NSDUH 2021 Data Exploration

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```
setwd("~/Downloads")
```

```
library(tidyverse)
library(effsize)
library(broom)
library(rstatix)
```

```
load("NSDUH_2021.rdata")
```

```
#Changing Data Frame Name
SUI_2021 <- PUF2021_100622
```

```
#Creating new data frame with select variables from the original list of 2988 variables
SUI_2021_S <- SUI_2021 %>%
  select(AGE3, CATAG2, irsex, tobyr, alcyr, mrjyr, cocyr, heryfu ,hallucyfq, methamyfq, IRALCBNG30D , iralcage, i
rpmnicdep, IRPYUD5ALC, IRPYUD5MRJ, IRPYUD5COC, IRPYUD5HER, IRPYUD5ALC, IRPYUD5MTH, IRUD5PNRMIS , KSSLR6YRED, whod
assced, whodasdaed, irsuicthnk, irsuiplanyr, irsuitryyr,KSSLR6MON, spdpstmon, spdpstyr, iramdelt, iramdeyr, ymdel
t, ymdeyr, YMDEAUD5YR, YMIUD5YANY, YMSUD5YANY, yrxmdeyr, mdeimpy, talkprob, PRBSOLV2)
```

```
#Checking structure of data
str(SUI_2021_S)
```

```
## 'data.frame':    58034 obs. of  39 variables:
##  $ AGE3       : int  8 11 6 9 6 10 5 9 1 4 ...
##  $ CATAG2     : int  3 3 2 3 2 3 2 3 1 2 ...
##  $ irsex      : int  2 1 2 1 1 1 1 2 2 2 ...
##  $ tobyr      : int  1 0 0 1 0 1 1 0 0 0 ...
##  $ alcyr      : int  1 0 1 0 0 0 1 1 0 0 ...
##  $ mrjyr      : int  1 0 0 1 0 0 1 0 0 0 ...
##  $ cocyr      : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ heryfu     : int  9991 9991 9991 9991 9991 9991 9991 9991 9991 9991 ...
##  $ hallucyfq  : int  991 991 991 991 991 991 991 991 991 991 ...
##  $ methamyfq  : int  991 991 991 991 991 991 991 991 991 991 ...
##  $ IRALCBNG30D: int  93 93 0 93 91 93 0 0 91 93 ...
##  $ iralcage   : int  22 20 20 15 991 17 18 19 991 16 ...
##  $ irpmnicdep : int  1 0 0 1 0 1 0 0 0 0 ...
##  $ IRPYUD5ALC : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ IRPYUD5MRJ : int  0 0 0 1 0 0 0 0 0 0 ...
##  $ IRPYUD5COC : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ IRPYUD5HER : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ IRPYUD5MTH : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ IRUD5PNRMIS: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ KSSLR6YRED : int  NA NA 12 NA NA NA 23 NA NA 12 ...
##  $ whodassced : int  2 0 11 12 0 0 16 3 NA 7 ...
##  $ whodasdaed : int  0 0 4 4 0 0 5 0 NA 0 ...
##  $ irsuicthnk : int  0 0 0 0 0 0 0 1 NA 0 ...
##  $ irsuiplanyr: int  0 0 0 0 0 0 0 0 NA 0 ...
##  $ irsuitryyr : int  0 0 0 0 0 0 0 0 NA 0 ...
##  $ KSSLR6MON  : int  6 0 1 16 0 0 10 11 NA 3 ...
##  $ spdpstmon  : int  0 0 0 1 0 0 0 0 NA 0 ...
##  $ spdpstyr   : int  0 0 0 1 0 0 1 0 NA 0 ...
##  $ iramdelt   : int  0 0 0 0 0 0 1 1 NA 0 ...
##  $ iramdeyr   : int  0 0 0 0 0 0 1 0 NA 0 ...
##  $ ymdelt     : int  NA NA NA NA NA NA NA NA 2 NA ...
##  $ ymdeyr     : int  NA NA NA NA NA NA NA NA 2 NA ...
##  $ YMDEAUD5YR : int  NA NA NA NA NA NA NA NA 0 NA ...
##  $ YMIUD5YANY : int  NA NA NA NA NA NA NA NA 0 NA ...
##  $ YMSUD5YANY : int  NA NA NA NA NA NA NA NA 0 NA ...
##  $ yrxmdeyr   : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ mdeimpy    : int  NA NA NA NA NA NA NA NA 2 NA ...
##  $ talkprob   : int  NA NA NA NA NA NA NA NA 2 NA ...
```

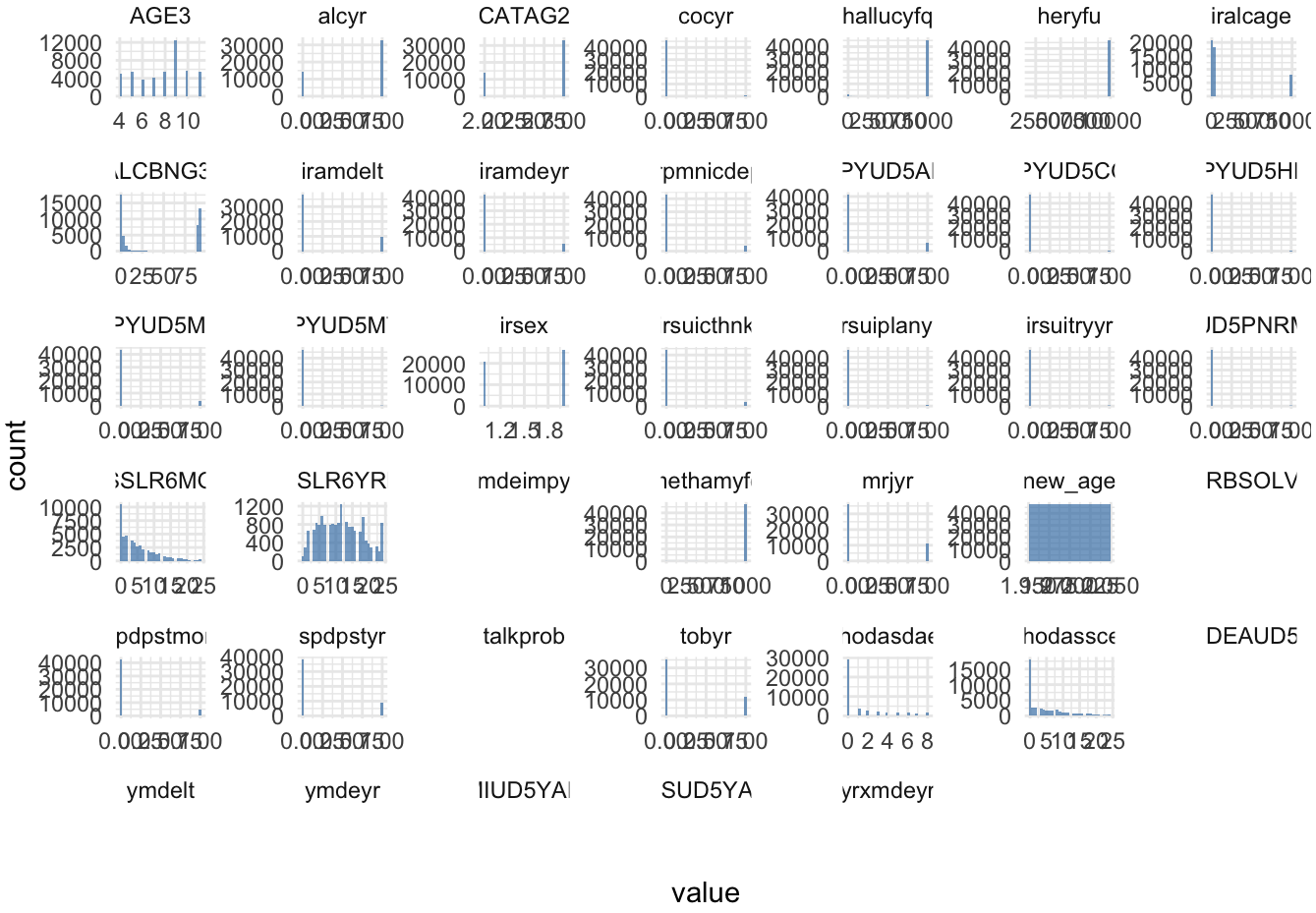
```
##  $ PRBSOLV2   : int  NA NA NA NA NA NA NA NA 2 NA ...
##  - attr(*, "var.labels")= chr [1:2988] "RESPONDENT IDENTIFICATION" "CREATION DATE OF THE DATA FILE" "EVER SMOK
ED A CIGARETTE" "IF BEST FRIEND OFFERED, WOULD YOU SMOKE CIG" ...
```

```
#creating new age variable where 1 = 12-17, 2 = 18 and over
SUI_2021_S <- SUI_2021_S %>%
  mutate(new_age = ifelse(CATAG2 == 1, 1, ifelse(CATAG2 == 2, 2, 2)))
```

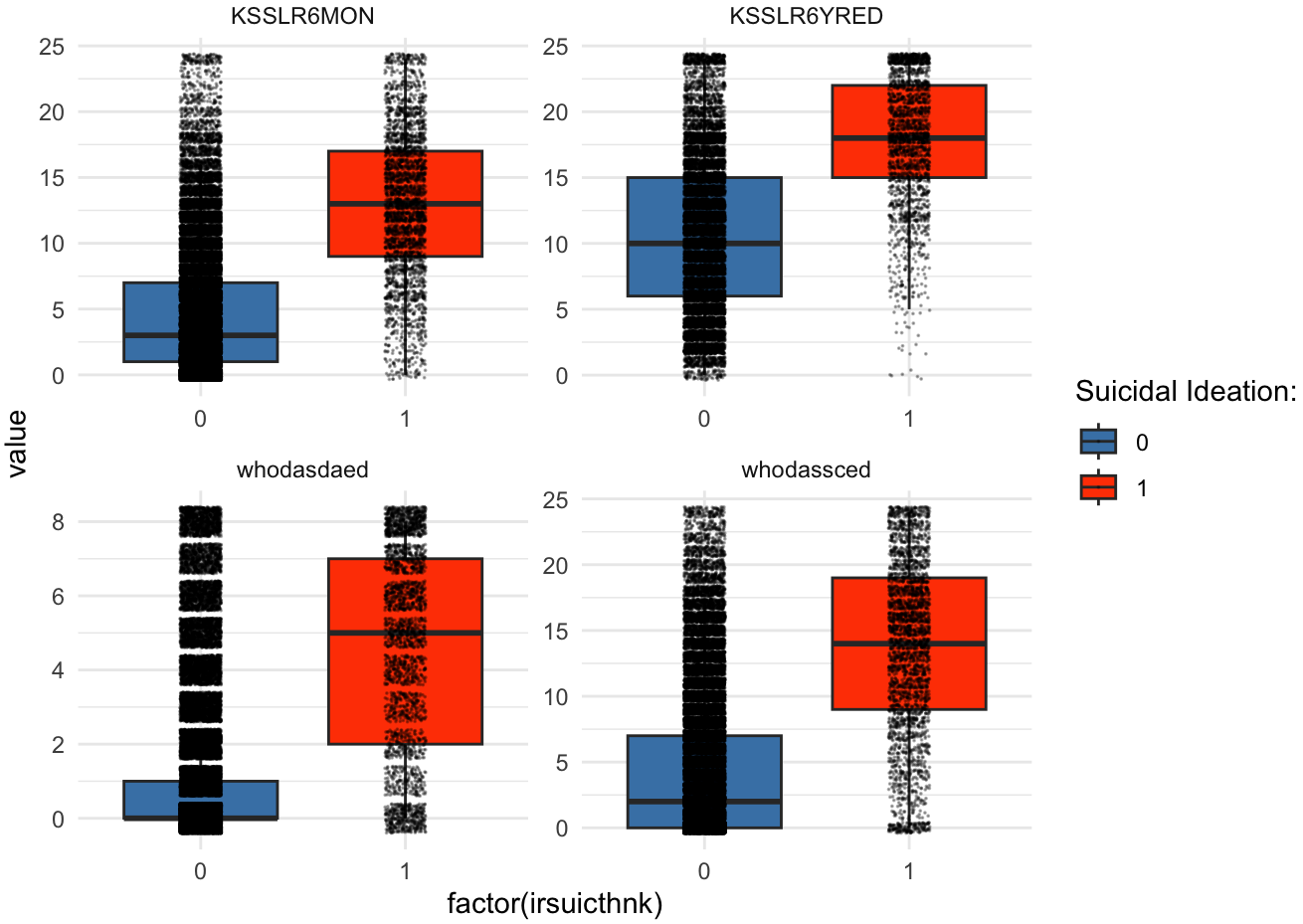
```
#creating a data frame for participant 18 and over

SUI_2021_Adult <- SUI_2021_S %>%
   filter(new_age == 2)
```

```
#creating a data set for ages 12-17
SUI_2021_Youth <- SUI_2021_S %>%
   filter(new_age == 1)
```

```
#Checking out data
SUI_2021_Adult %>% gather() %>%
  ggplot(aes(x=value)) +
  geom_histogram(fill="steelblue", alpha=.7) +
  theme_minimal() +
  facet_wrap(~key, scales="free")
```




```
#Checking continuous variables and suicidal ideation
SUI_2021_Adult %>% select(c(KSSLR6YRED, whodasdaed, whodassced, KSSLR6M0N, irsuicthnk)) %>%
  pivot_longer(!irsuicthnk, values_to = "value") %>%
  ggplot(aes(x=factor(irsuicthnk), y=value, fill=factor(irsuicthnk))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Ideation:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")
```


KSSLR6MON
KSSLR6YRED
whodasdaed
whodassced
value
factor(irsuicthnk)
Suicidal Ideation:
0
1

```
# Renaming variables
variables_to_rename <- c("IRALCBNG30D", "iralcage","IRPYUD5ALC", "IRPYUD5MRJ", "IRPYUD5COC","IRPYUD5HER", "IRPYUD
5MTH", "IRUD5PNRMIS" ,"KSSLR6YRED", "whodassced", "whodasdaed", "irsuicthnk", "irsuiplanyr", "irsuitryyr", "KSSLR
6MON","spdpstmon", "spdpstyr", "iramdelt", "iramdeyr")
new_variable_names <- c("Binge_Drink_Past_Month","Alcohol_Age_of_First_Use","Alcohol_Use_Disorder", "Marijuana_Us
e_Disorder","Cocaine_Use_Disorder","Heroin_Use_Disorder", "Meth_Use_Disorder", "Pain_Reliever_UD", "Psych_Distres
s_Worst_Month", "Emotional_Impairment", "Emotional_Impairment_2", "Suicidal_Ideation","Suicide_Plan","Suicide_Att
empt" ,"Psych_Distress_Past_Month", "Serious_Psych_Distress_Past_Month", "Serious_Psych_Distress_Past_Year", "Lif
etime_MDD_Episode", "Past_Year_MDD_Episode")

# Create a new data frame with the modified names
SUI_2021_Adult_new_names <- SUI_2021_Adult

# Change the names of the selected variables
colnames(SUI_2021_Adult_new_names)[colnames(SUI_2021_Adult_new_names) %in% variables_to_rename] <- new_variable_n
ames
```

```
#Suicidal Ideation Frequency
suicidal_ideation_table <- table(SUI_2021_Adult_new_names$Suicidal_Ideation)
suicidal_ideation_percentage <- prop.table(suicidal_ideation_table) * 100

result_table <- cbind(Frequency = suicidal_ideation_table, Percentage = suicidal_ideation_percentage)
print(result_table)
```

```
##   Frequency Percentage
## 0     44114   93.28202
## 1      3177    6.71798
```

```
#Suicide Plan Frequency
suicide_plan_table <- table(SUI_2021_Adult_new_names$Suicide_Plan)
suicide_plan_percentage <- prop.table(suicide_plan_table) * 100

result_table2 <- cbind(Frequency = suicide_plan_table, Percentage = suicide_plan_percentage)
print(result_table2)
```

```
##   Frequency Percentage
## 0     46319  97.944641
## 1       972   2.055359
```

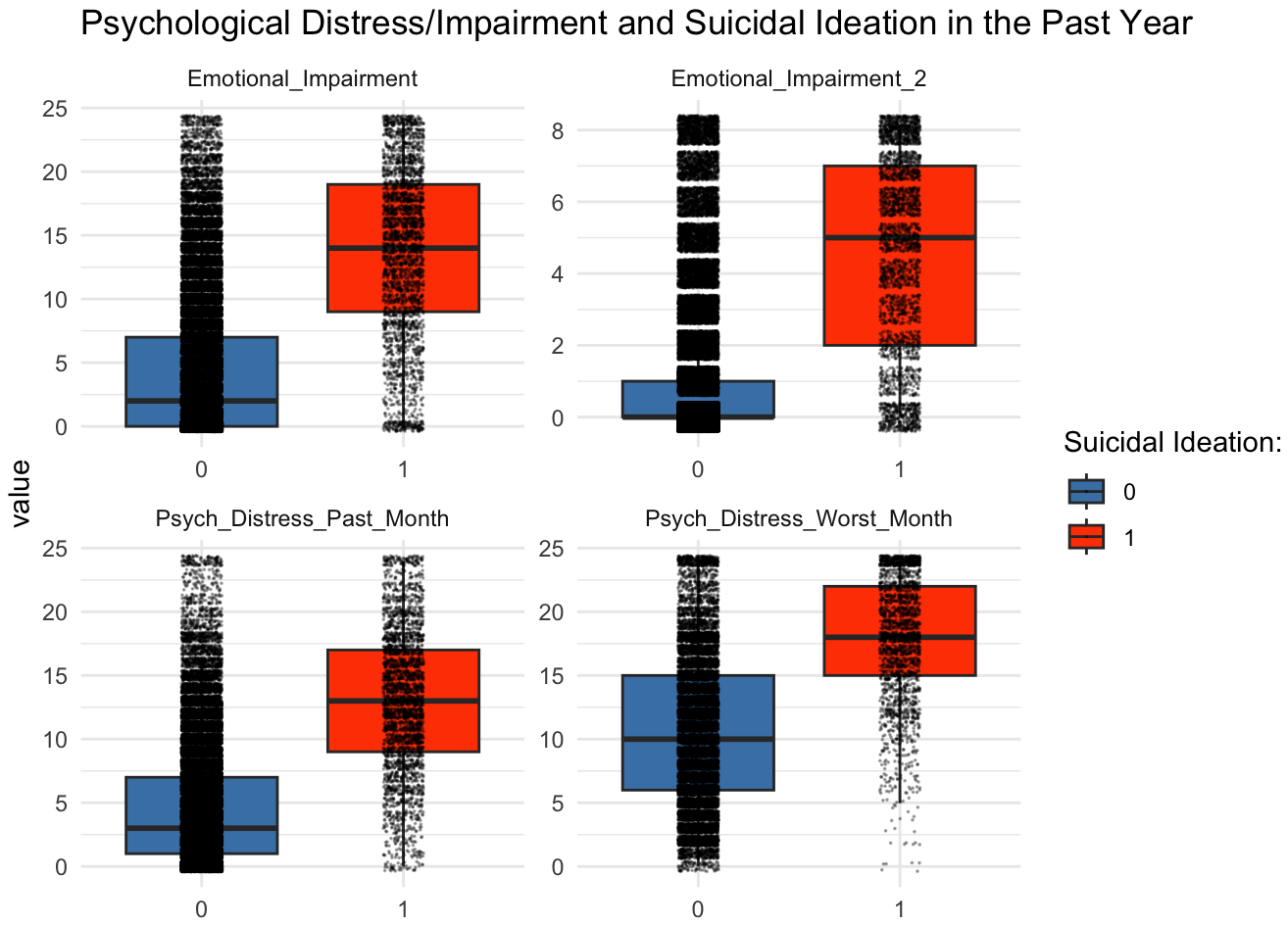
```
#Suicide Attempt Frequency
suicide_attempt_table <- table(SUI_2021_Adult_new_names$Suicide_Attempt)
suicide_attempt_percentage <- prop.table(suicide_attempt_table) * 100

result_table3 <- cbind(Frequency = suicide_attempt_table, Percentage = suicide_attempt_percentage)
print(result_table3)
```

```
##   Frequency Percentage
## 0     46856 99.0801632
## 1       435  0.9198368
```

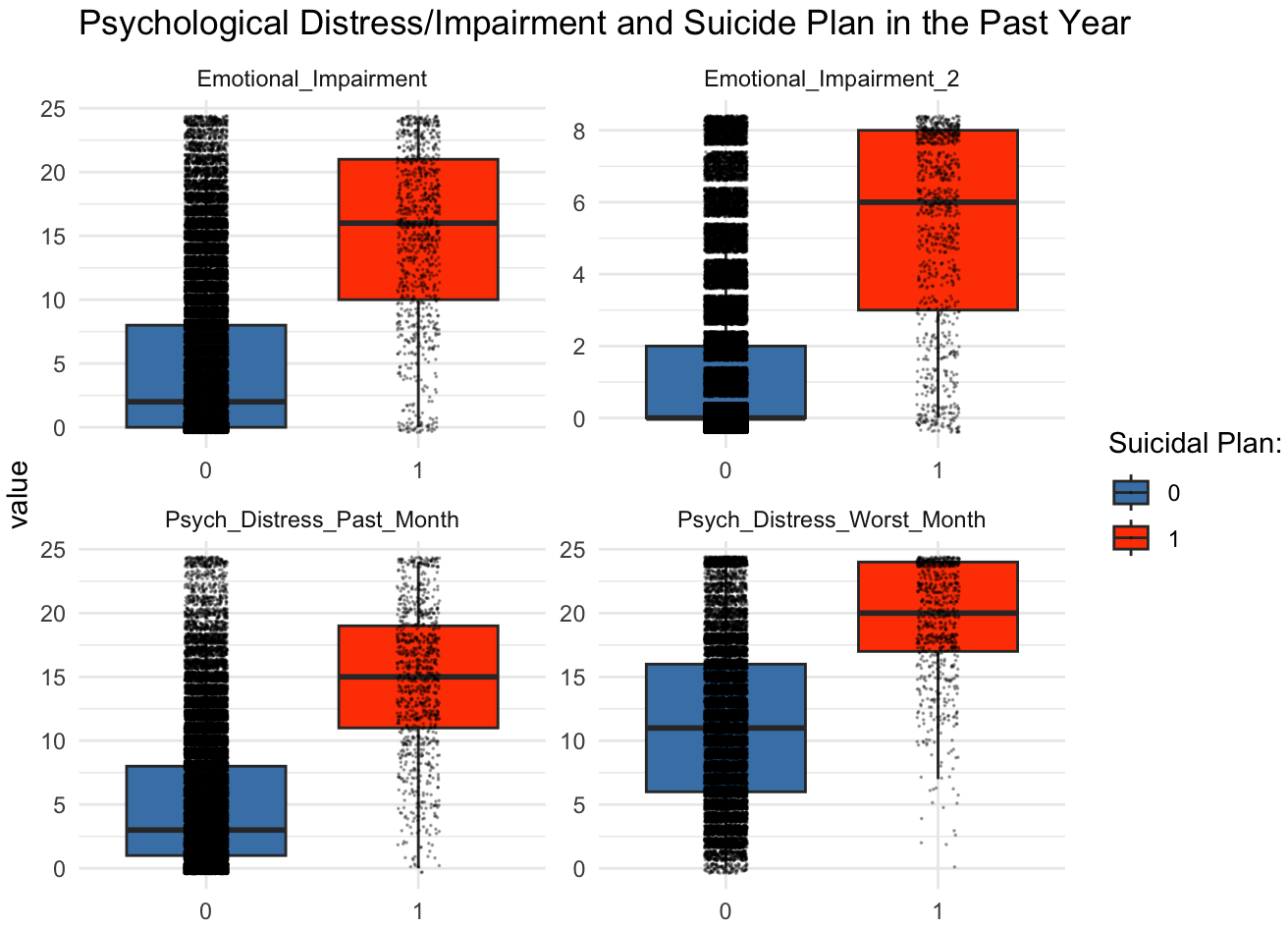
```
#MDD Past Year Frequency
Past_Year_MDD_Episode_table <- table(SUI_2021_Adult_new_names$Past_Year_MDD_Episode)
Past_Year_MDD_Episode_percentage <- prop.table(Past_Year_MDD_Episode_table) * 100

result_table4 <- cbind(Frequency = Past_Year_MDD_Episode_table, Percentage = Past_Year_MDD_Episode_percentage)
print(result_table4)
```

