Pain Reliever Misuse and Abuse

Data Analysis

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Table of Contents

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

Target Variable	Label
Prescription opioid pain reliever misuse and abuse (Likert scale: 0-12)	PRLMISAB
Predictor Variables	
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)	TRTMENT
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

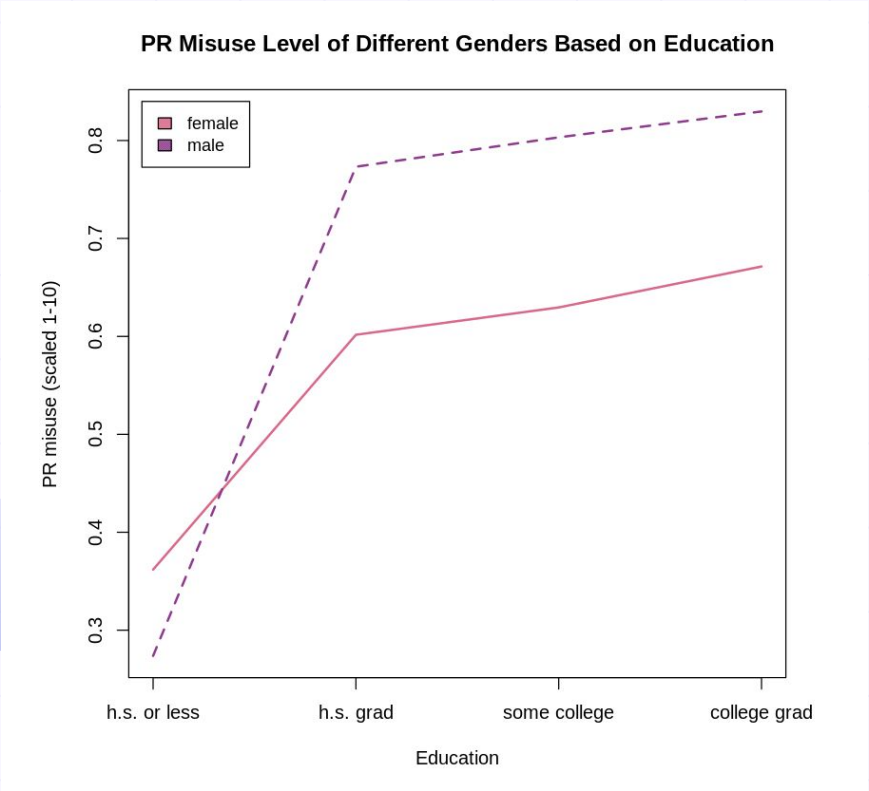
Switched from numeric to labels

Missing Value Removal

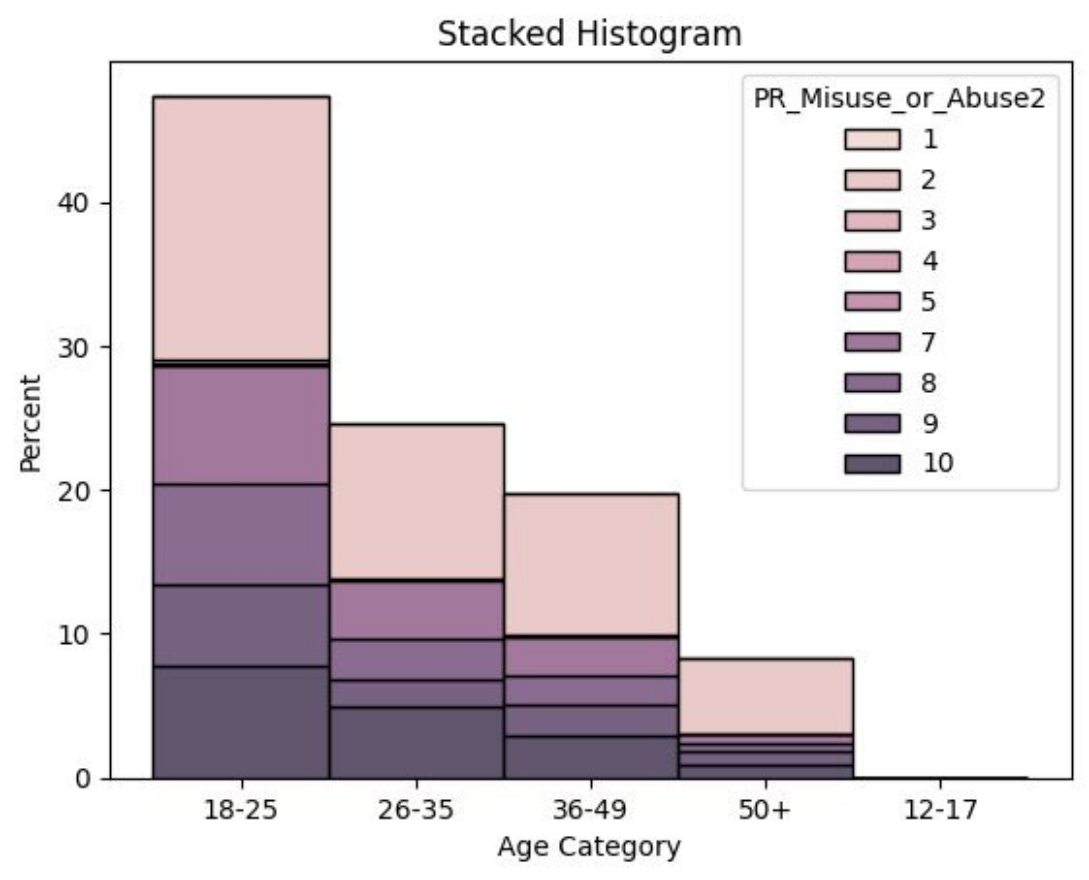
Removed any NA’s and rows of 0’s from our dataset

