Final Project 04242025

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Methods

This is archival data from a Qualtrics survey for the Creative Arts for Veterans (CAV), an art therapy inspired self-paced book. Participants who have some connection with the military whether they are active, reserved or married to someone in the service are encouraged to partake in this resource. Participants are guided through an art-therapy inspired book, which will teach them self-regulation skills to cope with adverse life events through a military lens. [Here is the link to the Creative Arts for vets webpage, which was created by Indiana University.] (https://rural.indiana.edu/focus/arts-culture/creative-arts-for-vets/index.html)

Purpose

The purpose of this project is to visualize the data, which was collected since June of 2023.

Reading in CAV data and packages

```r
cavdata <- read.csv("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 error
```
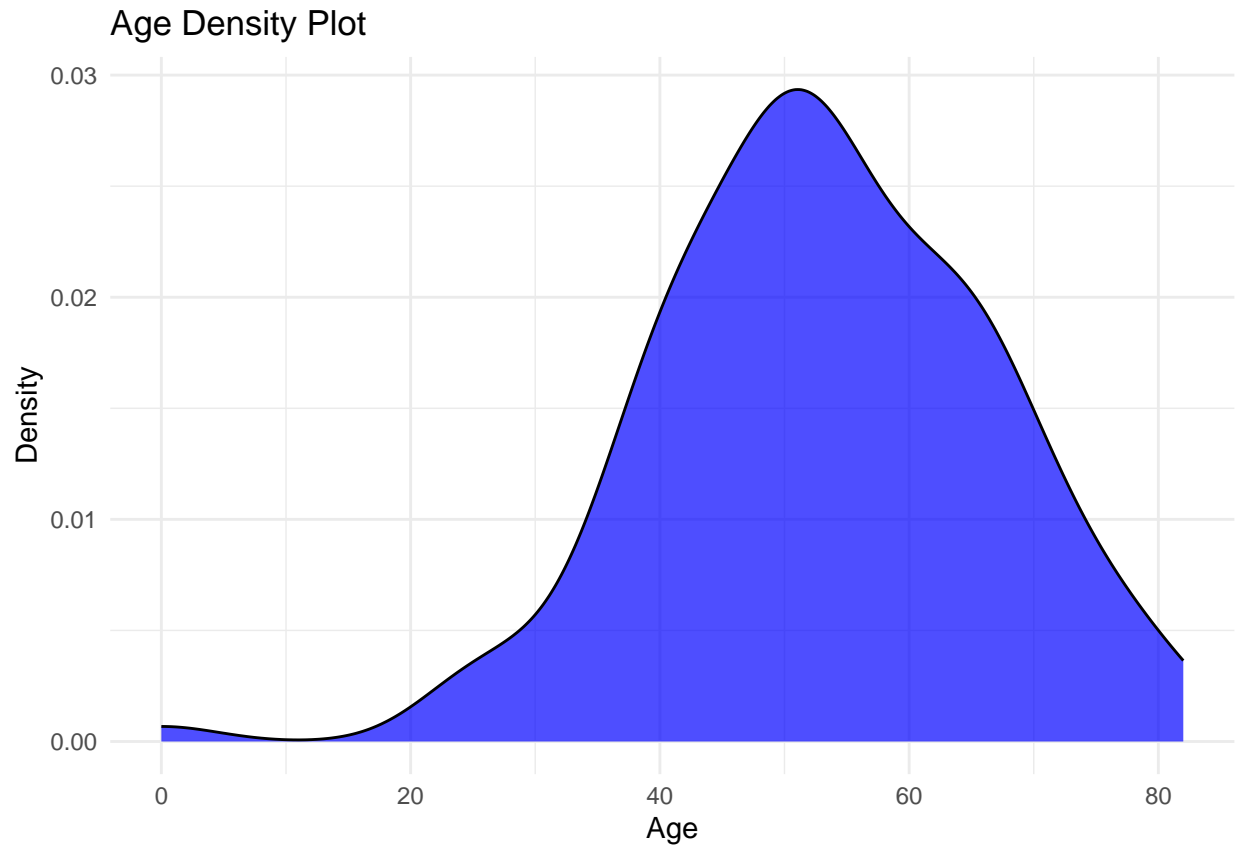
```r
library(tidyr)
library(ggpubr)
```

```
## 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