```
##   Frequency Percentage
## 0     41867   88.53059
## 1      5424   11.46941
```

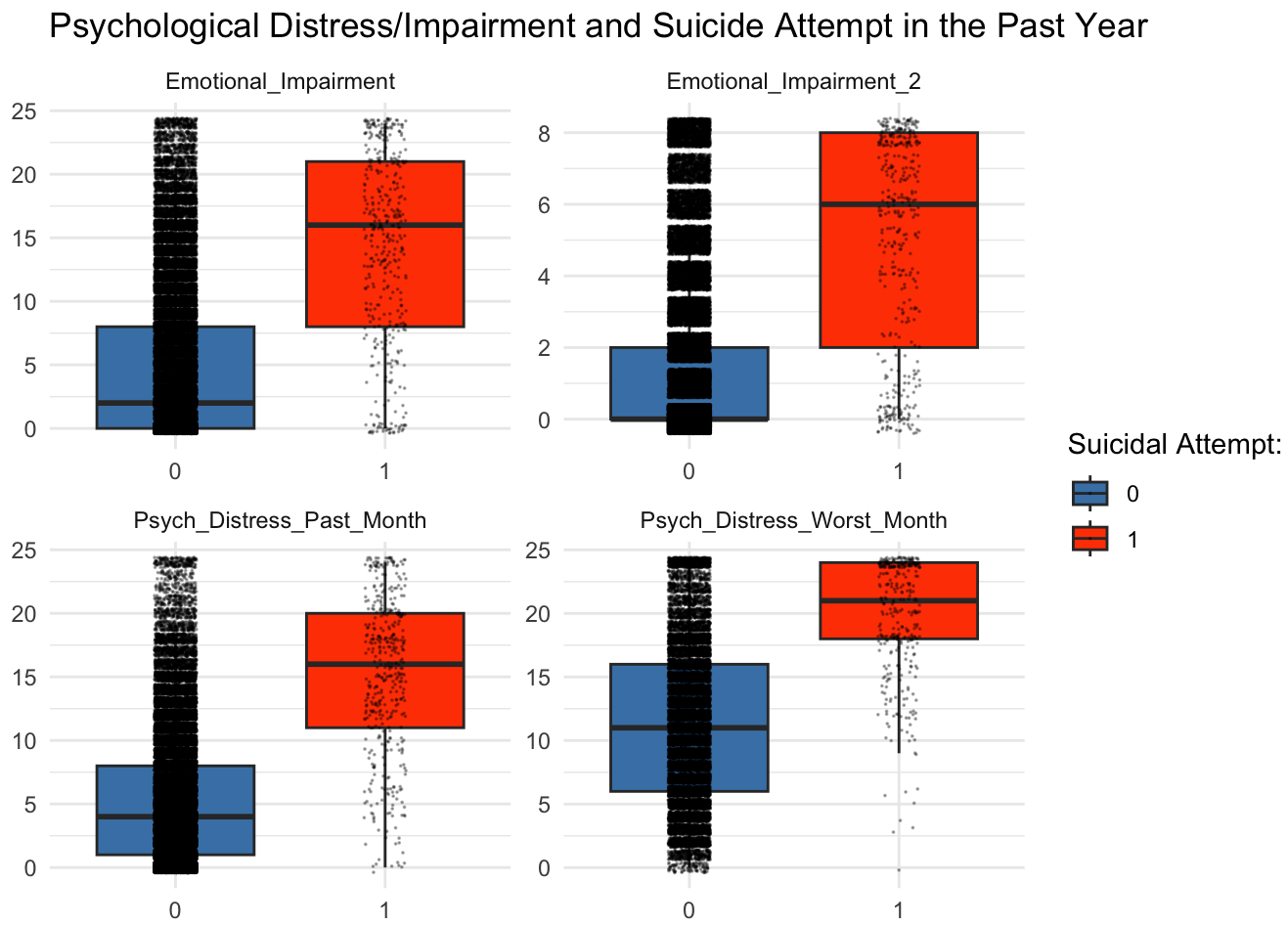
```
#Continuous variables renamed and suicidal ideation
SUI_2021_Adult_new_names %>% select(c(Psych_Distress_Worst_Month, Emotional_Impairment, Emotional_Impairment_2, P
sych_Distress_Past_Month, Suicidal_Ideation)) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(Suicidal_Ideation), y=value, fill=factor(Suicidal_Ideation))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Ideation:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress/Impairment and Suicidal Ideation in the Past Year")+
  theme(axis.title.x = element_blank())
```



```
#Continuous variables renamed and suicide plan
SUI_2021_Adult_new_names %>% select(c(Psych_Distress_Worst_Month, Emotional_Impairment, Emotional_Impairment_2, P
sych_Distress_Past_Month, Suicide_Plan)) %>%
  pivot_longer(!Suicide_Plan, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Plan), y=value, fill=factor(Suicide_Plan))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Plan:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress/Impairment and Suicide Plan in the Past Year")+
  theme(axis.title.x = element_blank())
```

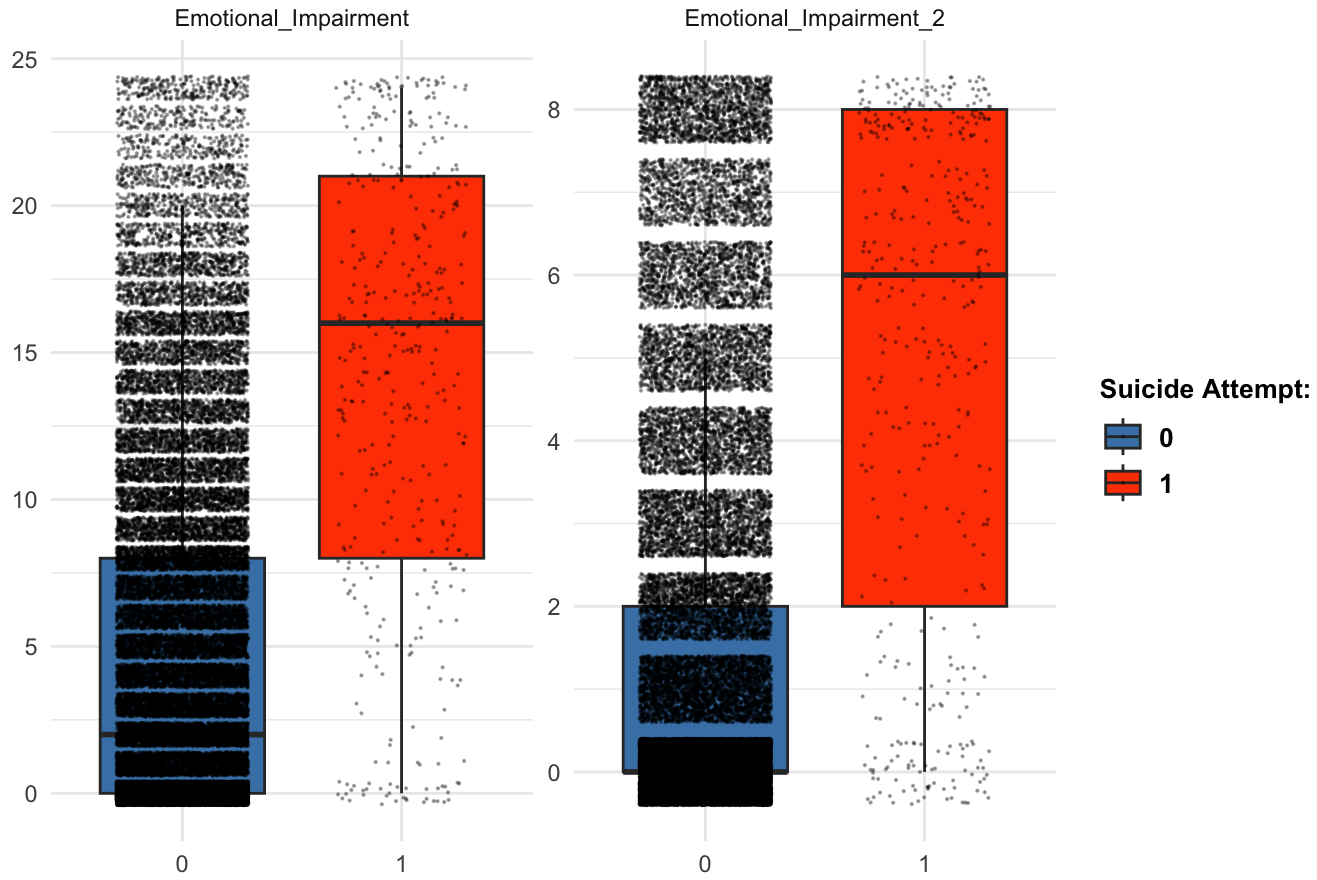


```
#Continuous variables renamed and suicide attempt
SUI_2021_Adult_new_names %>% select(c(Psych_Distress_Worst_Month, Emotional_Impairment, Emotional_Impairment_2, P
sych_Distress_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress/Impairment and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())
```

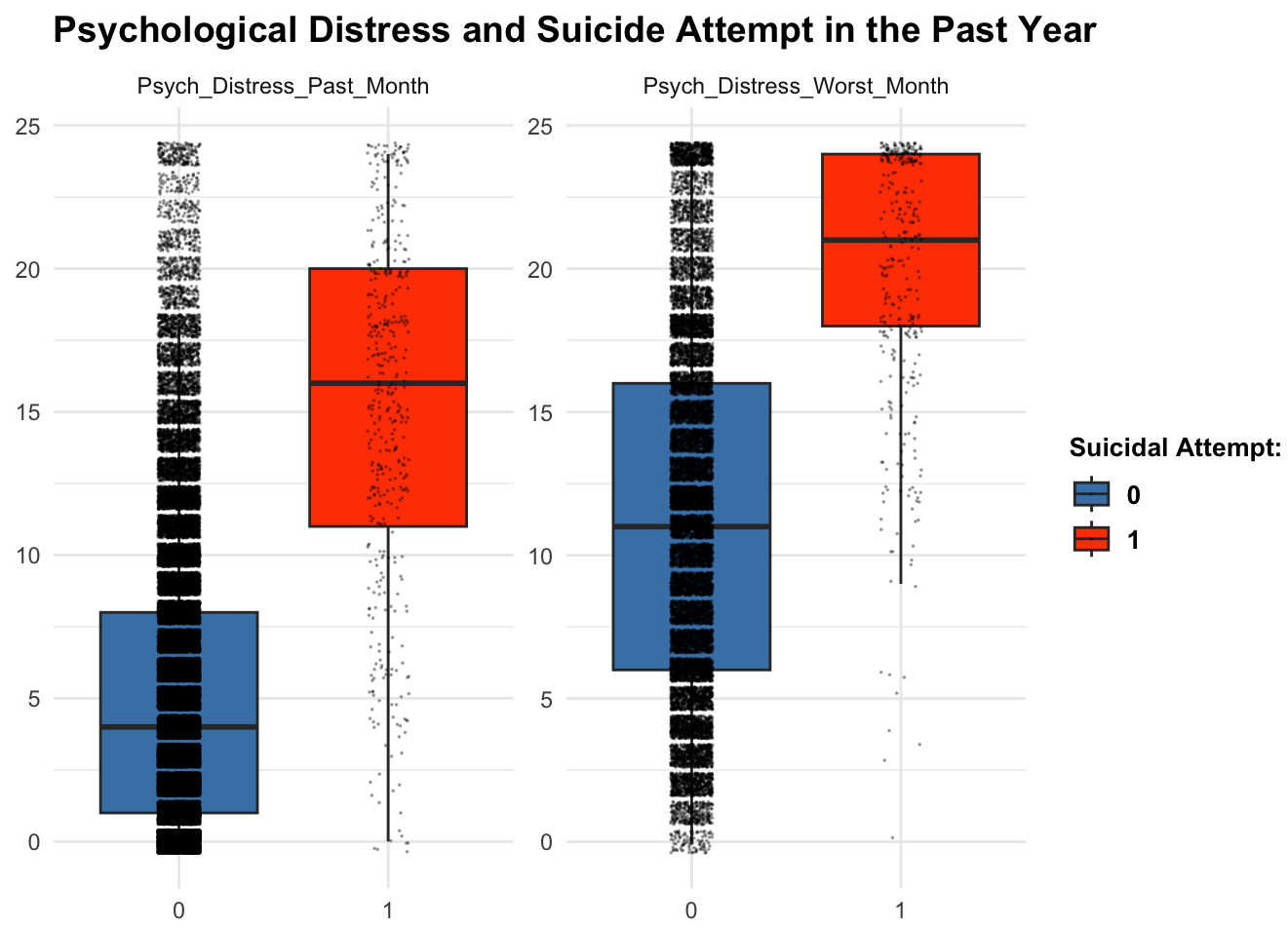

Psychological Distress/Impairment and Suicide Attempt in the Past Year
Emotional_Impairment
Emotional_Impairment_2
Psych_Distress_Past_Month
Psych_Distress_Worst_Month
Suicidal Attempt:
0
1

```
#Just Emotional Impairment variables and Attempt
SUI_2021_Adult_new_names %>% select(c(Emotional_Impairment, Emotional_Impairment_2,Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.1, width=.3, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Impairment Due to Emotional Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(plot.title = element_text(hjust = 0.1, lineheight = 0.9))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```

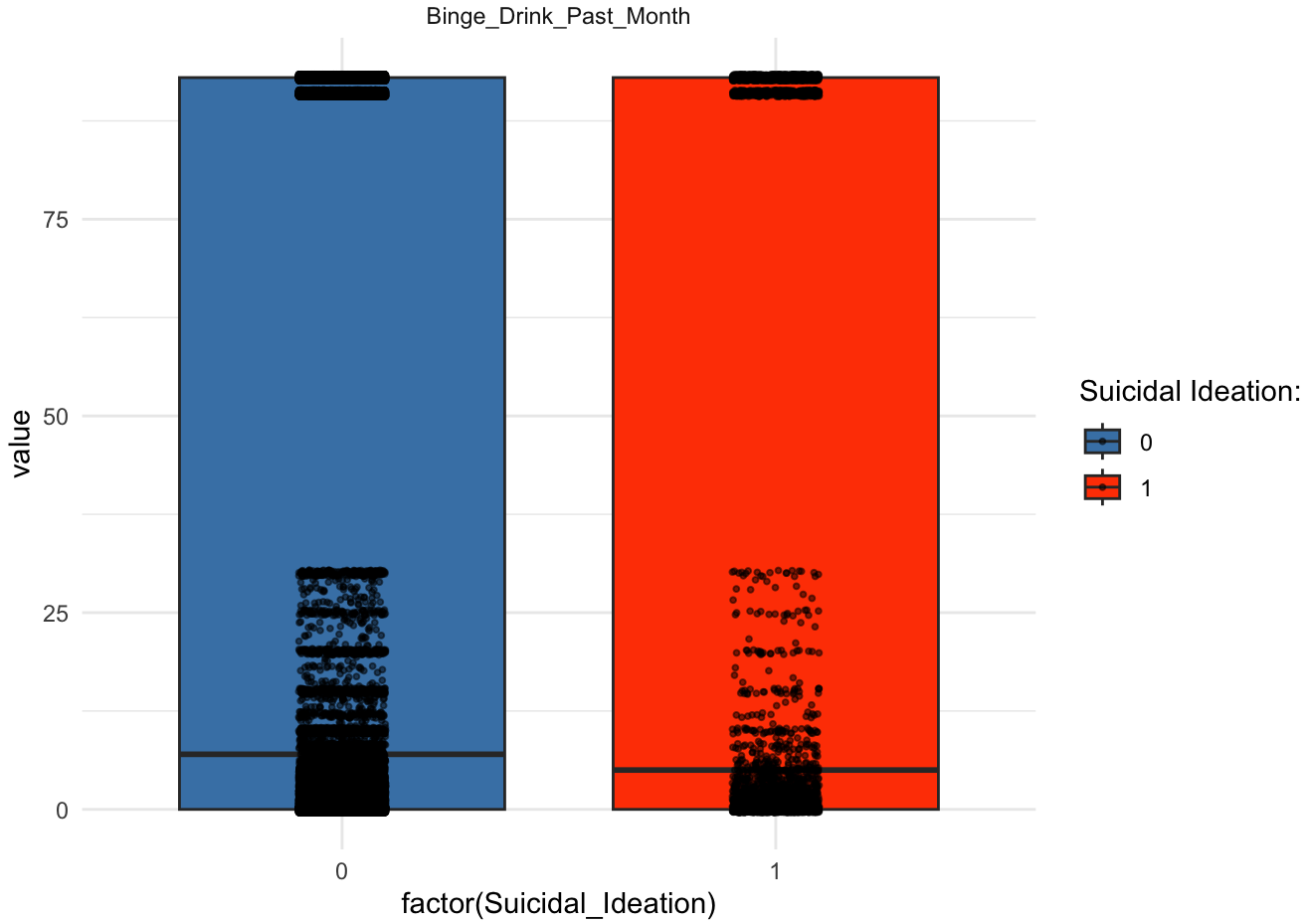
Impairment Due to Emotional Distress and Suicide Attempt in the Past Yea



```
#Just psychological distress variables and attempt
SUI_2021_Adult_new_names %>% select(c(Psych_Distress_Worst_Month,Psych_Distress_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```



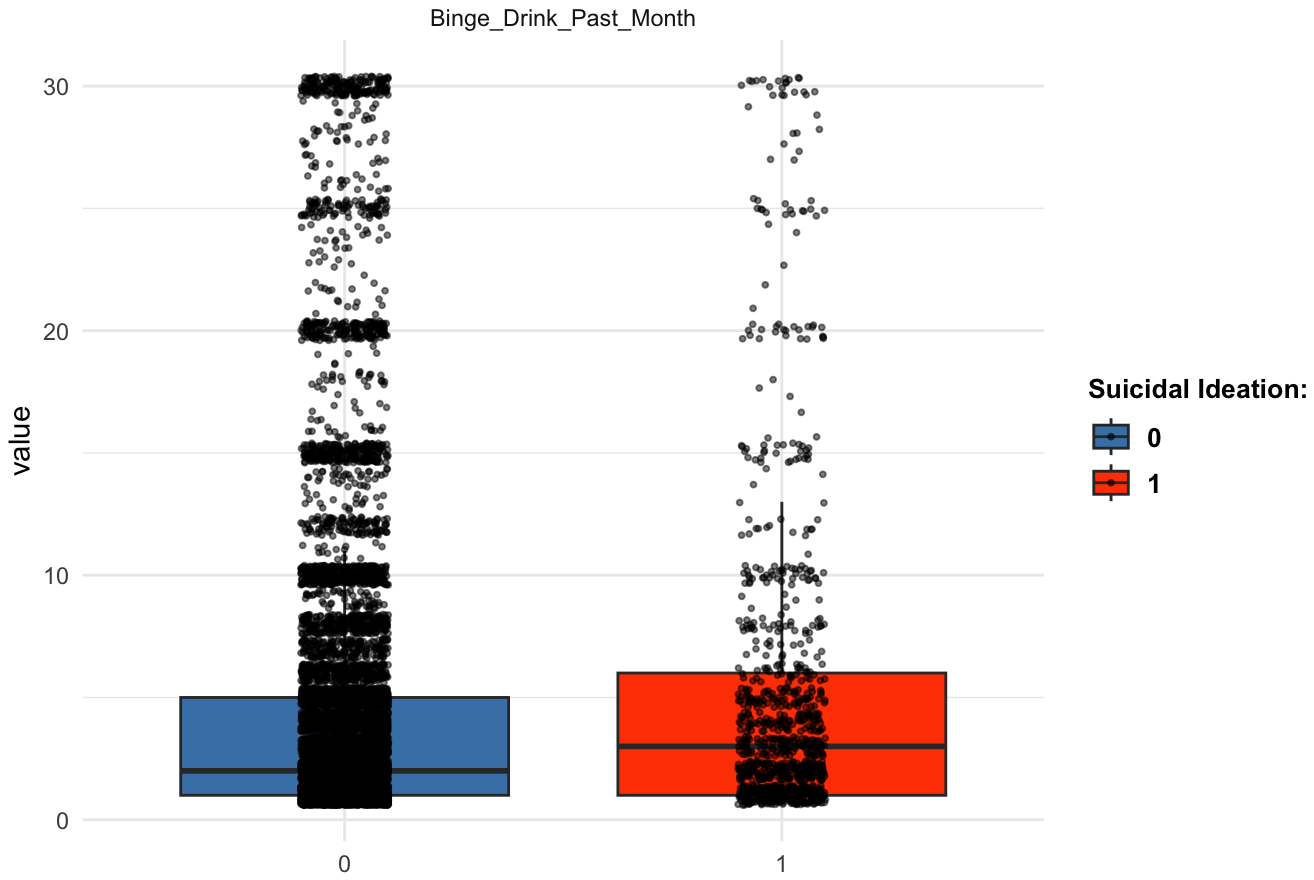

