

Predict the Pattern of Drug Misuse

Team: GO!

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Outline

- Introduction
- Visualization
- Model
- Conclusion



Research Questions:

Research Question 1:

What are the main factors affecting people's choice of using illegal drugs?

Research Question 2:

What are the main factors affecting the severity of outcomes in drug misuse of people.

Variables

All variables:

Language

Gender

Age

Aboriginal (and type)

Province

Marital status

Income level

Educational level

Pregnancy

Healthcare setting

Medication usage

...

Chosen variables:

Age

Gender

Educational level

Income level

Drinking/smoking frequency

Aboriginal

Having mental illness

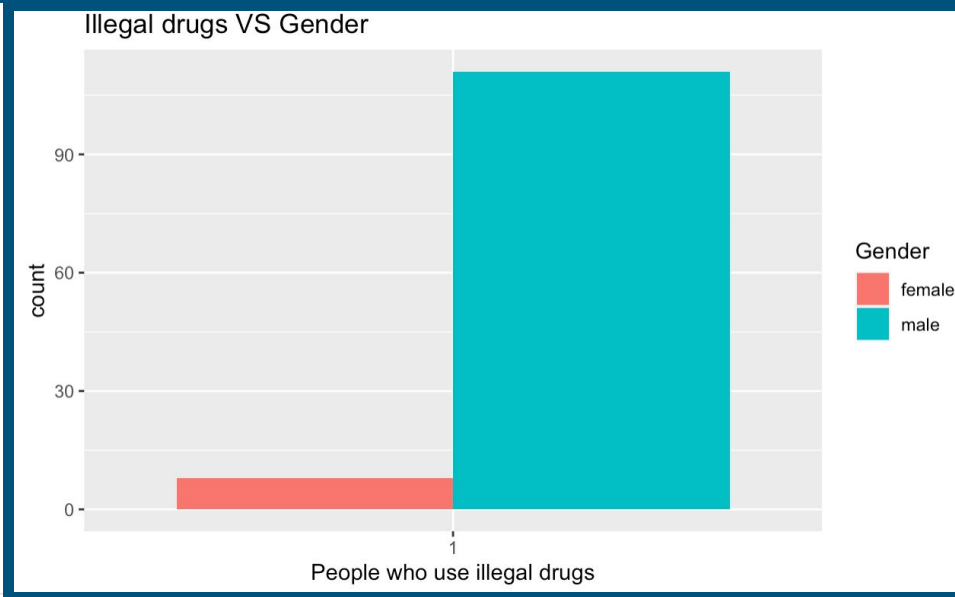
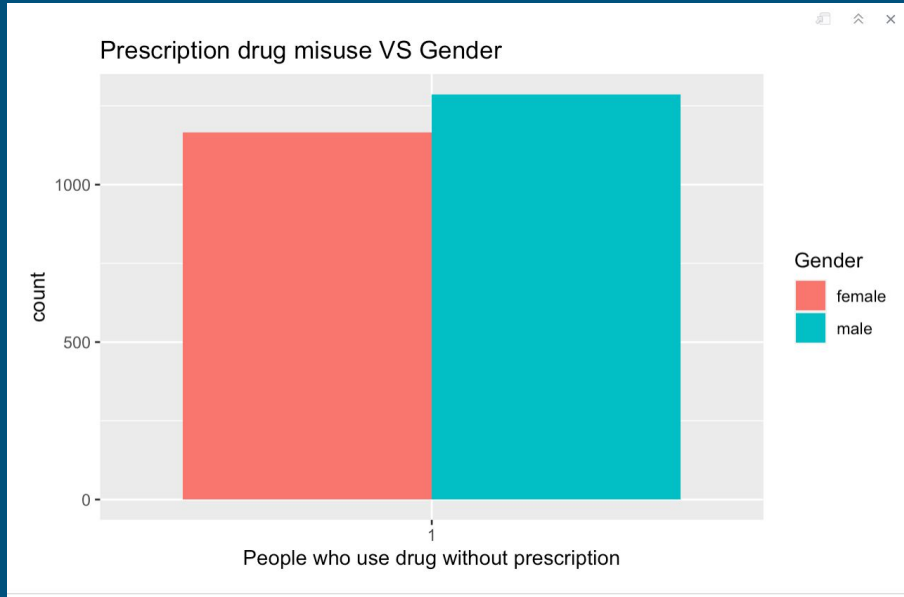
Province