```
# 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
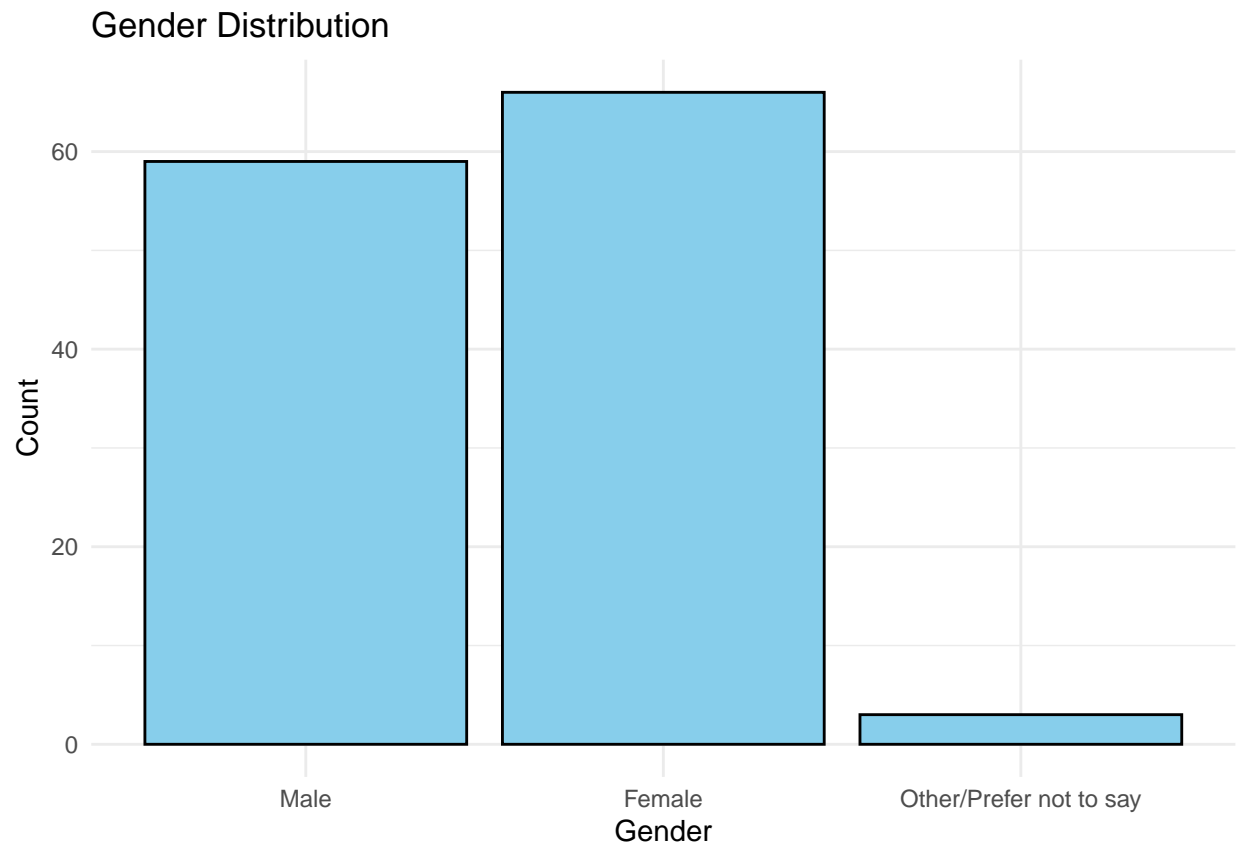

```r
#Role

#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
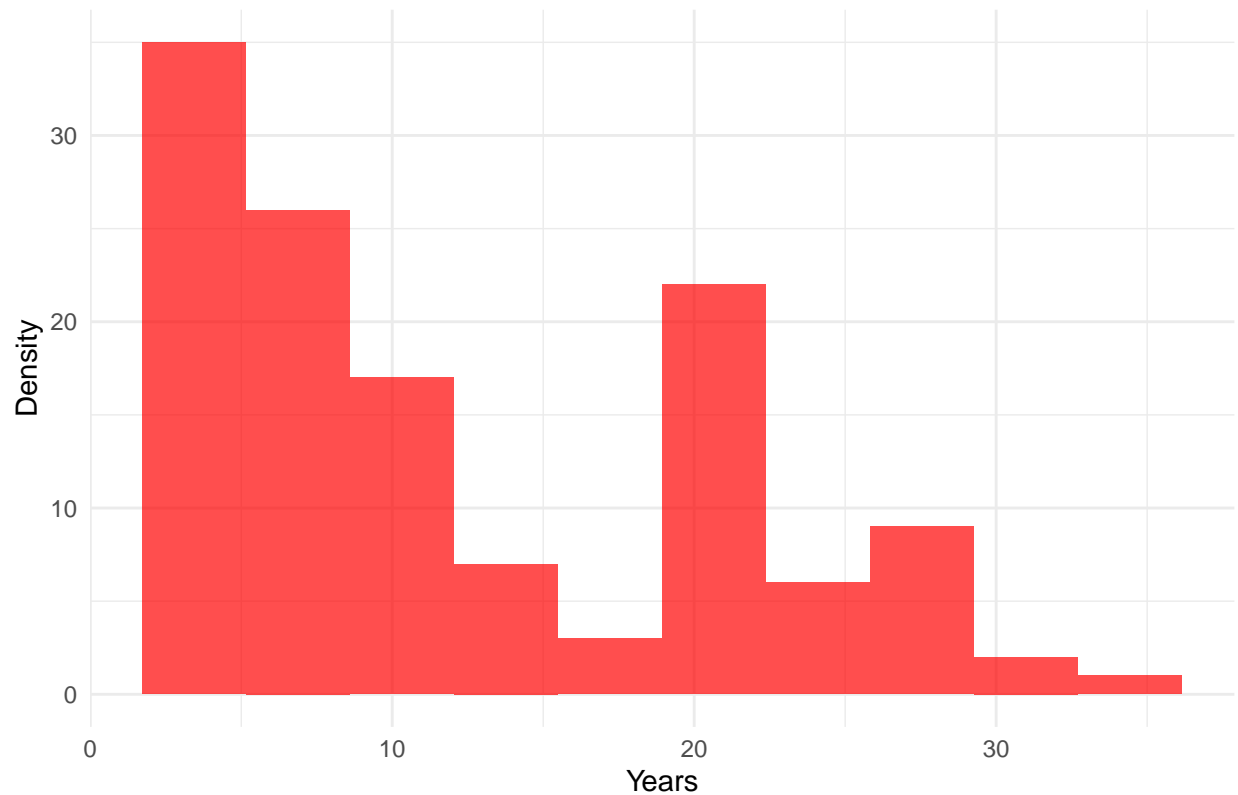
Likert item scores

