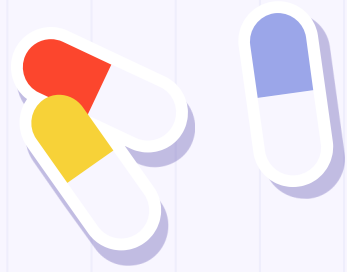


# Pain Reliever Misuse and Abuse

## Data Analysis

Ainsley, Jun, Nick, Rachel, Rosie, Yulia, Aashna



# Table of Contents

**01**

**About the Data**

**03**

**Analysis**

**02**

**Data Cleaning**

**04**

**Conclusions**

# Dataset – Background

## 170k+ Observations

- 26% misuse and abuse of prescription opioids (MUPO)
- 11% misused or abused pain relievers


## Variables

- Demographic variables, medication abuse, and illicit drug use
- Mostly categorical, binary, and likert scale variables
- Main variable: Prescription opioid pain reliever misuse and abuse (Likert Scale)

# Dataset – Variables

<i>Target Variable</i>	<i>Label</i>
Prescription opioid pain reliever misuse and abuse (Likert scale: 0-12)	PRLMISAB
<i>Predictor Variables</i>	
Year of NSDUH survey (15=2015, 16=2016, 17=2017)	YEAR
Age category (1=12-17 years, 2=18-25, 3=26-35, 4=36-49, 5=50 and older)	AGECAT
Sex (0=Male, 1=Female)	SEX
Marital status (0=unmarried, 1=divorced, 2=widowed, 3=married)	MARRIED
Education level (1=h.s. or Less, 2=h.s. grad., 3=some college, 4=college grad.)	EDUCAT
Employment status, over age 18 (1=not employed, 2=part-time, 3=full-time)	EMPLOY18
Size of city/metropolitan region (1=rural, 2=small, 3=large)	CTYMETRO
Health problems, aggregated (Likert scale: 0-10)	HEALTH
Mental health, aggregated: adult depression, emotional distress (Likert scale: 0-10)	MENTHLTH
Treatment for drugs or alcohol in past year, aggregated (Likert scale: 0-5)	TRTMNT
Mental health treatment, aggregated (Likert scale: 1-10)	MHTRTMT
Tranquilizer use in past year, aggregated (Likert scale: 0-5)	TRQLZRS
Sedative use in past year, aggregated (Likert scale: 0-5)	SEDATVS
Heroin use in past year, aggregated (Likert scale: 0-5)	HEROINUSE
Cocaine and crack cocaine use in past year, aggregated (Likert scale: 0-5)	COCAINE
Amphetamine and methamphetamine use in past year, aggregated (Likert scale: 0-5)	AMPHETMN

# Research Question

- How can pain reliever abuse prevention programs increase their impact?
  - What demographics should they target?
  - Are users of certain drugs more susceptible to pain reliever abuse?
- 

# Data Cleaning



## Renaming Columns

EMPLOY18 -> Employment\_Status

## Encoded Data -> Factors

Switched from numeric to labels

## Missing Value Removal

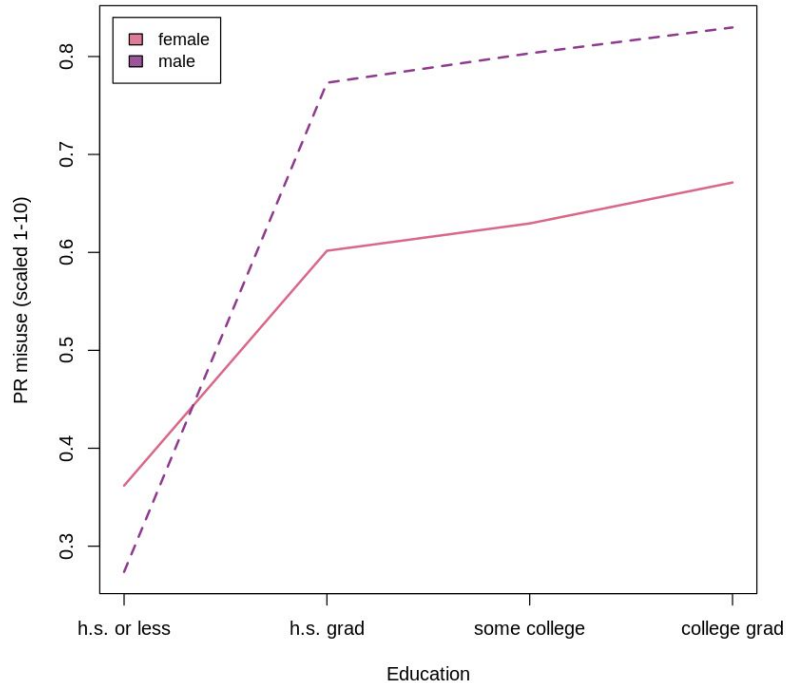
Removed any NA's and rows of 0's from our dataset

