# PSY 3393

2024-03-20

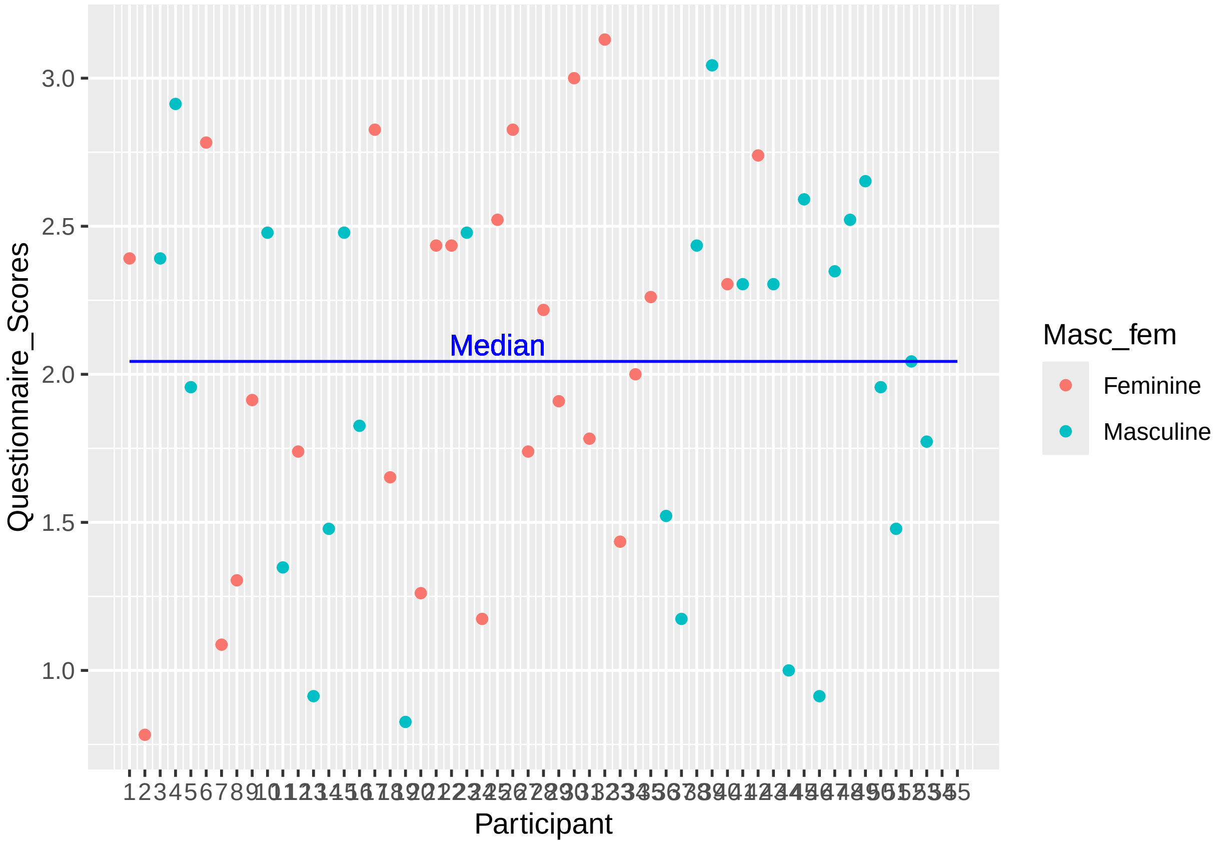
```r
knitr::opts_chunk$set(echo = TRUE)

library(dplyr)
```

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

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

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

```r
library(ggplot2)

qualtrics <- read.csv(file = "/Users/mihuynh/Documents/UT Dallas/Spring 2024/PSY 3393/Fashion Trends and

# QUESTIONNAIRE
columns_to_inverse <- c("Questionnaire_4", "Questionnaire_7", "Questionnaire_9", "Questionnaire_11", "Qu

qualtrics <- qualtrics %>%
  mutate(across(all_of(columns_to_inverse), ~ 4 - .))

