



# Insights into Suicide-Related Trends

VISUALIZING & ANALYZING SAMHSA'S 2021  
NATIONAL SURVEY ON DRUG USE AND HEALTH  
STATISTICS

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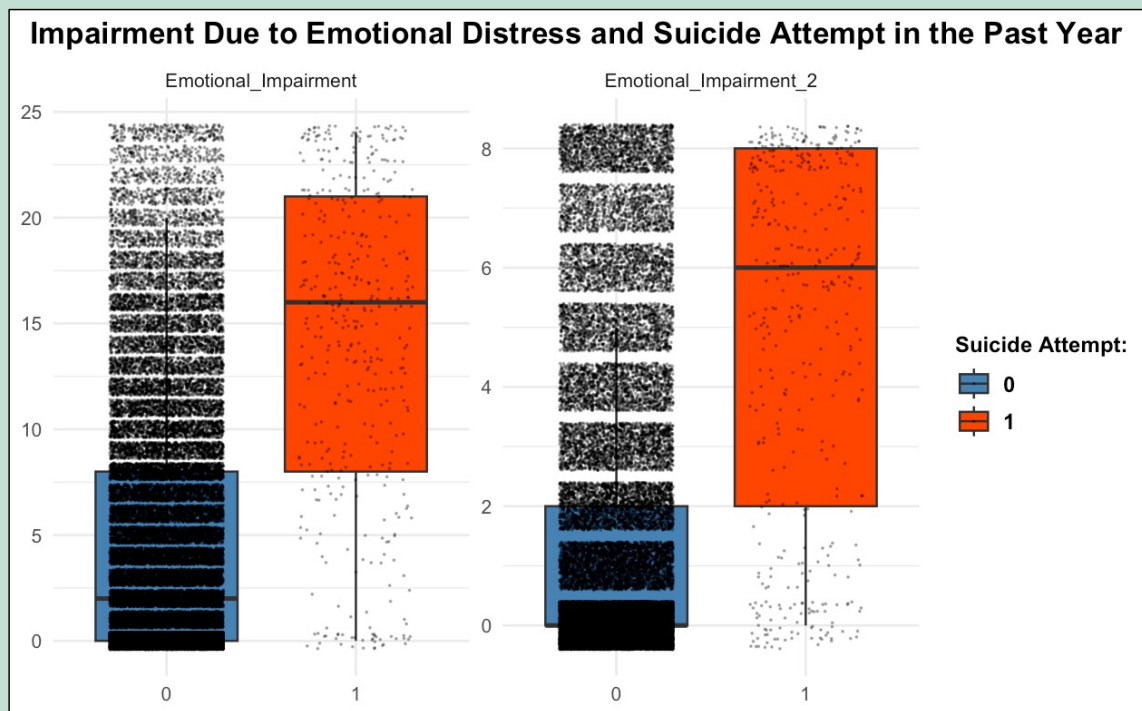
# Process for exploring SAMHSA's NSDUH 2021 dataset

- ▶ I downloaded the dataset for SAMHSA's 2021 National Survey on Drug Use and Health Statistics that was released in January of 2023
- ▶ The dataset includes data for 58,034 respondents and 2,988 variables
- ▶ I reviewed the codebook to initially extract 40 variables for exploration (including suicidal ideation, having a suicide plan, and having a suicide attempt in the past year)
- ▶ The rmd file in the associated github repository includes the code I used in R for visualizing and analyzing the data (the pdf file labeled "NSDUH 2021 Data Exploration Rmarkdown Output" includes the code and each visualization and statistical analysis prepared)
- ▶ I created a total of 13 data frames by filtering the larger dataset, which were then used in my exploration of the data. The number of observations in the data frames ranged from 972 to 47,291.