The background features a light blue gradient with thin, vertical white lines. Scattered throughout are various blue shapes: two circles in the upper left, an irregular blob in the upper right, and two large, wavy, cloud-like shapes at the bottom.

**01**

# **Demographics**

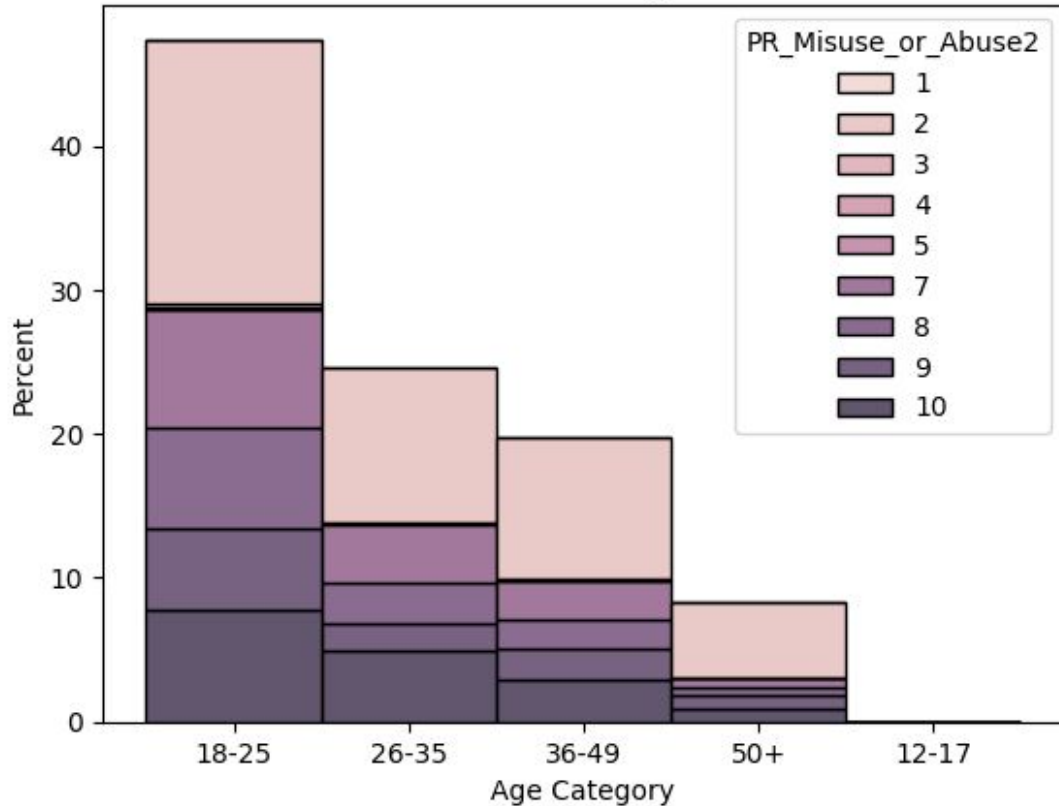
PR Misuse Level of Different Genders Based on Education



- PR misuse more common as in those with higher educational backgrounds
  - Slope shows + correlation
- Not a significant amount of difference in misuse in males compared to females