```
#Binge drink past month and ideation
SUI_2021_Adult_new_names %>% select(c(Binge_Drink_Past_Month, Suicidal_Ideation)) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(Suicidal_Ideation), y=value, fill=factor(Suicidal_Ideation))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Ideation:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")
```



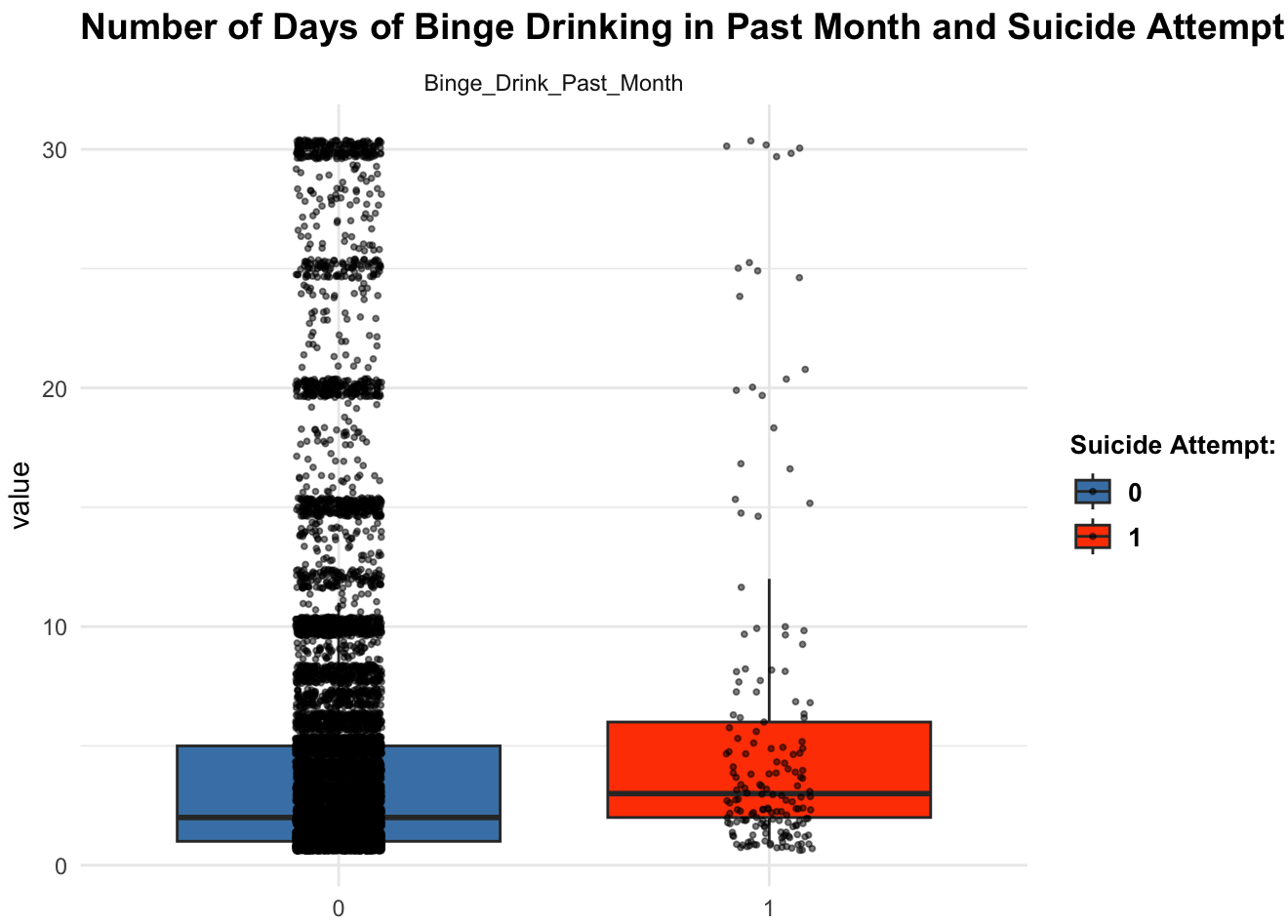

```
#the last chart includes "93" and "91" responses, which need to be deleted since they indiciate a person has not had alcohol in the past month or has ever drank
SUI_2021_Binge <- SUI_2021_Adult_new_names %>%
  filter(Binge_Drink_Past_Month >= 1 & Binge_Drink_Past_Month <= 30)
```

```
#Binge drink past month and ideation in new data frame
SUI_2021_Binge %>% select(c(Binge_Drink_Past_Month, Suicidal_Ideation)) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(Suicidal_Ideation), y=value, fill=factor(Suicidal_Ideation))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Ideation:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Number of Days of Binge Drinking in Past Month and Suicidal Ideation")+
  theme(axis.title.x = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```

Number of Days of Binge Drinking in Past Month and Suicidal Ideation

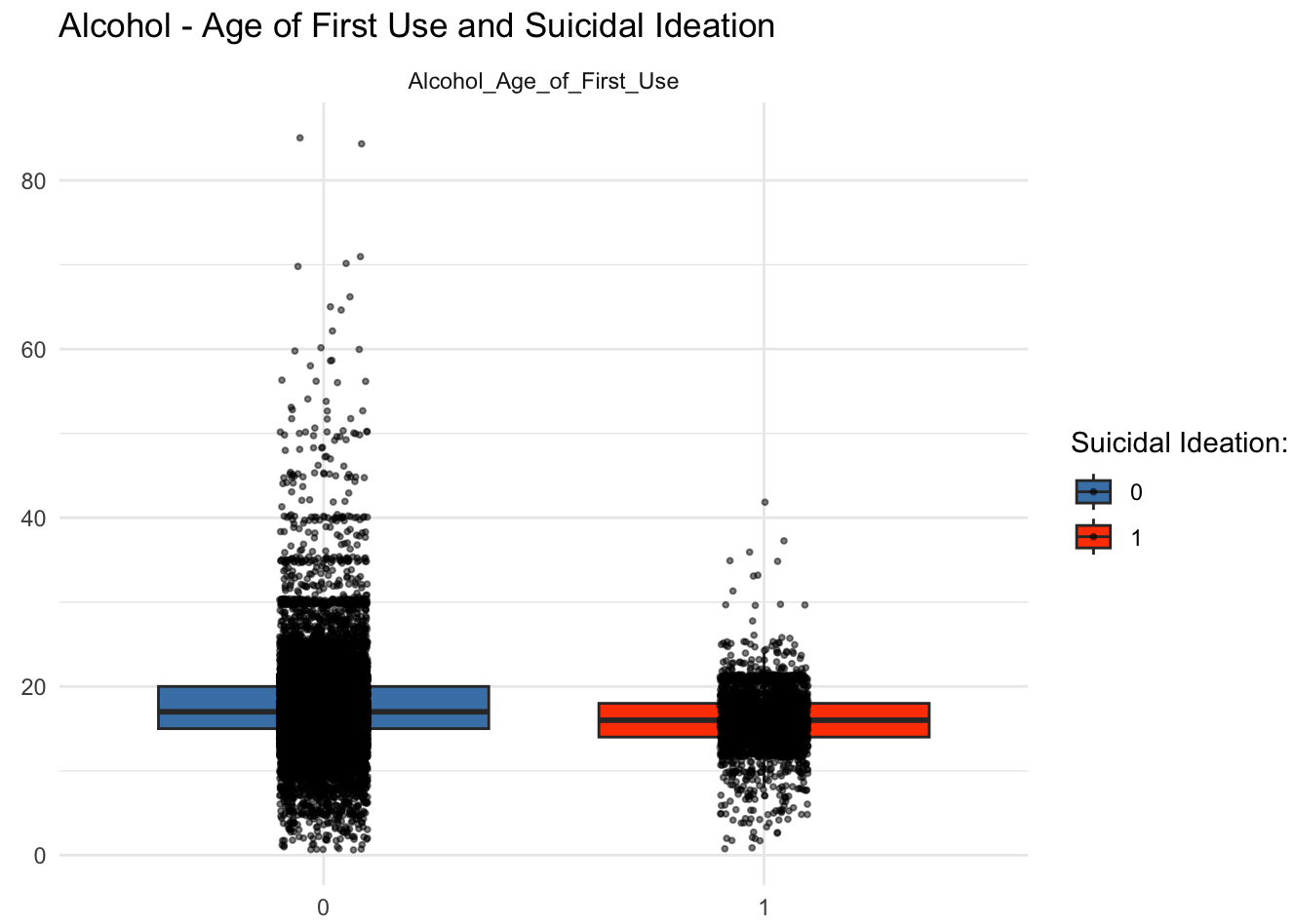


```
#Binge drink past month and attempt
SUI_2021_Binge %>% select(c(Binge_Drink_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Number of Days of Binge Drinking in Past Month and Suicide Attempt")+
  theme(axis.title.x = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```

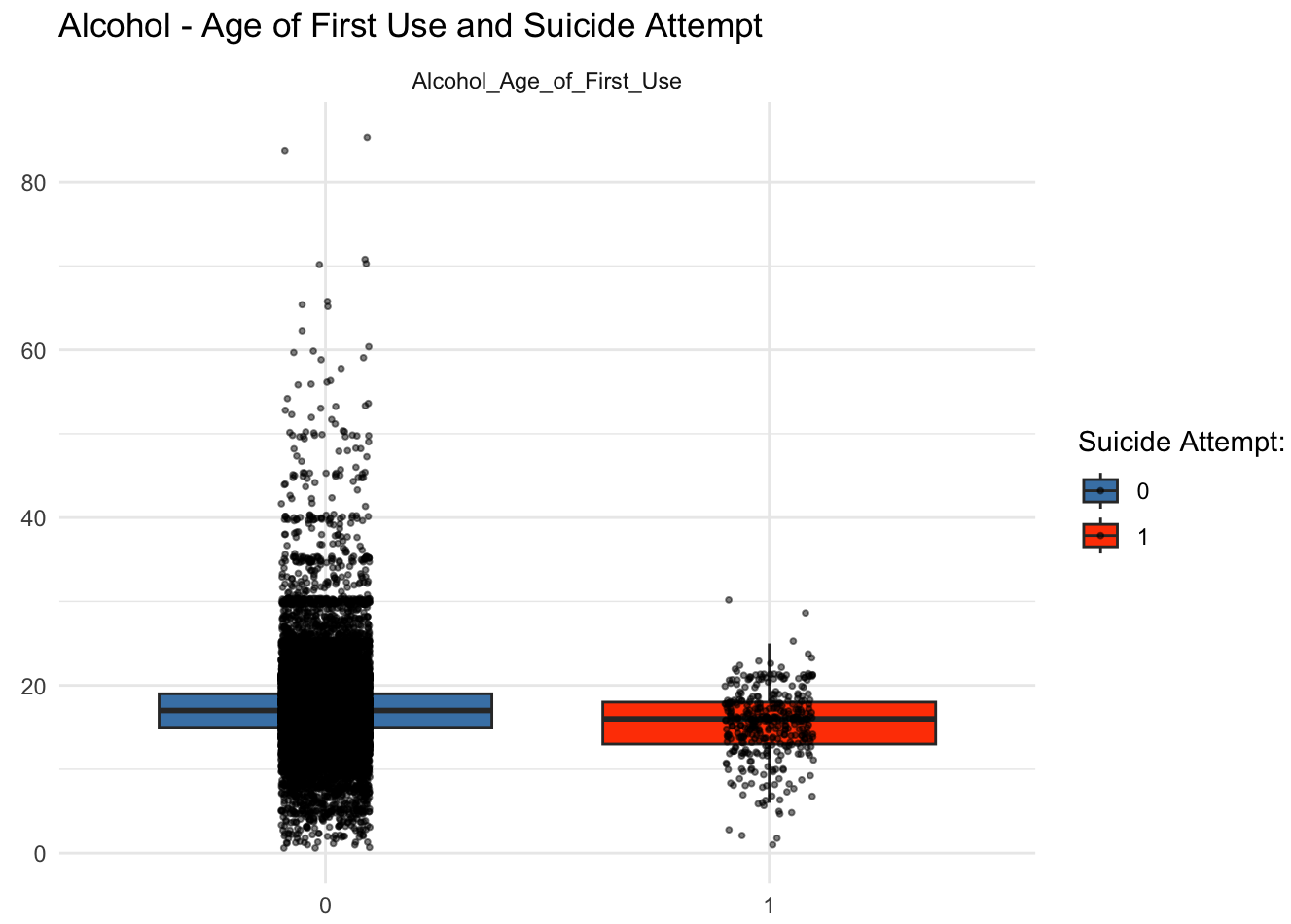



```
#New data frame for alcohol users
SUI_2021_Alc_Age <- SUI_2021_Adult_new_names %>%
  filter(Alcohol_Age_of_First_Use >= 1 & Alcohol_Age_of_First_Use <= 99)
```

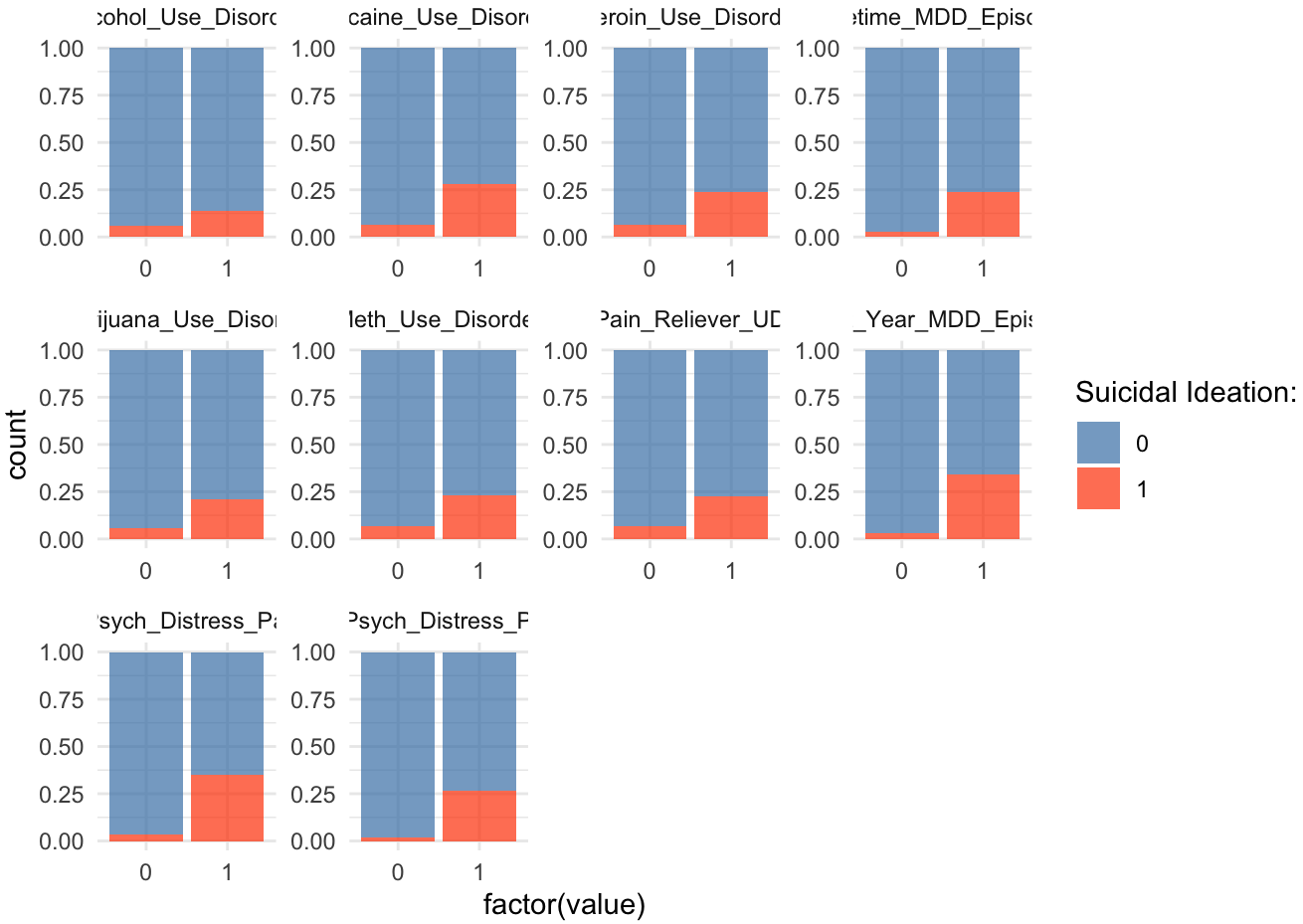
```
#Alcohol age of first use and ideation
SUI_2021_Alc_Age %>% select(c(Alcohol_Age_of_First_Use, Suicidal_Ideation)) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(Suicidal_Ideation), y=value, fill=factor(Suicidal_Ideation))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Ideation:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Alcohol - Age of First Use and Suicidal Ideation")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())
```



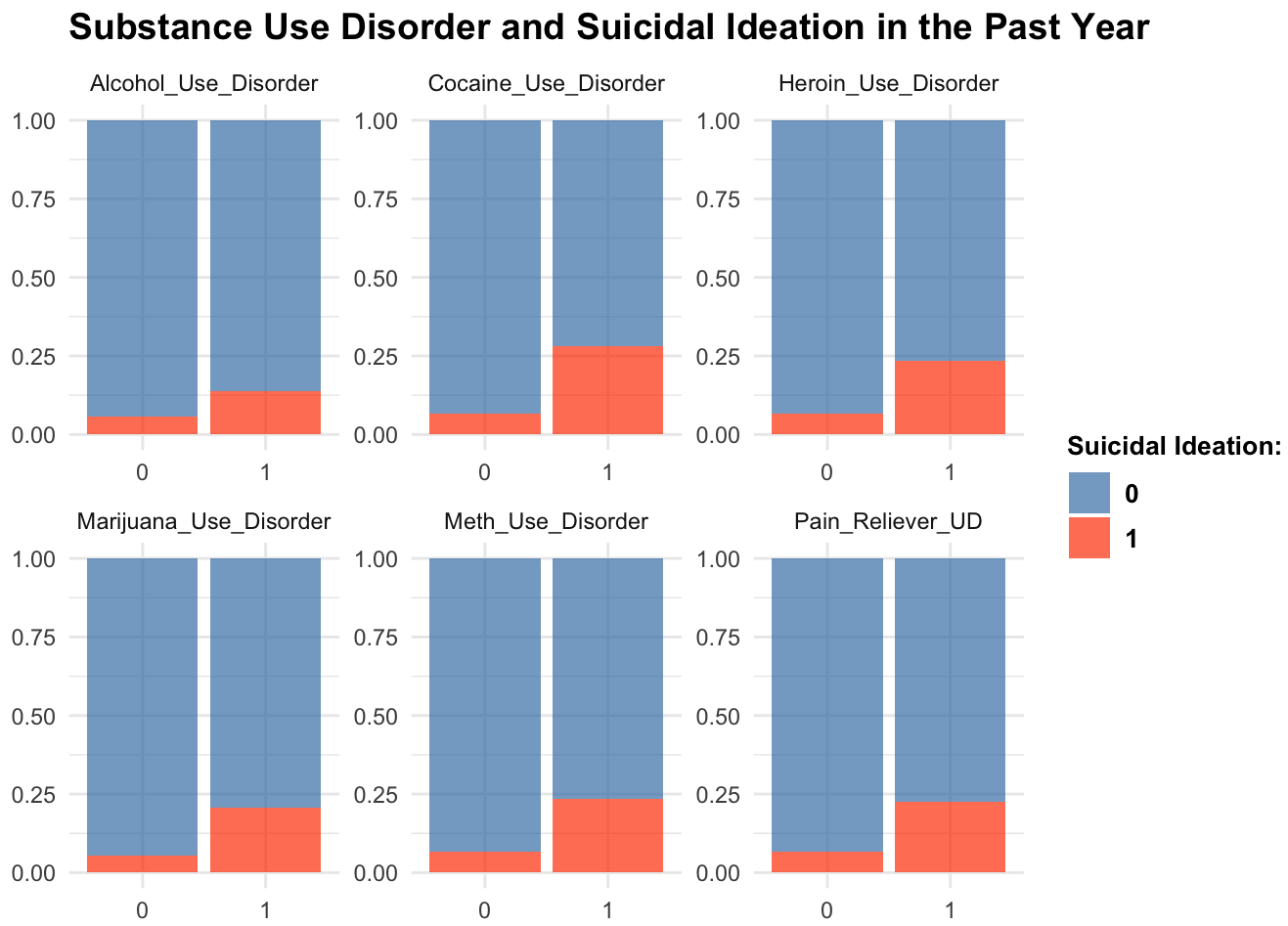
```
#Alcohol age of first use and attempt
SUI_2021_Alc_Age %>% select(c(Alcohol_Age_of_First_Use, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Alcohol - Age of First Use and Suicide Attempt")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())
```



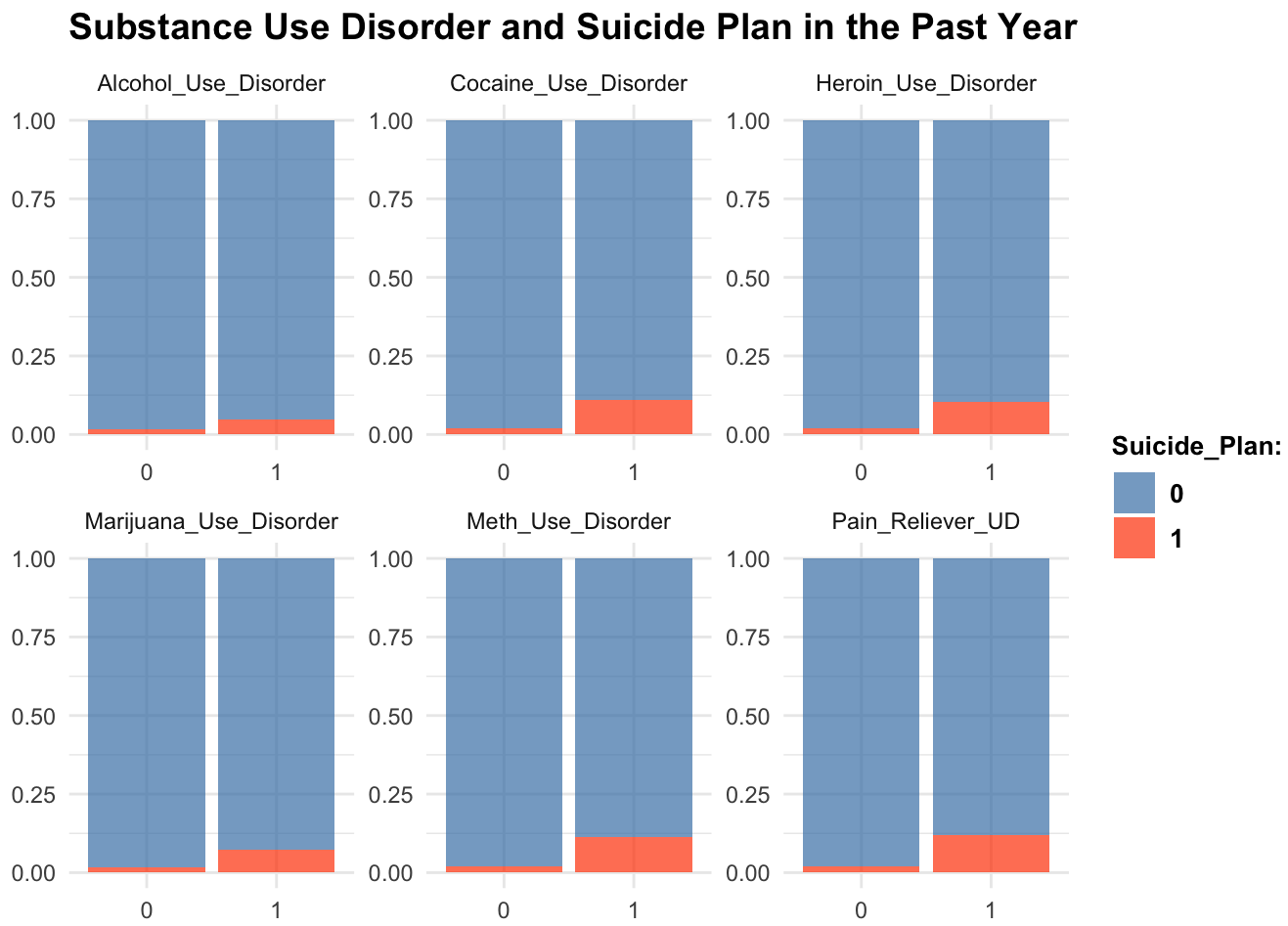
```
#For categorical variables, using simple stacked barplots to show the differences between people without or witho
ut serious suicide ideation in the past year:
SUI_2021_Adult_new_names %>% select(Alcohol_Use_Disorder, Marijuana_Use_Disorder,Cocaine_Use_Disorder,Heroin_Use_
Disorder,Meth_Use_Disorder,Pain_Reliever_UD,Serious_Psych_Distress_Past_Month,Suicidal_Ideation, Serious_Psych_Di
stress_Past_Year,Lifetime_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicidal_Ideation))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicidal Ideation:") +
  facet_wrap(~name, scales="free")
```



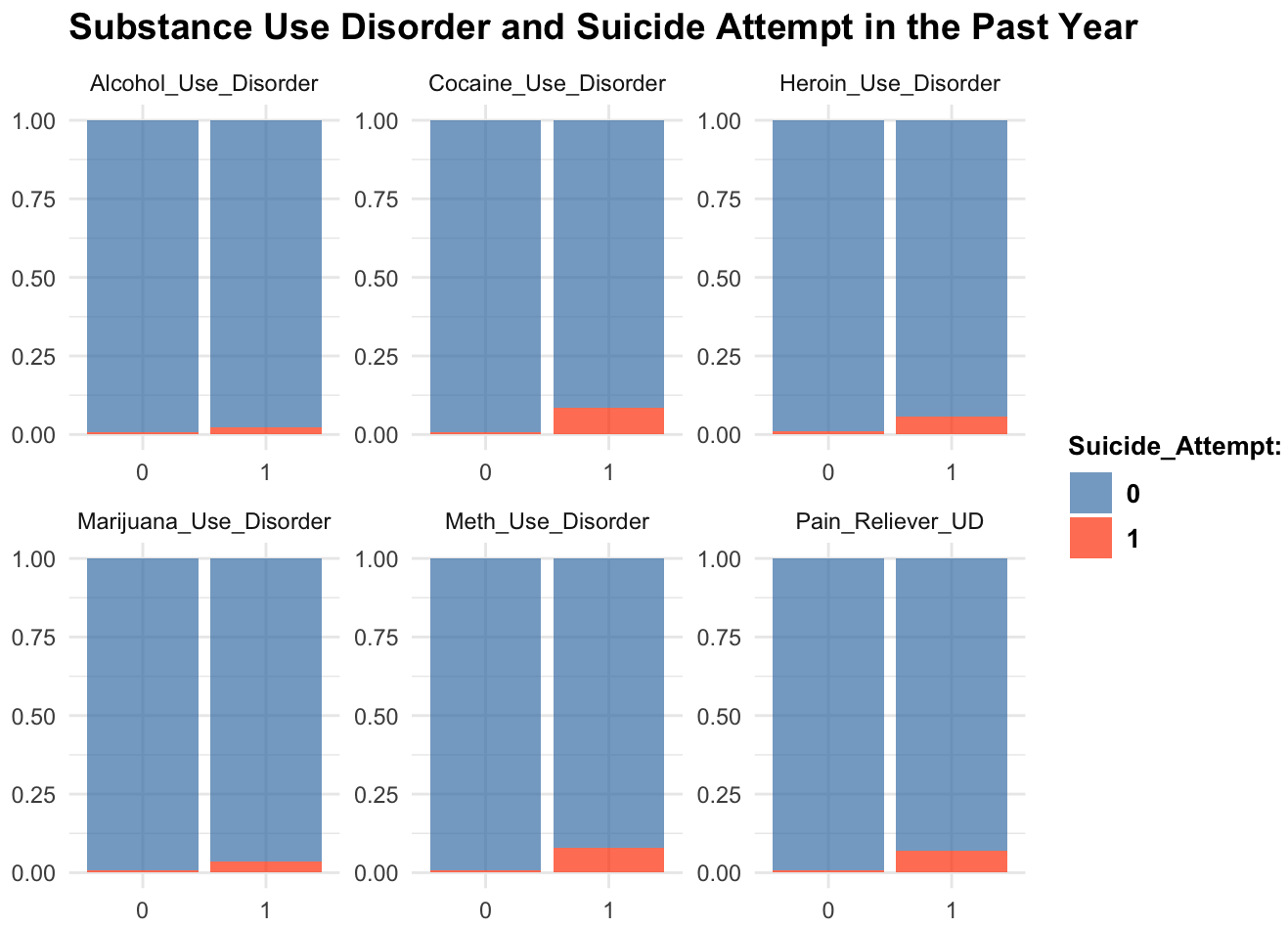
```
#Just SUD and Ideation
SUI_2021_Adult_new_names %>% select(Alcohol_Use_Disorder,Marijuana_Use_Disorder,Cocaine_Use_Disorder,Meth_Use_Dis
order,Heroin_Use_Disorder, Pain_Reliever_UD ,Suicidal_Ideation) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicidal_Ideation))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicidal Ideation:") +
  facet_wrap(~name, scales="free") +
   ggtitle("Substance Use Disorder and Suicidal Ideation in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```