## Suicidal Thoughts & Behaviors Among Adults in the Past Year (2021)

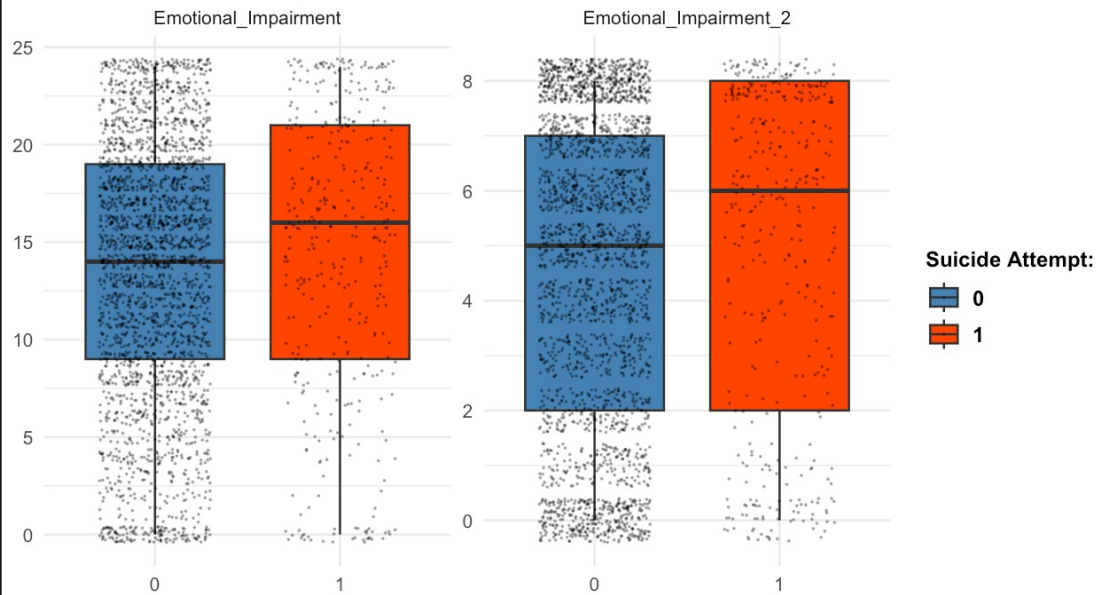
	Yes	No
Suicidal Ideation	6.7% (n = 3177)	93.3% (n = 44,144)
Suicide Plan	2.1% (n = 972)	97.9% (n = 46,319)
Suicide Attempt	0.92% (n = 435)	99.08% (n = 46,856)





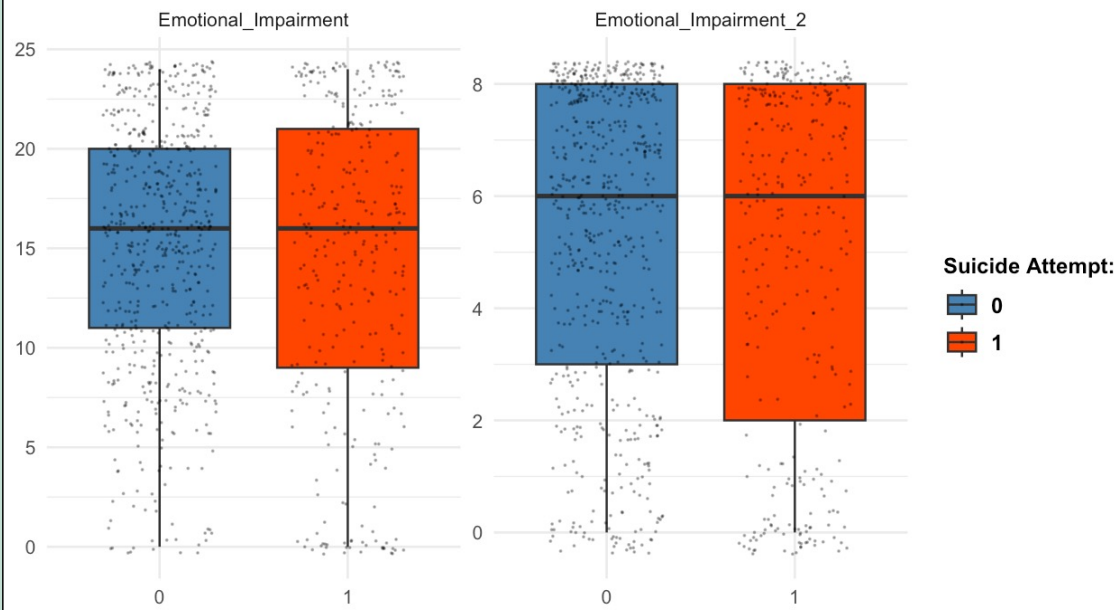
NSDUH Scales for  
Assessing  
Impairment due  
to Emotional  
Distress and its  
Relationship with  
Suicide Attempt  
in the Past Year  
(n = 47,291)

