Final Project

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2025-04-07

Reading in CAV data and packages

```
cavdata <- read.csv("C:/Users/katie/OneDrive/Documents/CAV_project/cav_results_3.16.25.csv")
library(ggplot2)
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.4.2
```

```
## Warning: package 'dplyr' was built under R version 4.4.2
```

```
## -- Attaching core tidyverse packages ----------------------- tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v lubridate 1.9.3     v tibble    3.2.1
## v purrr     1.0.2     v tidyr     1.3.1
## -- Conflicts -------------------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(tidyr)
library(ggpubr)
```

```
Warning: package 'ggpubr' was built under R version 4.4.3
```

Descriptives of CAV data

```
# Age
ggplot(cavdata, aes(Age)) +
 geom_density(fill = "blue", alpha = 0.7) +
  labs(title = "Age Density Plot", x = "Age", y = "Density") +
  theme_minimal()
```

Age Density Plot
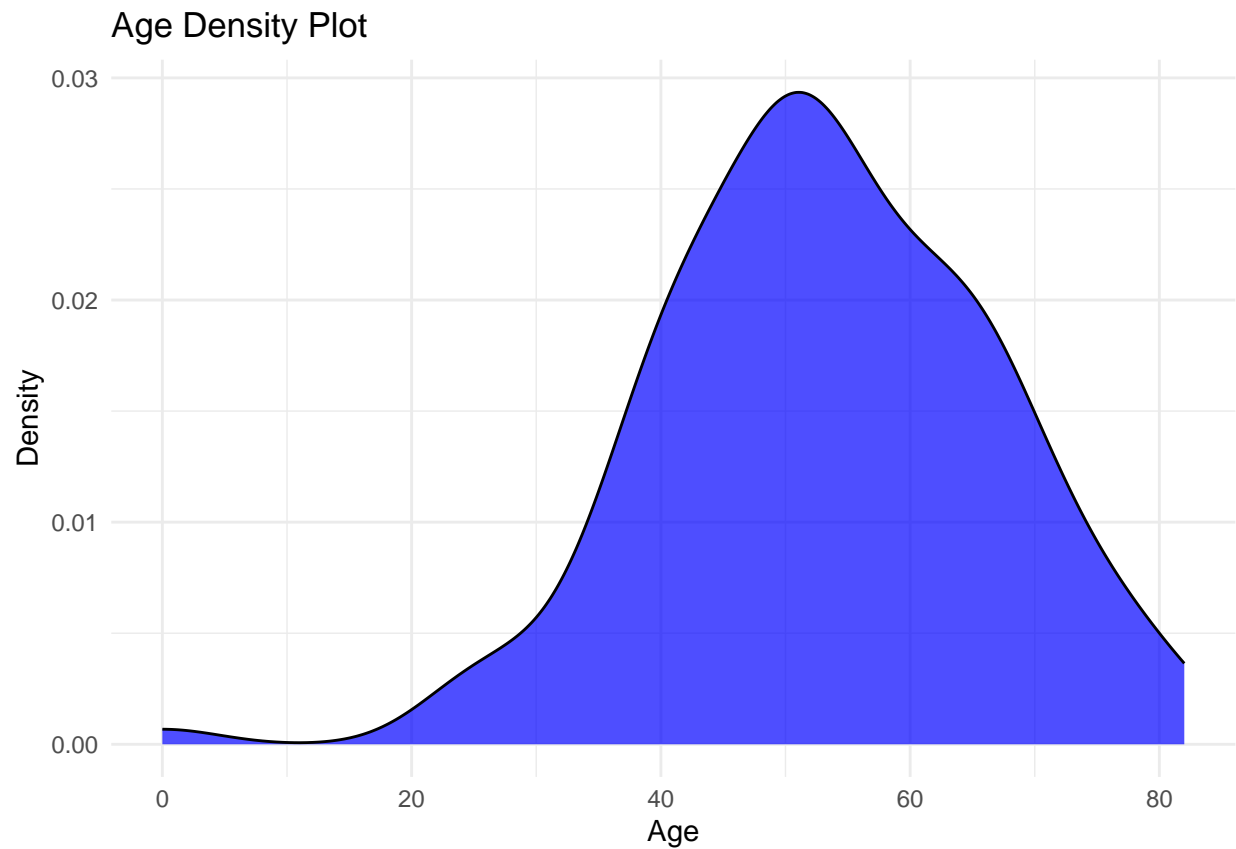

```r
# Gender
library(dplyr)
cavdata <- cavdata %>%
  mutate(Gender = case_when(
    Gender == 1 ~ 1,
    Gender == 2 ~ 2,
    Gender %in% 4:7 ~ 3,
    TRUE ~ Gender
  ))
cavdata$Gender <- factor(cavdata$Gender,
                         levels = c(1, 2, 3),
                         labels = c("Male", "Female", "Other/Prefer not to say"))
ggplot(cavdata, aes(x = Gender)) +
  geom_bar(fill = "skyblue", color = "black") +
  labs(title = "Gender Distribution", x = "Gender", y = "Count") +
  theme_minimal()
```

Gender Distribution
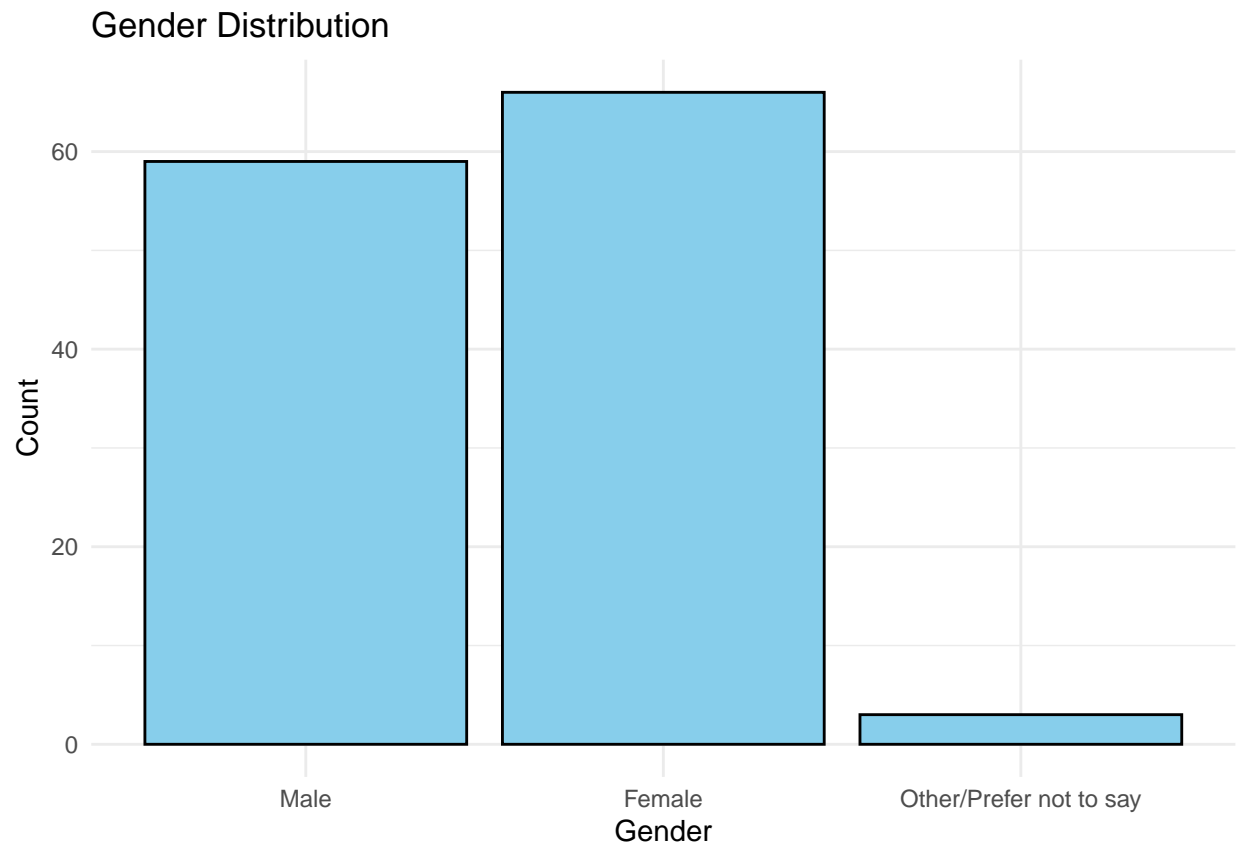

```
#Role

#Service Type

# Years in military
ggplot(cavdata, aes(Years_in_military)) +
 geom_histogram(fill = "red", alpha = 0.7, bins = 10) +
  labs(title = "Years Served Density Plot", x = "Years", y = "Density") +