```
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.
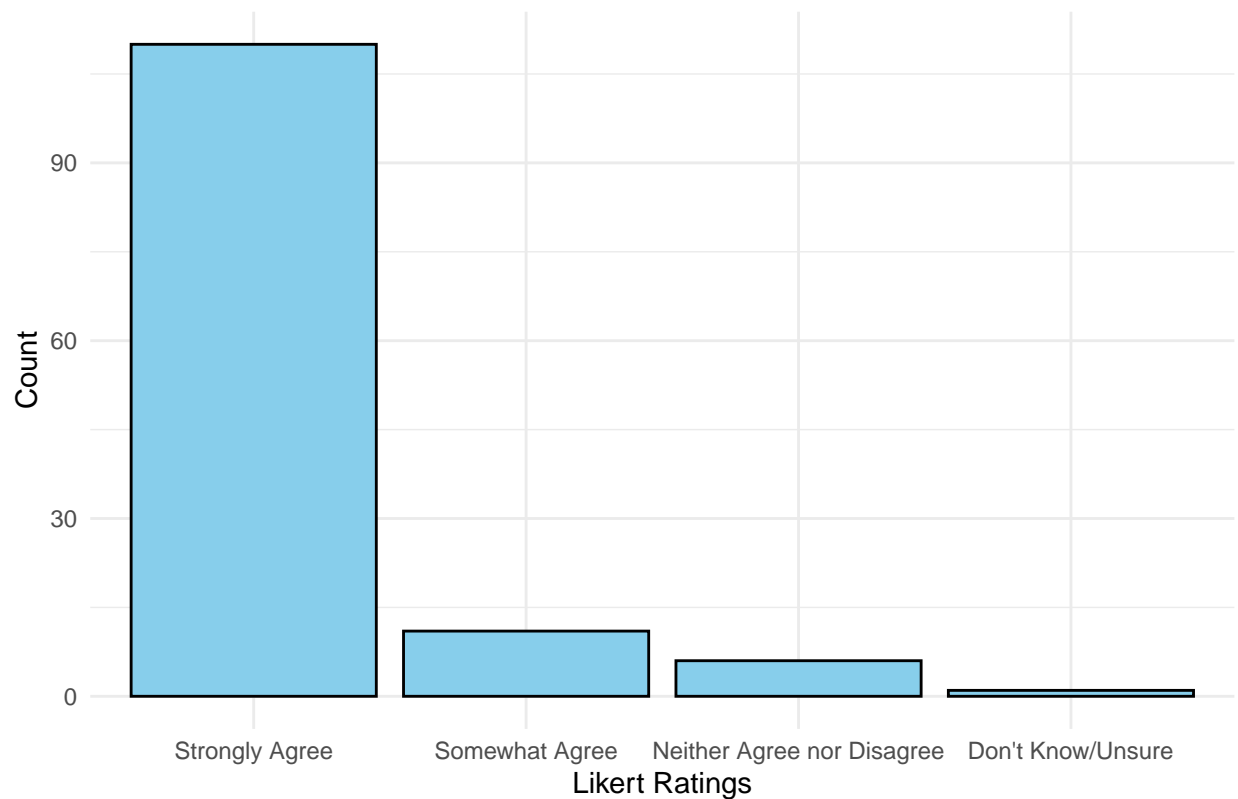

```r
# Likert item 2
cavdata.likert$Enjoyed_art_exercises <- factor(
  cavdata.likert$Enjoyed_art_exercises,
  levels = c("1", "2", "3", "4", "5", "6")
)

# 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
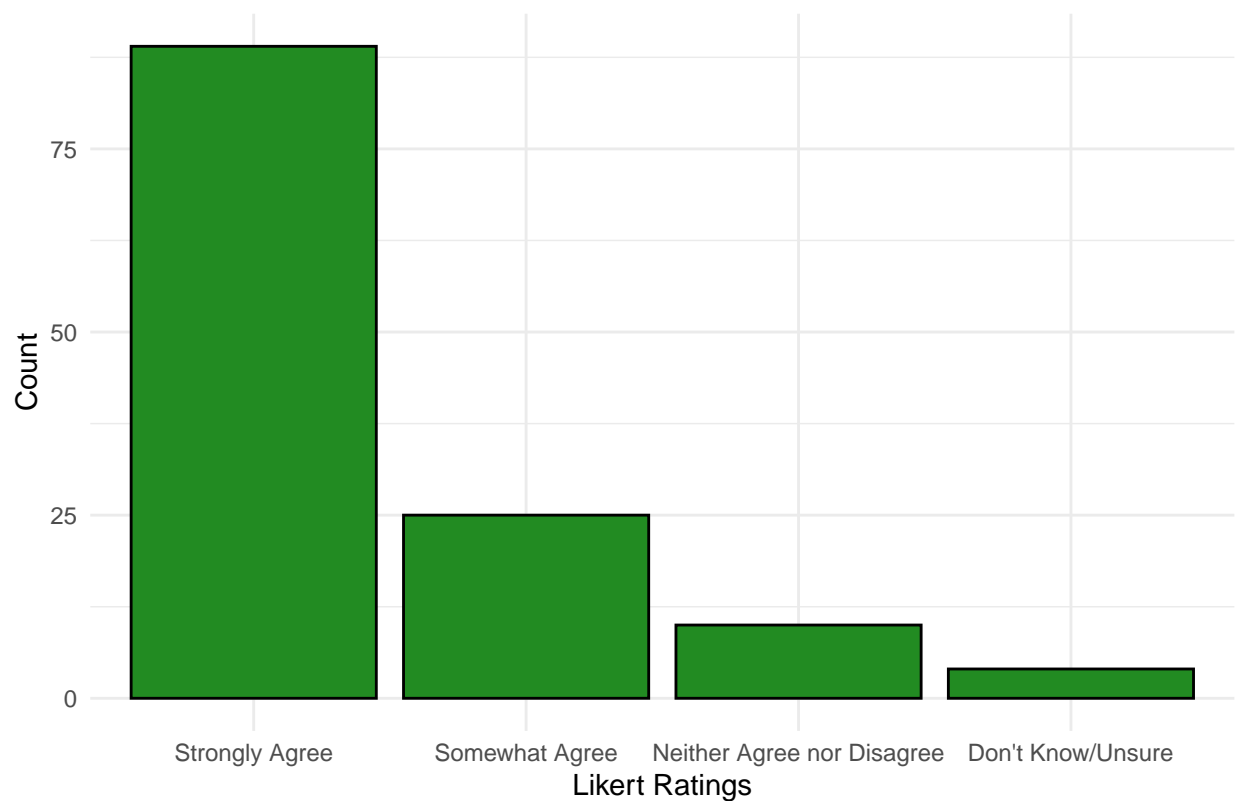