### Impairment Due to Emotional Distress and Suicide Attempt in the Past Year (Individuals with Suicidal Ideation in Past Year)



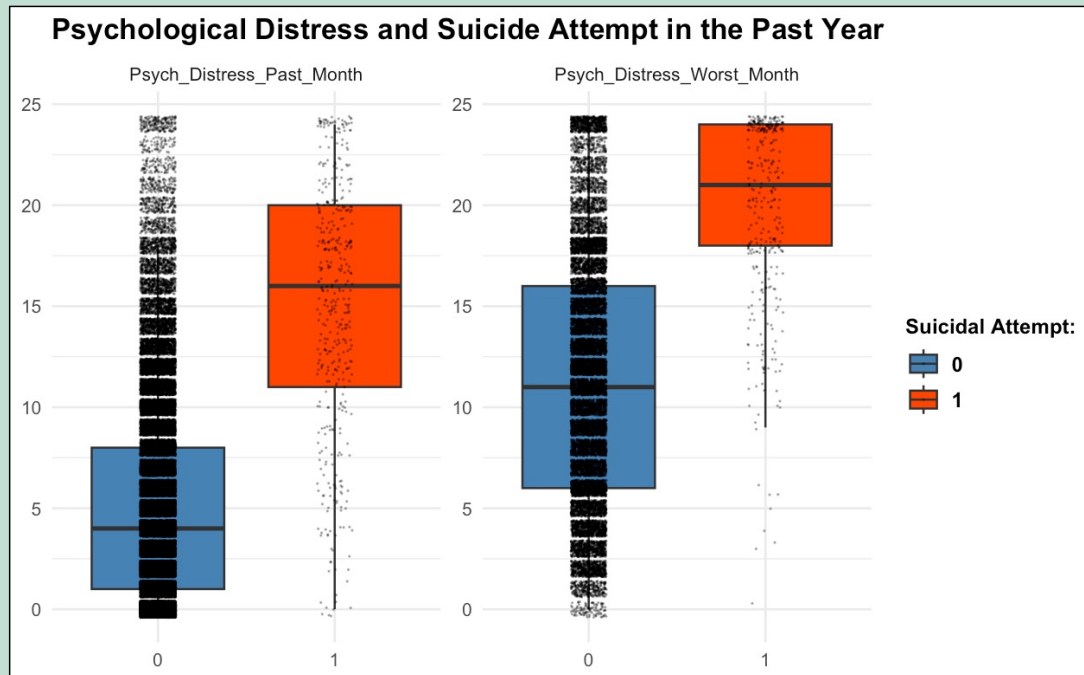
Among Individuals  
with Suicidal  
Ideation in the Past  
Year (n = 3,177)

### Impairment Due to Emotional Distress and Suicide Attempt in the Past Year (Individuals with Suicide Plan in Past Year)