Substance Use Disorder and Suicidal Ideation in the Past Year
Alcohol_Use_Disorder
Cocaine_Use_Disorder
Heroin_Use_Disorder
Marijuana_Use_Disorder
Meth_Use_Disorder
Pain_Reliever_UD
1.00
0.75
0.50
0.25
0.00
0
1
Suicidal Ideation:
0
1

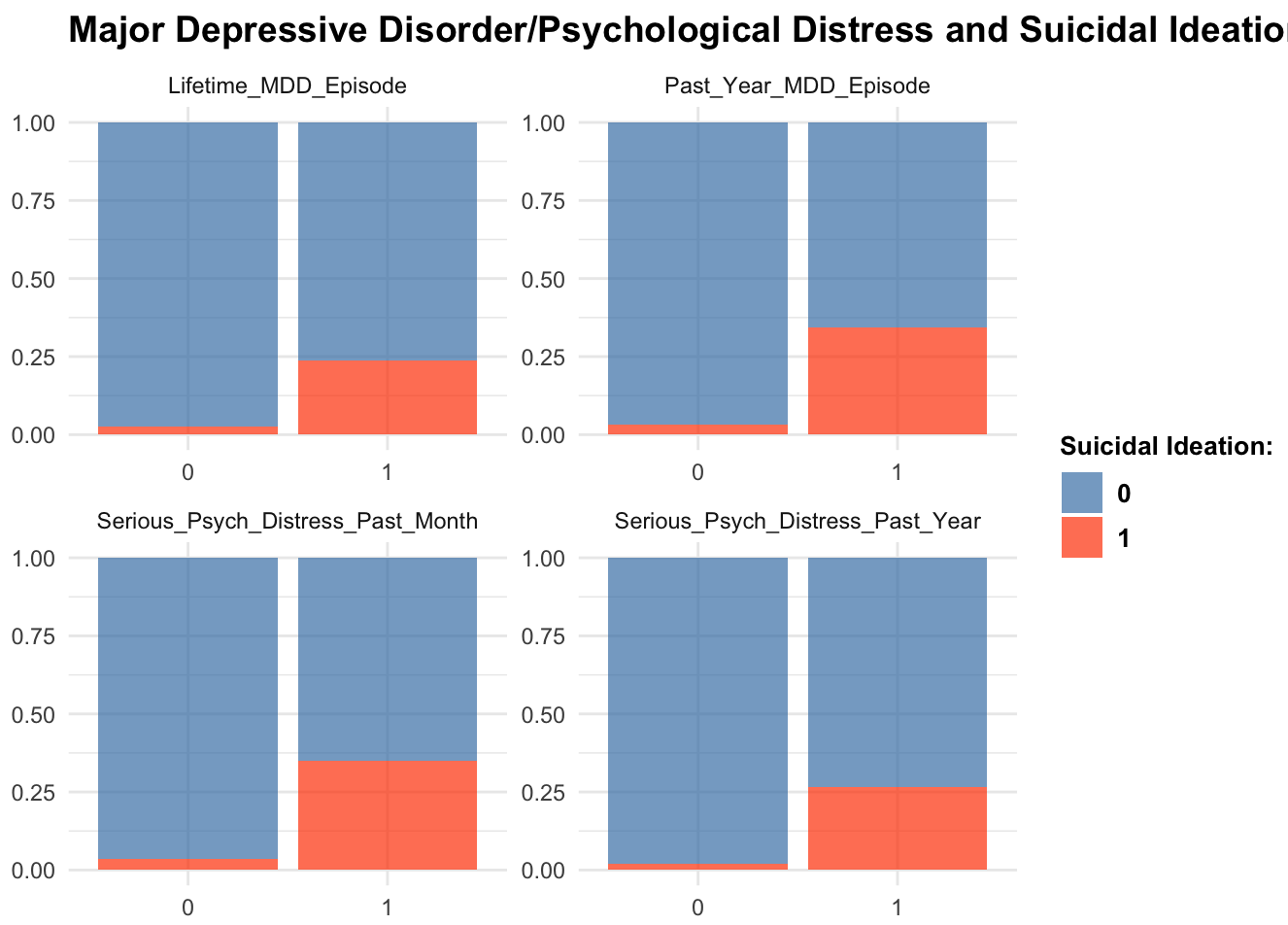
```
#SUD and Plan
SUI_2021_Adult_new_names %>% select(Alcohol_Use_Disorder, Marijuana_Use_Disorder,Cocaine_Use_Disorder,Meth_Use_Di
sorder,Heroin_Use_Disorder, Pain_Reliever_UD,Suicide_Plan) %>%
  pivot_longer(!Suicide_Plan, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Plan))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Plan:") +
  facet_wrap(~name, scales="free") +
   ggtitle("Substance Use Disorder and Suicide Plan in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```


Substance Use Disorder and Suicide Plan in the Past Year
Alcohol_Use_Disorder
Cocaine_Use_Disorder
Heroin_Use_Disorder
Marijuana_Use_Disorder
Meth_Use_Disorder
Pain_Reliever_UD
1.00
0.75
0.50
0.25
0.00
0
1
Suicide_Plan:
0
1

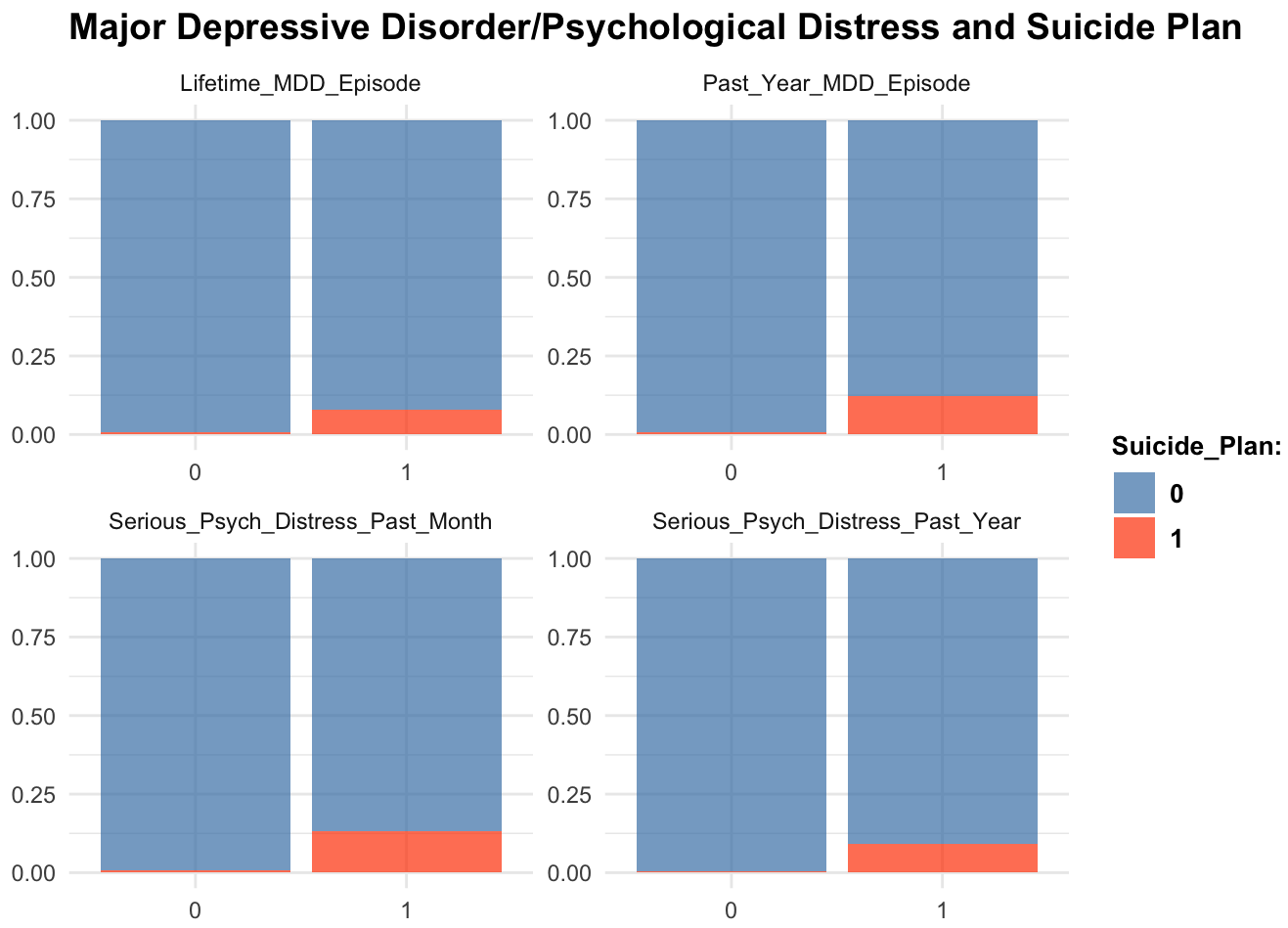
```
#SUD and Attempt
SUI_2021_Adult_new_names %>% select(Alcohol_Use_Disorder, Marijuana_Use_Disorder,Cocaine_Use_Disorder,Meth_Use_Di
sorder,Heroin_Use_Disorder, Pain_Reliever_UD,Suicide_Attempt) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Attempt:") +
  facet_wrap(~name, scales="free") +
   ggtitle("Substance Use Disorder and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```


Substance Use Disorder and Suicide Attempt in the Past Year
Alcohol_Use_Disorder
Cocaine_Use_Disorder
Heroin_Use_Disorder
Marijuana_Use_Disorder
Meth_Use_Disorder
Pain_Reliever_UD
1.00
0.75
0.50
0.25
0.00
0
1
Suicide_Attempt:
0
1

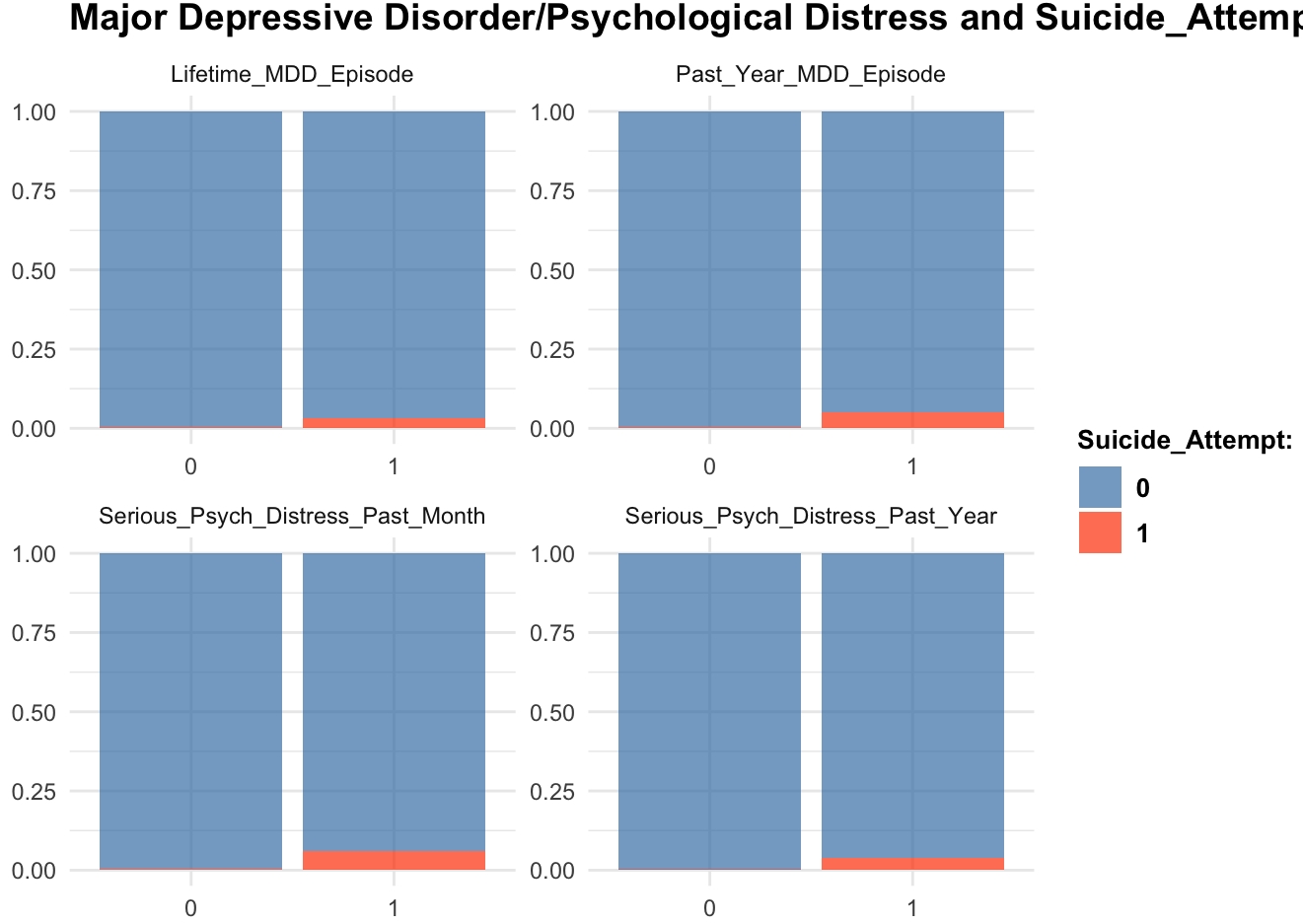
```
#Distress, MDD, and Ideation
SUI_2021_Adult_new_names %>% select(Serious_Psych_Distress_Past_Month,Suicidal_Ideation, Serious_Psych_Distress_P
ast_Year,Lifetime_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicidal_Ideation))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicidal Ideation:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Major Depressive Disorder/Psychological Distress and Suicidal Ideation")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```


Major Depressive Disorder/Psychological Distress and Suicidal Ideation
Lifetime_MDD_Episode
Past_Year_MDD_Episode
Serious_Psych_Distress_Past_Month
Serious_Psych_Distress_Past_Year
1.00
0.75
0.50
0.25
0.00
0
1
Suicidal Ideation:
0
1

```
#Distress, MDD, and Plan
SUI_2021_Adult_new_names %>% select(Serious_Psych_Distress_Past_Month,Suicide_Plan, Serious_Psych_Distress_Past_Y
ear,Lifetime_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicide_Plan, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Plan))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Plan:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Major Depressive Disorder/Psychological Distress and Suicide Plan")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```


Major Depressive Disorder/Psychological Distress and Suicide Plan
Lifetime_MDD_Episode
Past_Year_MDD_Episode
Serious_Psych_Distress_Past_Month
Serious_Psych_Distress_Past_Year
1.00
0.75
0.50
0.25
0.00
0
1
Suicide_Plan:
0
1

```
#Distress, MDD, and Attempt
SUI_2021_Adult_new_names %>% select(Serious_Psych_Distress_Past_Month,Suicide_Attempt, Serious_Psych_Distress_Pas
t_Year,Lifetime_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Attempt:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Major Depressive Disorder/Psychological Distress and Suicide_Attempt")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```




```
#variables for ease of putting them into analyses
#"Marijuana_Use_Disorder","Cocaine_Use_Disorder","Heroin_Use_Disorder", "Meth_Use_Disorder", "Pain_Reliever_Use_Disorder", "Psych_Distress_Worst_Month", "Emotional_Impairment", "Emotional_Impairment_2", "Suicidal_Ideation","Suicide_Plan","Suicide_Attempt" ,"Psych_Distress_Past_Month", "Serious_Psych_Distress_Past_Month", "Serious_Psych_Distress_Past_Year", "Lifetime_MDD_Episode", "Past_Year_MDD_Episode")
```

##Some statistical analyses

```
library(janitor)
#Chi-square comparing Heroin Use Disorder in the past year (yes or no) and suicidal ideation (yes or no)
SUI_2021_Adult_new_names %>%
  tabyl(Heroin_Use_Disorder, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 76.405, df = 1, p-value < 2.2e-16
```

```
#Chi-square comparing Pain Reliever Use Disorder in the past year (yes or no) and suicidal ideation (yes or no)
SUI_2021_Adult_new_names %>%
  tabyl(Pain_Reliever_UD, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 146.63, df = 1, p-value < 2.2e-16
```

```
#Chi-square comparing Cocaine Use Disorder in the past year (yes or no) and suicidal ideation (yes or no)
SUI_2021_Adult_new_names %>%
  tabyl(Cocaine_Use_Disorder, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 191.37, df = 1, p-value < 2.2e-16
```

```
#Chi-square comparing Marijuana Use Disorder in the past year (yes or no) and suicidal ideation (yes or no)
SUI_2021_Adult_new_names %>%
  tabyl(Cocaine_Use_Disorder, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 191.37, df = 1, p-value < 2.2e-16
```

```
#Chi-square comparing Methamphetamine Use Disorder in the past year (yes or no) and suicidal ideation (yes or no)
SUI_2021_Adult_new_names %>%
  tabyl(Meth_Use_Disorder, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 138.11, df = 1, p-value < 2.2e-16
```

```
#Heroin Use Disorder and attempt
SUI_2021_Adult_new_names %>%
  tabyl(Heroin_Use_Disorder, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 39.496, df = 1, p-value = 3.288e-10
```

```
#Pain Reliever Use Disorder and suicide attempt
SUI_2021_Adult_new_names %>%
  tabyl(Pain_Reliever_UD, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 147.49, df = 1, p-value < 2.2e-16
```

```
#CUD and attempt
SUI_2021_Adult_new_names %>%
  tabyl(Cocaine_Use_Disorder, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 153.47, df = 1, p-value < 2.2e-16
```

```
#MUD and attempt
SUI_2021_Adult_new_names %>%
  tabyl(Marijuana_Use_Disorder, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 280.72, df = 1, p-value < 2.2e-16
```

```
#meth use and attempt
SUI_2021_Adult_new_names %>%
  tabyl(Meth_Use_Disorder, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 162.34, df = 1, p-value < 2.2e-16
```

```
#Alcohol Use Past Year and Attempt
SUI_2021_Adult_new_names %>%
  tabyl(alcyr, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 3.7162, df = 1, p-value = 0.05389
```