```r
# Likert item 3
cavdata.likert$CAV_improved_mood <- factor(
  cavdata.likert$CAV_improved_mood,
  levels = c("1", "2", "3", "4", "5", "6")
)

# 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.
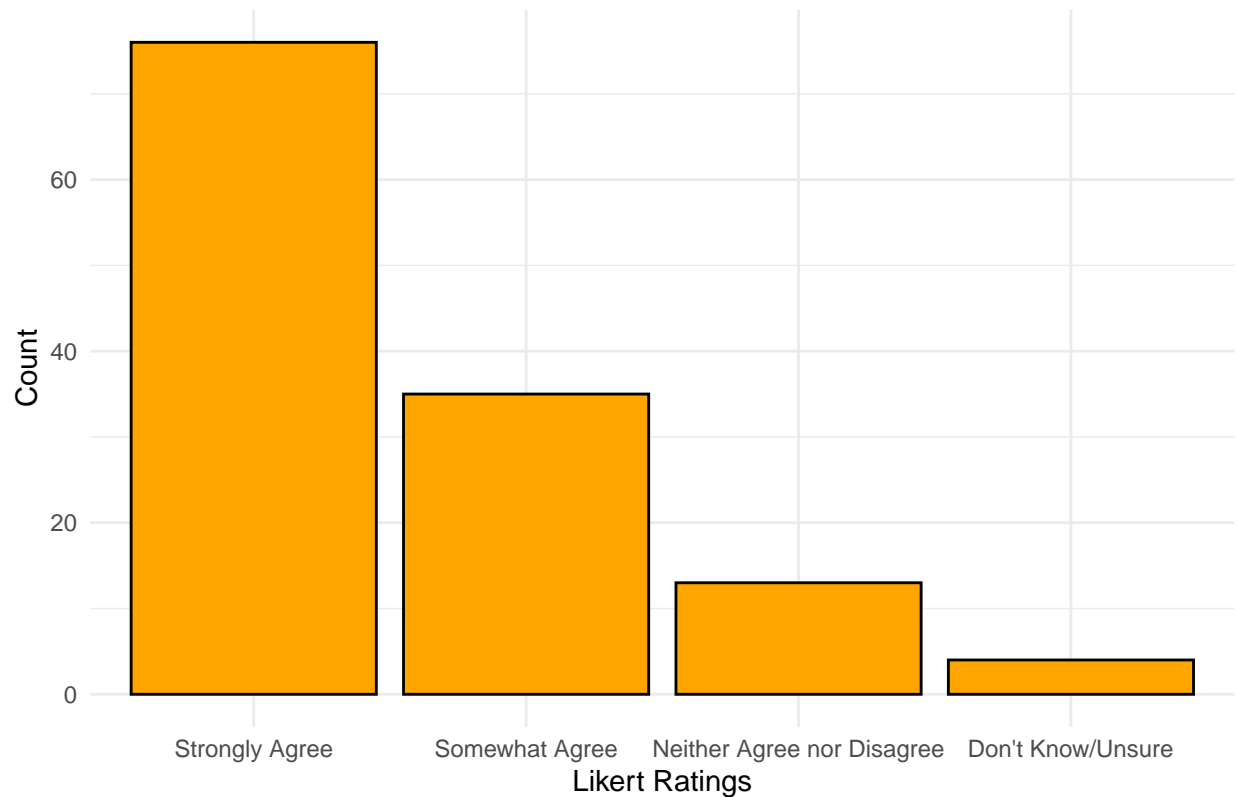

```r
# Likert item 4
cavdata.likert$CAV_provided_strategies <- factor(