  theme_minimal()
```

Years Served Density Plot
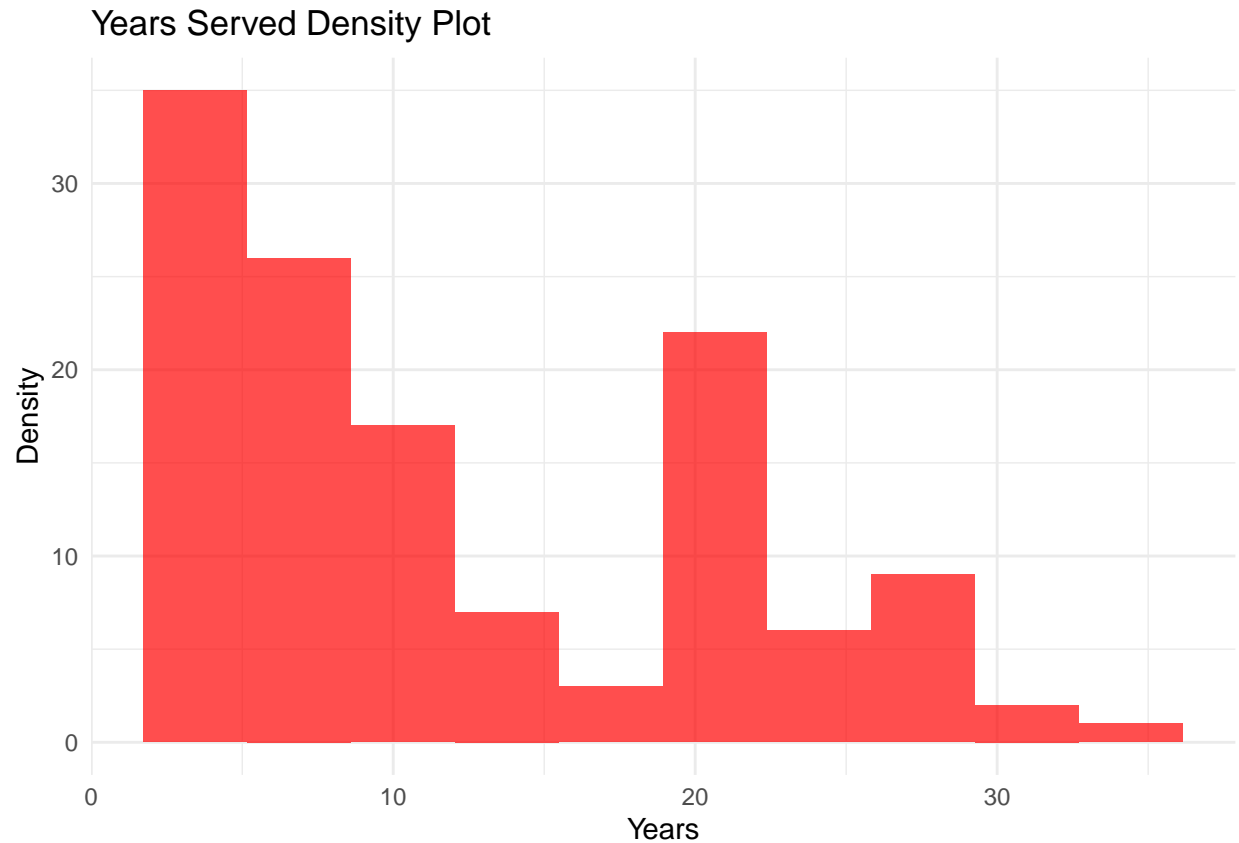
Likert item scores

```
cavdata.likert<- cavdata%>%
  select(Liked_art_supplies, Enjoyed_art_exercises, CAV_improved_mood, CAV_provided_strategies, Would_re

#creating the proper levels
cavdata.likert$Liked_art_supplies <- factor(
  cavdata.likert$Liked_art_supplies,
  levels = c("1", "2", "3", "4", "5", "6")
)

# Plotting with the correct labels
ggplot(cavdata.likert, aes(x = Liked_art_supplies)) +
  geom_bar(fill = "skyblue", color = "black") +
  scale_x_discrete(labels = c(
    "1" = "Strongly Agree",
    "2" = "Somewhat Agree",
    "3" = "Neither Agree nor Disagree",
    "4" = "Somewhat Disagree",
    "5" = "Strongly Disagree",
    "6" = "Don't Know/Unsure"
  )) +
  labs(title = "#1 Likert: I liked the art materials that were supplied.", x = "Likert Ratings", y = "Co
  theme_minimal()
```