cols_to_score <- names(qualtrics)[grepl("Questionnaire", names(qualtrics))]

# Norms. The mean for the appropriate items forms the subscale scores. The response
# format ranges from 0 (Never) to 4 (Always). The higher the score for a particular subscale, the
# more positive is the respondent's body esteem on that dimension. Subscale means and standard
# deviations for males and females combined and at each age are presented in Table 2. Overall,
# women scored lower than men on each body-esteem subscale, Fs(1,1332) = 20.68 to 209.03, ps
# < .001, which provides construct validation of the scale (Mendelson, B.K. et al 1997)

qualtrics <- qualtrics %>%
  rowwise() %>%
  mutate(Questionnaire_Scores = mean(c_across(cols_to_score), na.rm = TRUE))

qualtrics$Participant <- row.names(qualtrics)

# median and mean of questionnaire
median <- median(qualtrics$Questionnaire_Scores, na.rm = TRUE)
qualtrics$Median_Group <- cut(qualtrics$Questionnaire_Scores, breaks = c(-Inf, median, Inf), labels = c

# Scatter plot to show Participant vs. Their Sum
qualtrics$Masc_fem <- ifelse(qualtrics$Masc_fem == 1, "Masculine", "Feminine")
```

```r
qualtrics$Participant <- as.numeric(qualtrics$Participant)

ggplot(data = qualtrics, mapping = aes(x = Participant, y = Questionnaire_Scores)) +
  geom_point(mapping = aes(color = Masc_fem)) +
  scale_x_continuous(breaks = qualtrics$Participant) +
  geom_smooth(aes(y = median), method = "lm", size = 0.5, se = FALSE, color = "blue") +
  geom_text(data = NULL, mapping = aes(x = 25, y = 2.1, label = "Median"), color = "blue")
```

```
## `geom_smooth()` using formula = 'y ~ x'
```




```r
# Feminine
feminine <- subset(qualtrics, Masc_fem == "Feminine")
cols_to_remove <- grep("Masc", names(feminine), value = TRUE)
cols_to_remove <- setdiff(cols_to_remove, "Masc_fem")
feminine <- feminine[, !(names(feminine) %in% cols_to_remove)]

fem_plus_cols <- names(feminine)[grep("Fem_Plus", names(feminine))]
fem_plus_attract <- names(feminine)[grep("Fem_Plus_Attract", names(feminine))]
fem_plus_purchase <- names(feminine)[grep("Fem_Plus_Purchase", names(feminine))]
fem_thin_cols <- names(feminine)[grep("Fem_Thin", names(feminine))]
fem_thin_attract <- names(feminine)[grep("Fem_Thin_Attract", names(feminine))]