  cavdata.likert$CAV_provided_strategies,
  levels = c("1", "2", "3", "4", "5", "6")
)

# 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
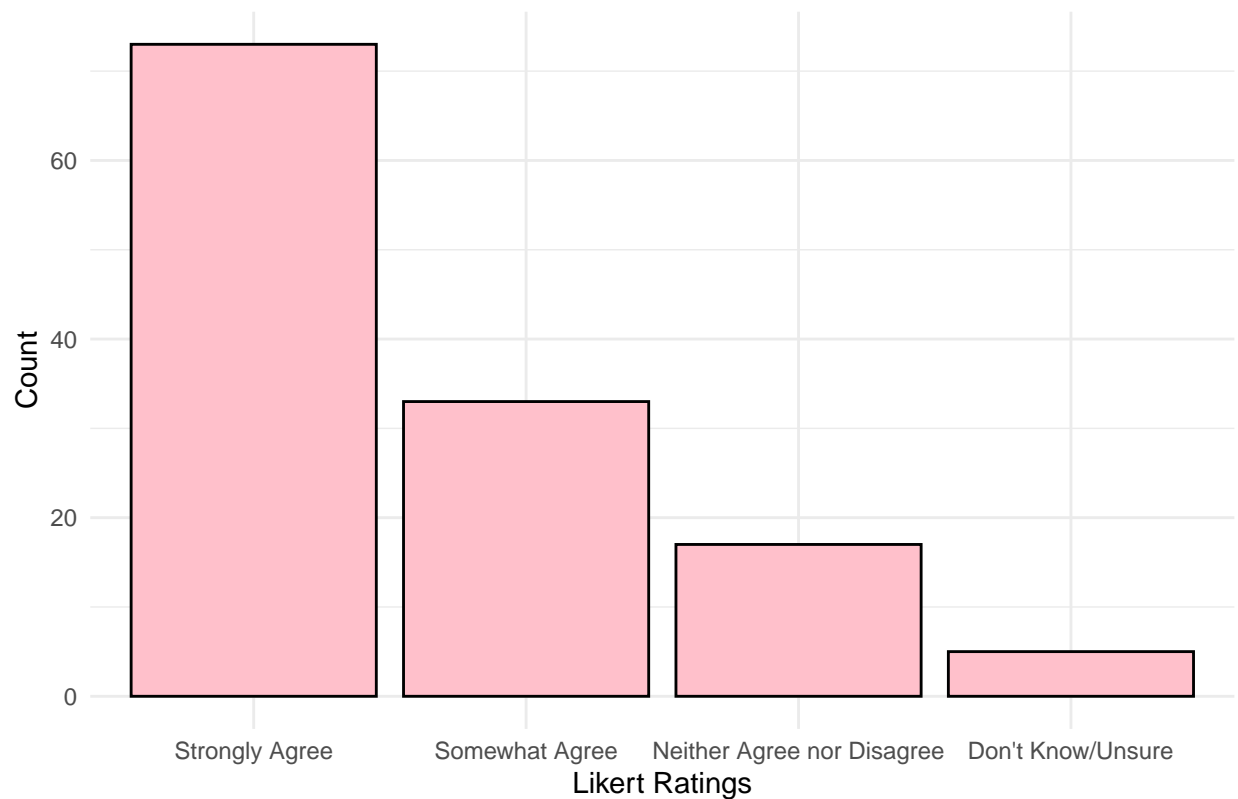


```r
# Likert item 5
cavdata.likert$Would_recommend_CAV <- factor(
  cavdata.likert$Would_recommend_CAV,
  levels = c("1", "2", "3", "4", "5", "6")
)