## #1 Likert: I liked the art materials that were supplied.
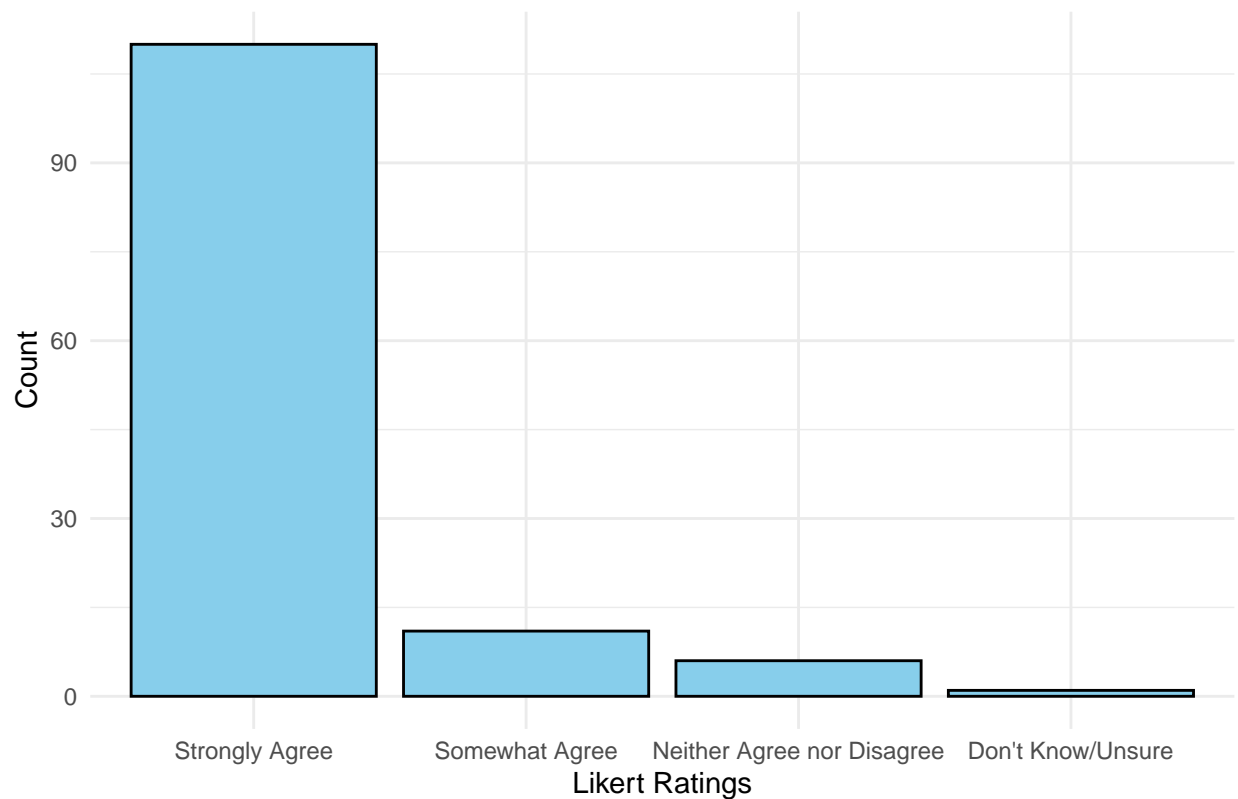

```r
# Likert item 2
cavdata.likert$Enjoyed_art_exercises <- factor(
  cavdata.likert$Enjoyed_art_exercises,
  levels = c("1", "2", "3", "4", "5", "6")
)

# Plot
ggplot(cavdata.likert, aes(x = Enjoyed_art_exercises)) +
  geom_bar(fill = "forestgreen", color = "black") +
  scale_x_discrete(labels = c(
    "1" = "Strongly Agree",
    "2" = "Somewhat Agree",
    "3" = "Neither Agree nor Disagree",
    "4" = "Somewhat Disagree",
    "5" = "Strongly Disagree",
    "6" = "Don't Know/Unsure"
  )) +
  labs(title = "#2 Likert: I enjoyed using the art-based wellness exercises", x = "Likert Ratings", y =
  theme_minimal()
```

#2 Likert: I enjoyed using the art–based wellness exercises
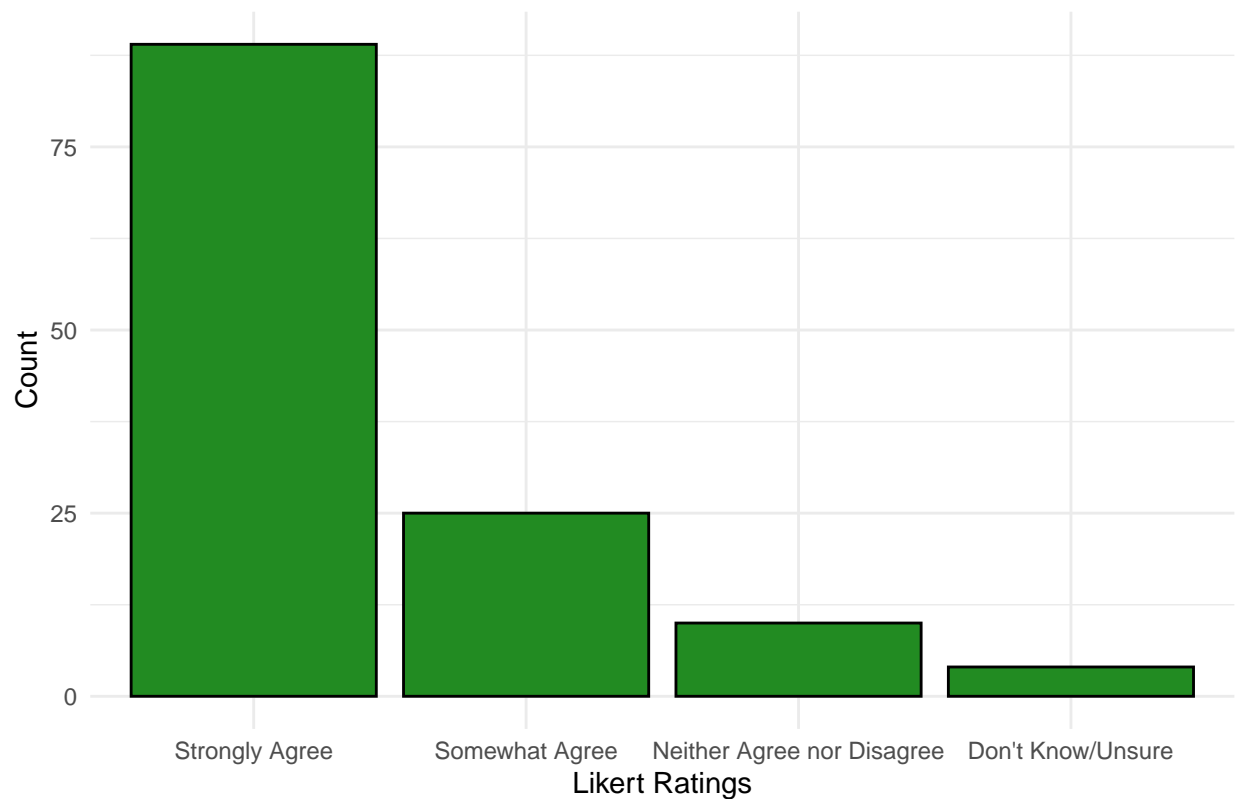

```
# Likert item 3
cavdata.likert$CAV_improved_mood <- factor(
  cavdata.likert$CAV_improved_mood,
  levels = c("1", "2", "3", "4", "5", "6")
)

# Plot
ggplot(cavdata.likert, aes(x = CAV_improved_mood)) +
  geom_bar(fill = "orange", color = "black") +
  scale_x_discrete(labels = c(
    "1" = "Strongly Agree",
    "2" = "Somewhat Agree",
    "3" = "Neither Agree nor Disagree",
    "4" = "Somewhat Disagree",
    "5" = "Strongly Disagree",
    "6" = "Don't Know/Unsure"
  )) +
  labs(title = "#3 Likert: Using the CAV Book improved my mood.", x = "Likert Ratings", y = "Count") +
  theme_minimal()
```