DAST_SUM

DAST_CAT

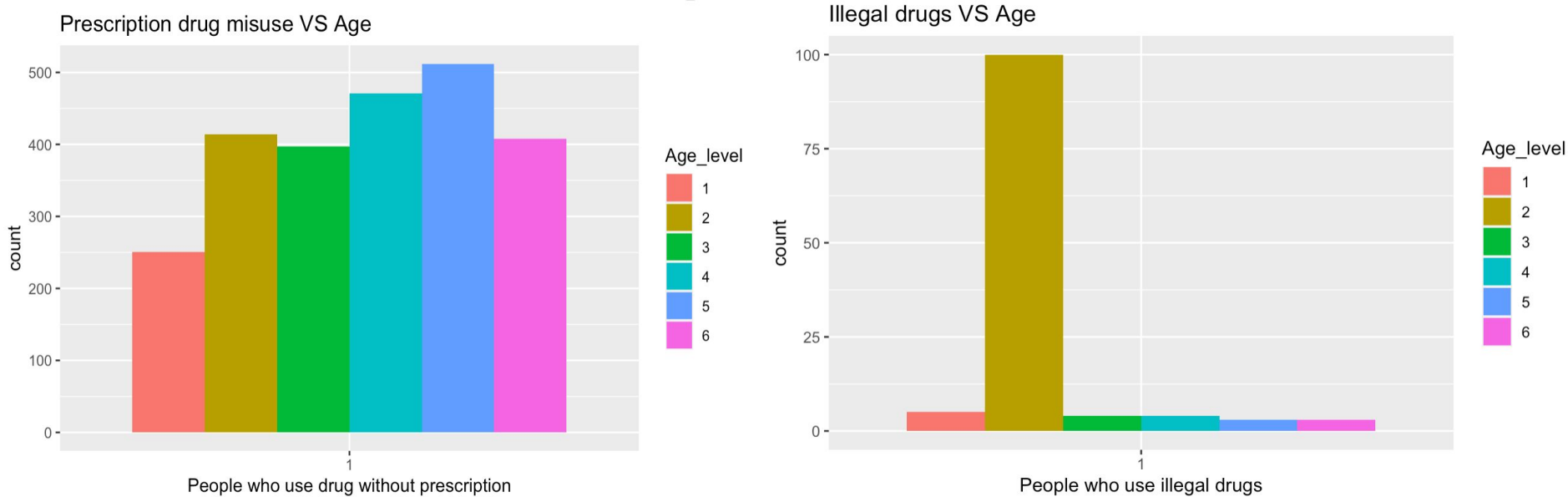
Visualization

Figure 1: Drugs Misuse VS. Gender



The number of males is higher than the number of female for both prescription drug misuse and illegal drugs misuse.