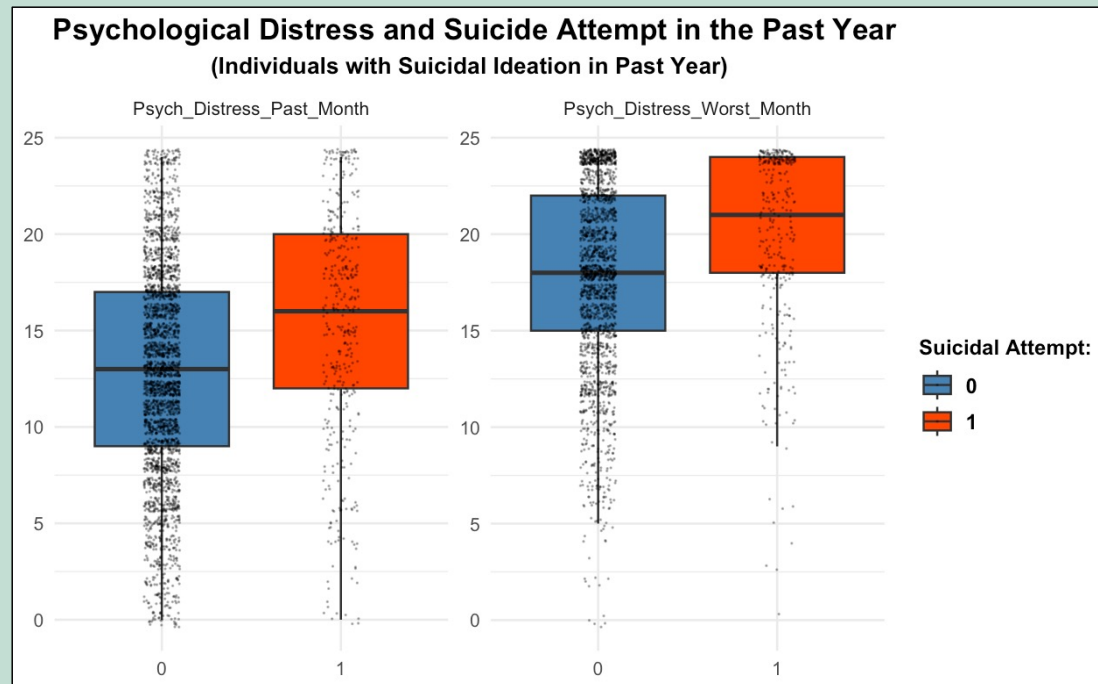


Among  
Individuals with  
a Suicide Plan  
in the Past Year  
(n = 972)

# NSDUH Scales for Assessing Psychological Distress and its Relationship with Suicide Attempt in the Past Year (n = 47,291)