01

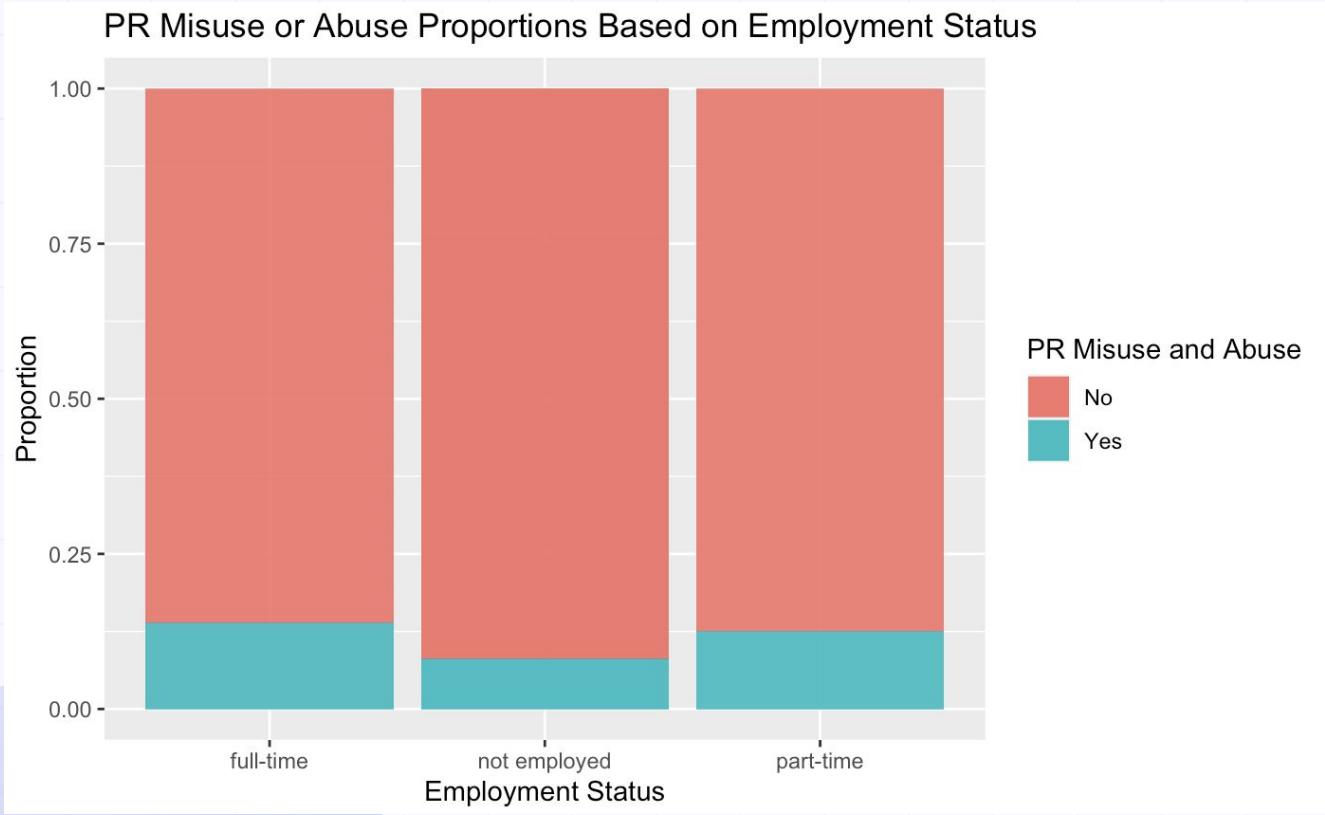
Demographics

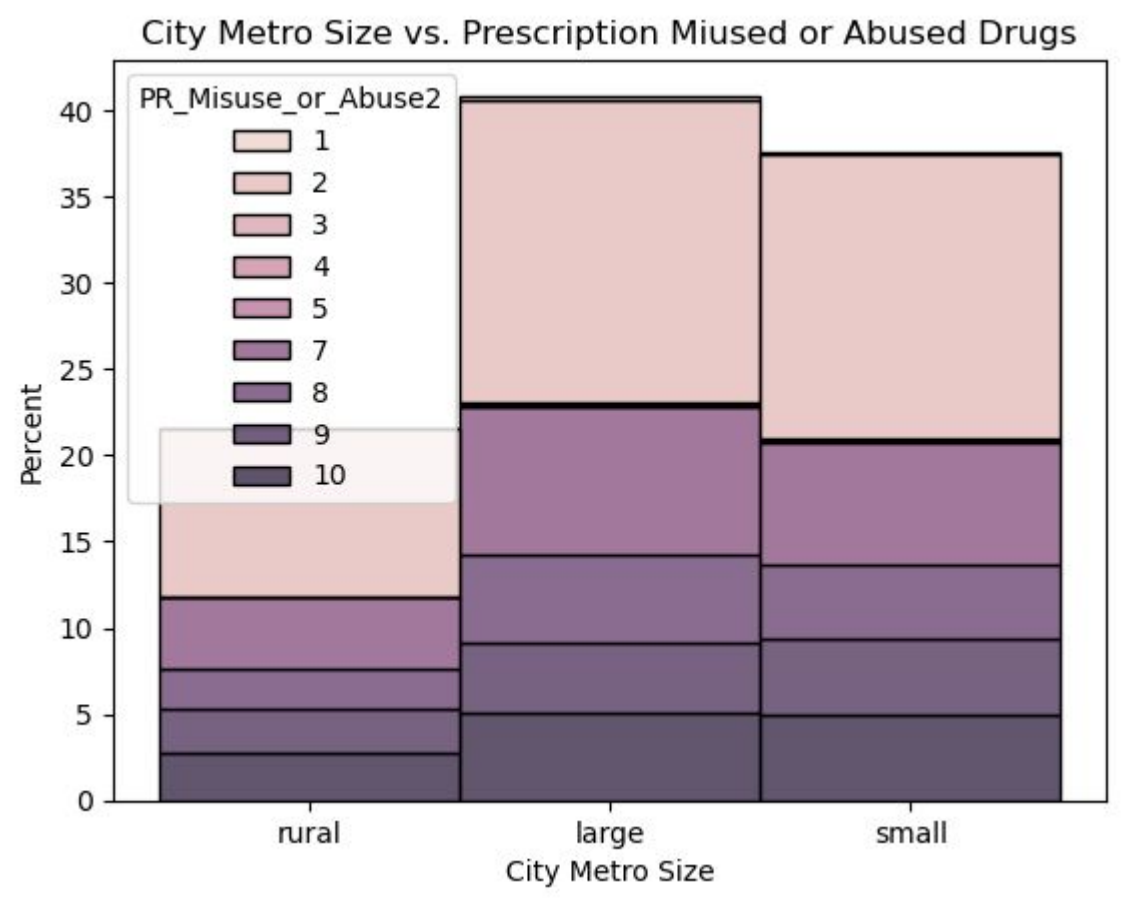


- PR misuse more common as in those with higher educational backgrounds
    - Slope shows + correlation
- Not a significant amount of difference in misuse in males compared to females