#3 Likert: Using the CAV Book improved my mood.
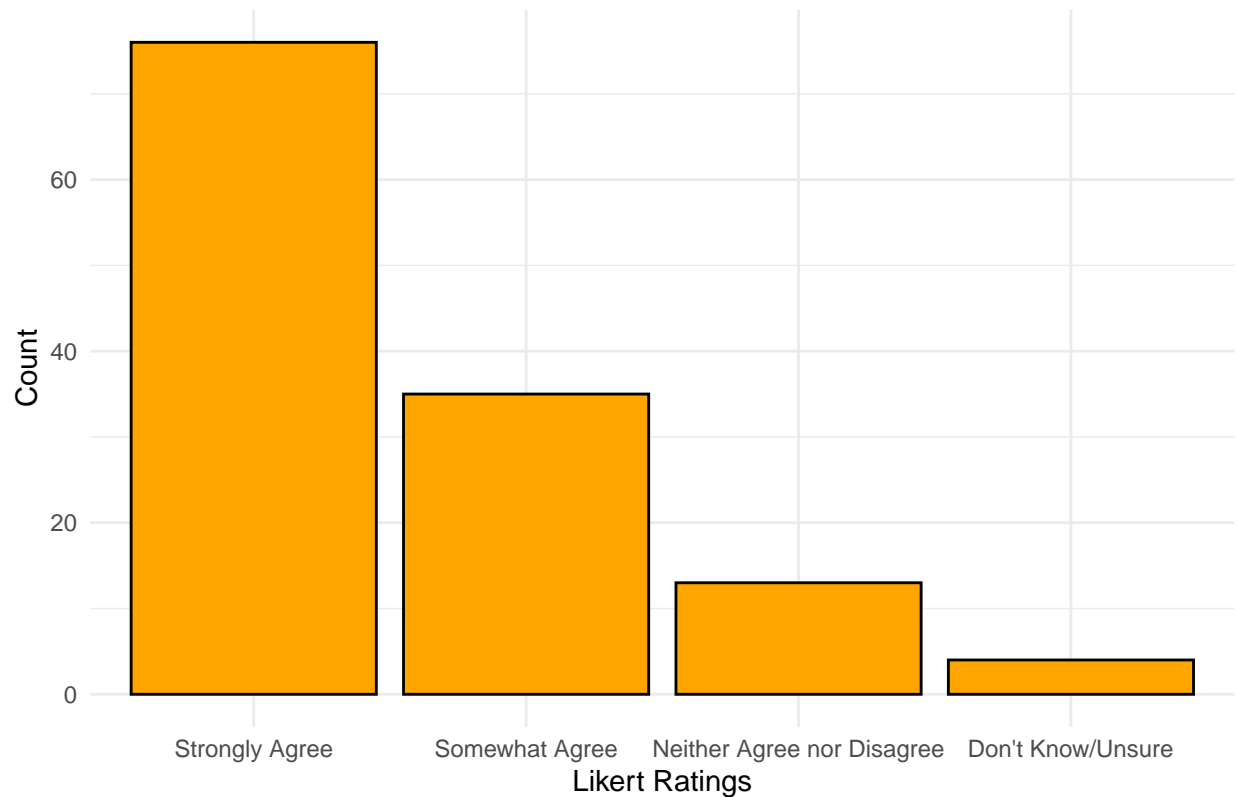

```r
# Likert item 4
cavdata.likert$CAV_provided_strategies <- factor(
  cavdata.likert$CAV_provided_strategies,
  levels = c("1", "2", "3", "4", "5", "6")
)

# Plot
ggplot(cavdata.likert, aes(x = CAV_provided_strategies)) +
  geom_bar(fill = "pink", color = "black") +
  scale_x_discrete(labels = c(
    "1" = "Strongly Agree",
    "2" = "Somewhat Agree",
    "3" = "Neither Agree nor Disagree",
    "4" = "Somewhat Disagree",
    "5" = "Strongly Disagree",
    "6" = "Don't Know/Unsure"
  )) +
  labs(title = "#4 Likert: The CAV Book provided me with strategies to work through personal challenges
  theme_minimal()
```

#4 Likert: The CAV Book provided me with strategies to work through perso...
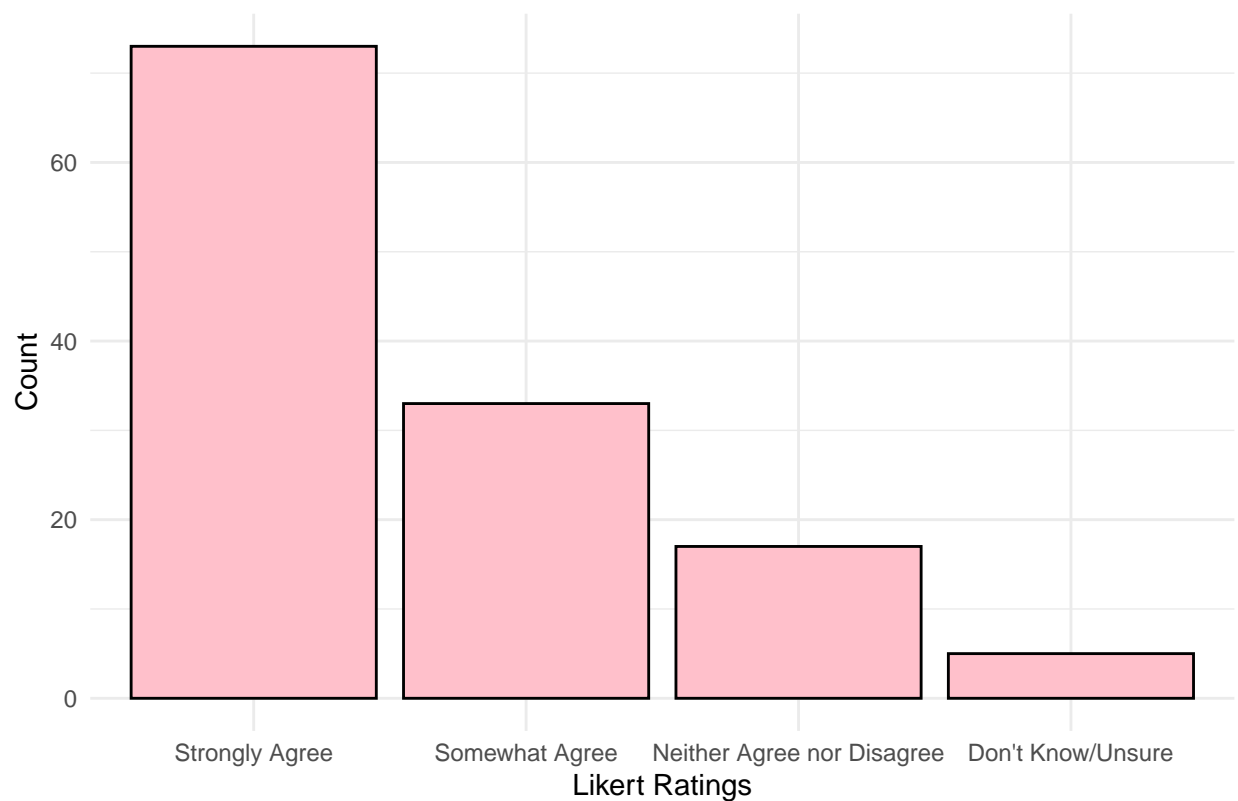

```r
# Likert item 5
cavdata.likert$Would_recommend_CAV <- factor(
  cavdata.likert$Would_recommend_CAV,
  levels = c("1", "2", "3", "4", "5", "6")
)

# Plot
ggplot(cavdata.likert, aes(x = Would_recommend_CAV)) +
  geom_bar(fill = "purple", color = "black") +
  scale_x_discrete(labels = c(
    "1" = "Strongly Agree",
    "2" = "Somewhat Agree",
    "3" = "Neither Agree nor Disagree",
    "4" = "Somewhat Disagree",
    "5" = "Strongly Disagree",
    "6" = "Don't Know/Unsure"
  )) +
  labs(title = "#5 Likert: I would recommend the CAV Book to others with military experience.", x = "Lil
  theme_minimal()
```