# 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
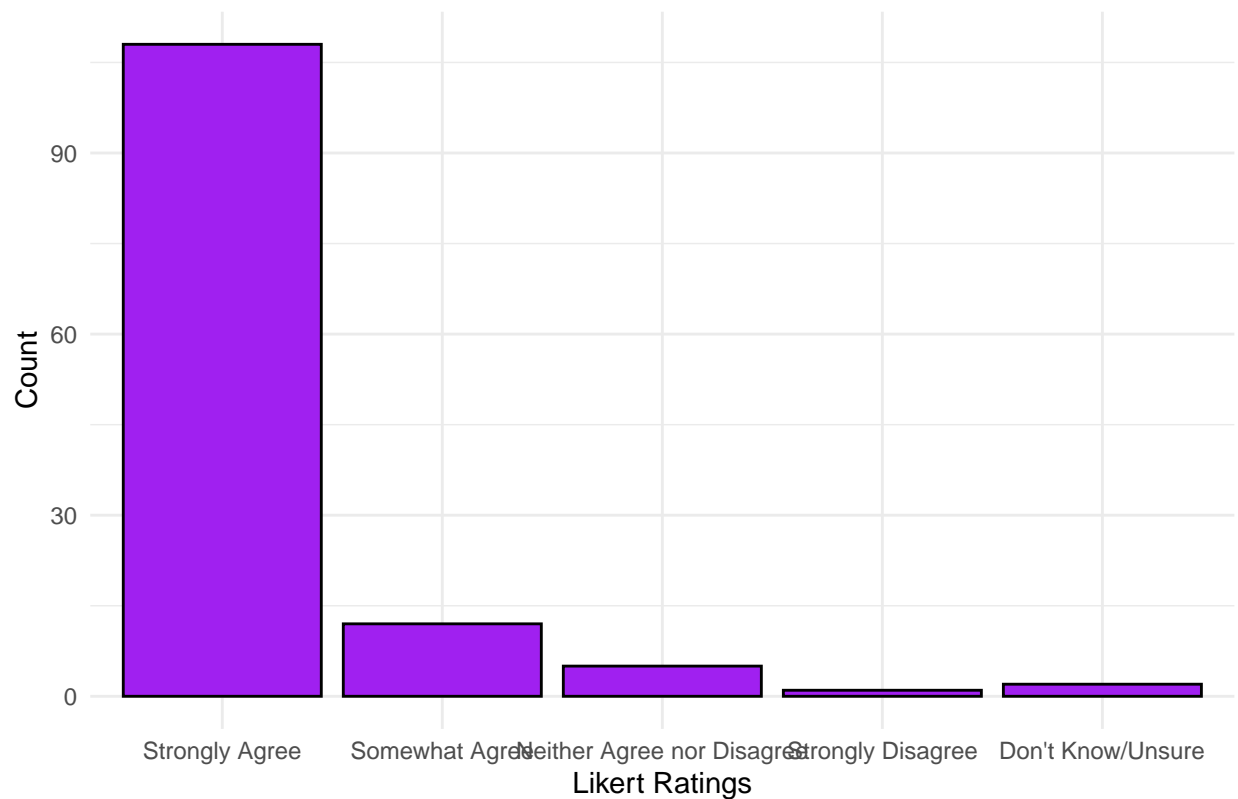
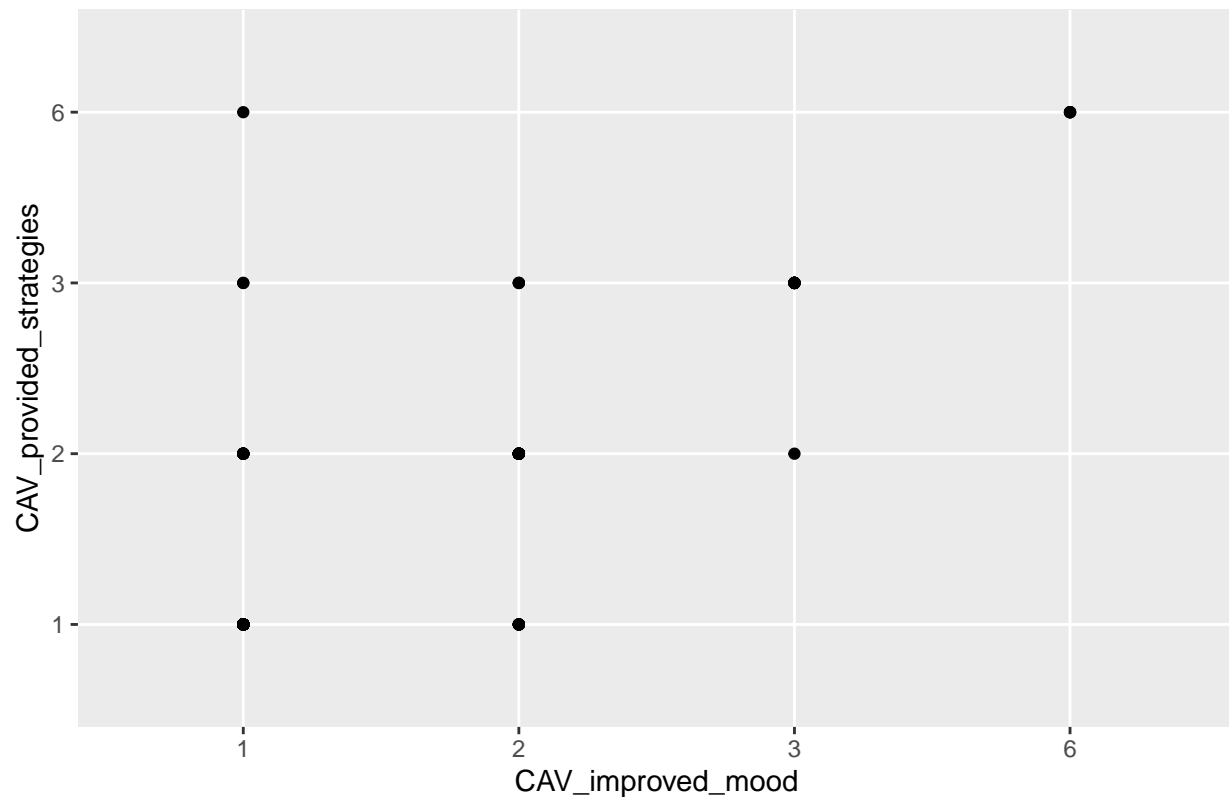Correlations between Likert items

```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
ggplot(cavdata.likert, aes(x = CAV_improved_mood, y = CAV_provided_strategies)) +
  geom_smooth(method = "lm", se = FALSE) +
  geom_point() +
  labs(title = "Relationship between improved mood and strategies provided")
```