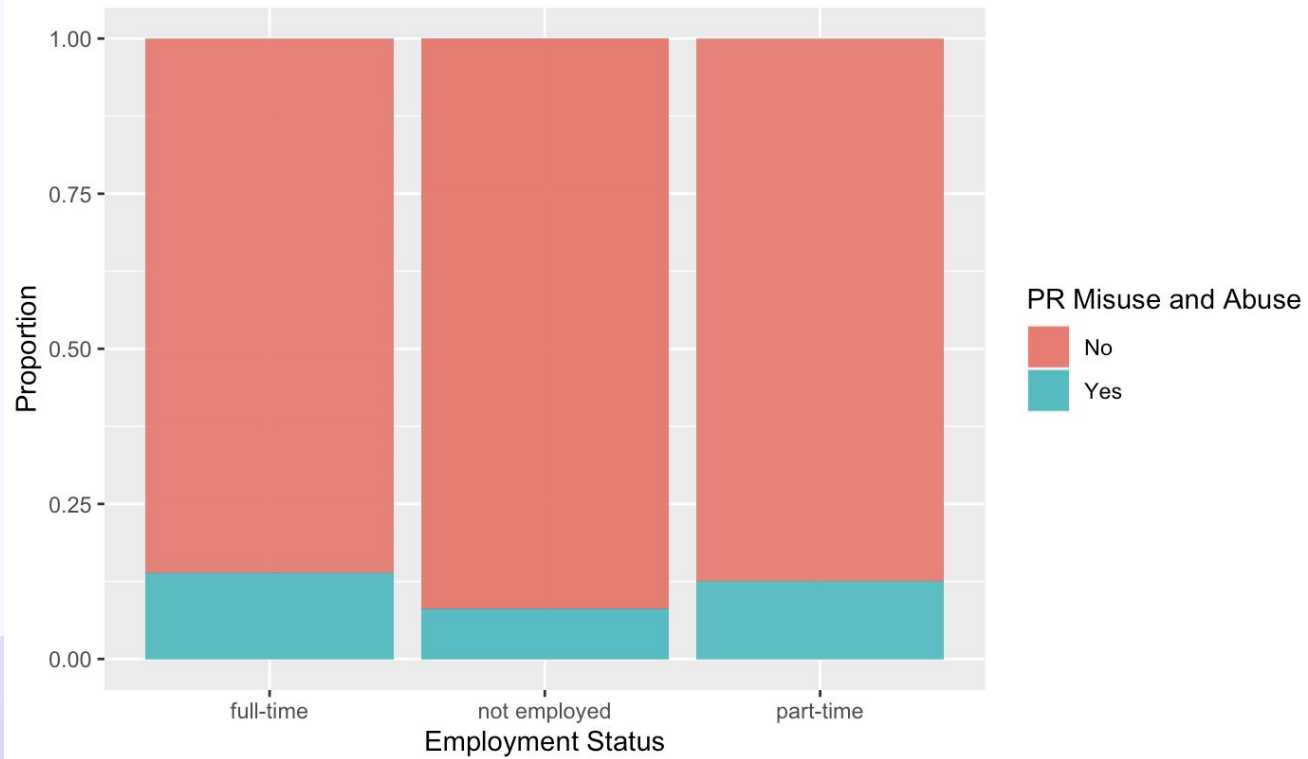


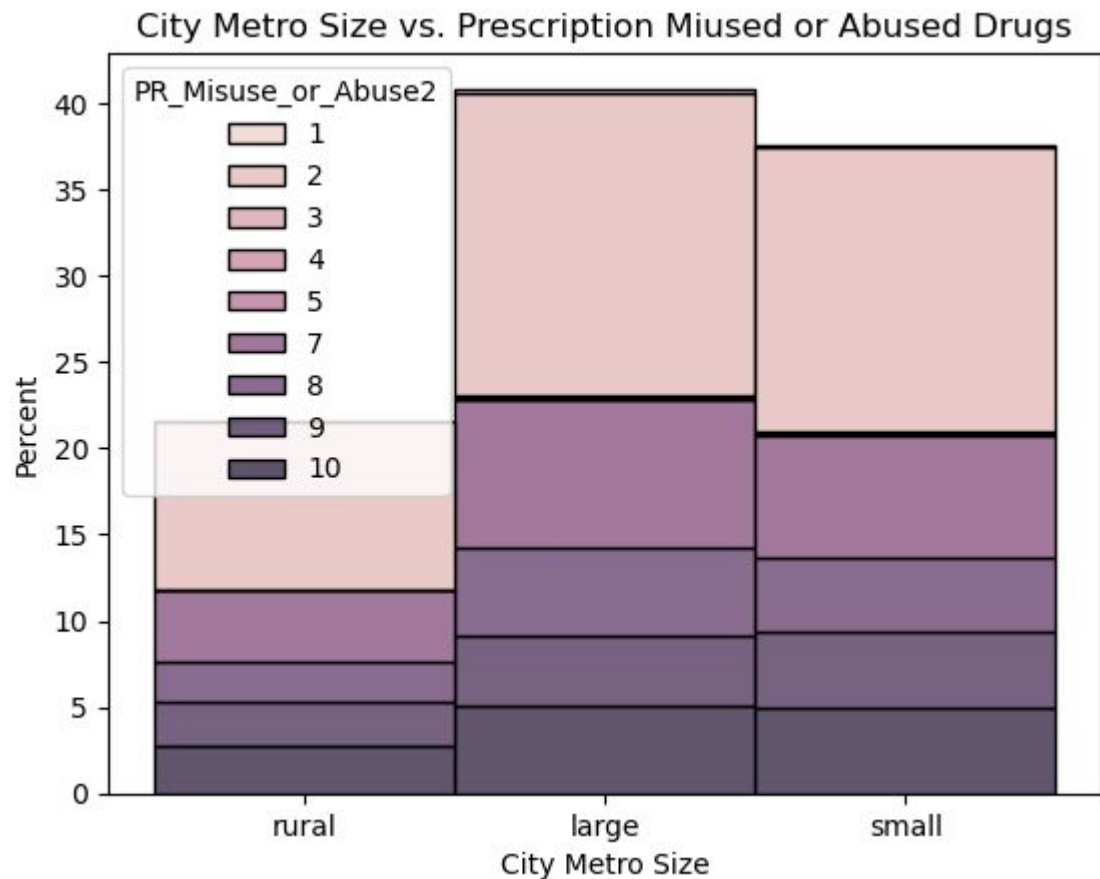
Stacked Histogram



Results: According to the data, younger people tend to abuse prescription drugs more frequently than those in older age groups.

PR Misuse or Abuse Proportions Based on Employment Status





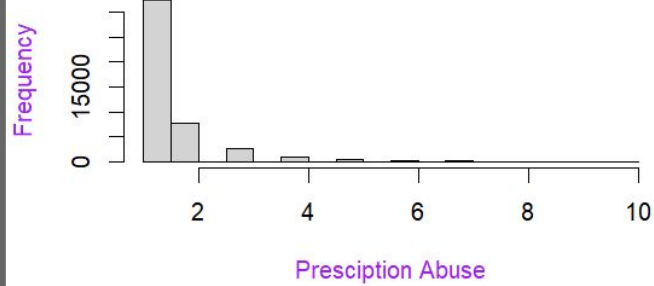
Results: the larger city metro size has the most percentage of prescription misused/abused drugs at 40% compared to the small and rural city metro size