#5 Likert: I would recommend the CAV Book to others with military experien
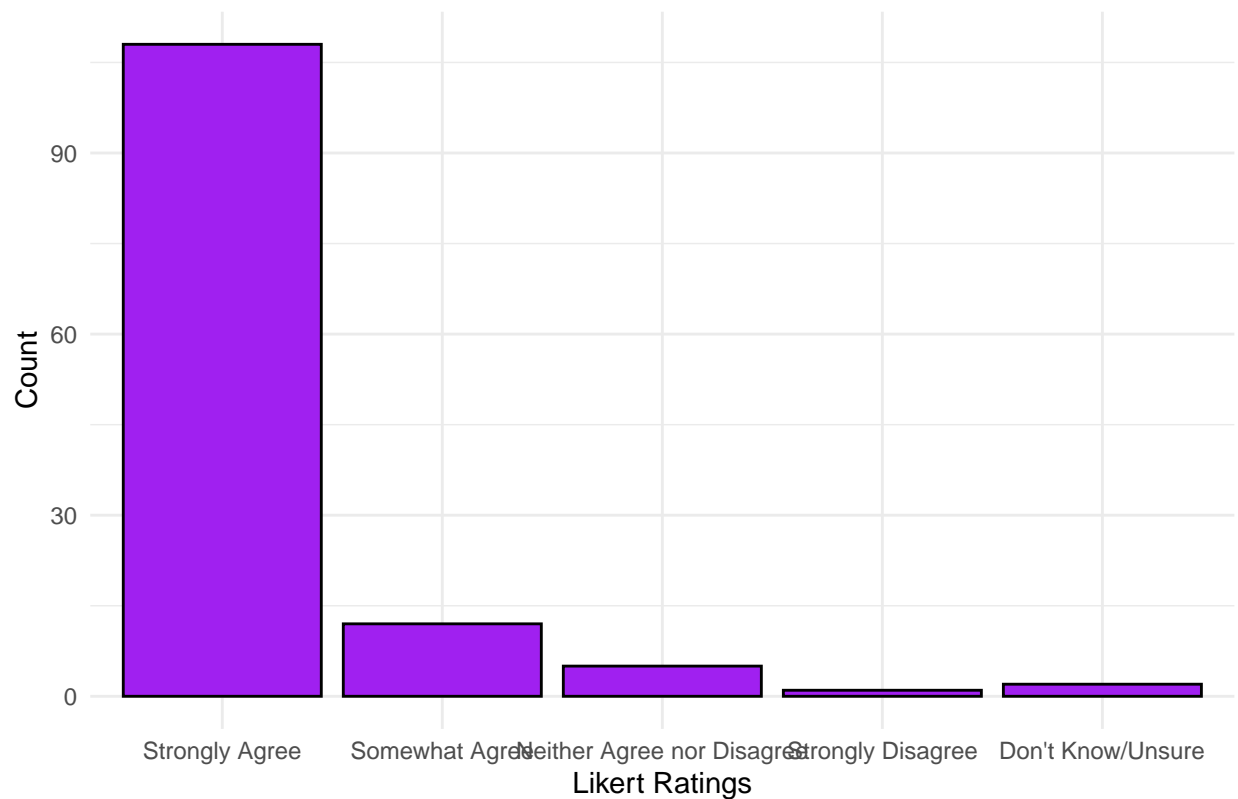
Correlations between Likert items

```r
cor.test(cavdata$CAV_improved_mood, cavdata$CAV_provided_strategies, data = cavdata)
```

```
##
##  Pearson's product-moment correlation
##
## data:  cavdata$CAV_improved_mood and cavdata$CAV_provided_strategies
## t = 16.075, df = 126, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.7535657 0.8696799
## sample estimates:
##       cor
## 0.8198829
```

```r
cor.test(cavdata$Liked_art_supplies, cavdata$CAV_improved_mood, data = cavdata)
```

```
##
##  Pearson's product-moment correlation
##
## data:  cavdata$Liked_art_supplies and cavdata$CAV_improved_mood
## t = 8.1593, df = 126, p-value = 2.944e-13
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
```

```
##   0.4615294 0.6909973
## sample estimates:
##       cor
## 0.5879698
```

```
cor.test(cavdata$Enjoyed_art_exercises, cavdata$CAV_improved_mood, data = cavdata)
```

```
##
##  Pearson's product-moment correlation
##
## data:  cavdata$Enjoyed_art_exercises and cavdata$CAV_improved_mood
## t = 20.856, df = 126, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##   0.8345591 0.9143745
## sample estimates:
##       cor
## 0.8805649
```

```
cor.test(cavdata$Would_recommend_CAV, cavdata$CAV_improved_mood, data = cavdata)
```

```