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

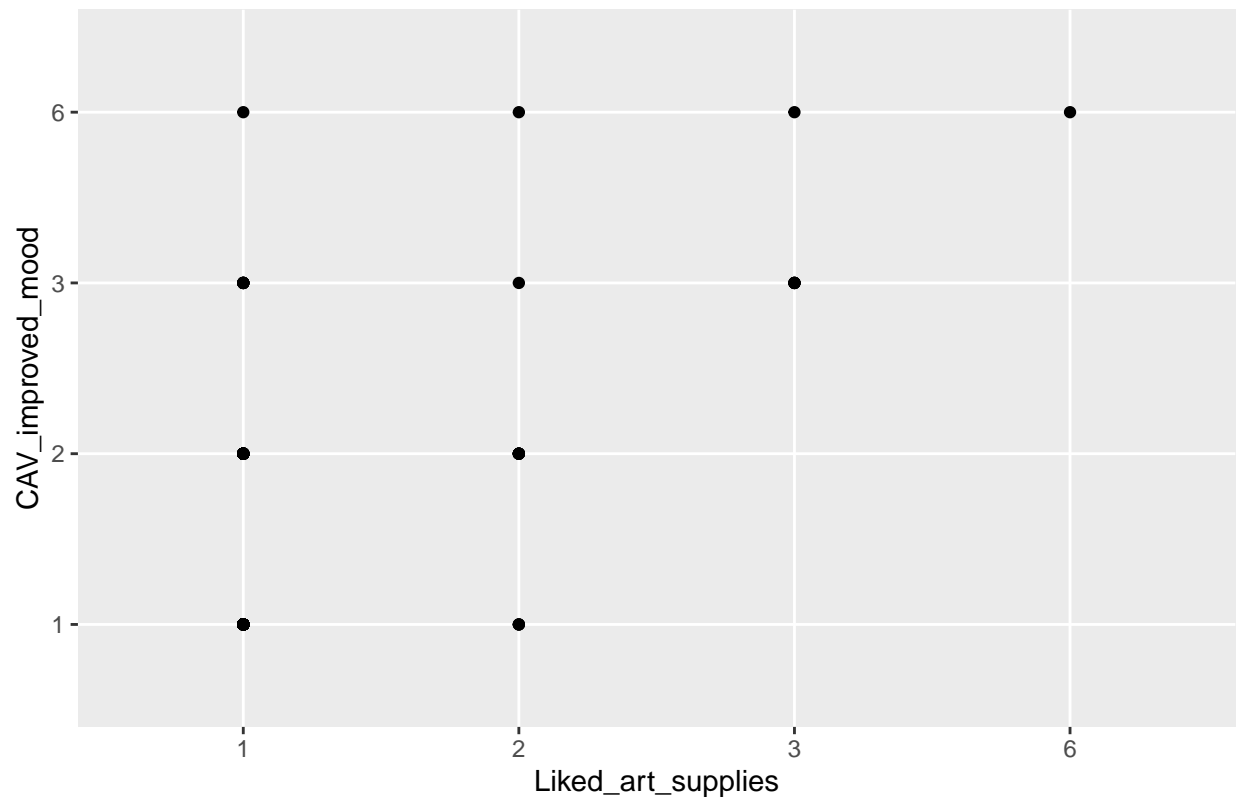## Relationship between improved mood and strategies provided


```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
```

```r
ggplot(cavdata.likert, aes(x = Liked_art_supplies, y = CAV_improved_mood)) +
  geom_smooth(method = "lm", se = FALSE) +
  geom_point() +
  labs(title = "Relationship between art supplies and improved mood")
```

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

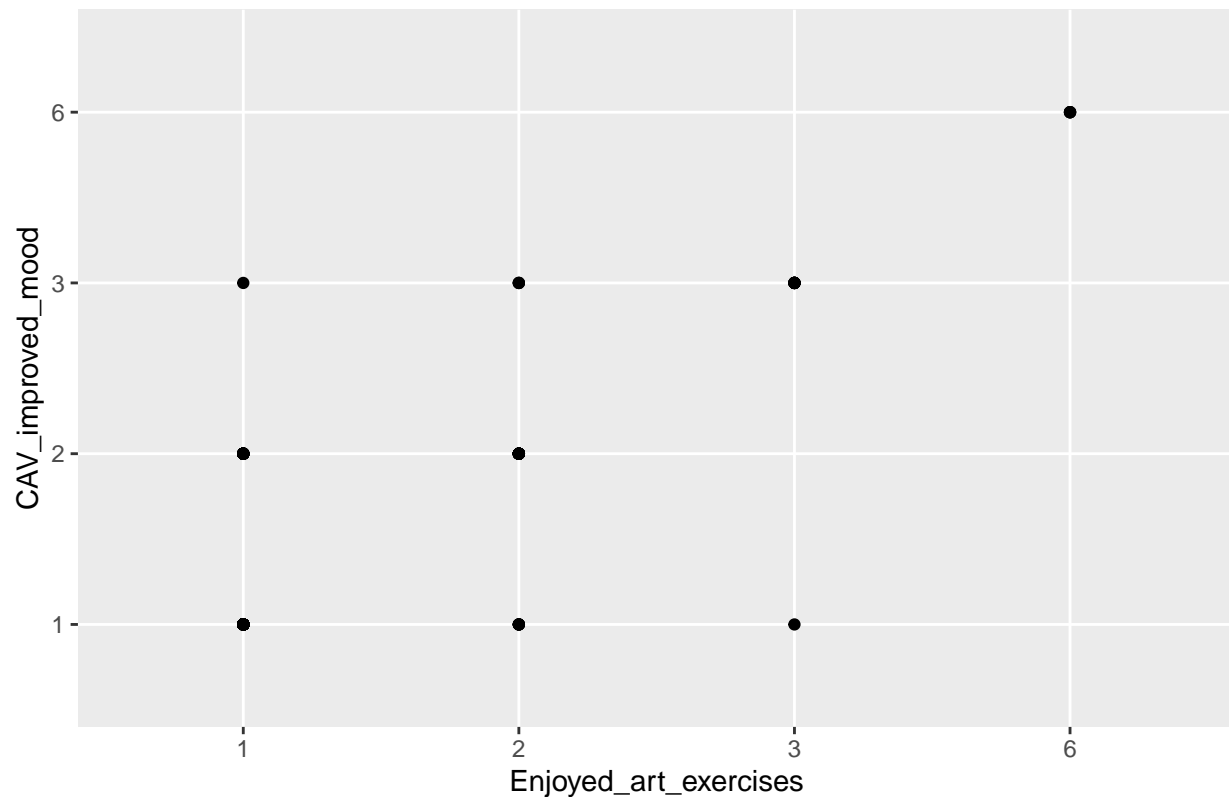# Relationship between art supplies and improved mood


```r
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
```

```r
ggplot(cavdata.likert, aes(x = Enjoyed_art_exercises, y = CAV_improved_mood)) +
  geom_smooth(method = "lm", se = FALSE) +
  geom_point() +
  labs(title = "Relationship between individuals enjoying art supplies and improved mood")
```