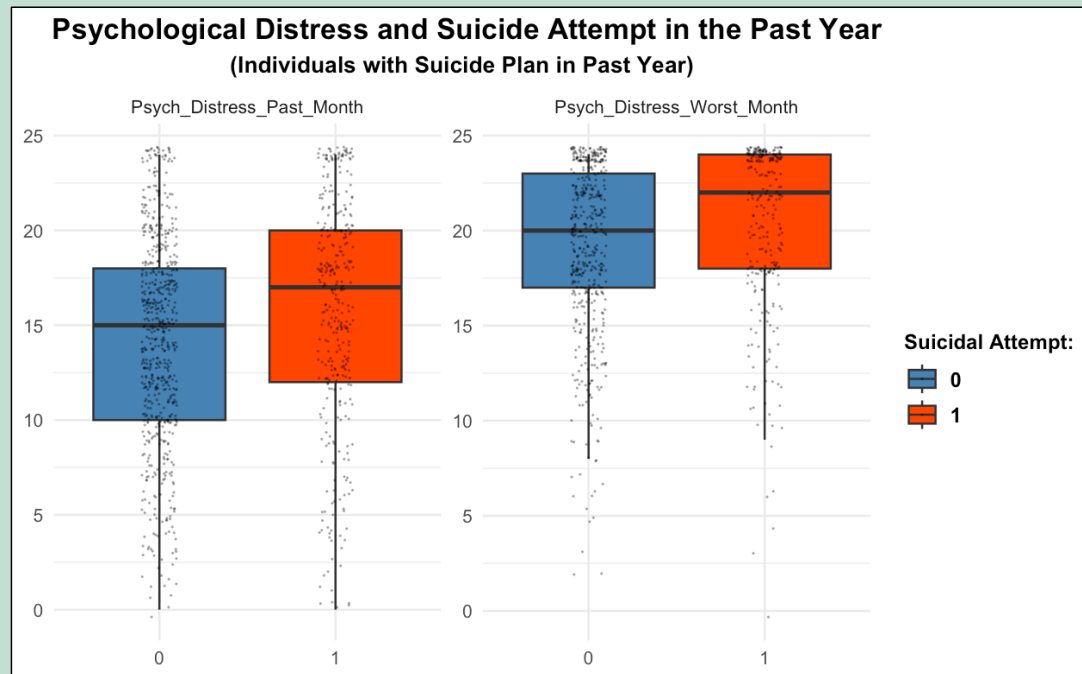




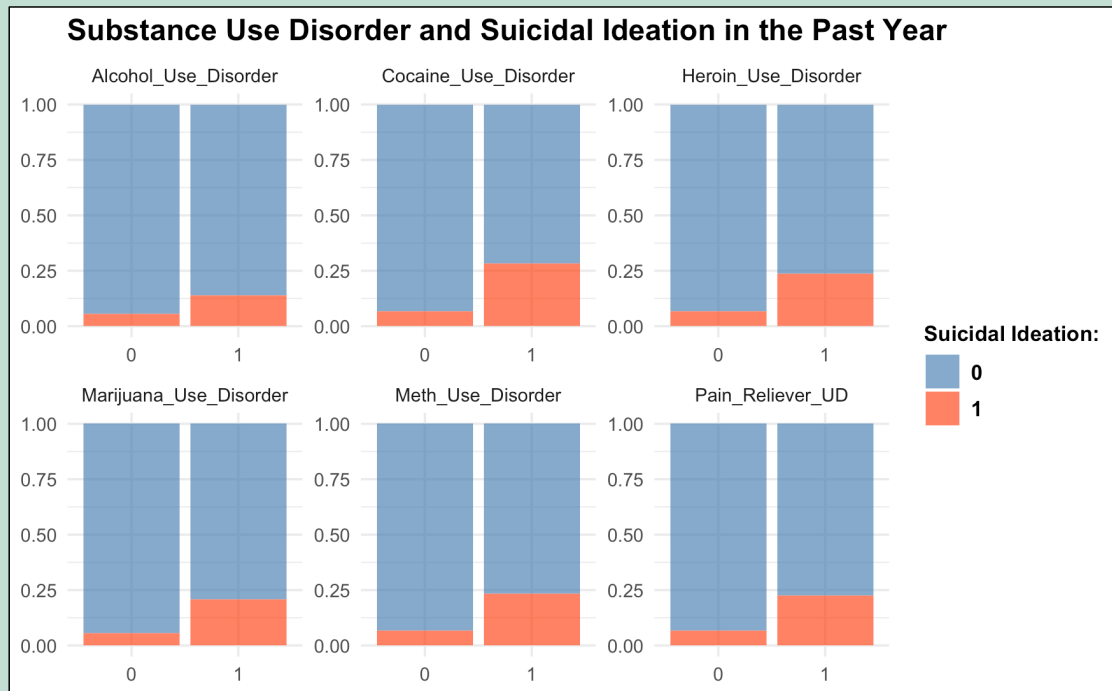


Among Individuals  
with Suicidal  
Ideation in the Past  
Year (n = 3,177)