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

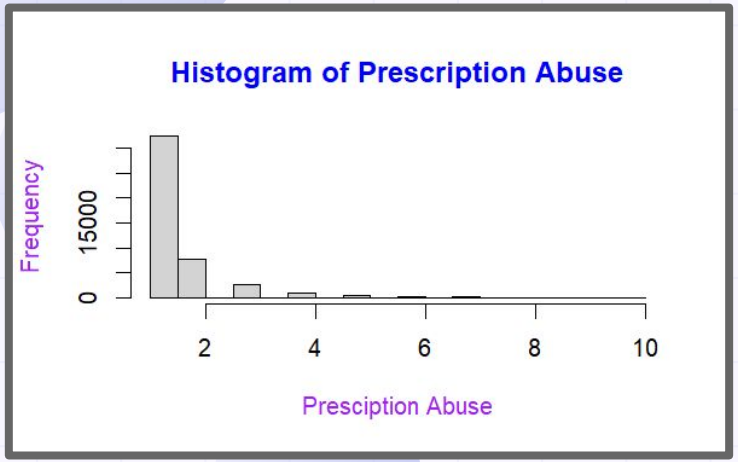

PR Misuse or Abuse Proportions Based on Employment Status
1.00
0.75
0.50
0.25
0.00
Proportion
full-time
not employed