##
##  Pearson's product-moment correlation
##
## data:  cavdata$Would_recommend_CAV and cavdata$CAV_improved_mood
## t = 7.7806, df = 126, p-value = 2.256e-12
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##   0.4396081 0.6763490
## sample estimates:
##       cor
## 0.5696803
```

Interactions:

```
lm.interaction <- lm(Age ~ Years_in_military*Enjoyed_art_exercises, data = cavdata)
print(lm.interaction)
```

```
##
## Call:
## lm(formula = Age ~ Years_in_military * Enjoyed_art_exercises,
##     data = cavdata)
##
## Coefficients:
##                           (Intercept)
##                               53.1189
##                     Years_in_military
##                                0.1775
##                 Enjoyed_art_exercises
##                               -0.2455
## Years_in_military:Enjoyed_art_exercises
##                               -0.1100
```

```
lm.interaction2 <- lm(Age ~ Years_in_military*CAV_improved_mood, data = cavdata)
print(lm.interaction2)
```

```
##
## Call:
## lm(formula = Age ~ Years_in_military * CAV_improved_mood, data = cavdata)
##
## Coefficients:
##                    (Intercept)                Years_in_military
##                        54.39083                          0.08128
##              CAV_improved_mood  Years_in_military:CAV_improved_mood
##                       -0.92317                          -0.04750
```

```
lm.interaction3 <- lm(Age~Years_in_military*Would_recommend_CAV, data = cavdata)
print(lm.interaction3)
```

```
