Untitled

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```
library(tidyverse)
library(kableExtra)
```

8.4

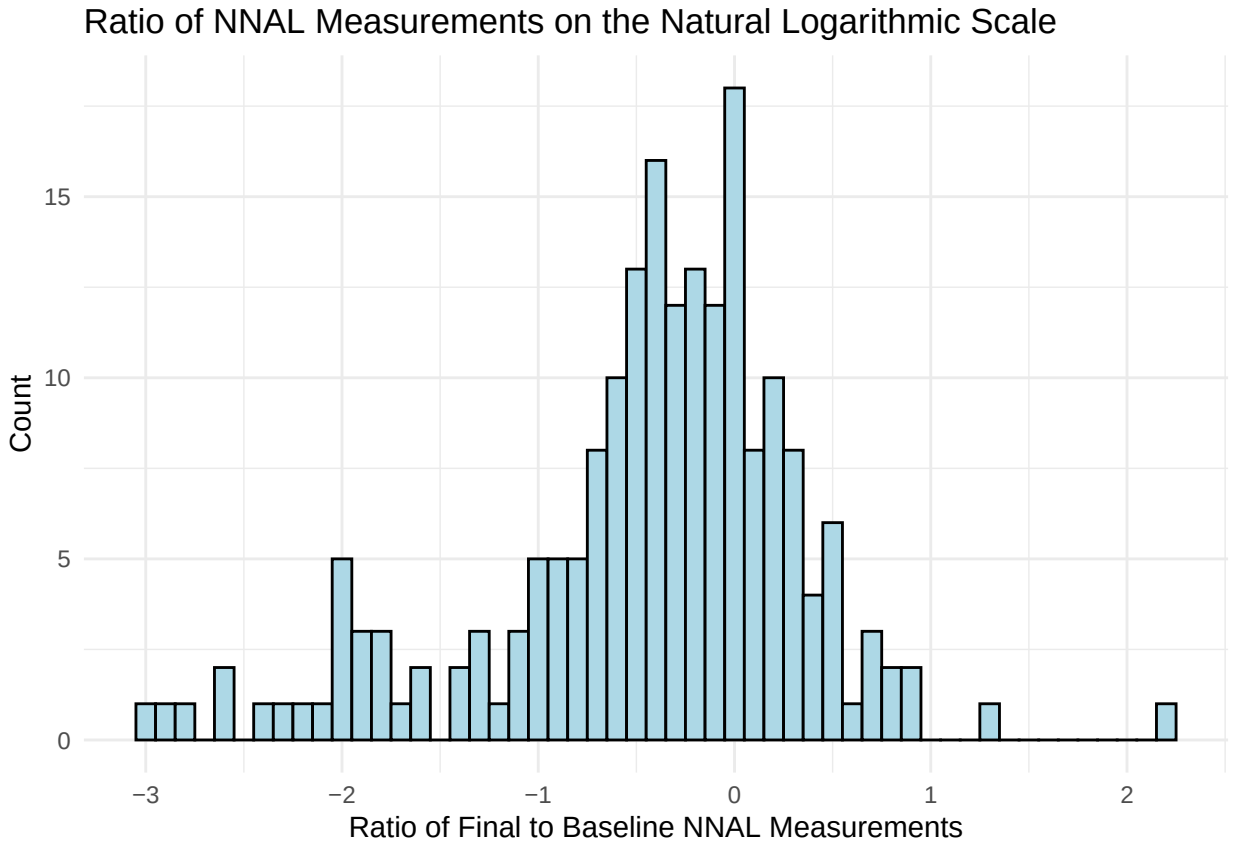
```
e_cig_3 <- read_xlsx("/Users/denisostroushko/Desktop/UofM MS/MS Fall 2022/Puhb 7405/Data Sets/E-CID-3.x
```

8.4 - A

```
knitr::opts_chunk$set(out.height = "\\textheight",  out.width = "\\textwidth")

