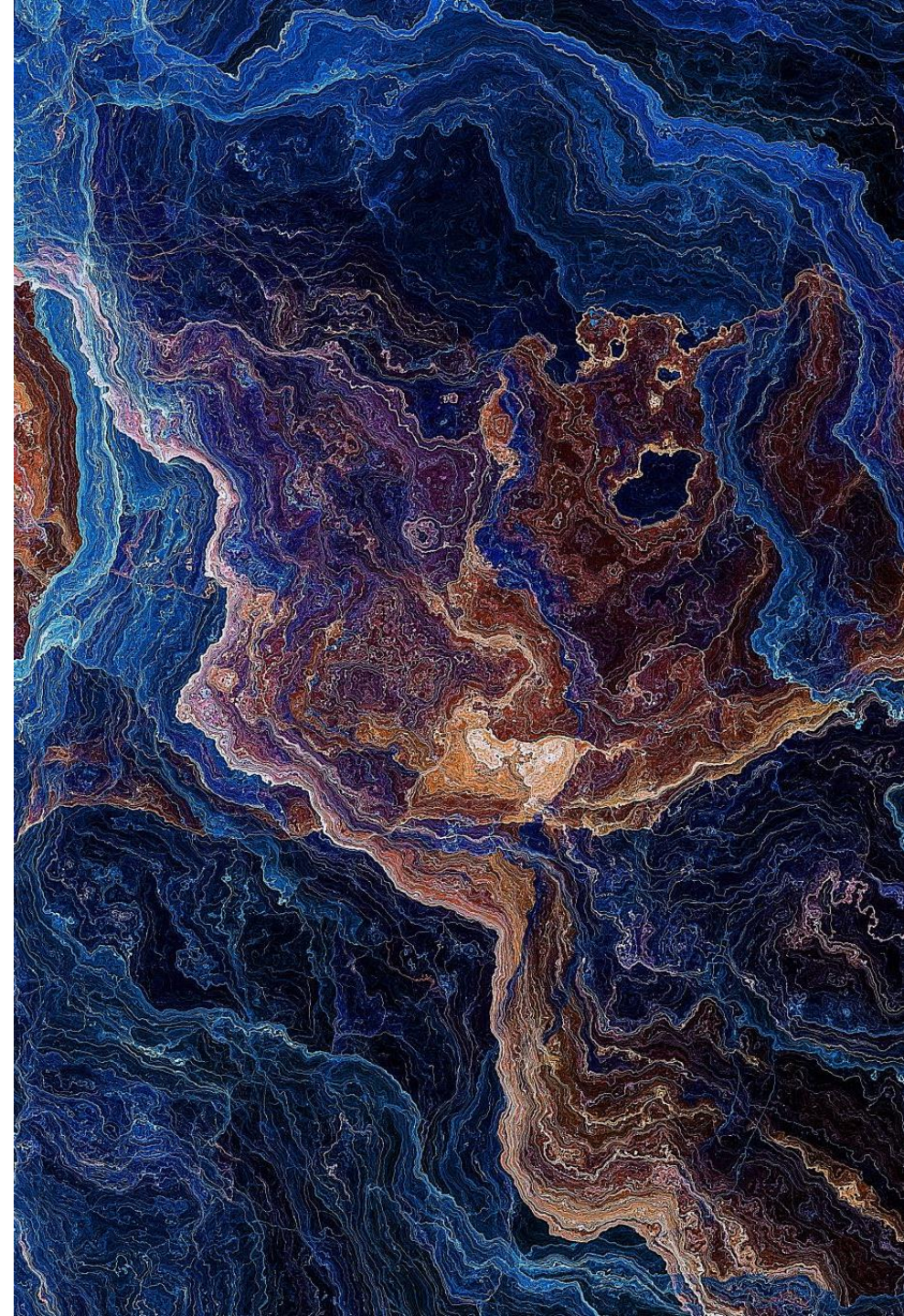# Exploring the Correlation between Drug Use and Mental Illness