```
#Alcohol Use Past Year and ideation
SUI_2021_Adult_new_names %>%
  tabyl(alcyr, Suicidal_Ideation) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 95.705, df = 1, p-value < 2.2e-16
```

```
#Marijuana use past year and attempt
SUI_2021_Adult_new_names %>%
  tabyl(mrjyr, Suicide_Attempt) %>%
  janitor::chisq.test()
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  .
## X-squared = 214.97, df = 1, p-value < 2.2e-16
```

```
SUI_2021_Adult_new_names %>%
  t_test(Emotional_Impairment ~ Suicidal_Ideation, var.equal = TRUE)
```

```
## # A tibble: 1 × 8
##   .y.                 group1 group2    n1    n2 statistic    df     p
## * <chr>               <chr>  <chr>  <int> <int>     <dbl> <dbl> <dbl>
## 1 Emotional_Impairment 0      1      42560  3068     -87.2 45626     0
```

##Checking other t-tests

```
#Calculate Welch's T-test (modification of the t-test that is robust to unequal variances and sample sizes)
SUI_2021_Adult_new_names %>%
  t_test(Emotional_Impairment ~ Suicidal_Ideation, var.equal = FALSE, paired = FALSE)
```

```
## # A tibble: 1 × 8
##   .y.                 group1 group2    n1    n2 statistic    df     p
## * <chr>               <chr>  <chr>  <int> <int>     <dbl> <dbl> <dbl>
## 1 Emotional_Impairment 0      1      42560  3068     -74.1 3378.     0
```

```
# Perform Mann-Whitney U test (does not assume normality)
SUI_2021_Adult_new_names %>%
  wilcox_test(Emotional_Impairment ~ Suicidal_Ideation, paired = FALSE)
```

```
## # A tibble: 1 × 7
##   .y.                 group1 group2    n1    n2 statistic     p
## * <chr>               <chr>  <chr>  <int> <int>     <dbl> <dbl>
## 1 Emotional_Impairment 0      1      42560  3068  20228964     0
```

```
SUI_2021_Adult_new_names %>%
  t_test(Emotional_Impairment_2 ~ Suicidal_Ideation, var.equal = TRUE)
```

```
## # A tibble: 1 × 8
##   .y.                   group1 group2    n1    n2 statistic    df     p
## * <chr>                 <chr>  <chr>  <int> <int>     <dbl> <dbl> <dbl>
## 1 Emotional_Impairment_2 0      1      42560  3068     -85.6 45626     0
```

```
SUI_2021_Adult_new_names %>%
  t_test(Psych_Distress_Past_Month ~ Suicidal_Ideation, var.equal = TRUE)
```

```
## # A tibble: 1 × 8
##   .y.                     group1 group2    n1    n2 statistic    df     p
## * <chr>                   <chr>  <chr>  <int> <int>     <dbl> <dbl> <dbl>
## 1 Psych_Distress_Past_Month 0      1      44114  3177     -96.7 47289     0
```

```
SUI_2021_Adult_new_names %>%
  t_test(Psych_Distress_Worst_Month ~ Suicidal_Ideation, var.equal = TRUE)
```

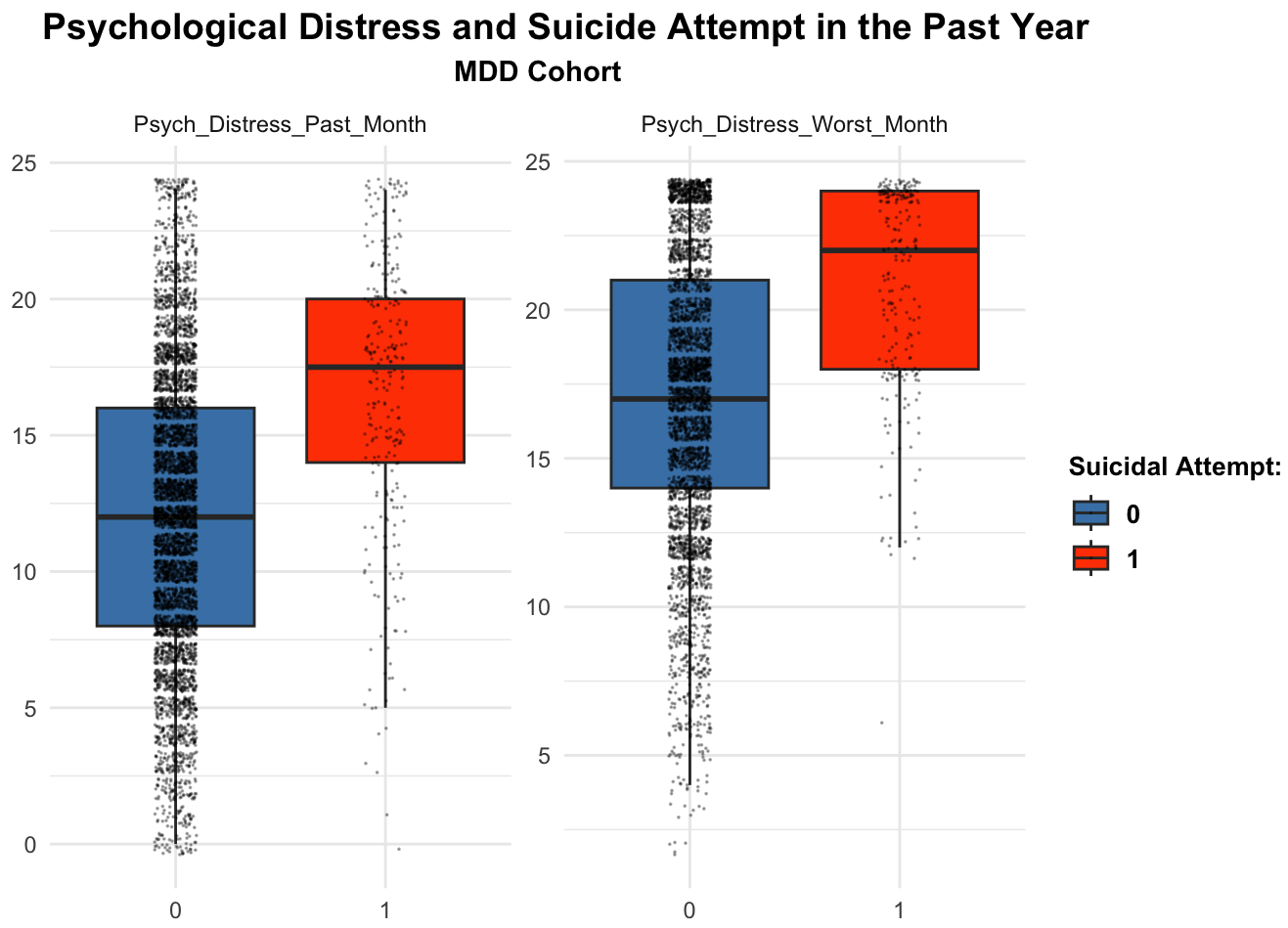
```
## # A tibble: 1 × 8
##   .y.                      group1 group2    n1    n2 statistic    df     p
## * <chr>                    <chr>  <chr>  <int> <int>     <dbl> <dbl> <dbl>
## 1 Psych_Distress_Worst_Month 0      1      14346  2333     -59.5 16677     0
```

```
#creating a data set for adults with an MDD episode in the past year

MDD_Adult <- SUI_2021_Adult_new_names %>%
   filter(Past_Year_MDD_Episode == 1)
```

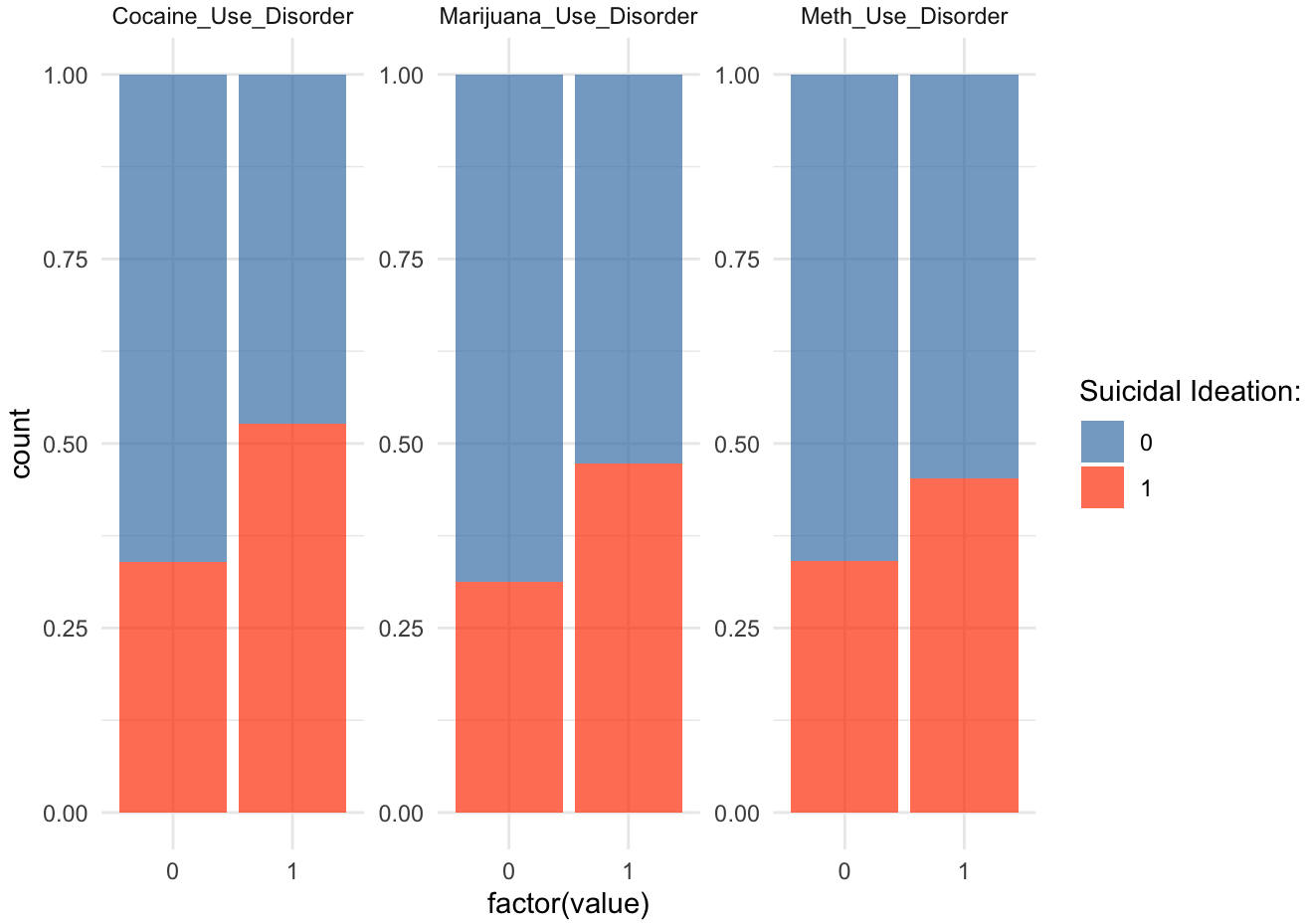
```
MDD_Adult %>% select(c(Emotional_Impairment, Emotional_Impairment_2,Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.1, width=.3, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Impairment Due to Emotional Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "MDD Cohort")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```


Impairment Due to Emotional Distress and Suicide Attempt in the Past Yea
MDD Cohort
Emotional_Impairment
Emotional_Impairment_2
25
20
15
10
5
0
8
6
4
2
0
0
1
0
1
Suicide Attempt:
0
1

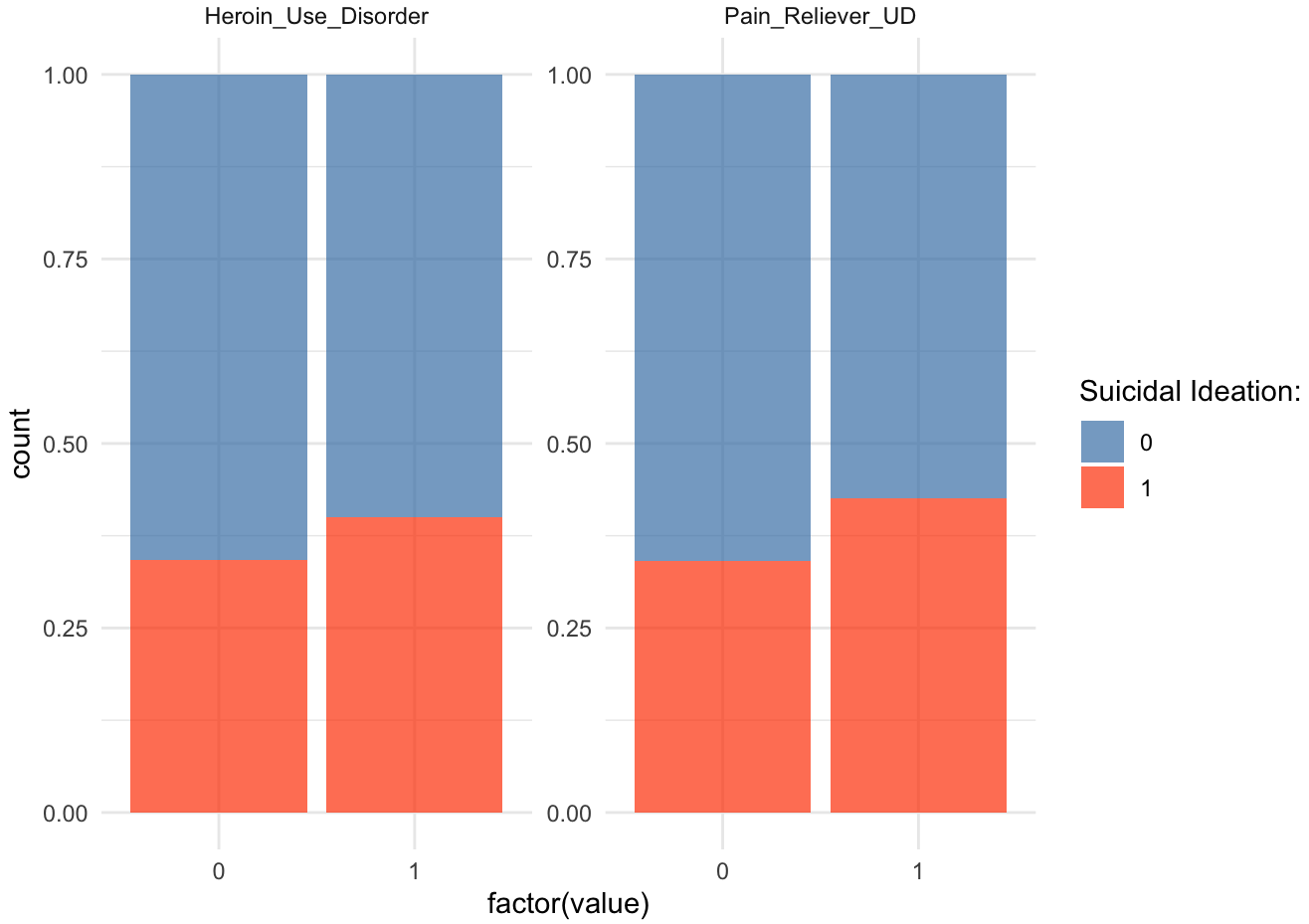
```
MDD_Adult %>% select(c(Psych_Distress_Worst_Month,Psych_Distress_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "MDD Cohort")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```



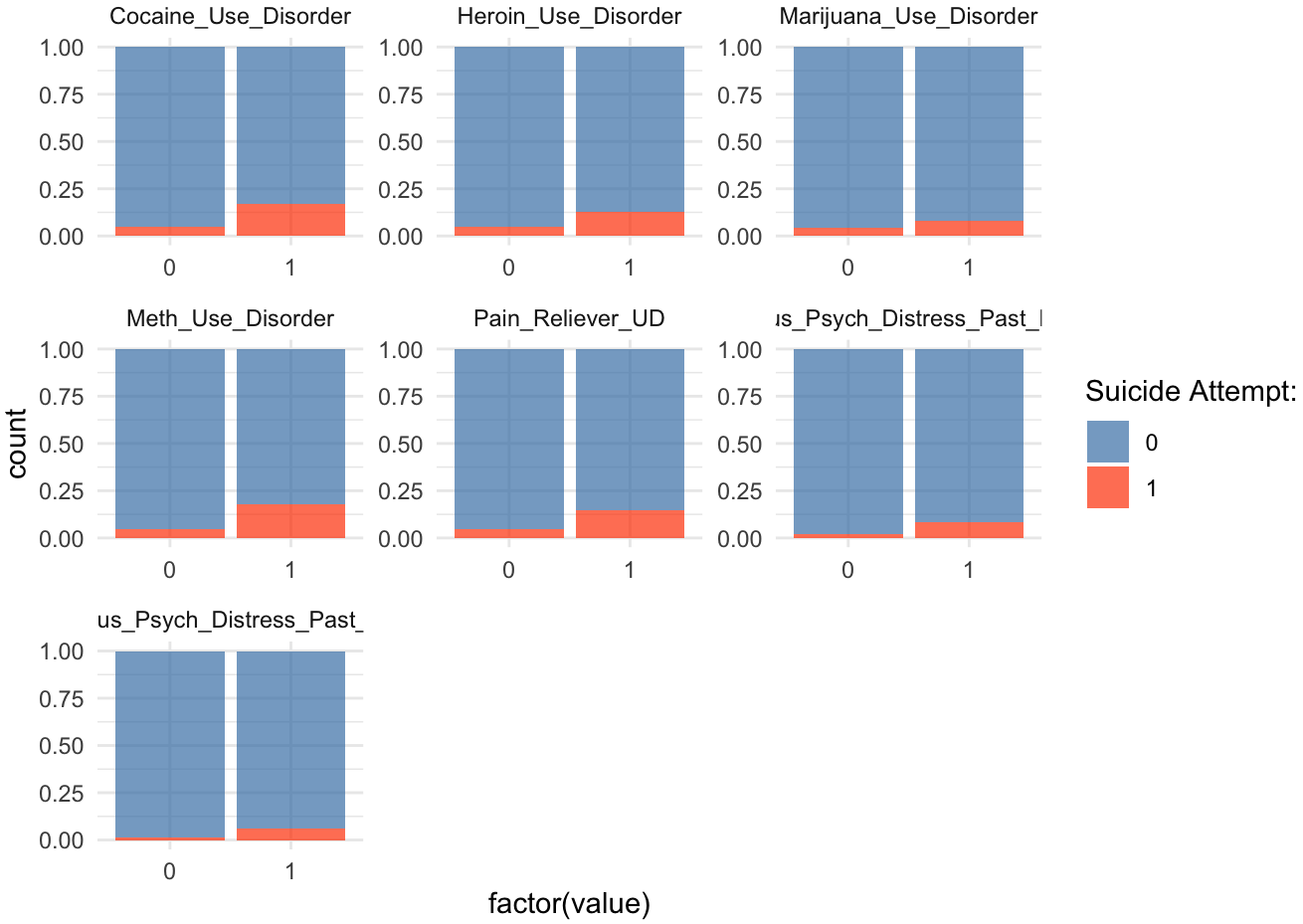

```
MDD_Adult %>% select(Marijuana_Use_Disorder,Cocaine_Use_Disorder,Meth_Use_Disorder,Suicidal_Ideation) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicidal_Ideation))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicidal Ideation:") +
  facet_wrap(~name, scales="free")
```




```
MDD_Adult %>% select(Heroin_Use_Disorder, Pain_Reliever_UD,Suicidal_Ideation) %>%
  pivot_longer(!Suicidal_Ideation, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicidal_Ideation))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicidal Ideation:") +
  facet_wrap(~name, scales="free")
```




```
MDD_Adult %>% select(Marijuana_Use_Disorder,Cocaine_Use_Disorder,Heroin_Use_Disorder,Meth_Use_Disorder,Pain_Relie
ver_UD,Serious_Psych_Distress_Past_Month,Suicide_Attempt, Serious_Psych_Distress_Past_Year) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide Attempt:") +
  facet_wrap(~name, scales="free")
```



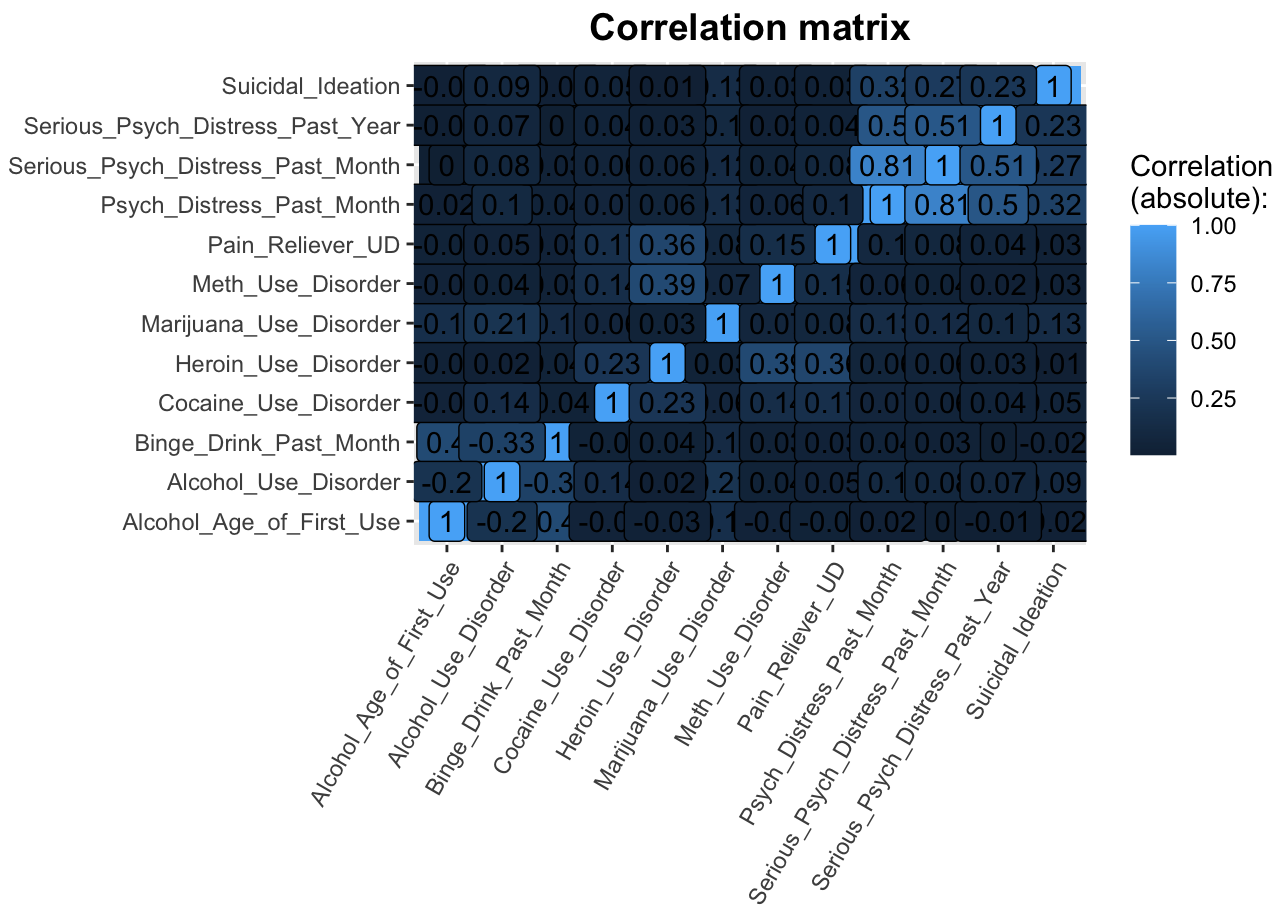