 #response
e_cig_3$Y1 <-log( e_cig_3$NNAL_vt4_creat/e_cig_3$NNAL_vt0_creat )


ggplot(data = e_cig_3,
       aes(x = Y1)) +
  geom_histogram(binwidth = .1, color = "black", fill = "light blue") +
  theme_minimal() +
  ylab("Count") +
  xlab("Ratio of Final to Baseline NNAL Measurements") +
  ggtitle("Ratio of NNAL Measurements on the Natural Logarithmic Scale")
```




```
e_cig_3_model_data <-
  e_cig_3 %>% select(arm, age, gender, white, educ2, income30, FTND, Y1)

model_8.4 <- lm(Y1 ~ ., data = e_cig_3_model_data)

model_8.4_res <- summary(model_8.4)

model_8.4_res_df <- data.frame(model_8.4_res$coefficients)

model_8.4_res_df$var <- rownames(model_8.4_res_df)

rownames(model_8.4_res_df) <- NULL
model_8.4_res_df <- model_8.4_res_df %>% select(var, everything())

model_8.4_res_df <-
  model_8.4_res_df %>% mutate_at(vars(Estimate, `Std..Error`, t.value, `Pr...t..`),
                                 funs(round(., 3)
                                      )
                                 )
colnames(model_8.4_res_df) <- c("Predictor", "Estiamte", "Standard Error", "T Value", "P value")

model_8.4_res_df %>%
  kbl(booktabs = T, align = c('l','c', 'c', 'c', 'c')) %>%
  kable_styling(latex_options = c("striped"))
```

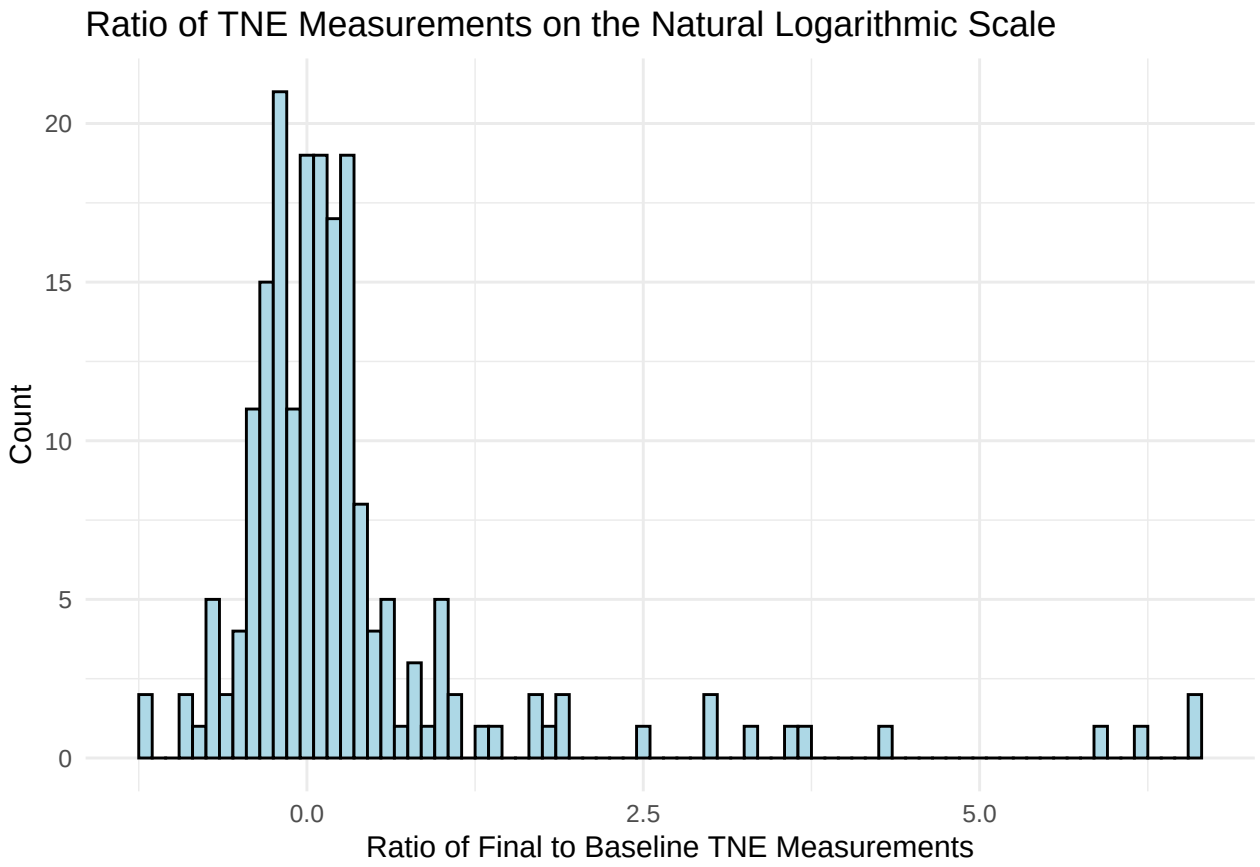
Predictor	Estiamte	Standard Error	T Value	P value
(Intercept)	0.324	0.548	0.592	0.554
arm	-0.016	0.057	-0.285	0.776
age	-0.005	0.004	-1.068	0.287
gender	-0.100	0.116	-0.863	0.389
white	-0.113	0.124	-0.913	0.363
educ2	-0.068	0.119	-0.567	0.571
income30	-0.250	0.129	-1.944	0.053
FTND	0.060	0.045	1.323	0.187

8.4 - B