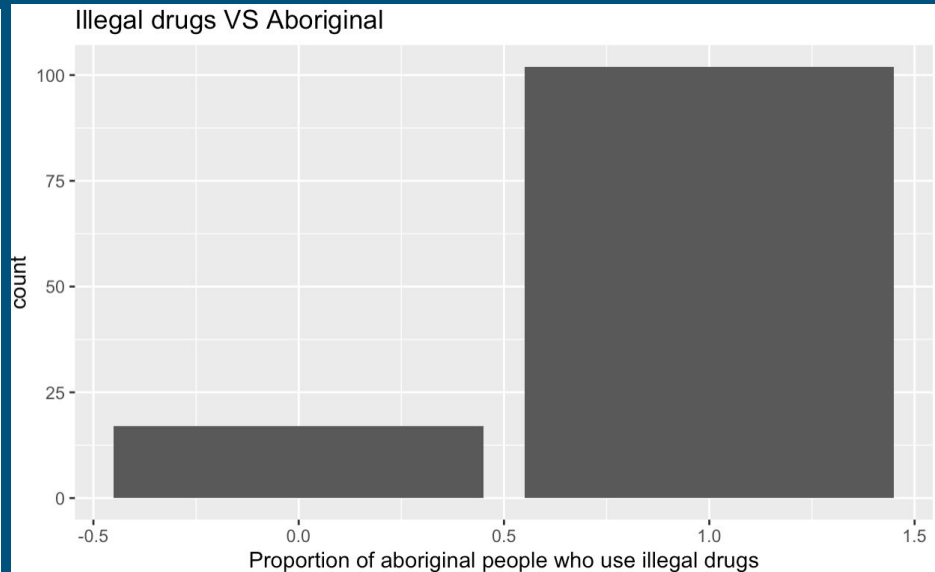
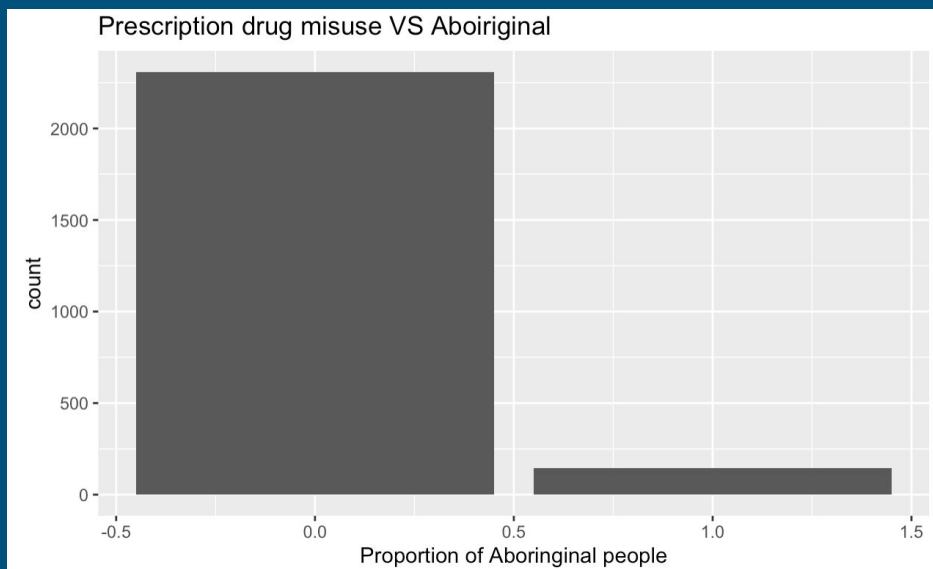
Figure 2. Drugs Misuse VS. Age



People who misuse prescription drugs are evenly distributed