```
str(MDD_Adult)
```

```
## 'data.frame':    5424 obs. of  40 variables:
##  $ AGE3                            : int  5 4 4 6 7 9 9 9 4 5 ...
##  $ CATAG2                          : int  2 2 2 2 3 3 3 3 2 2 ...
##  $ irsex                           : int  1 1 1 2 2 2 2 2 1 2 ...
##  $ tobyr                           : int  1 0 1 0 0 0 0 1 1 1 ...
##  $ alcyr                           : int  1 1 1 0 0 1 1 1 0 1 ...
##  $ mrjyr                           : int  1 1 1 0 0 1 0 0 0 1 ...
##  $ cocyr                           : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ heryfu                          : int  9991 9991 9991 9991 9991 9991 9991 9991 9991 9991 ...
##  $ hallucyfq                       : int  991 2 991 991 991 991 991 993 991 4 ...
##  $ methamyfq                       : int  991 991 991 991 991 991 991 991 991 991 ...
##  $ Binge_Drink_Past_Month          : int  0 93 5 91 91 0 93 0 93 93 ...
##  $ Alcohol_Age_of_First_Use        : int  18 17 16 991 991 15 13 16 12 16 ...
##  $ irpmnicdep                      : int  0 0 1 0 0 0 0 1 0 0 ...
##  $ Alcohol_Use_Disorder            : int  0 0 1 0 0 0 0 0 0 0 ...
##  $ Marijuana_Use_Disorder          : int  0 1 1 0 0 0 0 0 0 1 ...
##  $ Cocaine_Use_Disorder            : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Heroin_Use_Disorder             : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Meth_Use_Disorder               : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Pain_Reliever_UD                : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Psych_Distress_Worst_Month      : int  23 8 21 NA 13 17 NA NA 24 NA ...
##  $ Emotional_Impairment            : int  16 4 9 14 11 13 4 NA 24 NA ...
##  $ Emotional_Impairment_2          : int  5 1 3 6 3 4 1 NA 8 NA ...
##  $ Suicidal_Ideation               : int  0 0 1 0 0 1 0 0 1 0 ...
##  $ Suicide_Plan                    : int  0 0 0 0 0 1 0 0 0 0 ...
##  $ Suicide_Attempt                 : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Psych_Distress_Past_Month       : int  10 4 18 10 10 10 3 17 17 20 ...
##  $ Serious_Psych_Distress_Past_Month: int  0 0 1 0 0 0 0 1 1 1 ...
##  $ Serious_Psych_Distress_Past_Year : int  1 0 1 0 1 1 0 1 1 1 ...
##  $ Lifetime_MDD_Episode            : int  1 1 1 1 1 1 1 1 1 1 ...
##  $ Past_Year_MDD_Episode           : int  1 1 1 1 1 1 1 1 1 1 ...
##  $ ymdelt                          : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ ymdeyr                          : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ YMDEAUD5YR                      : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ YMIUD5YANY                      : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ YMSUD5YANY                      : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ yrxmdeyr                        : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ mdeimpy                         : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ talkprob                        : int  NA NA NA NA NA NA NA NA NA NA ...
```

```
##  $ PRBSOLV2                        : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ new_age                         : num  2 2 2 2 2 2 2 2 2 2 ...
##  - attr(*, "var.labels")= chr [1:2988] "RESPONDENT IDENTIFICATION" "CREATION DATE OF THE DATA FILE" "EVER SMOK
ED A CIGARETTE" "IF BEST FRIEND OFFERED, WOULD YOU SMOKE CIG" ...
```

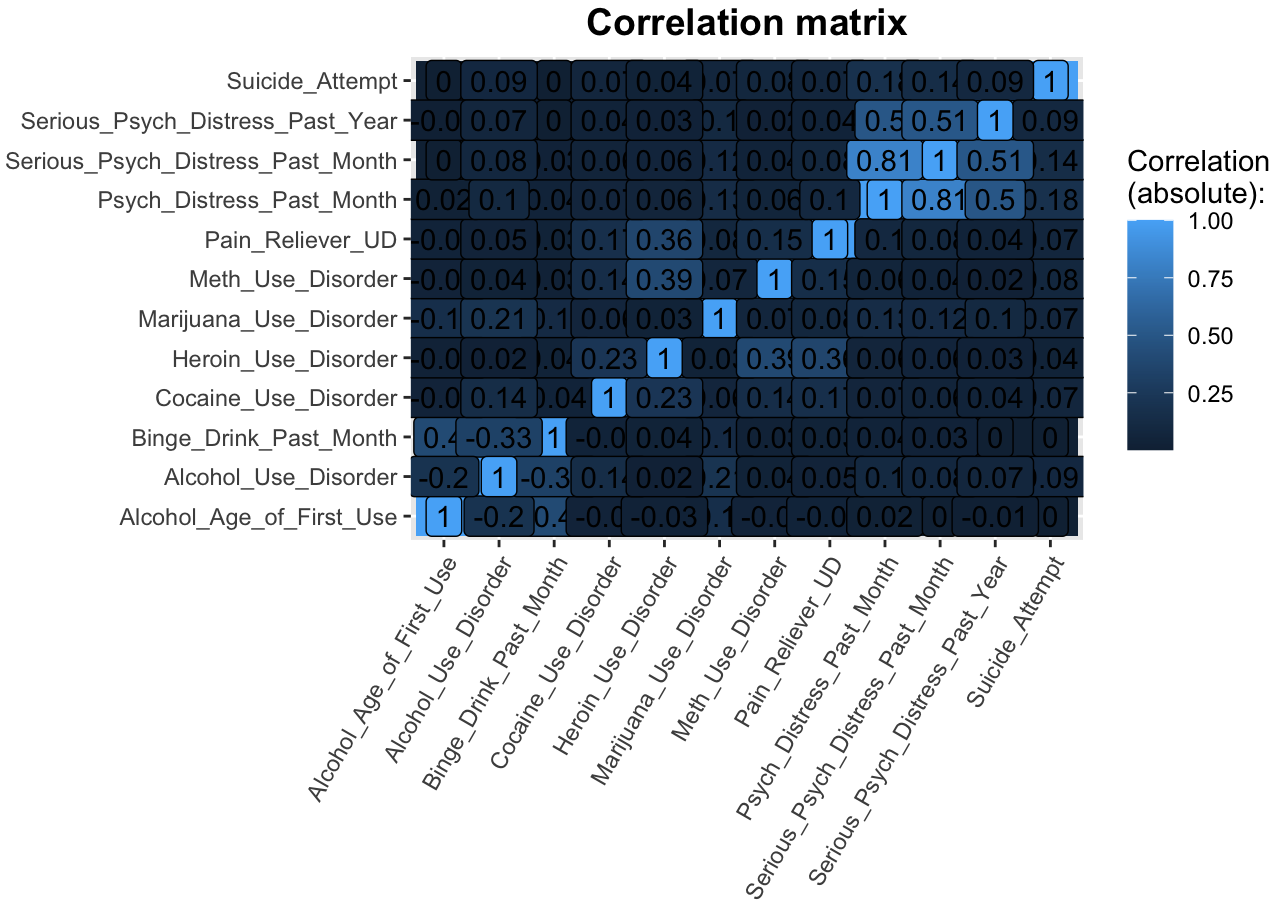
```
#removing unnecessary variables
MDD_Adult_clean <- MDD_Adult %>%
  select(-AGE3, - CATAG2, - irsex, - tobyr, - alcyr, - mrjyr, - cocyr, - heryfu, - hallucyfq, - methamyfq, - irpm
nicdep,- ymdelt, - ymdeyr, - YMIUD5YANY, - YMDEAUD5YR, - YMSUD5YANY, - yrxmdeyr, - mdeimpy,- talkprob,- PRBSOLV2,
- new_age,- Psych_Distress_Worst_Month, -Emotional_Impairment, -Emotional_Impairment_2, -Past_Year_MDD_Episode,-L
ifetime_MDD_Episode, - Suicide_Plan,- Suicide_Attempt)
```

```
cormat <- cor(MDD_Adult_clean %>% keep(is.numeric))

cormat %>% as.data.frame %>% mutate(var2=rownames(.)) %>%
  pivot_longer(!var2, values_to = "value") %>%
  ggplot(aes(x=name,y=var2,fill=abs(value),label=round(value,2))) +
  theme(axis.text.x=element_text(angle=60, hjust=1))+
  geom_tile() + geom_label() + xlab("") + ylab("") +
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.5))+
  ggtitle("Correlation matrix") +
  labs(fill="Correlation\n(absolute):")
```




```
MDD_Adult_Attempt <- MDD_Adult %>%
  select(-AGE3, - CATAG2, - irsex, - tobyr, - alcyr, - mrjyr, - cocyr, - heryfu, - hallucyfq, - methamyfq, - irpm
nicdep,- ymdelt, - ymdeyr, - YMIUD5YANY, - YMDEAUD5YR, - YMSUD5YANY, - yrxmdeyr, - mdeimpy,- talkprob,- PRBSOLV2,
- new_age,- Psych_Distress_Worst_Month, -Emotional_Impairment, -Emotional_Impairment_2, -Past_Year_MDD_Episode,-L
ifetime_MDD_Episode, - Suicide_Plan,- Suicidal_Ideation)
```

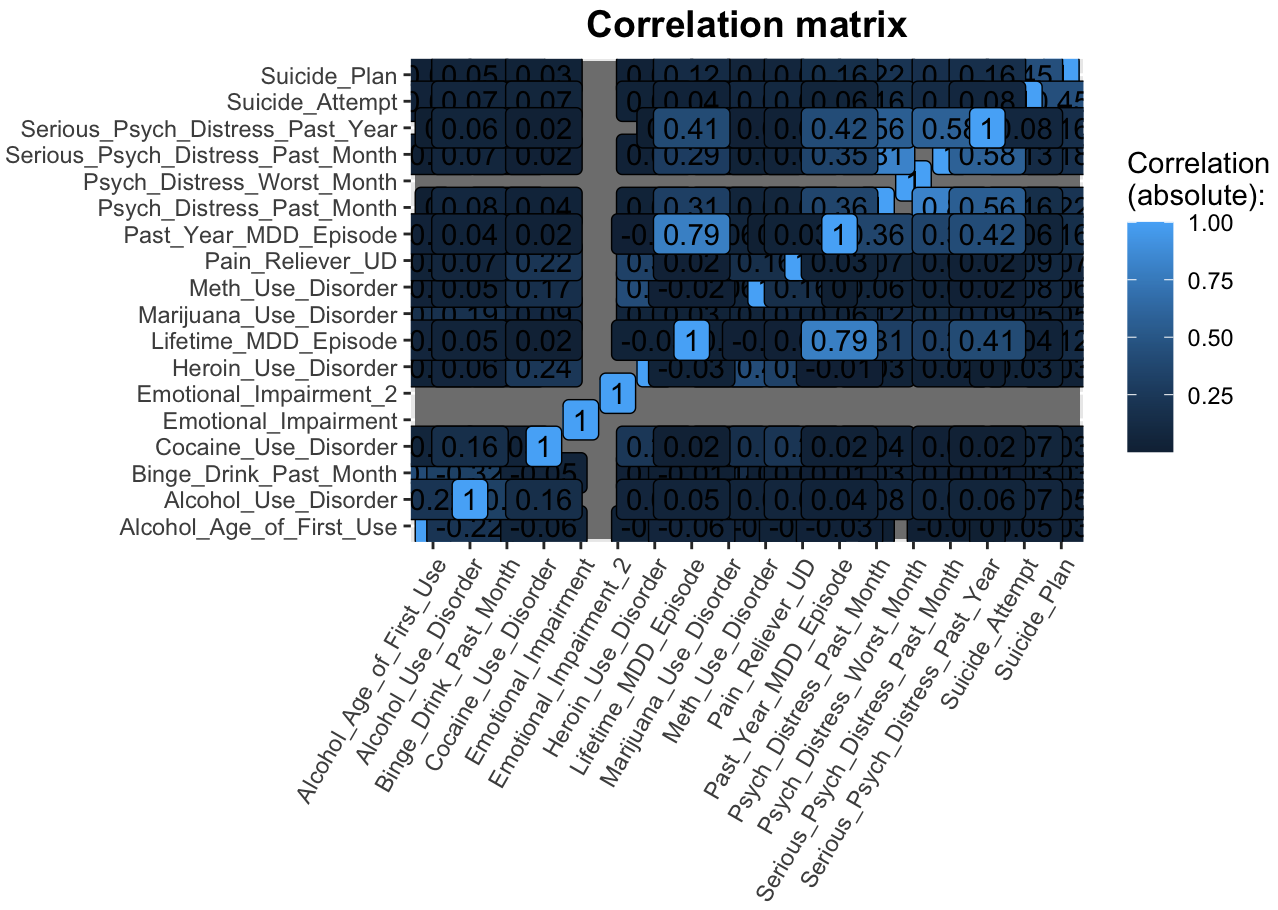
```
cormat <- cor(MDD_Adult_Attempt %>% keep(is.numeric))

cormat %>% as.data.frame %>% mutate(var2=rownames(.)) %>%
  pivot_longer(!var2, values_to = "value") %>%
  ggplot(aes(x=name,y=var2,fill=abs(value),label=round(value,2))) +
  theme(axis.text.x=element_text(angle=60, hjust=1))+
  geom_tile() + geom_label() + xlab("") + ylab("") +
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.5))+
  ggtitle("Correlation matrix") +
  labs(fill="Correlation\n(absolute):")
```



```
#Creating new data set to include only individuals who experienced Suicidal Ideation in the past year
Ideation_Adult <- SUI_2021_Adult_new_names %>%
   filter(Suicidal_Ideation == 1)
```

```
Ideation_Clean <- Ideation_Adult %>%
  select(-AGE3, - CATAG2, - irsex, - tobyr, - alcyr, - mrjyr, - cocyr, - heryfu, - hallucyfq, - methamyfq, - irpm
nicdep,- ymdelt, - ymdeyr, - YMIUD5YANY, - YMDEAUD5YR, - YMSUD5YANY, - yrxmdeyr, - mdeimpy,- talkprob,- PRBSOLV2,
- new_age,-Suicidal_Ideation)
```

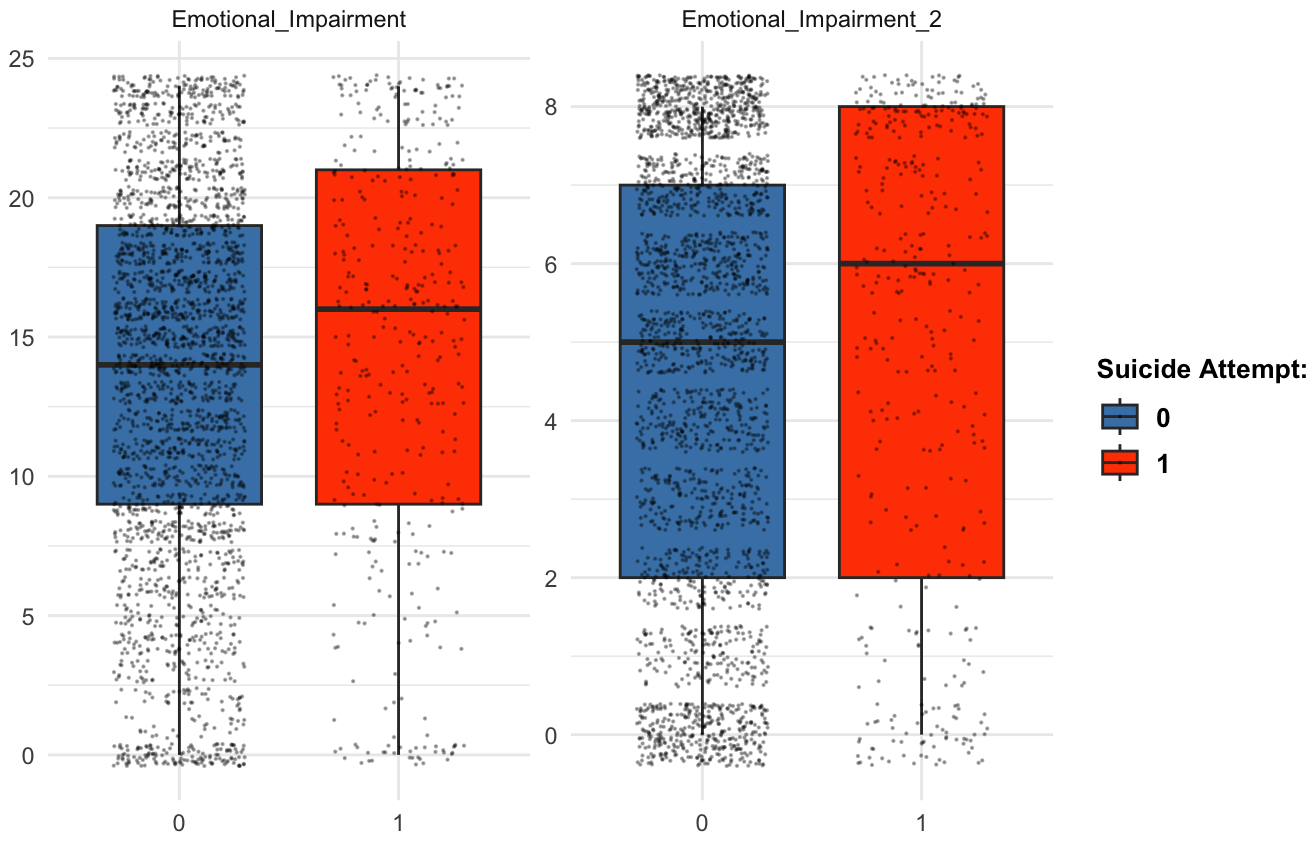
```
cormat1 <- cor(Ideation_Clean %>% keep(is.numeric))

cormat1 %>% as.data.frame %>% mutate(var2=rownames(.)) %>%
  pivot_longer(!var2, values_to = "value") %>%
  ggplot(aes(x=name,y=var2,fill=abs(value),label=round(value,2))) +
  theme(axis.text.x=element_text(angle=60, hjust=1))+
  geom_tile() + geom_label() + xlab("") + ylab("") +
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.5))+
  ggtitle("Correlation matrix") +
  labs(fill="Correlation\n(absolute):")
```


Correlation matrix
Suicide_Plan
Suicide_Attempt
Serious_Psych_Distress_Past_Year
Serious_Psych_Distress_Past_Month
Psych_Distress_Worst_Month
Psych_Distress_Past_Month
Past_Year_MDD_Episode
Pain_Reliever_UD
Meth_Use_Disorder
Marijuana_Use_Disorder
Lifetime_MDD_Episode
Heroin_Use_Disorder
Emotional_Impairment_2
Emotional_Impairment
Cocaine_Use_Disorder
Binge_Drink_Past_Month
Alcohol_Use_Disorder
Alcohol_Age_of_First_Use
Correlation (absolute):
1.00
0.75
0.50
0.25

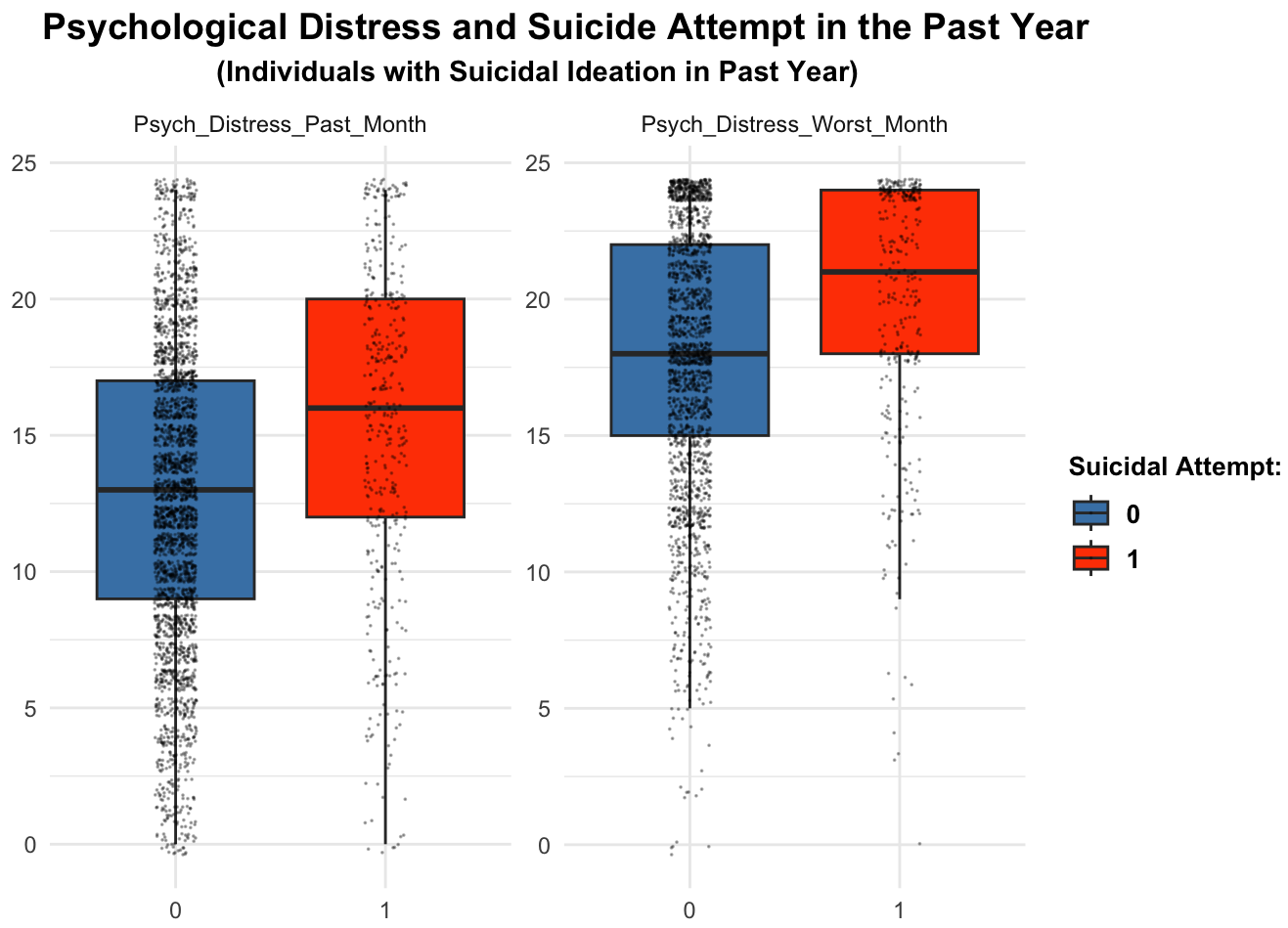
```
#Impairment due to emotional distress and attempt among ideators
Ideation_Clean %>% select(c(Emotional_Impairment, Emotional_Impairment_2,Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.1, width=.3, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Impairment Due to Emotional Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicidal Ideation in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```

