Introduction

The COVID-19 pandemic has caused extensive social and economic upheaval, affecting the lives of Canadians and introducing various sources of stress. In addition to the increase in mortality from communicable diseases, the long-lasting socioeconomic uncertainty during the COVID-19 pandemic continues to reveal its effects on public health. Many pandemic-related stressors led to increases in substance use among Canadians since March 2020 (Canadian Centre on Substance Use and Addiction, 2022). Coupled with this is a noticeable difficulty in accessing housing, especially for individuals with substance use disorders and those experiencing homelessness (Galarneau, 2021). Substance use entails the recurrent consumption of alcohol or illicit substances and the improper use of over-the-counter or prescription medications. The use of these substances, whether illicit or not, has become a pressing concern for public health and sociology, representing a significant risk factor for various health issues and premature mortality (Henderson *et al*.; 2021; Rehm & Probst, 2018).

Similar to other social phenomena, substance use varies with socioeconomic status (SES) which encompasses social and economic measures, including employment, education, income, resource access, and relative social position (Baker, 2014). Among these, housing is a crucial yet often under-researched component, where a disproportionate percentage of people with substance use disorder (SUD) also experience homelessness to varying degrees (Henderson *et al*., 2021). SES and substance use patterns share significant correlations, although directionality remains unclear (Nicholson, 2020). This project investigates the following questions: What is the relationship between access to housing and the rise in current trends of illicit drug use within Edmonton's inner city? How have general trends in illicit substance use changed with the

COVID-19 global pandemic? And, what are some of the consequences of not having housing or adequate income for people who use drugs?

My goals for this project are to understand how and to what extent is substance use linked to housing accessibility at the intersection of the COVID-19 pandemic and opioid epidemic. The project aims to bridge the gap between theoretical frameworks and applied research to address the needs of vulnerable populations disproportionately affected by the pandemic. To achieve these goals, I will analyze survey data provided by the Canadian Research Initiative in Substance Misuse (CRISM) and Inner City Health and Wellness Program (ICHWP), collected by Dr. Elaine Hyshka and her team at the University of Alberta. The dataset comprises approximately 500 participants, most recruited from Edmonton's inner city. The survey predominantly covers sociodemographic factors like housing, income, substance use, and access to safe supplies. For methods, I will use bivariate models and descriptive statistics to examine the relationships between housing, homelessness, and accessing healthcare services for people who use drugs (PWUD). The main theoretical frameworks guiding this research project will be Social Determinants of Health (SDOH) and its connection to Diseases of Despair.

Key Measures

The total number of participants involved in this study was n = 503, and most participants came from Edmonton's inner city. For this study, around 16 variables were picked and sorted into either the housing or substance use categories. Due to how the survey questions were designed and encoded, all 16 variables are either nominal or ordinal variables that had to be recoded from

numerical variables into ones with categorical names in accordance with the codebook. Aside from renaming the different categories for each of the 16 variables, I did not regroup or redefine any of the variables.

2.1 Housing

One of the key measures for this project is housing, which will be used as the predictor variable for substance use. In particular, Questions 8, 10, 11, and 12 of the *Survey of people who use drugs* are used to measure housing as a predictor variable, comparing groups of people who report having access to housing and those who do not and whether or not there is a correlation between housing and the severity of substance use within participants in Edmonton's inner city population. Housing, according to the survey, is defined as "[a] permanent or semi-permanent place where you live, either independently or with other people" (Hyshka, 2023, p. 3). Starting with Question 8, which asks whether or not participants currently have housing, an overwhelming majority of participants (n = 404) reported that they did not have housing as defined by the survey. This variable is a nominal variable, where each participant was identified in one of 6 categories, either "Yes" (1), "No" (0), "Don't Know" (666), "Refused" (777), and "Not answered" (888), which were then recoded to indicate yes, no, and unknown. Of the 503 participants, roughly 80.3% reported not currently having access to housing, and only 19.5% reported that they did currently have access to housing.

Question 10 delves further into the housing situations of participants by asking how they would describe their current housing situation. Question 10 is an ordinal variable, with categories ranging from very unstable to very stable. This question was also recorded to represent categorical names that could be used in the bar graph, showing that roughly 401 participants

reported being in unstable housing situations, with roughly 335 reporting very unstable housing, comprising 66.6% of the total sample size.

Both questions 8 and 10 are important in assessing the current state of housing experienced by participants in the survey. However, they are limited in that they only offer a cross-sectional view of housing and do not provide much to compare the housing situations of participants pre and post-pandemic. Therefore, questions 11 and 12 were also picked because they focused on comparing housing before and during the pandemic. Question 11 asks whether participants had undergone a change in living situations during the COVID-19 pandemic. Question 11 was coded similarly to Question 8 in the original dataset and was recoded similarly since both are nominal variables with primarily yes or no responses. Overwhelmingly, 80.9% of participants reported that their living situation had changed during the COVID-19 pandemic. Question 12, on the other hand, asks whether participants had noticed any changes to how difficult or easy it was for them to find a place to stay, where answers ranged primarily in one of three categories: more difficult than usual, same as usual, and easier than usual—of the participants who responded, the largest group reported that it was more difficult than usual at 69.6%.

Questions 11 and 12 will be used to compare housing between pre-pandemic conditions and during the current pandemic. The reason for choosing these two questions is because they help to illuminate some of the difficulties in housing accessibility we can expect in the advent of a global pandemic

2.2. Substance use

The second key variable of interest is substance use, which, for this study, will be the outcome variable of interest. For substance use, questions 22-29, 33, and 34 from the survey were picked for different reasons. Questions 22-29 generally ask participants about their substance use patterns in order to assess the severity of their situation. For this study, Questions 22-29 will be combined into a composite variable to represent the degree or severity of substance use issues. The combination of these questions will be used to compare groups of participants who currently do have housing with those who do not to see if there is a significant link between the lack of housing and the severity of problematic substance use. Questions 22-29 are all ordinal variables, where participants are placed into about four to five different ranked categories. All the questions in this set were recoded into their respective categories from numerical values.

Some of the questions within this set were particularly striking. For instance, Question 24 asks how often participants are influenced heavily by drugs; a little over half of the sample size reported daily or almost every day at 51% or every week at 14.1%. These two groups represent the two largest categories for Question 24. Question 25 and Question 26 both go on to ask participants about compulsions they may have faced over the past year when it came to drug use. For both of these questions, the largest group of participants reported daily or almost every day when it came to compulsive substance use. Similar trends were also present for Questions 28 and 29, which delve further into the extent of participants' substance use.

I also wanted to take a closer look at question 33 because, like Questions 11 and 12, question 33 also seeks to compare pre-COVID and current situations of participants. Question 33 is focused primarily on comparing participants' experiences with substance use before and during the

pandemic. Question 33 is an ordinal variable, ranging in options from has decreased, has not changed, and has increased. Nearly 51.1% of participants (n = 257) reported that their illegal substance use has increased. This variable was also recoded to represent the different categorical variables. Furthermore, Question 34 asks participants if they perceive their substance use to be a problem, and roughly 60% reported that they believed their substance use to be a problem. These two questions can be incorporated into the project in order to highlight the lived experiences of participants in Edmonton's inner city and how their substance use might have shifted during the pandemic.

3. Descriptive Statistics

Attached separately is an .Rmd and HTML file.

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