in all age groups, people from 55-64 years old are slightly higher.

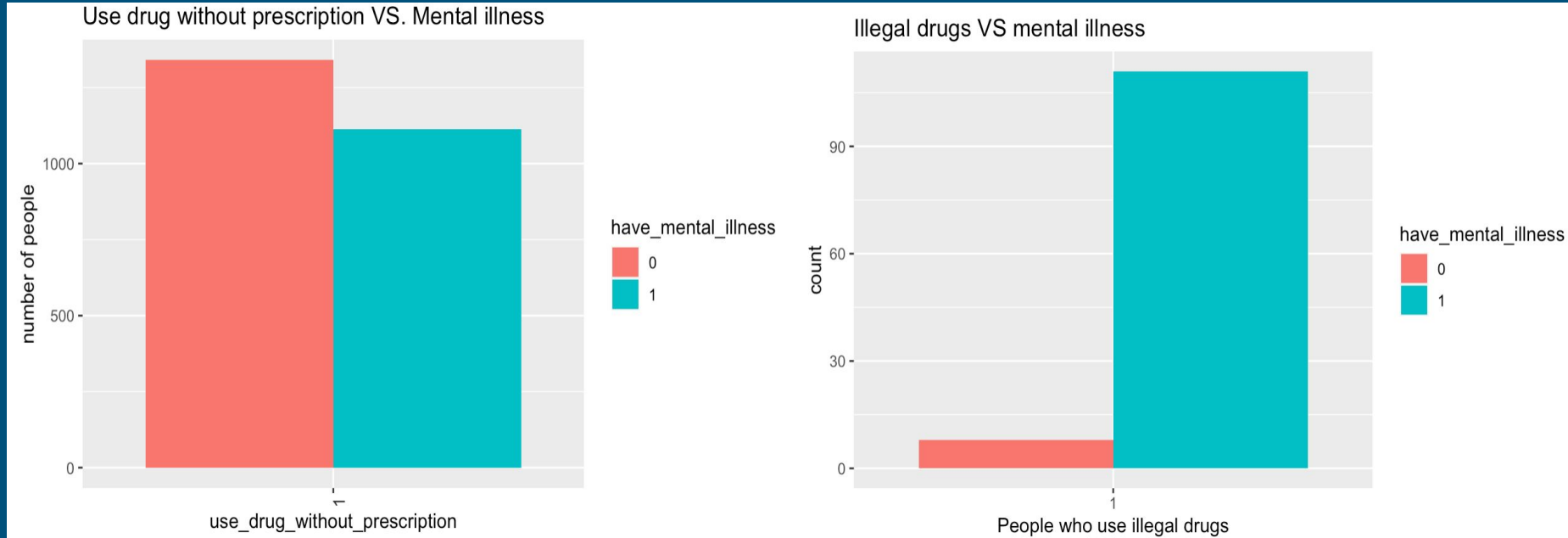
Most people who uses illegal drugs are in age of 25-34