Impairment Due to Emotional Distress and Suicide Attempt in the Past Yea

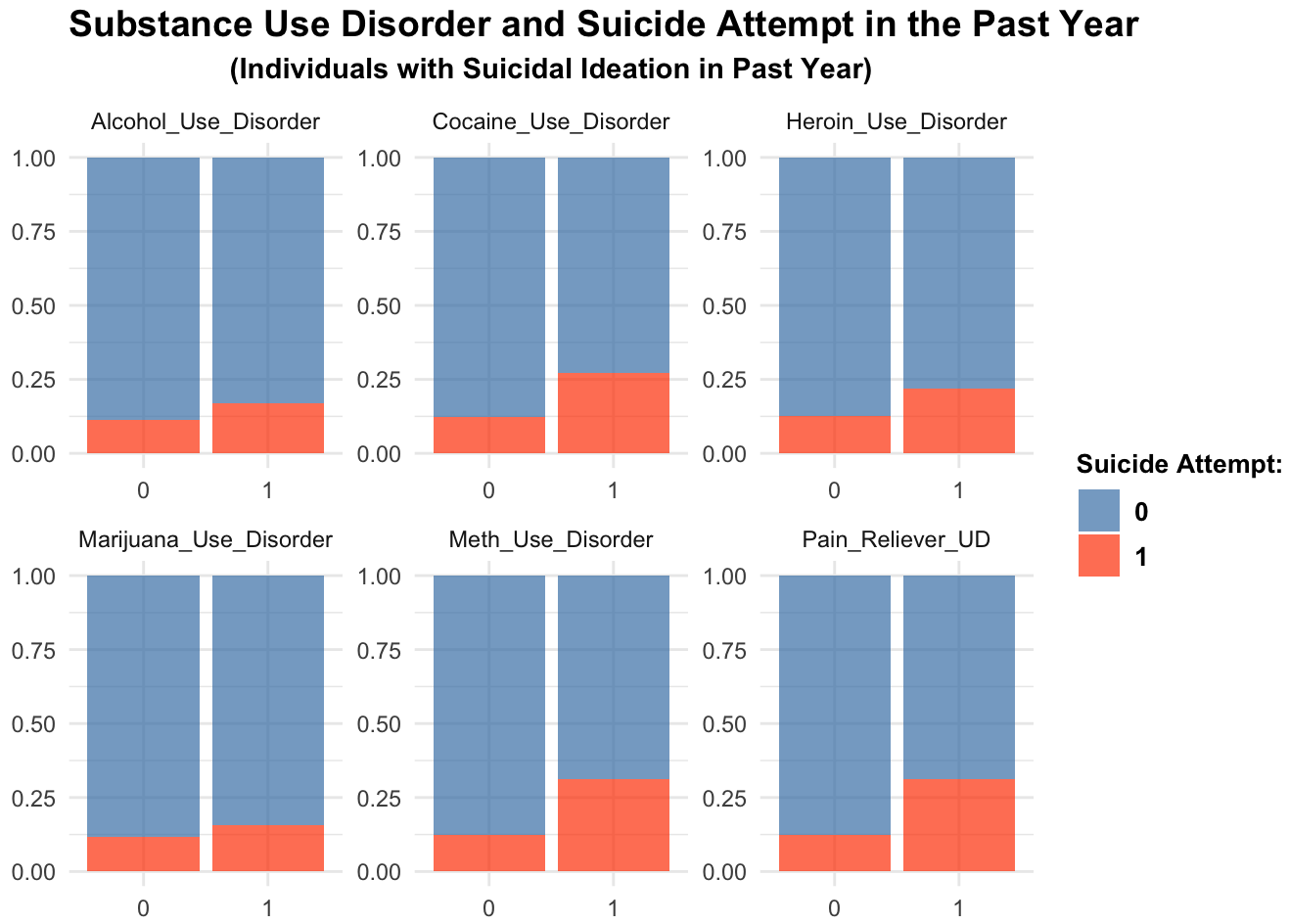
(Individuals with Suicidal Ideation in Past Year)



```
#Distress among ideators
Ideation_Clean %>% select(c(Psych_Distress_Worst_Month,Psych_Distress_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicidal Ideation in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```


Psychological Distress and Suicide Attempt in the Past Year
(Individuals with Suicidal Ideation in Past Year)
Psych_Distress_Past_Month
Psych_Distress_Worst_Month
25
20
15
10
5
0
0
1
Suicidal Attempt:
0
1

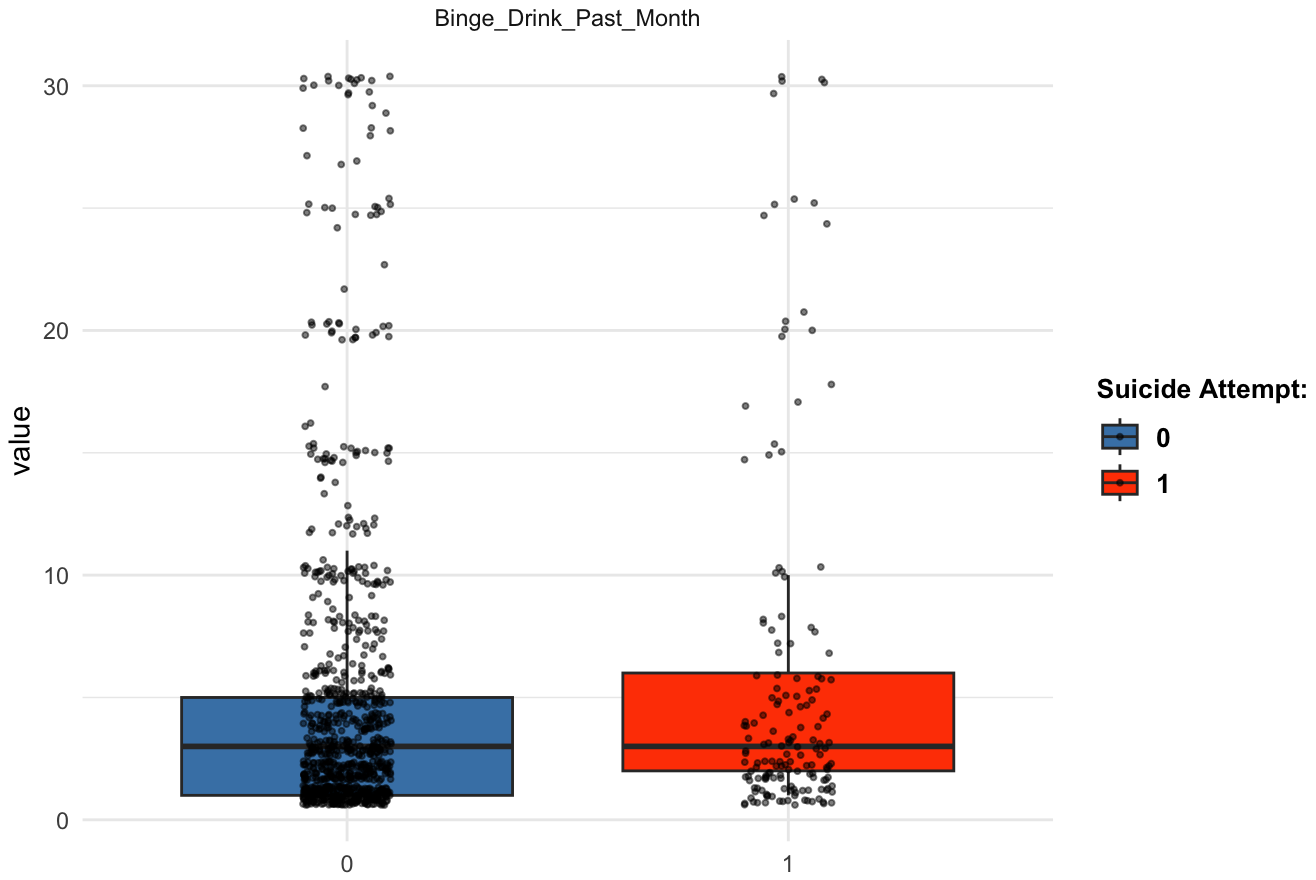
```
#SUD among ideators
Ideation_Clean %>% select(Alcohol_Use_Disorder,Marijuana_Use_Disorder,Cocaine_Use_Disorder,Heroin_Use_Disorder,Me
th_Use_Disorder,Pain_Reliever_UD,Suicide_Attempt) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide Attempt:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Substance Use Disorder and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicidal Ideation in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```



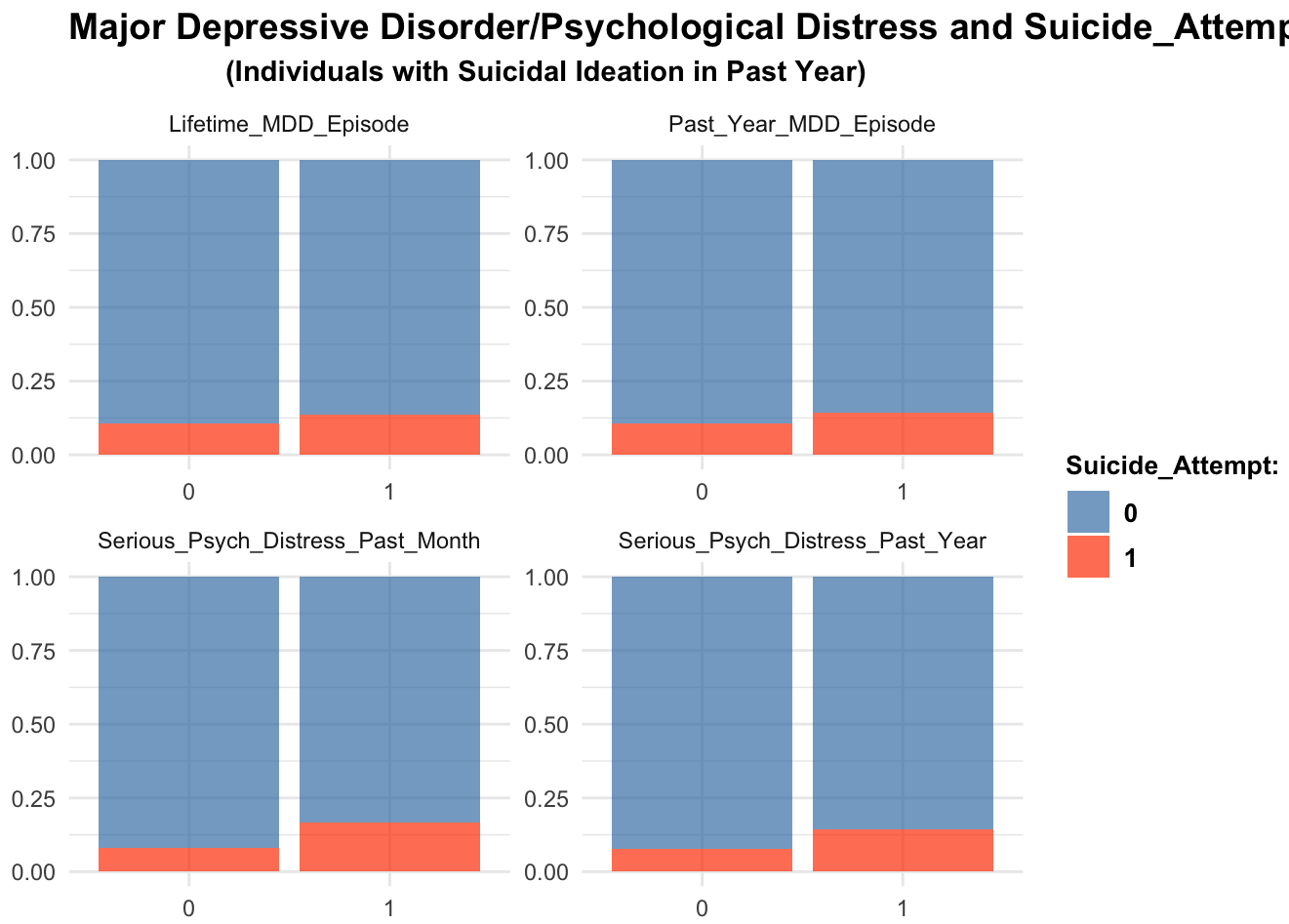

```
SUI_2021_Binge2 <- Ideation_Clean %>%
  filter(Binge_Drink_Past_Month >= 1 & Binge_Drink_Past_Month <= 30)
```

```
SUI_2021_Binge2 %>% select(c(Binge_Drink_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.7, width=.1, alpha=.5) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Number of Days of Binge Drinking in Past Month and Suicide Attempt")+
  theme(axis.title.x = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))
```

Number of Days of Binge Drinking in Past Month and Suicide Attempt



```
#MDD and distress among ideators
Ideation_Clean %>% select(Serious_Psych_Distress_Past_Month,Suicide_Attempt, Serious_Psych_Distress_Past_Year,Lif
etime_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Attempt:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Major Depressive Disorder/Psychological Distress and Suicide_Attempt")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicidal Ideation in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```

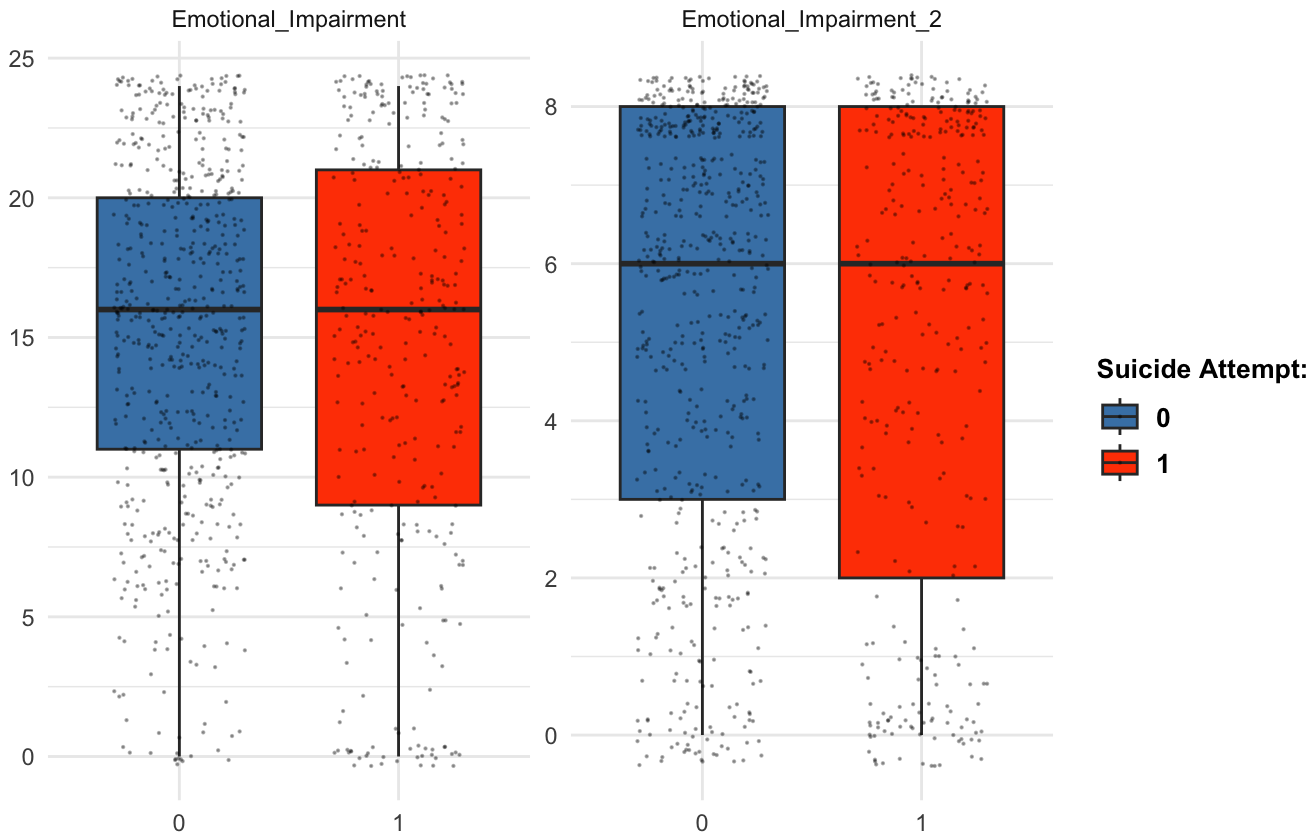



```
#new data frame, just individuals with a suicide plan
Plan_Adult <- SUI_2021_Adult_new_names %>%
   filter(Suicide_Plan == 1)
```

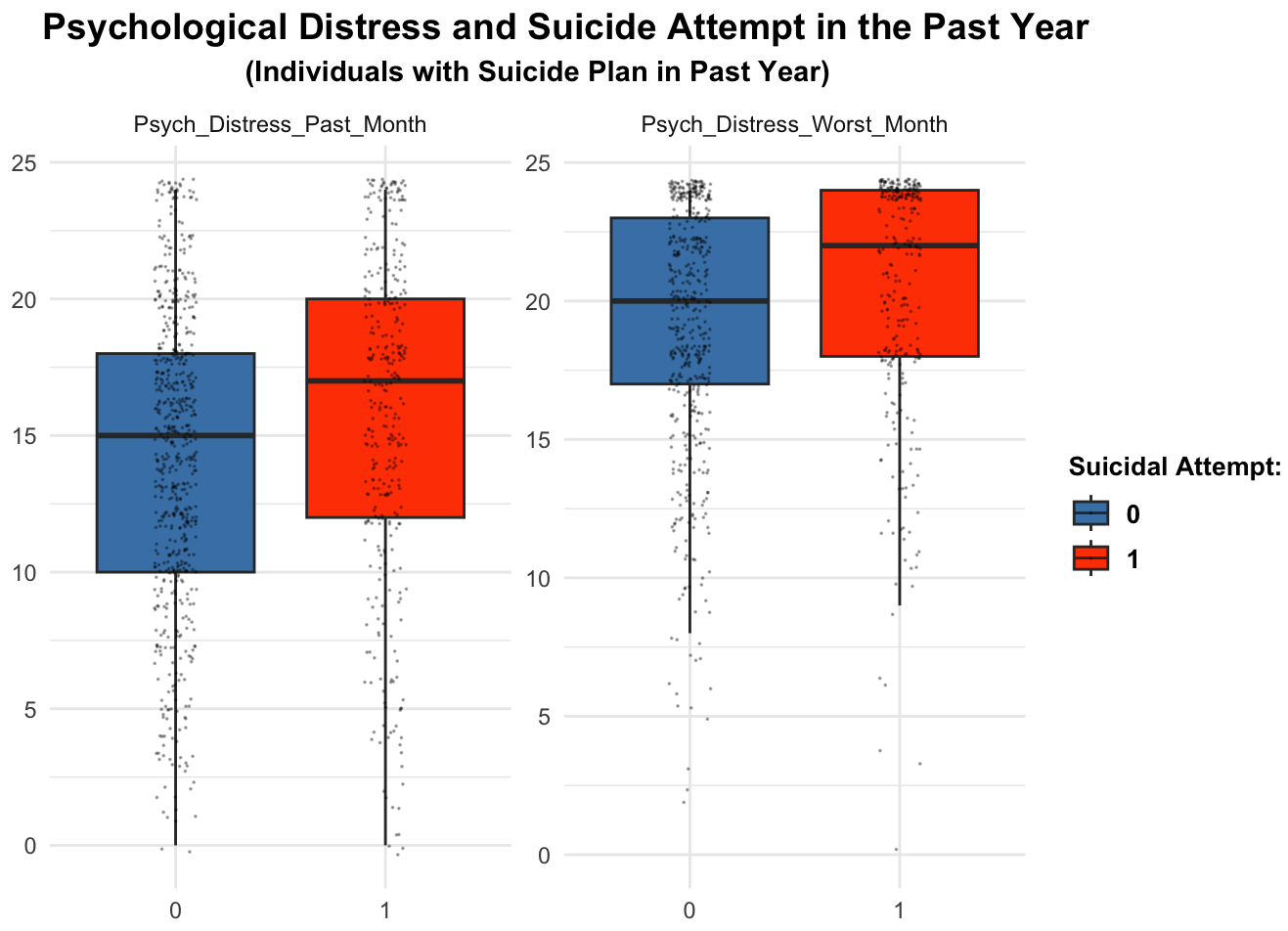
```
Plan_Adult %>% select(c(Emotional_Impairment, Emotional_Impairment_2,Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.1, width=.3, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicide Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Impairment Due to Emotional Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicide Plan in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```

Impairment Due to Emotional Distress and Suicide Attempt in the Past Yea

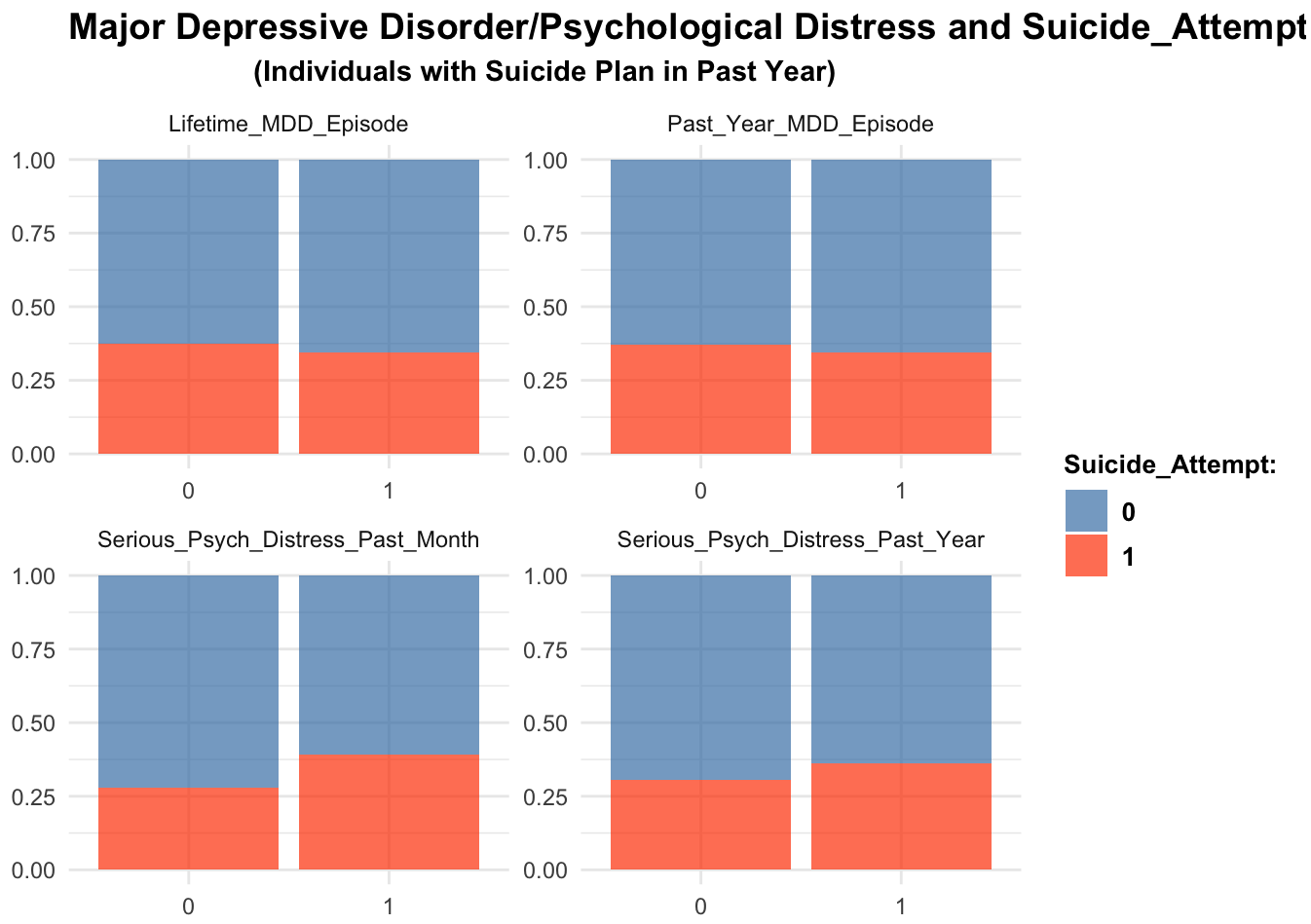
(Individuals with Suicide Plan in Past Year)



