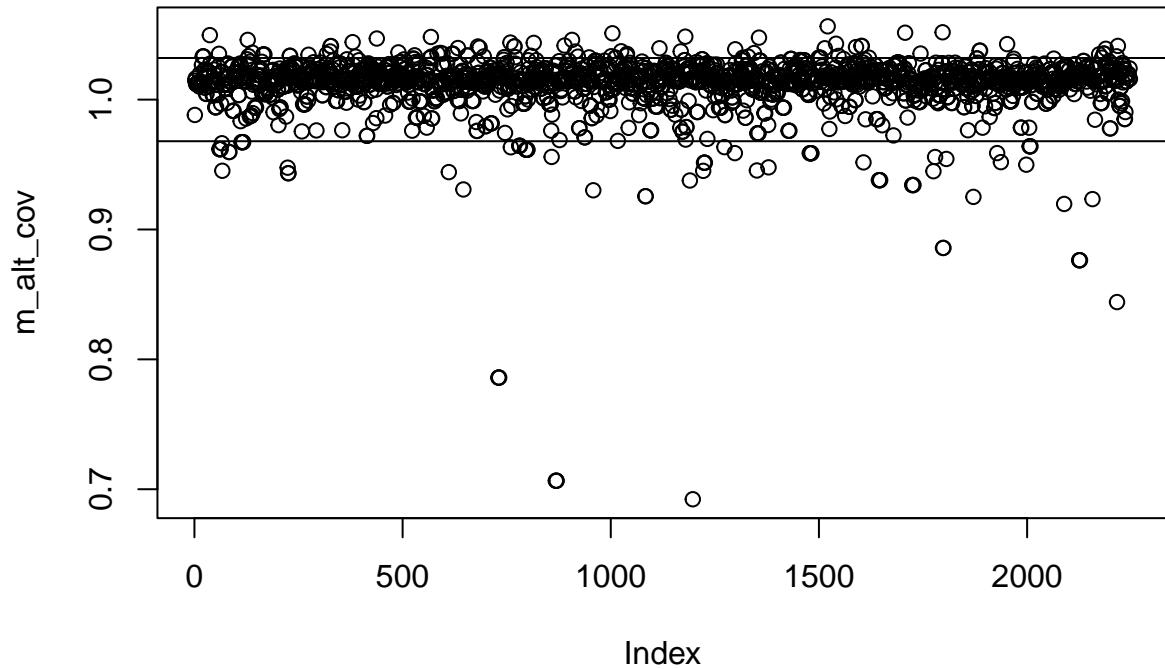


```
olsrr::ols_plot_cooksd_chart(m_final)
```

Cook's D Chart



```
m_alt_cov = covratio(m_final)
n = nrow(nh2)
p = m_final$rank
plot(m_alt_cov); abline(1+3*p/n,0); abline(1-3*p/n,0)
```



For discussion, in main effects model, test if mean test is same for race groups (not something we need to include, but idk, we can get rid of, just thought it was a way to utilize GLH learned in class)

```
m_wo_its = lm(log(Testosterone) ~ -1 + RegMarij + Sex + Agec + Race1 + Depress + Weightc + Heightc +
  Diabete + HypT + TotCholc, data = nh2)
summary(m_wo_its)
```

```
##
## Call:
## lm(formula = log(Testosterone) ~ -1 + RegMarij + Sex + Agec +
##     Race1 + Depress + Weightc + Heightc + Diabete + HypT + TotCholc,
##     data = nh2)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.16195 -0.27606  0.01975  0.30368  2.55213
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## RegMarij      0.040059  0.023008   1.741 0.081804 .
## Sex          -2.849736  0.028744 -99.143 < 2e-16 ***
## Agec        -0.115816  0.011337 -10.216 < 2e-16 ***
##
```

```

## Race1Black    6.008396   0.036897 162.844 < 2e-16 ***
## Race1Hispanic 5.985868   0.043338 138.120 < 2e-16 ***
## Race1Mexican   5.922687   0.036291 163.201 < 2e-16 ***
## Race1White     5.921905   0.022836 259.326 < 2e-16 ***
## Race1Other      5.872959   0.038662 151.906 < 2e-16 ***
## Depress        -0.018457   0.025556  -0.722 0.470249
## Weightc        -0.055488   0.011698  -4.743 2.23e-06 ***
## Heightc         0.051861   0.015513   3.343 0.000843 ***
## Diabete         -0.075805   0.044369  -1.709 0.087681 .
## HypT            -0.032210   0.023745  -1.357 0.175073
## TotCholc       0.006758   0.011023   0.613 0.539866
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ',' 1
##
## Residual standard error: 0.4808 on 2233 degrees of freedom
## Multiple R-squared:  0.9902, Adjusted R-squared:  0.9901
## F-statistic: 1.613e+04 on 14 and 2233 DF, p-value: < 2.2e-16

```

#Test if all five are same

```
## Linear hypothesis test
```

##

Hypothesis:

```
## Race1Black - Race1Hispanic = 0  
## Race1Hispanic - Race1Mexican = 0  
## Race1Mexican - Race1White = 0  
## Race1White - Race1Other = 0
```

##

```
## Model 1: restricted model
```

```
## Model 2: log(Testosterone) ~ -1 + RegMarij + Sex + Agec + Race1 + Depress +
##           Weightc + Heightc + Diabete + HypT + TotCholc
```

##

Res.Df RSS Df Sum of Sq F Pr(>F)

1 2237 518 9

##

III - 2

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

#Test if () are same

Linear hypothesis test

##

##

```
## Hypothesis:  
## Race1Hispanic - Race1Mexican = 0  
## Race1Mexican - Race1White = 0  
## Race1White - Race1Other = 0
```

##

```
## Model 1: restricted model
## Model 2: log(Testosterone) ~ -1 + RegMarij + Sex + Agec + Race1 + Depress +
```

```
##      Weightc + Heightc + Diabete + HypT + TotCholc
##
##    Res.Df      RSS Df Sum of Sq      F Pr(>F)
## 1    2236  517.31
## 2    2233  516.30  3     1.0171 1.4664 0.2218
```