Figure 3. Proportion of Aboriginal People who Misuse Drug



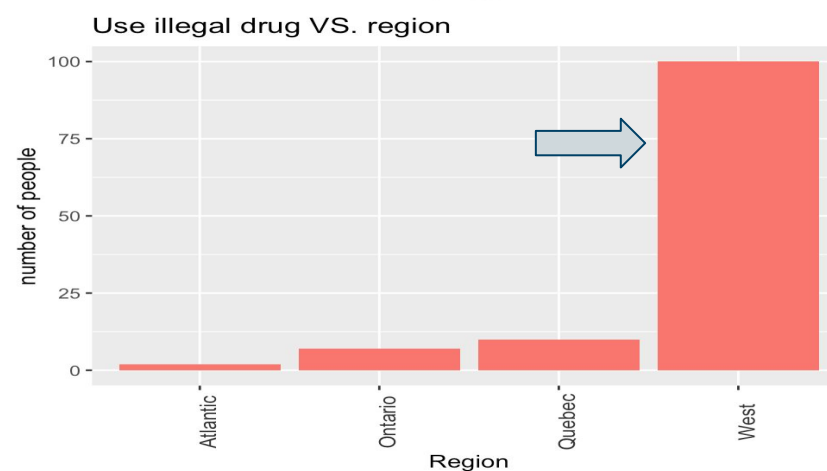
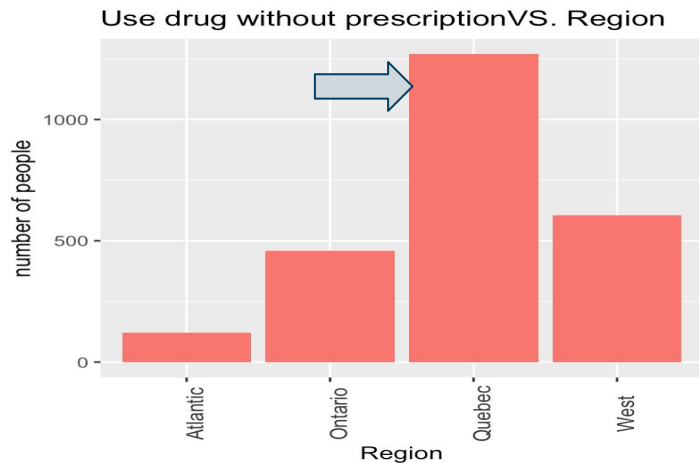
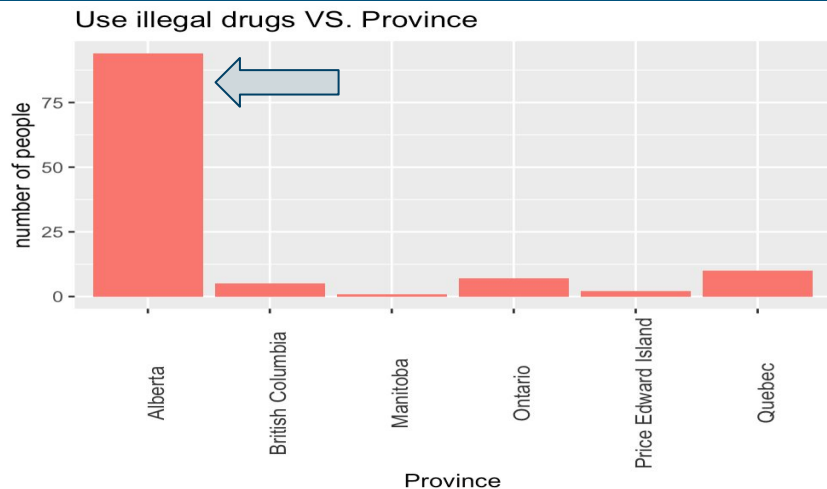
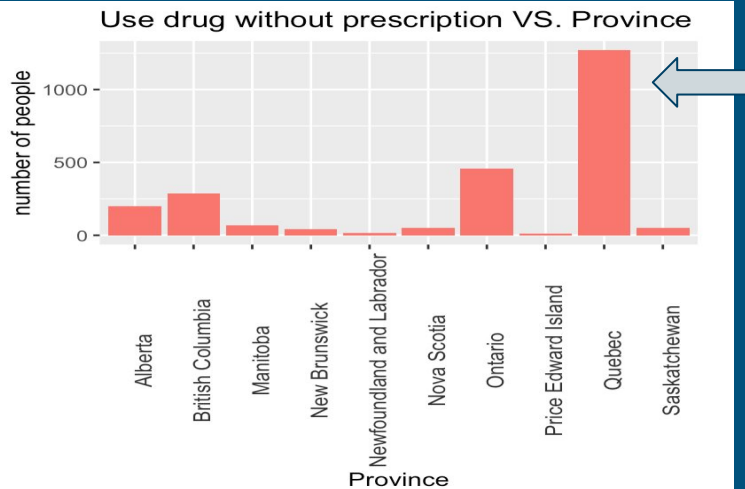
Most people who use drugs without prescription are non-aboriginal people. Whereas the pattern of people who use illegal drugs shows otherwise.