##
## Call:
## lm(formula = Age ~ Years_in_military * Would_recommend_CAV, data = cavdata)
##
## Coefficients:
##                     (Intercept)                  Years_in_military
##                        54.93908                            0.07140
##             Would_recommend_CAV  Years_in_military:Would_recommend_CAV
##                        -1.86986                           -0.02675
```

```
lm.interaction4 <- lm(Age~Years_in_military*CAV_provided_strategies, data = cavdata)
print(lm.interaction4)
```

```
##
## Call:
## lm(formula = Age ~ Years_in_military * CAV_provided_strategies,
##     data = cavdata)
##
## Coefficients:
##                        (Intercept)
##                           53.66920
##                  Years_in_military
##                            0.09840
##            CAV_provided_strategies
##                           -0.60069
## Years_in_military:CAV_provided_strategies
##                           -0.04208
```

```
lm.interaction5 <- lm(Age~Years_in_military*Liked_art_supplies, data = cavdata)
print(lm.interaction5)
```

```
##
## Call:
## lm(formula = Age ~ Years_in_military * Liked_art_supplies, data = cavdata)
##
```

```
## Coefficients:
##                   (Intercept)                 Years_in_military
##                       48.8702                            0.5771
##             Liked_art_supplies  Years_in_military:Liked_art_supplies
##                        3.1339                           -0.4820
```

link to my github