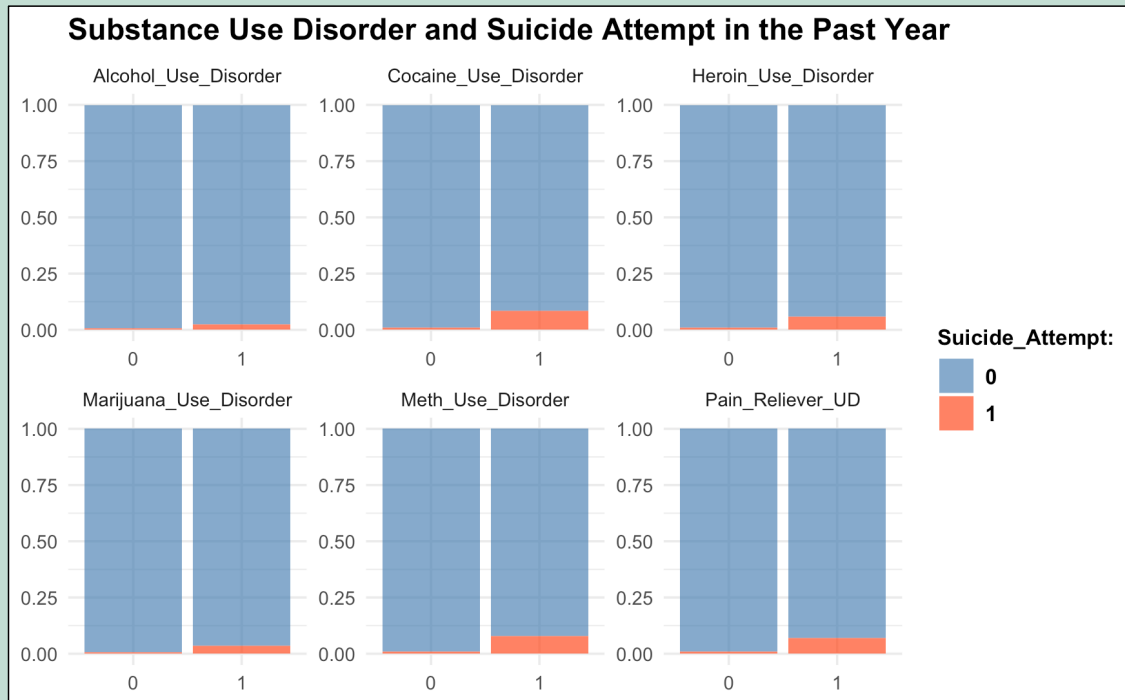




Among Individuals  
with a Suicide Plan in  
Past Year (n = 972)



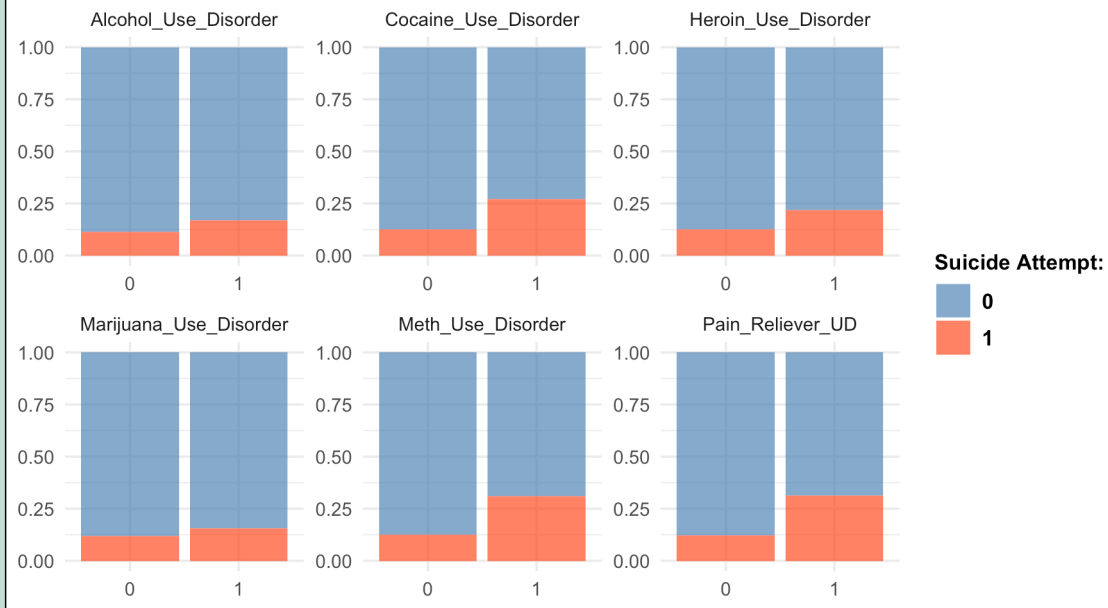
Substance Use Disorders and Relationship with Suicidal Ideation in the Past Year (n = 47,291)



Substance Use Disorders and Relationship with Suicide Attempt in the Past Year (n = 47,291)