```
knitr::opts_chunk$set(out.height = "\\textheight",  out.width = "\\textwidth")

 #response
e_cig_3$Y2 <-log( e_cig_3$TNE_vt0_creat /e_cig_3$TNE_vt4_creat )


ggplot(data = e_cig_3,
       aes(x = Y2)) +
  geom_histogram(binwidth = .1, color = "black", fill = "light blue") +
  theme_minimal() +
  ylab("Count") +
  xlab("Ratio of Final to Baseline TNE Measurements") +
  ggtitle("Ratio of TNE Measurements on the Natural Logarithmic Scale")
```




```
e_cig_3_model_data <-
  e_cig_3 %>% select(arm, age, gender, white, educ2, income30, FTND, Y2)

model_8.4 <- lm(Y2 ~ ., data = e_cig_3_model_data)

model_8.4_res <- summary(model_8.4)

model_8.4_res_df <- data.frame(model_8.4_res$coefficients)

model_8.4_res_df$var <- rownames(model_8.4_res_df)

rownames(model_8.4_res_df) <- NULL
model_8.4_res_df <- model_8.4_res_df %>% select(var, everything())

model_8.4_res_df <-
  model_8.4_res_df %>% mutate_at(vars(Estimate, `Std..Error`, t.value, `Pr...t..`),
                                 funs(round(., 3)
                                      )
                                 )
colnames(model_8.4_res_df) <- c("Predictor", "Estiamte", "Standard Error", "T Value", "P value")

model_8.4_res_df %>%
  kbl(booktabs = T, align = c('l','c', 'c', 'c', 'c')) %>%
  kable_styling(latex_options = c("striped"))
```

Predictor	Estiamte	Standard Error	T Value	P value
(Intercept)	-0.074	0.810	-0.092	0.927
arm	-0.041	0.085	-0.481	0.631
age	0.003	0.007	0.490	0.625
gender	0.084	0.172	0.492	0.624
white	0.101	0.183	0.551	0.582
educ2	0.206	0.177	1.168	0.244
income30	0.216	0.190	1.138	0.257
FTND	-0.074	0.067	-1.114	0.267

#9.3