fem_thin_purchase <- names(feminine)[grep("Fem_Thin_Purchase", names(feminine))]

feminine <- feminine %>%
  rowwise() %>%
  mutate(Mean_Plus_Results = mean(c_across(fem_plus_cols), na.rm = TRUE))
feminine <- feminine %>%
```

```r
  rowwise() %>%
  mutate(Mean_Thin_Results = mean(c_across(fem_thin_cols), na.rm = TRUE))
feminine <- feminine %>%
  rowwise() %>%
  mutate(Mean_Plus_Attract_Results = mean(c_across(fem_plus_attract), na.rm = TRUE))
feminine <- feminine %>%
  rowwise() %>%
  mutate(Mean_Plus_Purchase_Results = mean(c_across(fem_plus_purchase), na.rm = TRUE))
feminine <- feminine %>%
  rowwise() %>%
  mutate(Mean_Thin_Attract_Results = mean(c_across(fem_thin_attract), na.rm = TRUE))
feminine <- feminine %>%
  rowwise() %>%
  mutate(Mean_Thin_Purchase_Results = mean(c_across(fem_thin_purchase), na.rm = TRUE))

correlation_plus <- cor.test(feminine$Mean_Plus_Results, feminine$Questionnaire_Scores)
correlation_thin <- cor.test(feminine$Mean_Thin_Results, feminine$Questionnaire_Scores)
correlation_plus_attract <- cor.test(feminine$Mean_Plus_Attract_Results, feminine$Questionnaire_Scores)
correlation_plus_purchase <- cor.test(feminine$Mean_Plus_Purchase_Results, feminine$Questionnaire_Scores
correlation_thin_attract <- cor.test(feminine$Mean_Thin_Attract_Results, feminine$Questionnaire_Scores)
correlation_thin_purchase <- cor.test(feminine$Mean_Thin_Purchase_Results, feminine$Questionnaire_Scores

print(correlation_plus)
```

```
##
##  Pearson's product-moment correlation
##
## data:  feminine$Mean_Plus_Results and feminine$Questionnaire_Scores
## t = 0.91678, df = 24, p-value = 0.3684
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.2190128  0.5332979
## sample estimates:
##      cor
## 0.183944
```

```r
print(correlation_thin)
```

```
##
##  Pearson's product-moment correlation
##
## data:  feminine$Mean_Thin_Results and feminine$Questionnaire_Scores
## t = 3.1255, df = 24, p-value = 0.004597
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.1901120 0.7656854
## sample estimates:
##       cor
## 0.5378561
```

```r
print(correlation_plus_attract)
```

```
##
##  Pearson's product-moment correlation
##
```

```