part-time
Employment Status
PR Misuse and Abuse
No
Yes

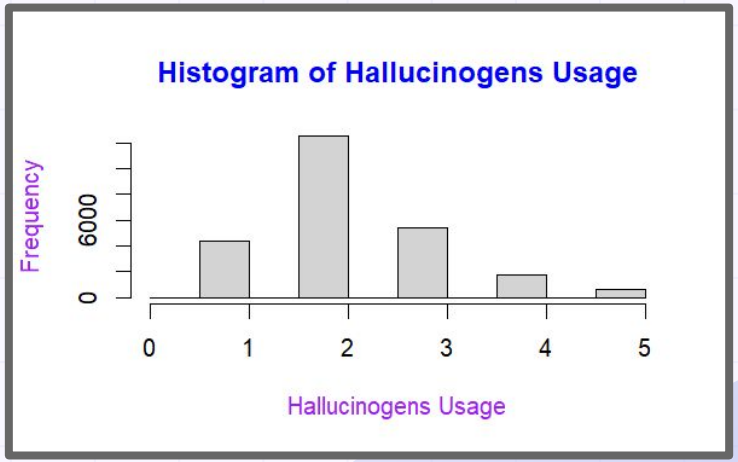


Results: the larger city metro size has the most percentage of prescription misused/abused drugs at 40% compared to the small and rural city metro size