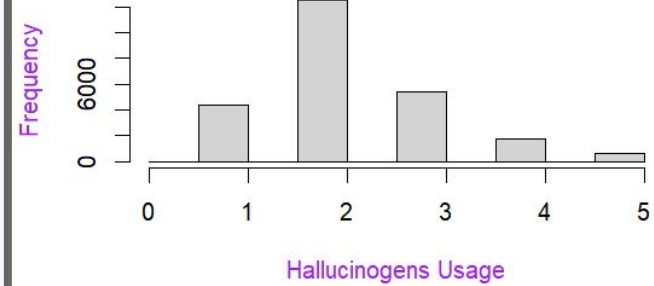
02

# **Medication and Drug Use**

**Histogram of Prescription Abuse**

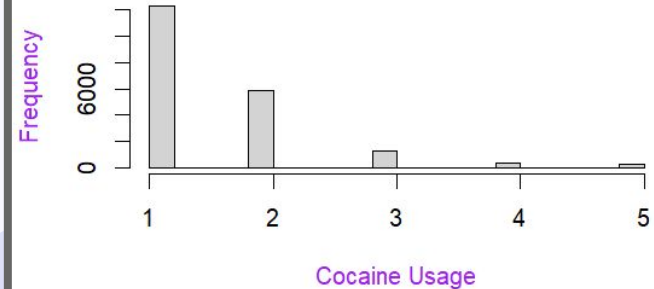


**Histogram of Hallucinogens Usage**



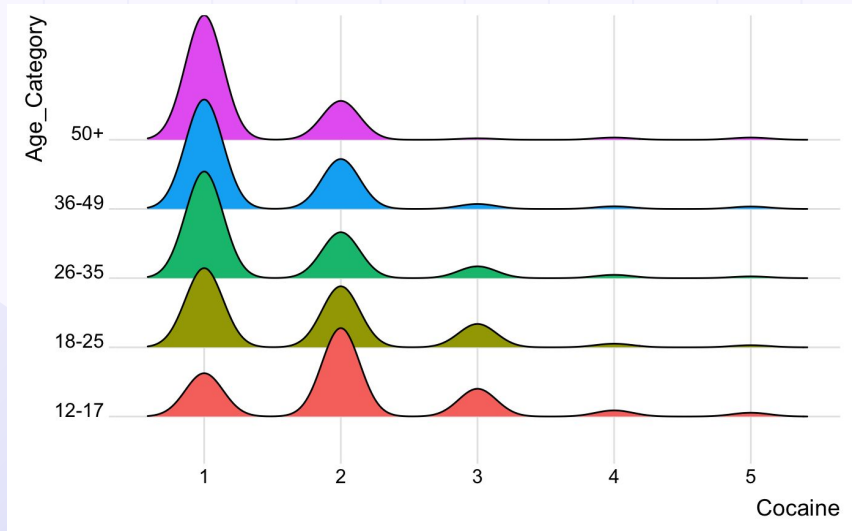
- ❑ Results: highly right skewed

**Histogram of Cocaine Usage**

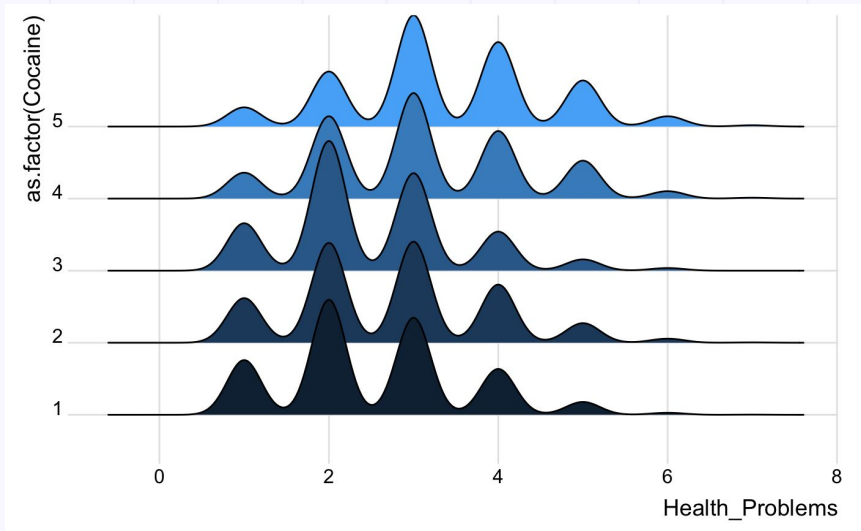


# Case Study: Cocaine

- Younger people tend to consider themselves more frequent users of the drug



- The higher a person is on the likert scale, the more severe problems they are face - positive correlation



# Conclusion

Positive correlation in PR misuse and ed background

## **Education**

Younger age groups tend to undergo more misuse

## **Age**

Employed have highest misuse

## **Employment**

## **City Size, Gender**

Not much impact for PR misuse

## **Case: Cocaine**

More misuse lead to more health problems