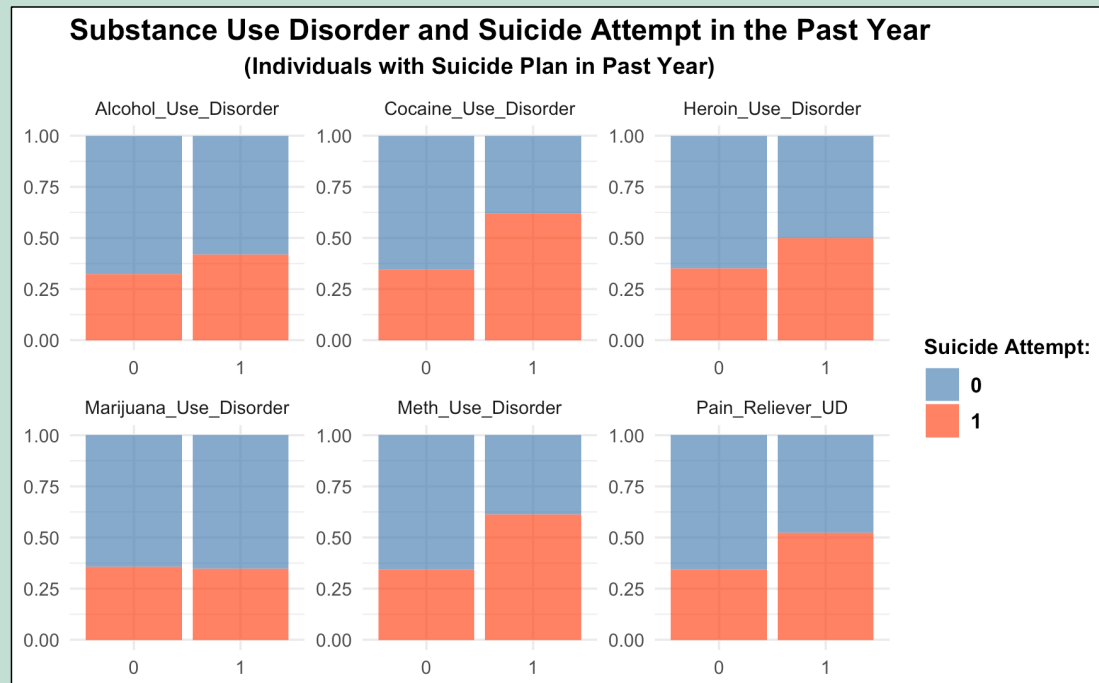


### Substance Use Disorder and Suicide Attempt in the Past Year (Individuals with Suicidal Ideation in Past Year)



Substance Use Disorders and Relationship with Suicide Attempt in the Past Year Among Individuals with Suicidal Ideation in the Past Year (n = 3,177)





Substance Use Disorders and Relationship with Suicide Attempt in the Past Year Among Individuals with a Suicide Plan in the Past Year (n = 972)

## Logistic Regression: Suicide Attempt among Individuals with a Suicide Plan\* in the Past Year

Predictor	Odds Ratio	95% C.I.	$\beta$	<i>p</i>
Alcohol Use Disorder	1.47	1.04 — 2.07	0.39	<.05
Marijuana Use Disorder	0.71	0.49 — 1.01	-0.34	.06
Cocaine Use Disorder	1.60	0.63 — 4.14	0.47	0.32
Heroin Use Disorder	0.63	0.13 — 2.88	-0.46	0.55
Methamphetamine Use Disorder	2.64	1.06 — 6.97	0.97	<.05
Pain Reliever Use Disorder	2.56	1.15 — 5.87	0.94	<.05
Psychological Distress (Worst Month)	1.07	1.03 — 1.11	0.07	<.001

\*Sample of respondents with a suicide plan includes 343 respondents that attempted suicide in the past year and 620 respondents that did not attempt suicide in the past year.

## Decision Tree Analysis

- The most important feature in the data set is the score that indicates psychological distress during the worst month of the past year (24 is the max score)
- Having a max “Psych Distress” score and Pain Reliever Use Disorder leads to a greater chance of having had a suicide attempt
- No Pain Reliever UD further leads to Alcohol UD where if you have Alcohol UD you are more likely to have had a suicide attempt than if you did not



# Implications



- ▶ These findings underscore the importance of recognizing and addressing the intersectionality of substance use disorders and psychological distress in assessing suicide risk, particularly in individuals who have previously formulated a suicide plan.
- ▶ The identification of these specific risk factors allows for more targeted interventions and support strategies to mitigate the risk of suicide attempts among those with a recent history of a suicide plan.



# Clinical and Public Health Considerations:

- ▶ Healthcare providers and mental health professionals should be vigilant in assessing and addressing alcohol and substance use disorders, as well as elevated psychological distress, in individuals with a recent history of suicide planning, as these factors may significantly contribute to the likelihood of a suicide attempt.
- ▶ Public health initiatives aimed at suicide prevention may benefit from incorporating targeted interventions for individuals with co-occurring substance use disorders and elevated psychological distress, tailoring support services to address the specific needs of this at-risk population.