## data:  feminine$Mean_Plus_Attract_Results and feminine$Questionnaire_Scores
## t = 1.4061, df = 24, p-value = 0.1725
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.1248003  0.5992058
## sample estimates:
##       cor
## 0.2758886
```

```r
print(correlation_plus_purchase)
```

```
##
##  Pearson's product-moment correlation
##
## data:  feminine$Mean_Plus_Purchase_Results and feminine$Questionnaire_Scores
## t = 0.29692, df = 24, p-value = 0.7691
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.3346975  0.4375951
## sample estimates:
##        cor
## 0.06049772
```

```r
print(correlation_thin_attract)
```

```
##
##  Pearson's product-moment correlation
##
## data:  feminine$Mean_Thin_Attract_Results and feminine$Questionnaire_Scores
## t = 4.1108, df = 24, p-value = 0.0003981
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.3401248 0.8247828
## sample estimates:
##       cor
## 0.6427904
```

```r
print(correlation_thin_purchase)
```

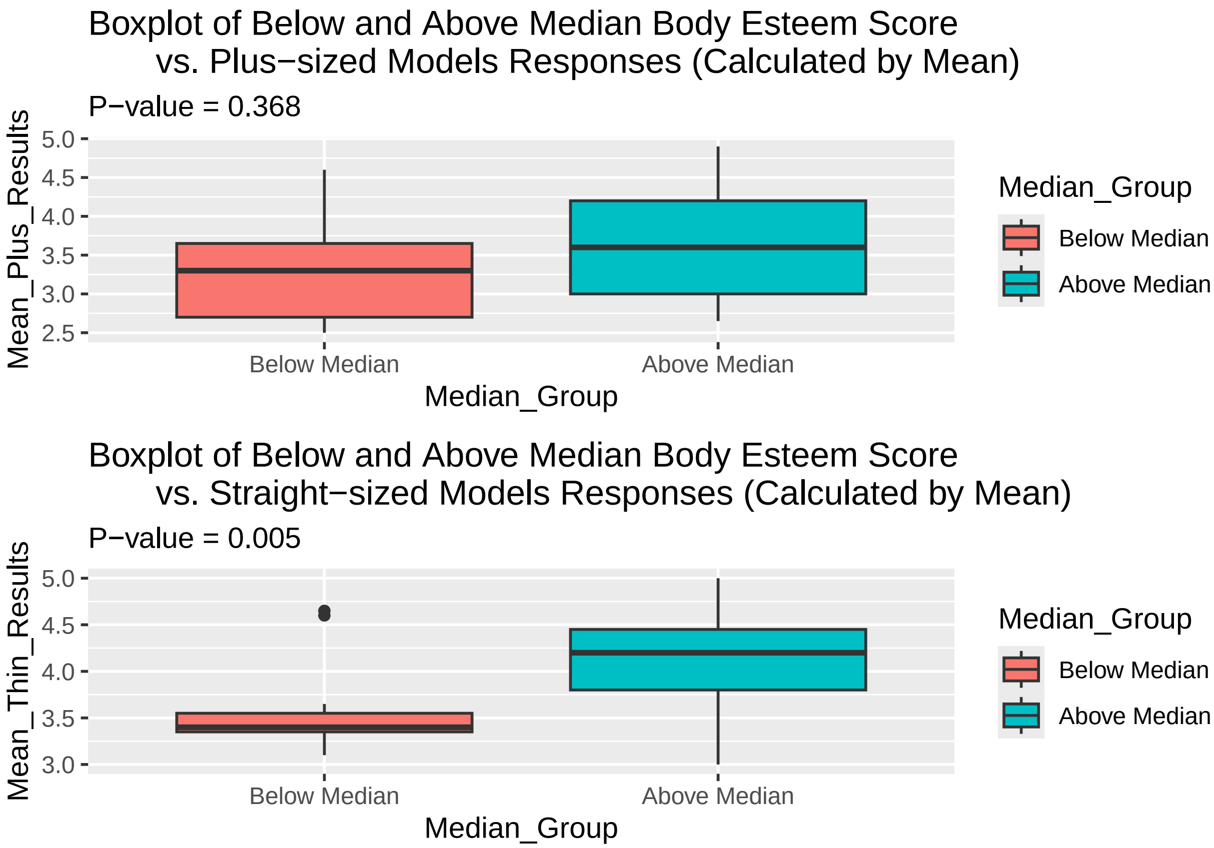
```
##
##  Pearson's product-moment correlation
##
## data:  feminine$Mean_Thin_Purchase_Results and feminine$Questionnaire_Scores
## t = 1.7151, df = 24, p-value = 0.09921
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.06527067  0.63633935
## sample estimates:
##       cor
## 0.3304356
```

```r
# ggplots
library(gridExtra)
```

```
##
## Attaching package: 'gridExtra'
```

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

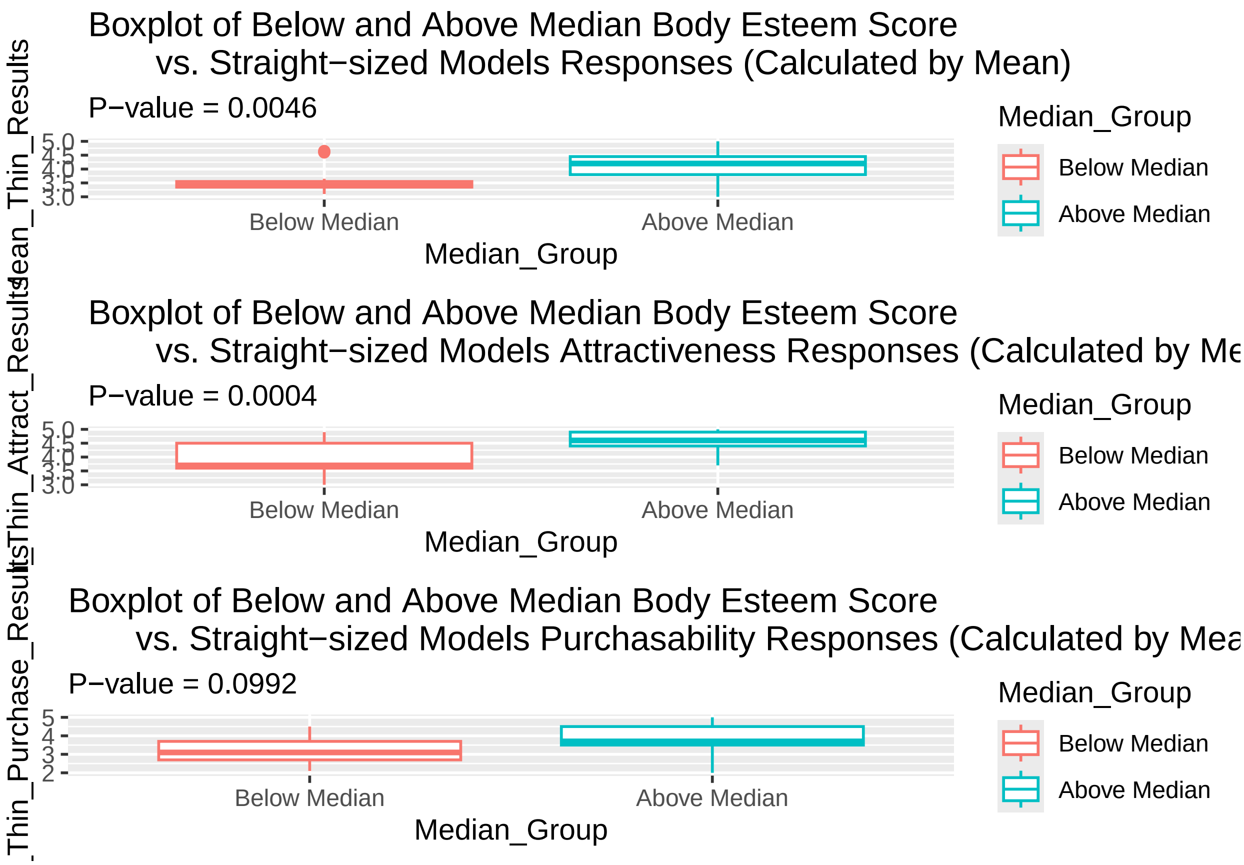
```r
# FEMININE - PLUS VS THIN BOXPLOTS

plot1 <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Plus_Results, fill = Median_G
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Plus-sized Models Responses (Calculated by Mean)",
       subtitle = "P-value = 0.368")
plot2 <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Thin_Results, fill = Median_G
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Straight-sized Models Responses (Calculated by Mean)",
       subtitle = "P-value = 0.005")
grid.arrange(plot1, plot2, nrow = 2)
```




```r
# ALL WOMEN PLUS PLOTS
plot_plus <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Plus_Results, color = Medi
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Plus-sized Models Responses (Calculated by Mean)", subtitle = "P-value = 0.368")