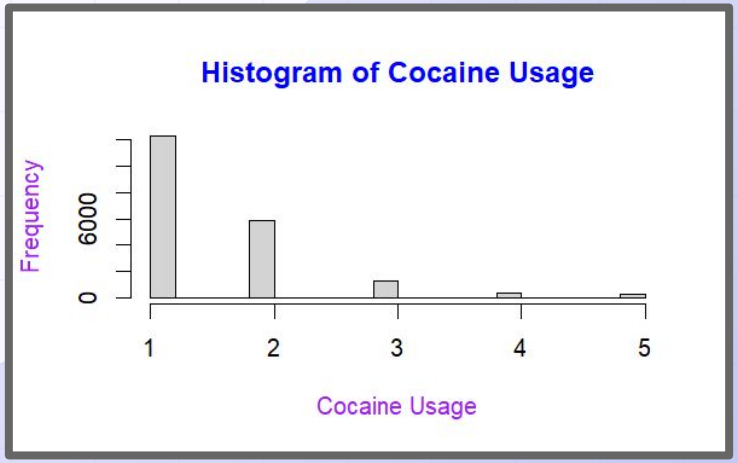
02

Medication and Drug Use



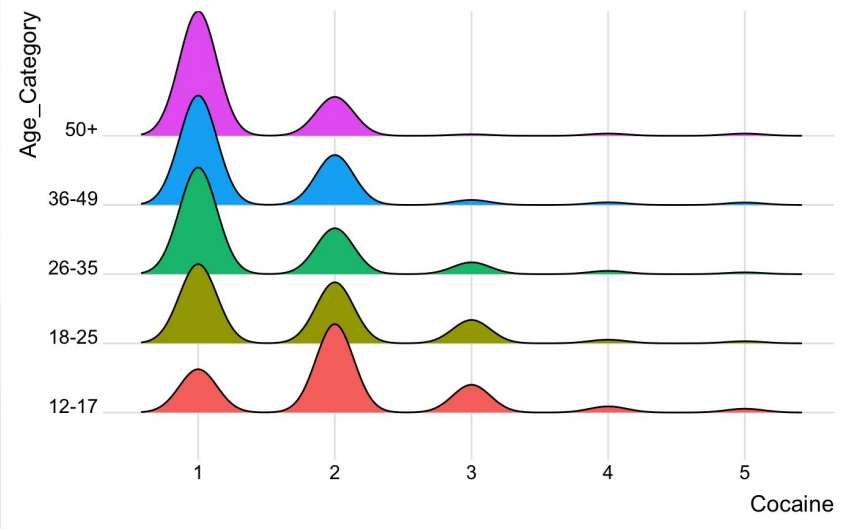


- Results: highly right skewed

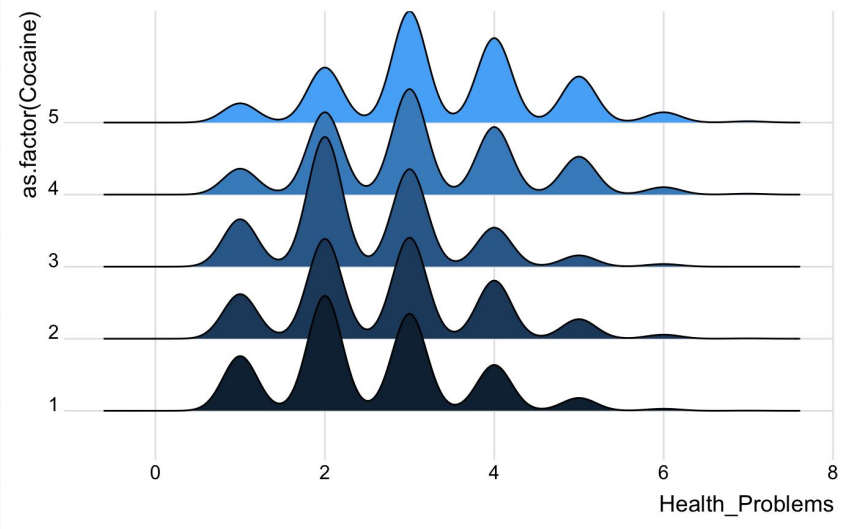


Case Study: Cocaine

- 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