Figure 4. Drug Misuse VS. Mental Illness



For those who use prescription drugs without prescription, the majority of them do not have mental illness. However, for people who uses illegal drugs, most of them have mental illness.

Figure 5. Drug Misuse Across Province and Region



Which Factors are Most Influential for Predicting Drug Misuse?

- We have selected a set of factors that are influential for drug misuse
- GLMM model to test which one has the largest effect on the result
 - Province is used as the random effect since individual's chance of drug misuse can be affected by people living around them

	Estimate	P-value	Odds Ratio
(Intercept)	0.4019	0.0241	1.4947
Age	- 0.0183	0.0000	0.9819
Education	-0.0063	0.6509	0.9937
Income_level	-0.0449	0.0000	0.9561
Gendermale	0.2858	0.0000	1.3309
Freq_drinking	-0.0843	0.0000	0.9192
Freq_smoking	-0.2599	0.0000	0.7711
Aboriginal	0.9691	0.0000	2.6356
Have Mental Illness	0.5688	0.0000	1.7661

- Being **aboriginal** or not seems to have the largest influence on people's chance of using illegal drug
- **Having mental illness** is another influential predictor for using illegal drug.

Table 1. GLMM Estimation of Drug Misuse

Figure 6a. Proportion of Aboriginal Group vs. choice of drug misuse

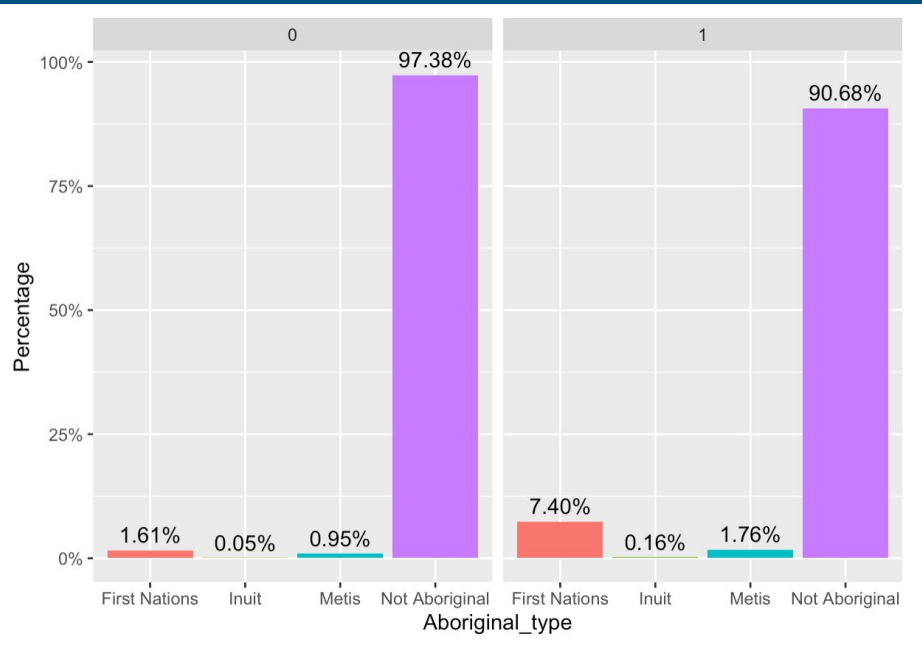
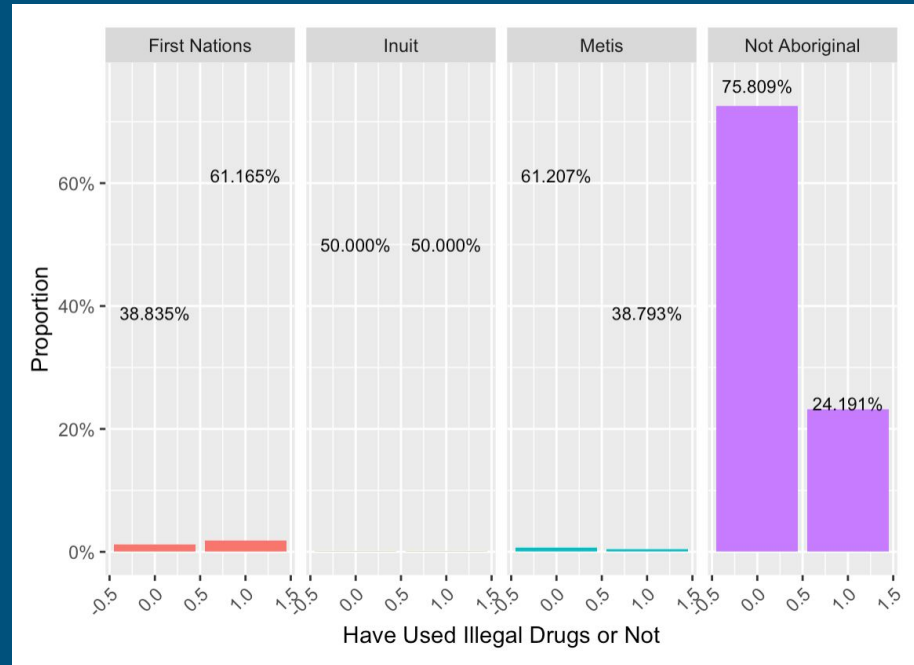


Figure 6b. Proportion of Aboriginal Group vs. choice of drug misuse



Among all three types of aboriginal people (First Nations/Métis/Inuit), First Nation people seems to have the highest chance of drug misuse .