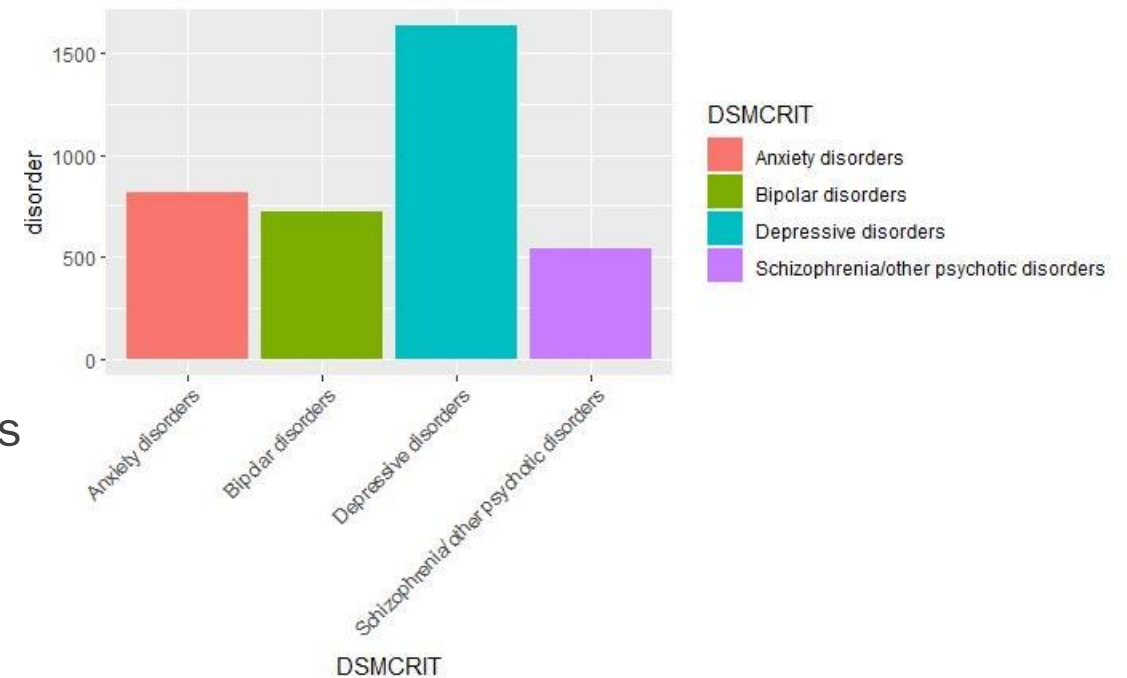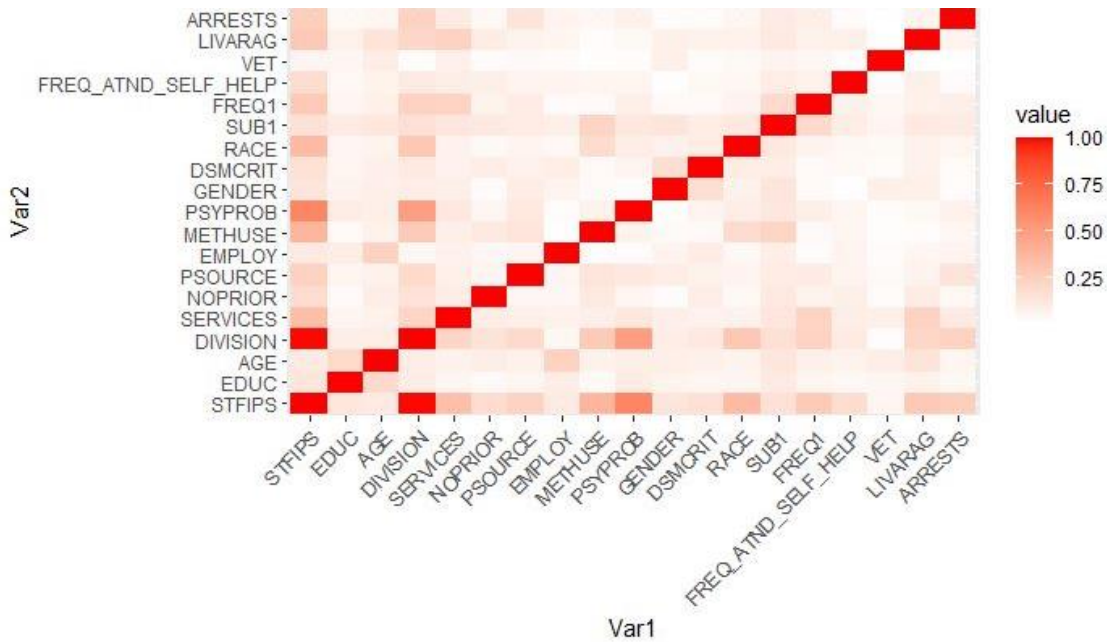
ELAD, ADI , MICHAEL