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

Relationship between individuals enjoying art supplies and improved mood



```r
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
```

```r
ggplot(cavdata.likert, aes(x = Would_recommend_CAV, y = CAV_improved_mood)) +
  geom_smooth(method = "lm", se = FALSE) +
  geom_point() +
  labs(title = "Relationship between those who would recommend CAV and their improved mood")
```

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

Relationship between those who would recommend CAV and their improved
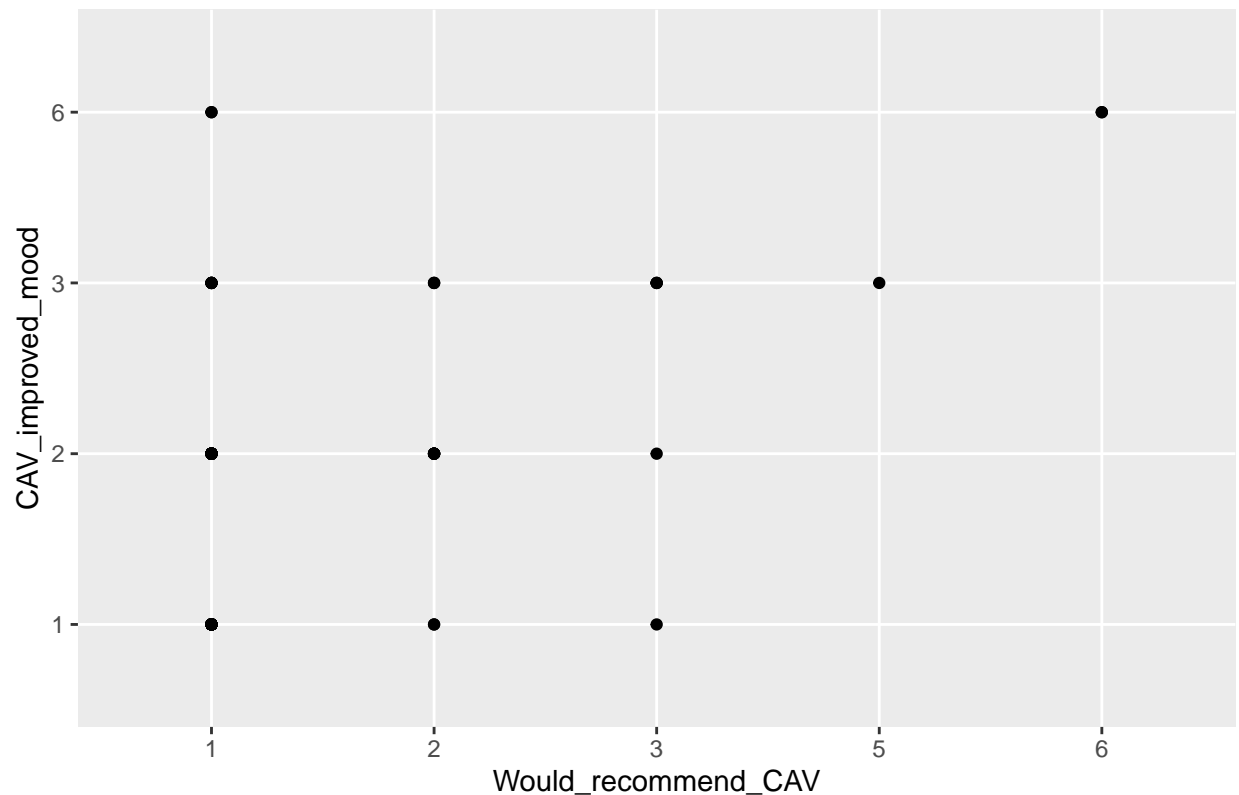
Interactions:

```r
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
```

```r
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