Figure 7. Proportion of Aboriginal Group vs. Severity Score

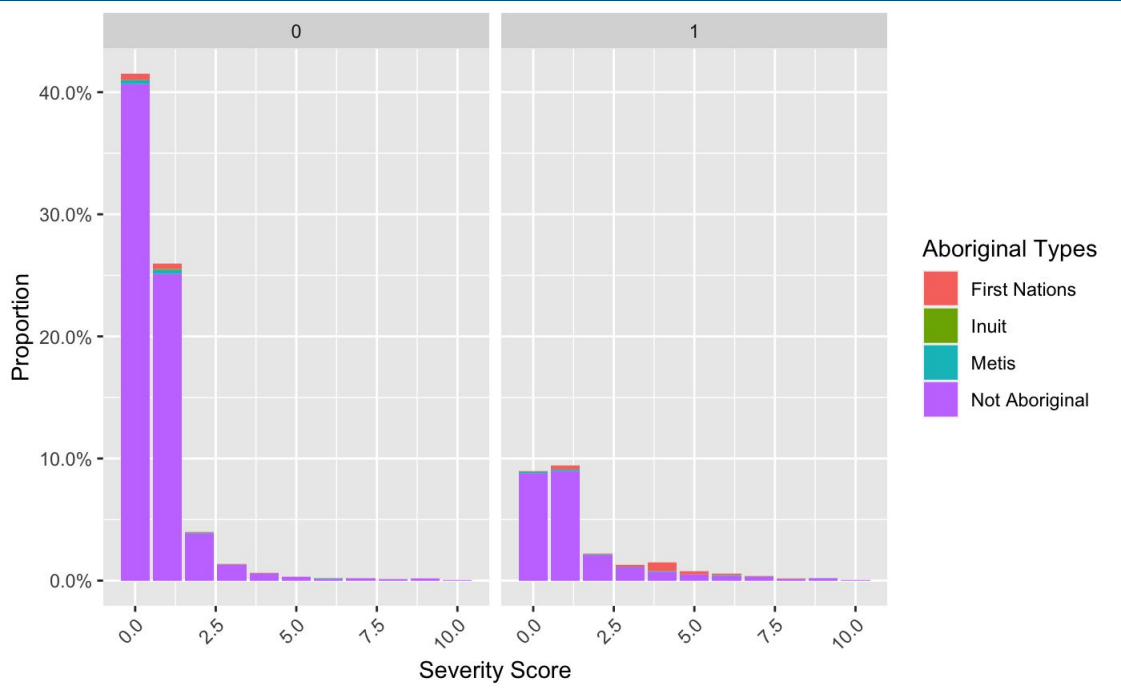


Table 2. GLMM Estimation of Drug Misuse for Different Aboriginal Group

	Estimate	P-value	OddsRatio
First Nation	0.9509	0.0000	2.6881
Inuit	-0.5368	0.0633	0.5846
Metis	-0.5155	0.0000	0.5972
Not Aboriginal	-1.1886	0.0000	0.3046

First Nation people also have achieved highest severity score regarding the outcome of drug misuse in average.

Figure 8. Proportion of Drug Misues Across Different Mental Illness

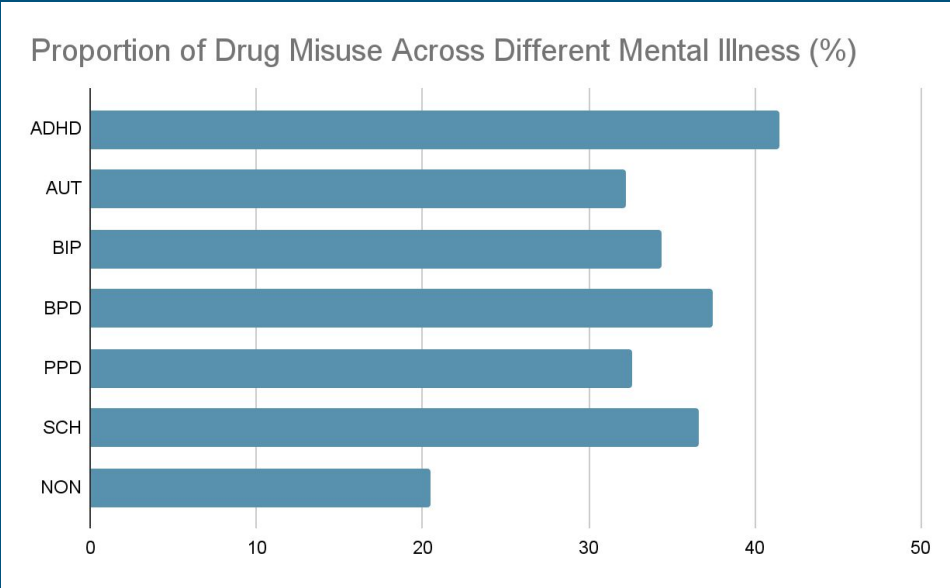


Table 3. GLMM Estimation of Drug Misuse for Different Mental Illness

Severity Score	Estimate	P-value	OddsRatio
ADHD	0.3298	0.0000	1.3907
AUT	0.2952	0.0002	1.3433
BIP	0.5032	0.0000	1.6539
BPD	0.8034	0.0000	2.2330
PPD	-0.4235	0.0000	0.6547
SCH	-0.8397	0.0000	0.4319

Among all mental illness, Borderline Personality Disorder (BPD) seems to result in the highest chance of drug misuse, it also lead to most severe outcomes.

Limitations

When we analyze the mental illness variables, we did not take the situation that one person may have several mental health problems at the same time into consideration. This may lead to an inaccurate analysis about the proportion of drug misuse among mental illness people.

Conclusion

In conclusion, considering factors that influence the drug misuse in Canada, by investigating the main factors affecting people's choice of using illegal drugs and the severity of outcomes in drug misuse, whether a patient is aboriginal and whether a patient has mental illness would be the key.



The End



Thank You For Watching Our
Presentation!