plot_plus_attract <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Plus_Attract_Resul
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Plus-sized Models Attractiveness Responses (Calculated by Mean)", subtitle = "P-value = 0.17
plot_plus_purchase <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Plus_Purchase_Re
```

```
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Plus-sized Models Purchasability Responses (Calculated by Mean)", subtitle = "P-value = 0.769
grid.arrange(plot_plus, plot_plus_attract, plot_plus_purchase, nrow = 3)
```


```
# ALL WOMEN THIN PLOTS
plot_thin <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Thin_Results, color = Medi
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Straight-sized Models Responses (Calculated by Mean)", subtitle = "P-value = 0.0046")
plot_thin_attract <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Thin_Attract_Resul
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Straight-sized Models Attractiveness Responses (Calculated by Mean)", subtitle = "P-value = 0
plot_thin_purchase <- ggplot(data = feminine, mapping = aes(x = Median_Group, y = Mean_Thin_Purchase_Res
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Straight-sized Models Purchasability Responses (Calculated by Mean)", subtitle = "P-value = 0
grid.arrange(plot_thin, plot_thin_attract, plot_thin_purchase, nrow = 3)
```




```
# Masculine
masculine <- subset(qualtrics, Masc_fem == "Masculine")
cols_to_remove_m <- grep("Fem", names(masculine), value = TRUE)
masculine <- masculine[, !(names(masculine) %in% cols_to_remove_m)]

masc_plus_cols <- names(masculine)[grep("Masc_Plus", names(masculine))]
masc_plus_attract <- names(masculine)[grep("Masc_Plus_Attract", names(masculine))]
masc_plus_purchase <- names(masculine)[grep("Masc_Plus_Purchase", names(masculine))]
masc_thin_cols <- names(masculine)[grep("Masc_Thin", names(masculine))]
masc_thin_attract <- names(masculine)[grep("Masc_Thin_Attract", names(masculine))]
masc_thin_purchase <- names(masculine)[grep("Masc_Thin_Purchase", names(masculine))]

masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Plus_Results = mean(c_across(masc_plus_cols), na.rm = TRUE))
masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Thin_Results = mean(c_across(masc_thin_cols), na.rm = TRUE))
masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Plus_Attract_Results = mean(c_across(masc_plus_attract), na.rm = TRUE))
masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Plus_Purchase_Results = mean(c_across(masc_plus_purchase), na.rm = TRUE))
masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Thin_Attract_Results = mean(c_across(masc_thin_attract), na.rm = TRUE))
```

```r
masculine <- masculine %>%
  rowwise() %>%
  mutate(Mean_Thin_Purchase_Results = mean(c_across(masc_thin_purchase), na.rm = TRUE))

correlation_plus_m <- cor.test(masculine$Mean_Plus_Results, masculine$Questionnaire_Scores)
correlation_thin_m <- cor.test(masculine$Mean_Thin_Results, masculine$Questionnaire_Scores)
correlation_plus_attract_m <- cor.test(masculine$Mean_Plus_Attract_Results, masculine$Questionnaire_Sco
correlation_plus_purchase_m <- cor.test(masculine$Mean_Plus_Purchase_Results, masculine$Questionnaire_S
correlation_thin_attract_m <- cor.test(masculine$Mean_Thin_Attract_Results, masculine$Questionnaire_Sco
correlation_thin_purchase_m <- cor.test(masculine$Mean_Thin_Purchase_Results, masculine$Questionnaire_S

print(correlation_plus_m)
```

```
##
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Plus_Results and masculine$Questionnaire_Scores
## t = -1.8196, df = 25, p-value = 0.08081
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.63895865  0.04371215
## sample estimates:
##        cor
## -0.3419826
```

```r
print(correlation_thin_m)
```

```
##
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Thin_Results and masculine$Questionnaire_Scores
## t = -0.55543, df = 25, p-value = 0.5835
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.4706739  0.2814133
## sample estimates:
##        cor
## -0.1104078
```

```r
print(correlation_plus_attract_m)
```

```
##
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Plus_Attract_Results and masculine$Questionnaire_Scores
## t = -2.5598, df = 25, p-value = 0.0169
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.71235673 -0.09154346
## sample estimates:
##        cor
## -0.4557045
```

```r