Introduction

- Our project aims to find a correlation between drug use and mental disorders using hospitalization records from rehabilitation center.

- Finding mental illness among people is a challenging problem.

- Studies show strong correlation between drug use and mental disorders.

Data Overview

▪Our project utilized the Treatment Episode Data Set: providing valuable demographic, clinical, and substance use characteristics of individuals seeking treatment.

▪We decided to focus on 4 mental health disorders : schizophrenia, anxiety, bipolar and depressive.

▪The combination of the features we select will help us to predict this specific disorder for each case.

Associations tables

Key Methods

-Logistic regression for binary answers

-Build a model for each disorder separately

-Chose features for each model

Evaluation Metrics

-AUC-ROC

- recall, precision, F1 score

What did We Find?

- High ROC_AUC

- High recall score due to low cutoff probability

- Aligns with the medical approach

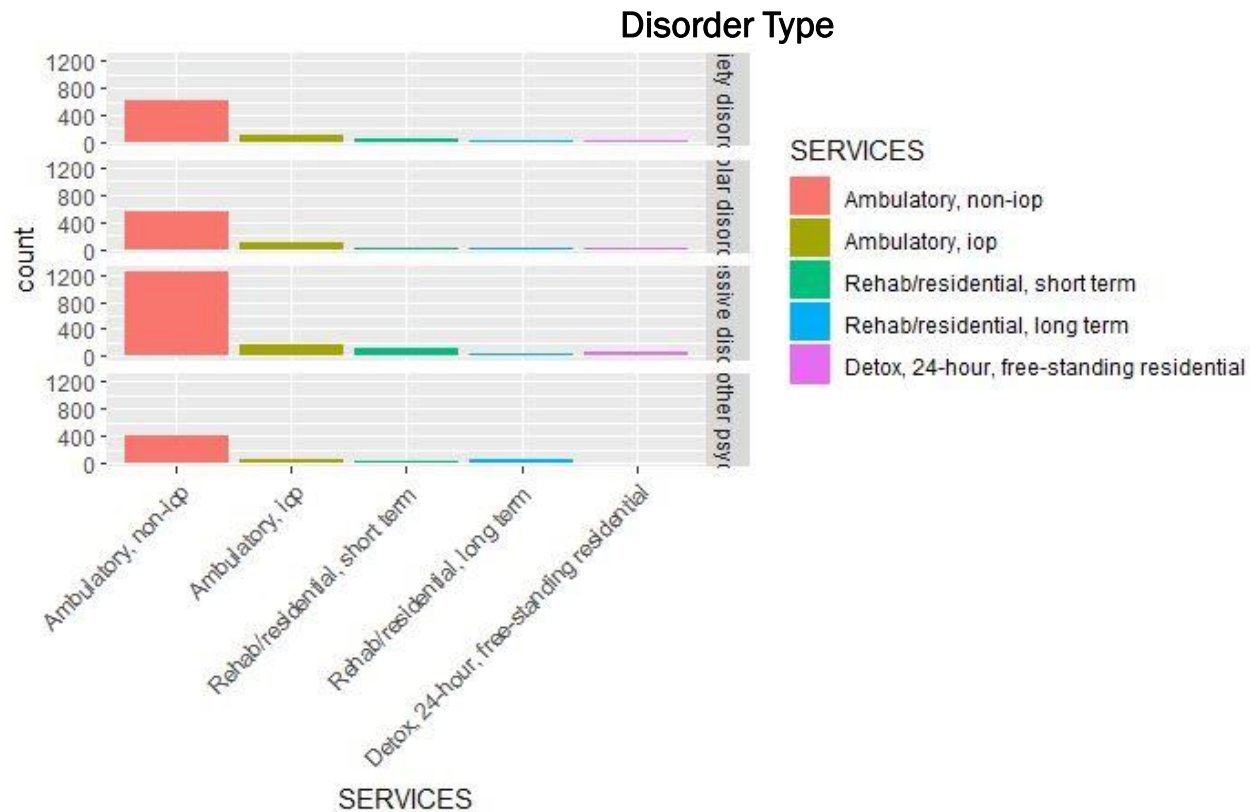|	TP	FP	TN	FN	Precision	Recall	F1	AUC-ROC
Schizophrenia	61	109	632	50	0.3588	0.5495	0.4341	0.7629
Anxiety	120	294	570	54	0.2898	0.6896	0.4081	0.6311
Bipolar	109	361	606	29	0.231	0.7898	0.3585	0.6161
Depression	316	406	422	6	0.4328	0.9844	0.6014	0.5758

Limitations

Future Work

The reliability of the report

Medical expert opinion is necessary

- Explore alternative algorithmic models to improve our predictions.

- Collaboration with experts in the field to identify specific characteristics associated with each mental illness.

- Investigating the connection between the ingredients of different drugs and mental triggers.

Our Future Goals

Disorder Type

SERVICES

- Ambulatory, non-iop
- Ambulatory, iop
- Rehab/residential, short term
- Rehab/residential, long term
- Detox, 24-hour, free-standing residential

SERVICES

- **Find information on whether the treatment helped/didn't help.**

- **Find cooperation with medical factor that can guide us from medical aspect.**

- **Given that we have completed the previous steps, Improving our model.**