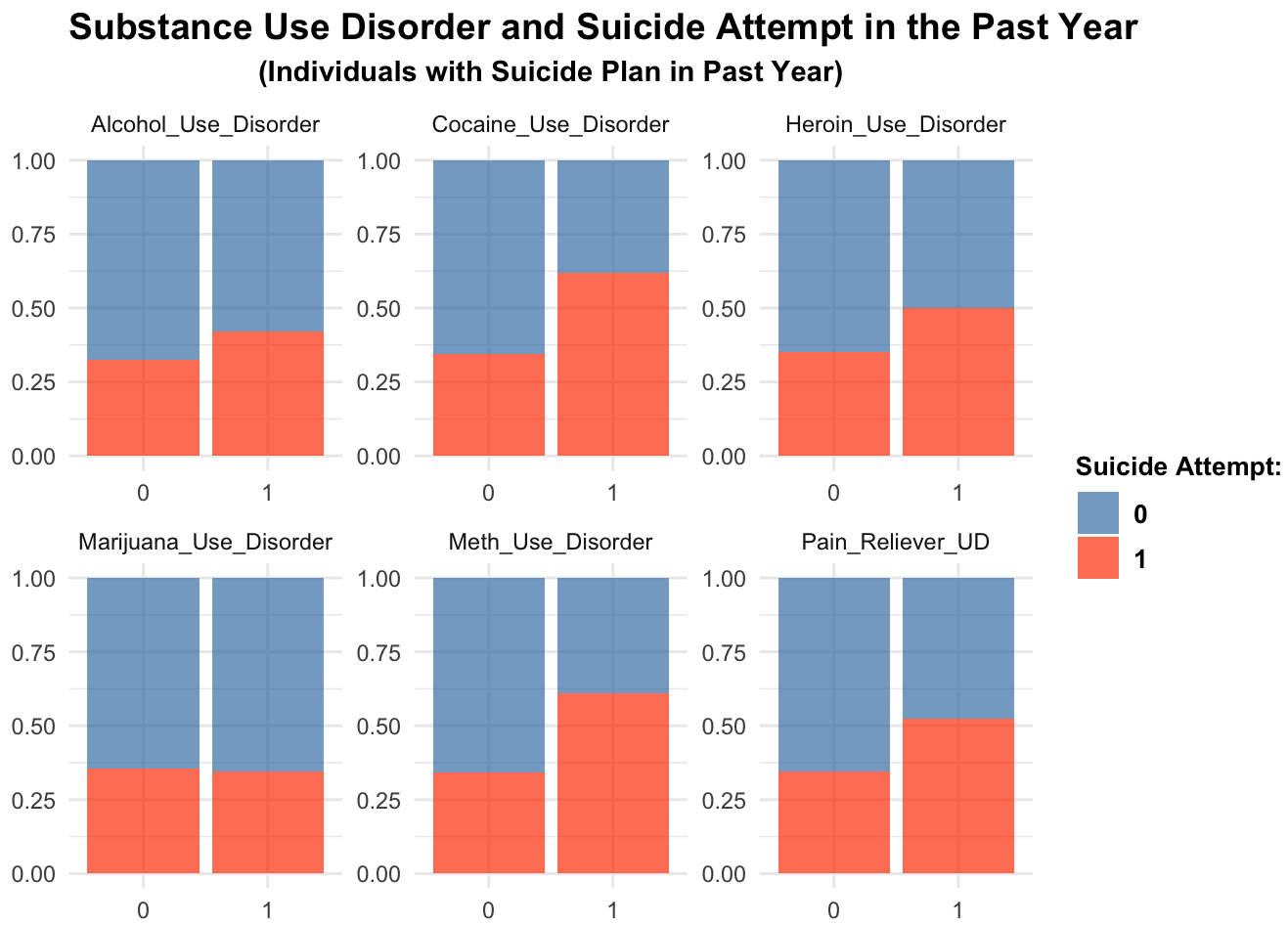
```
Plan_Adult %>% select(c(Psych_Distress_Worst_Month,Psych_Distress_Past_Month, Suicide_Attempt)) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(Suicide_Attempt), y=value, fill=factor(Suicide_Attempt))) +
  geom_boxplot(outlier.shape = NA) + geom_jitter(size=.001, width=.1, alpha=.3) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  labs(fill="Suicidal Attempt:") +
  theme_minimal() +
  facet_wrap(~name, scales="free")+
  ggtitle("Psychological Distress and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14,hjust = 0.1))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicide Plan in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```


Psychological Distress and Suicide Attempt in the Past Year
(Individuals with Suicide Plan in Past Year)
Psych_Distress_Past_Month
Psych_Distress_Worst_Month
25
20
15
10
5
0
0
1
Suicidal Attempt:
0
1

```
Plan_Adult %>% select(Serious_Psych_Distress_Past_Month,Suicide_Attempt, Serious_Psych_Distress_Past_Year,Lifetim
e_MDD_Episode, Past_Year_MDD_Episode) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide_Attempt:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Major Depressive Disorder/Psychological Distress and Suicide_Attempt")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicide Plan in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```


Major Depressive Disorder/Psychological Distress and Suicide_Attempt
(Individuals with Suicide Plan in Past Year)
Lifetime_MDD_Episode
Past_Year_MDD_Episode
Serious_Psych_Distress_Past_Month
Serious_Psych_Distress_Past_Year
1.00
0.75
0.50
0.25
0.00
0
1
Suicide_Attempt:
0
1

```
Plan_Adult%>% select(Alcohol_Use_Disorder,Marijuana_Use_Disorder,Cocaine_Use_Disorder,Heroin_Use_Disorder,Meth_Us
e_Disorder,Pain_Reliever_UD,Suicide_Attempt) %>%
  pivot_longer(!Suicide_Attempt, values_to = "value") %>%
  ggplot(aes(x=factor(value), fill=factor(Suicide_Attempt))) +
  scale_fill_manual(values=c("steelblue", "orangered1")) +
  geom_bar(position="fill", alpha=.7)+
  theme_minimal() +
  labs(fill="Suicide Attempt:") +
  facet_wrap(~name, scales="free")+
  ggtitle("Substance Use Disorder and Suicide Attempt in the Past Year")+
  theme(axis.title.x = element_blank())+
  theme(axis.title.y = element_blank())+
  theme(plot.title = element_text(face = "bold", size = 14))+
  theme(legend.text = element_text(face = "bold", size = 10))+
  theme(legend.title = element_text(face = "bold", size = 10))+
  labs(subtitle = "(Individuals with Suicide Plan in Past Year)")+
  theme(plot.subtitle = element_text(hjust = 0.5, lineheight = 0.9, face = "bold"))
```



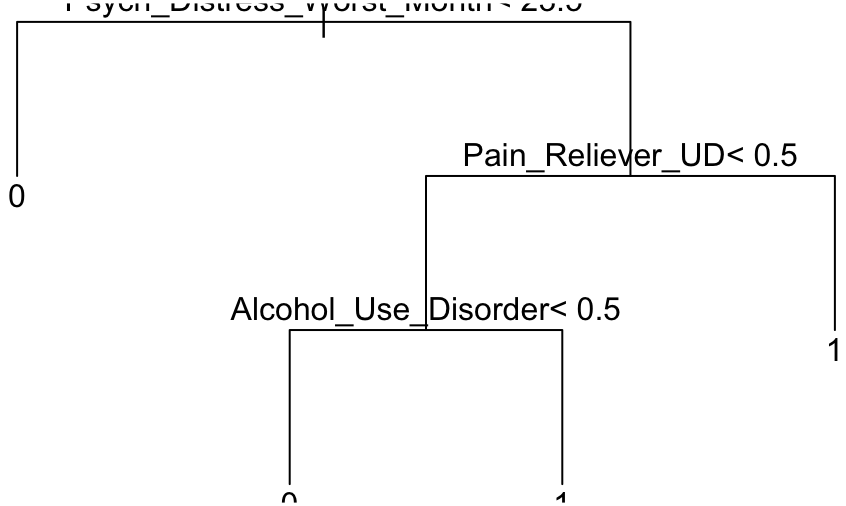

```
# Fit the logistic regression model: Attempt outcome among planners
model <- glm(Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
               Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
               Pain_Reliever_UD + Psych_Distress_Worst_Month,
             data = Plan_Adult,
             family = binomial)

# Display the summary of the model
summary(model)
```

```
##
## Call:
## glm(formula = Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
##     Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
##     Pain_Reliever_UD + Psych_Distress_Worst_Month, family = binomial,
##     data = Plan_Adult)
##
## Coefficients:
##                            Estimate Std. Error z value Pr(>|z|)
## (Intercept)                -1.98654    0.36912  -5.382 7.37e-08 ***
## Alcohol_Use_Disorder        0.38588    0.17480   2.208 0.027277 *
## Marijuana_Use_Disorder     -0.34252    0.18375  -1.864 0.062312 .
## Cocaine_Use_Disorder        0.47292    0.47574   0.994 0.320187
## Heroin_Use_Disorder        -0.46476    0.77955  -0.596 0.551052
## Meth_Use_Disorder           0.97154    0.47381   2.050 0.040318 *
## Pain_Reliever_UD            0.93829    0.41100   2.283 0.022433 *
## Psych_Distress_Worst_Month  0.06780    0.01821   3.723 0.000197 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1001.98  on 762  degrees of freedom
## Residual deviance:  965.06  on 755  degrees of freedom
##   (209 observations deleted due to missingness)
## AIC: 981.06
##
## Number of Fisher Scoring iterations: 4
```

```r
library(broom)

# Fit the logistic regression model
model2 <- glm(Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
              Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
              Pain_Reliever_UD + Psych_Distress_Worst_Month,
            data = Plan_Adult,
            family = binomial)

# Display the summary of the model
summary_table <- broom::tidy(model2)

# Extract odds ratios and their confidence intervals
odds_ratios <- exp(summary_table$estimate)
conf_intervals <- exp(confint(model2))

# Combine odds ratios and confidence intervals into a data frame
results1 <- data.frame(
  Variable = rownames(conf_intervals),
  Odds_Ratio = odds_ratios,
  Lower_CI = conf_intervals[, 1],
  Upper_CI = conf_intervals[, 2]
)

# Print the results
print(results1)
```

```
##                                          Variable Odds_Ratio   Lower_CI
## (Intercept)                           (Intercept)  0.1371695 0.06529311
## Alcohol_Use_Disorder             Alcohol_Use_Disorder  1.4709124 1.04333492
## Marijuana_Use_Disorder         Marijuana_Use_Disorder  0.7099806 0.49300725
## Cocaine_Use_Disorder             Cocaine_Use_Disorder  1.6046807 0.62900992
## Heroin_Use_Disorder               Heroin_Use_Disorder  0.6282883 0.12864889
## Meth_Use_Disorder                   Meth_Use_Disorder  2.6420106 1.05968537
## Pain_Reliever_UD                     Pain_Reliever_UD  2.5555959 1.15330501
## Psych_Distress_Worst_Month Psych_Distress_Worst_Month  1.0701541 1.03328220
##                             Upper_CI
## (Intercept)                0.2780955
## Alcohol_Use_Disorder       2.0716664
## Marijuana_Use_Disorder     1.0140128
## Cocaine_Use_Disorder       4.1446046
## Heroin_Use_Disorder        2.8820394
## Meth_Use_Disorder          6.9702895
## Pain_Reliever_UD           5.8732268
## Psych_Distress_Worst_Month 1.1098429
```

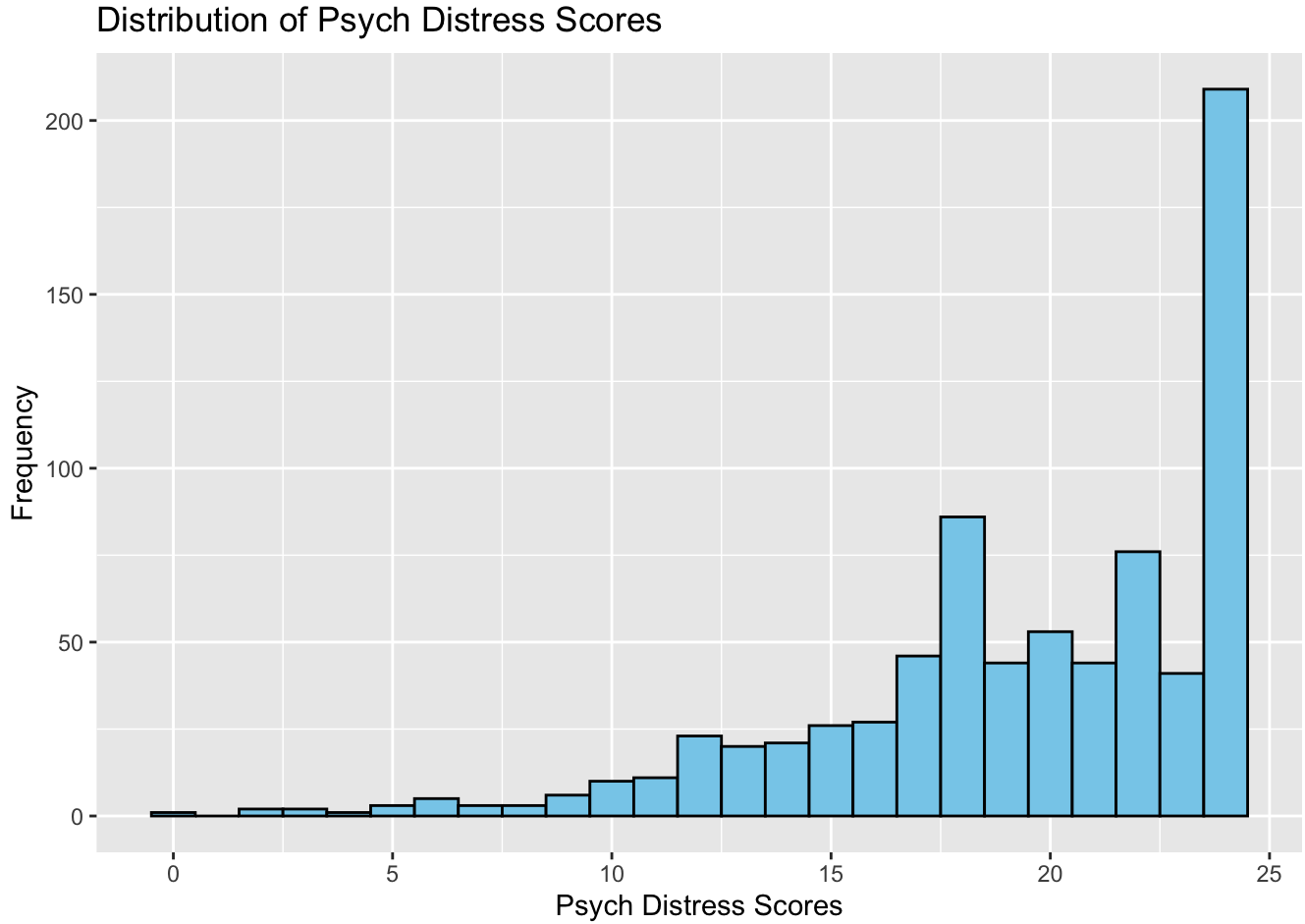
```
#Simple Tree model for assessing attempt among planners
library(rpart)

tree <- rpart(Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
              Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
              Pain_Reliever_UD + Psych_Distress_Worst_Month, data = Plan_Adult, method = "class")

par(mar = c(6, 6, 6, 6))
plot(tree, uniform = TRUE)
text(tree)
```




```
#Simple Tree model exporting to PDF since items were cutoff in previous output
library(rpart)

tree <- rpart(Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
              Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
              Pain_Reliever_UD + Psych_Distress_Worst_Month, data = Plan_Adult, method = "class")

pdf("decision_tree_ppt.pdf")
plot(tree, uniform = TRUE)
text(tree)
dev.off()
```

```
## quartz_off_screen
##                 2
```

```
#Checking distribution of scores from the Psych_Distress_Worst_Month scale
Plan_Adult %>%
  ggplot(aes(x = Psych_Distress_Worst_Month)) +
  geom_histogram(binwidth = 1, fill = "skyblue", color = "black", aes(y = ..count..)) +
  labs(title = "Distribution of Psych Distress Scores",
       x = "Psych Distress Scores",
       y = "Frequency")
```



```
#Since the scores are skewed, I want to take a look at the median to create a dichotomous variable

# Summary statistics using dplyr
summary_stats <- Plan_Adult %>%
  summarize(
    mean = mean(Psych_Distress_Worst_Month, na.rm = TRUE),
    median = median(Psych_Distress_Worst_Month, na.rm = TRUE)
  )

# Print the summary statistics
print(summary_stats)
```

```
##       mean median
## 1 19.41284     20
```

```
#Create a new variable, median value split of Psych_Distress_Worst_Month (Yes/No)

# Calculate the median of Psych_Distress_Worst_Month
median_value <- median(Plan_Adult$Psych_Distress_Worst_Month, na.rm = TRUE)

# Create a new variable 'Dichotomous_Var' based on the median
Plan_Adult <- Plan_Adult %>%
  mutate(PsychDistress_New = as.numeric(Psych_Distress_Worst_Month >= median_value))

# View the modified dataframe
head(Plan_Adult)
```

```
##     AGE3 CATAG2 irsex tobyr alcyr mrjyr cocyr heryfu hallucyfq methamyfq
## 86     9      3     2     0     1     1     0   9991       991       991
## 133    6      2     1     1     1     1     0   9991       991       993
## 146    9      3     1     1     1     1     1   9999       993       991
## 161   10      3     1     0     1     0     0   9991       993       991
## 177    8      3     2     1     1     0     0   9991       991       991
## 211    5      2     1     1     1     1     0   9991       993       991
##     Binge_Drink_Past_Month Alcohol_Age_of_First_Use irpmnicdep
## 86                       0                       15          0
## 133                      4                       13          1
## 146                      0                        7          0
## 161                     15                       14          0
## 177                      1                       14          0
## 211                      6                       15          0
##     Alcohol_Use_Disorder Marijuana_Use_Disorder Cocaine_Use_Disorder
## 86                     0                      0                    0
## 133                    1                      1                    0
## 146                    0                      0                    0
## 161                    1                      0                    0
## 177                    0                      0                    0
## 211                    1                      1                    0
##     Heroin_Use_Disorder Meth_Use_Disorder Pain_Reliever_UD
## 86                    0                0               0
## 133                   0                0               1
## 146                   0                0               0
## 161                   0                0               0
## 177                   0                0               0
## 211                   0                0               0
##     Psych_Distress_Worst_Month Emotional_Impairment Emotional_Impairment_2
## 86                          17                   13                     4
## 133                         23                    2                     0
## 146                          7                   19                     6
## 161                         17                   10                     4
## 177                         24                    6                     2
## 211                         19                    6                     1
##     Suicidal_Ideation Suicide_Plan Suicide_Attempt Psych_Distress_Past_Month
## 86                  1            1               0                       10
## 133                 0            1               0                       22
## 146                 1            1               0                       10
```

```
## 161                0           1              0                        8
## 177                1           1              1                       24
## 211                1           1              0                       18
##     Serious_Psych_Distress_Past_Month Serious_Psych_Distress_Past_Year
## 86                                  0                                1
## 133                                 1                                1
## 146                                 0                                0
## 161                                 0                                1
## 177                                 1                                1
## 211                                 1                                1
##     Lifetime_MDD_Episode Past_Year_MDD_Episode ymdelt ymdeyr YMDEAUD5YR
## 86                     1                    1     NA     NA         NA
## 133                    0                    0     NA     NA         NA
## 146                    1                    1     NA     NA         NA
## 161                    1                    0     NA     NA         NA
## 177                    0                    0     NA     NA         NA
## 211                    1                    1     NA     NA         NA
##     YMIUD5YANY YMSUD5YANY yrxmdeyr mdeimpy talkprob PRBSOLV2 new_age
## 86          NA         NA       NA      NA       NA       NA       2
## 133         NA         NA       NA      NA       NA       NA       2
## 146         NA         NA       NA      NA       NA       NA       2
## 161         NA         NA       NA      NA       NA       NA       2
## 177         NA         NA       NA      NA       NA       NA       2
## 211         NA         NA       NA      NA       NA       NA       2
##     PsychDistress_New
## 86                  0
## 133                 1
## 146                 0
## 161                 0
## 177                 1
## 211                 0
```

```
#Checking to see any changes to logistic regression with new psych distress variable replacing the origninal one
(findings are very similar per the output)

# Fit the logistic regression model: Attempt outcome among planners
model3 <- glm(Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
              Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
              Pain_Reliever_UD + PsychDistress_New,
            data = Plan_Adult,
            family = binomial)

# Display the summary of the model
summary(model3)
```

```
##
## Call:
## glm(formula = Suicide_Attempt ~ Alcohol_Use_Disorder + Marijuana_Use_Disorder +
##     Cocaine_Use_Disorder + Heroin_Use_Disorder + Meth_Use_Disorder +
##     Pain_Reliever_UD + PsychDistress_New, family = binomial,
##     data = Plan_Adult)
##
## Coefficients:
##                         Estimate Std. Error z value Pr(>|z|)
## (Intercept)             -0.9591     0.1332  -7.202 5.95e-13 ***
## Alcohol_Use_Disorder     0.4018     0.1744   2.304  0.02122 *
## Marijuana_Use_Disorder  -0.3189     0.1832  -1.741  0.08173 .
## Cocaine_Use_Disorder     0.4827     0.4763   1.013  0.31085
## Heroin_Use_Disorder     -0.4969     0.7777  -0.639  0.52287
## Meth_Use_Disorder        0.9843     0.4711   2.089  0.03668 *
## Pain_Reliever_UD         0.8978     0.4090   2.195  0.02815 *
## PsychDistress_New        0.5117     0.1571   3.256  0.00113 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1001.98  on 762  degrees of freedom
## Residual deviance:  969.09  on 755  degrees of freedom
##   (209 observations deleted due to missingness)
## AIC: 985.09
##
## Number of Fisher Scoring iterations: 4
```