print(correlation_plus_purchase_m)
```

```
##
```

```
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Plus_Purchase_Results and masculine$Questionnaire_Scores
## t = -0.84451, df = 25, p-value = 0.4064
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.5140254  0.2278935
## sample estimates:
##        cor
## -0.1665436
```

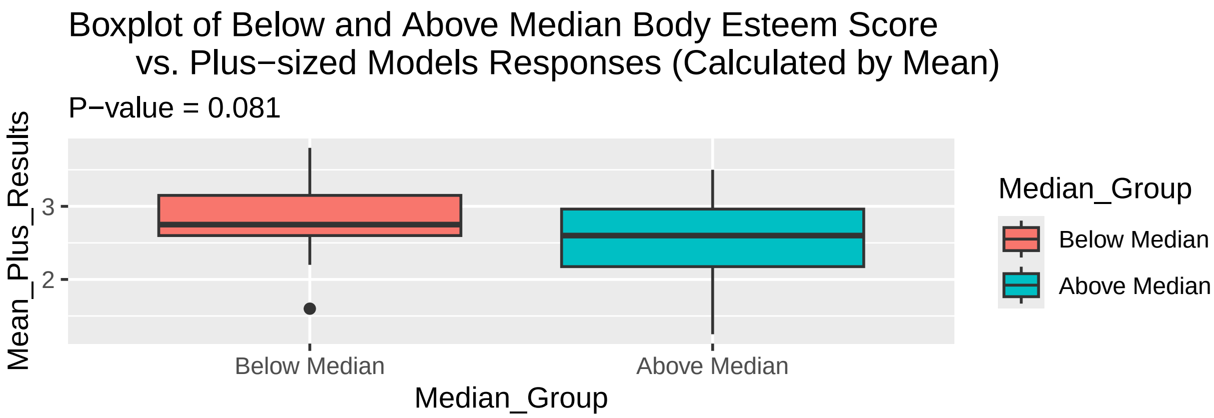
```
print(correlation_thin_attract_m)
```

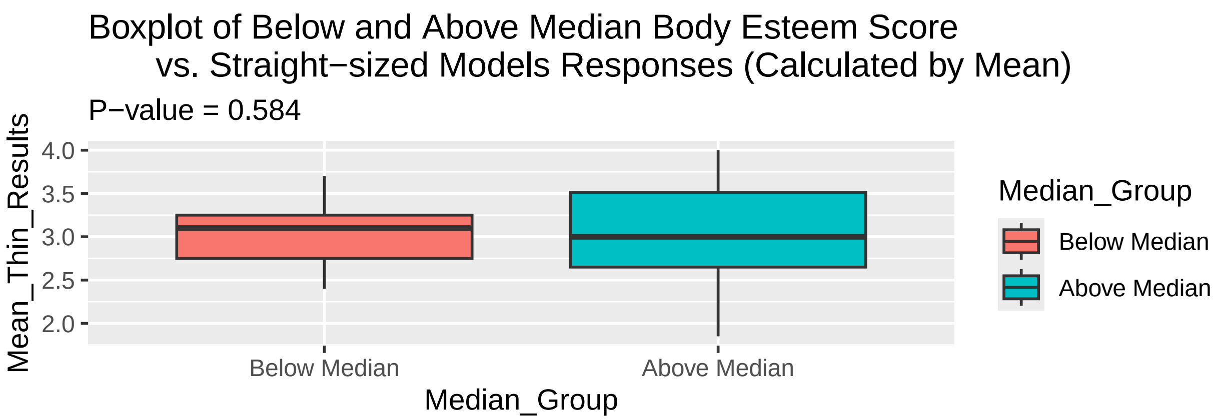
```
##
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Thin_Attract_Results and masculine$Questionnaire_Scores
## t = -0.032173, df = 25, p-value = 0.9746
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.3855058  0.3744952
## sample estimates:
##          cor
## -0.006434507
```

```
print(correlation_thin_purchase_m)
```

```
##
##  Pearson's product-moment correlation
##
## data:  masculine$Mean_Thin_Purchase_Results and masculine$Questionnaire_Scores
## t = -0.83029, df = 25, p-value = 0.4142
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.5119589  0.2305507
## sample estimates:
##        cor
## -0.1638155
```

```
masculine <- na.omit(masculine)

# MASCULINE - PLUS VS THIN

masc_plus_plot <- ggplot(data = masculine, mapping = aes(x = Median_Group, y = Mean_Plus_Results, fill =
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Plus-sized Models Responses (Calculated by Mean)",
       subtitle = "P-value = 0.081")
masc_thin_plot <- ggplot(data = masculine, mapping = aes(x = Median_Group, y = Mean_Thin_Results, fill =
  geom_boxplot() +
  labs(title = "Boxplot of Below and Above Median Body Esteem Score
       vs. Straight-sized Models Responses (Calculated by Mean)",
       subtitle = "P-value = 0.584")
grid.arrange(masc_plus_plot, masc_thin_plot, nrow = 2)
```


Boxplot of Below and Above Median Body Esteem Score
vs. Plus−sized Models Responses (Calculated by Mean)
P−value = 0.081
Mean_Plus_Results
3
2
Below Median
Above Median
Median_Group
Median_Group
Below Median
Above Median


Boxplot of Below and Above Median Body Esteem Score
vs. Straight−sized Models Responses (Calculated by Mean)
P−value = 0.584
Mean_Thin_Results
4.0
3.5
3.0
2.5
2.0
Below Median
Above Median
Median_Group
Median_Group
Below Median
Above Median