Factors Affecting Public Perceptions of Harm Reduction Within a Town in Rural Interior British Columbia

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Though there is a growing evidence base suggesting that harm reduction (HR) interventions successfully reduce harm to people who use drugs (PWUD) while promoting overall public wellness and community health, service providers continue to face barriers in the way of implementing or maintaining outreach, safer substance use paraphernalia/supplies, overdose prevention sites, or shelters for the unhoused. One of these service providers is the Castlegar and District Community Services Society, who host the Out of the Cold Winter Shelter (OCWS; formerly the Castlegar Community Connections Centre), a building in the centre of Castlegar that provides a safe and comfortable space for people to meet with social service providers. When open, the OCWS offers food, water, limited intermediate housing, safer inhalation and injection supplies, and street outreach. Currently, the OCWS is funded mostly by BC Housing, with Interior Health supporting the street outreach program. However, funding for OCWS will end at the start of May 2024 unless BC Housing decides to continue its support sometime before May. After this, the OCWS will continue to search for funding to reopen as the Castlegar Community Connections centre again. The street outreach program, because of its different funding structure, has funding to operate until the end of May (D. McIntosh, personal communication, April 19, 2024).

Beyond OCWS, HR services in Castlegar are varied and overlapping. There are several organisations that offer services in Castlegar, often including safer injection and inhalation supplies. The Castlegar Health Centre offers these supplies as well as some other HR services (Castlegar & District Hospital Foundation, n.d.); however, visiting a medical facility can come with an increased risk of being stigmatised for people who are unhoused or use drugs, and the

travel distance to a health centre may further discourage accessing safer use supplies. ANKORS is the primary organization offering drug checking in Castlegar but only does so every 2nd and 4th Tuesday of the month (ANKORS, n.d.). ANKORS also offers peer outreach services and safer smoking and inhalation supplies through their REDUN program.

Technically, all levels of government play a role in the legislation regarding the provision of HR and social services. Still, it is the provincial government's responsibility to provide the services and materials in line with these legislations (Health Canada, 2023). Unfortunately, rural communities, such as Castlegar, tend to be provided insufficient HR resources to meet their needs (Hu et al., 2022), leading to more fatalities per overdose. For example, between 2011-2015, Castlegar had an estimated 50% more potential life years lost to drug-induced deaths than the BC average (BC Vital Statistics, 2015). However, the municipal government, intended to be the best representation of the local population, tends to defer responsibility to the provincial government despite the consequences of locals going without such services. This makes the provision of such programs politically charged on the municipal level, and, as such, public perception and opinion are especially deterministic in the services and supports available locally to PWUD. Limited anecdotes have suggested that some members of the public who vocally oppose HR availability have had misconceptions about what services were offered by OCWS and other local organizations.

Castlegar and its surrounding areas, the Regional District of Central Kootenay (RDCK) Electoral Areas I and J, have a combined population of 16,145. (Statistics Canada, 2023). The ratio of men to women is 50.2:49.8, with too few non-binary people for data disaggregation with confidentiality. The largest industries are retail, healthcare, forestry manufacturing, accommodation, and education, with restaurants, sawmills, pulp & paper processing, grocery

stores, and construction providing the most jobs (Rynic, 2020; State of the Basin, 2022). Specifically, 24.3% of the population works in trades, 22.4% are in the service industry, 15.3% work in health care and social assistance, 6.0% in educational services, 4.3% in public administration, 4.2% in natural resources, and 1.8% in arts, entertainment, and recreation (Statistics Canada, 2023). A noteworthy portion of this population also seeks help with substance use: In the 2020/2021 fiscal year, the Kootenay Boundary Health Service Delivery Area (HSDA) provided 2,639 service days of Substance Use Counselling & Treatment Services and 13,122 service days of general Mental Health & Substance Use Treatment, Support & Recovery services (Interior Health, 2021).

A sense of belonging in one's community is an important part of creating social support. This is likely tied to the community member's belief that community services should align with the common good, highlighting the importance of one's perceptions of community services. It is also an apparent trend that provincial HR policies in Canada are disconnected from true HR principles and its evidence base (Hyshka et al., 2017), indicating that HR availability is largely at the whim of political rhetoric and, consequently public opinion, providing rationale for attempts to address gaps in the literature involving public opinion on HR.

Though there is the aforementioned anecdotal input, there is no data regarding the overall public of Castlegar's level of understanding and support for HR, and there is similarly no such published research correlating stigma and demographic status to attitudes on the scale of a rural community in Canada. Given the unique social stage of a rural community, including its relationship with substance use, there is an excellent opportunity for research to inform future initiatives. The purpose of this study is to address the research question "What are the attitudes and levels of awareness among Castlegar residents towards local harm reduction initiatives,

services, and resources, and how do these vary by demographic factors?" Limited budget and personnel are unfortunately a major factor for effective information campaigns. To more efficiently use these limited resources, this research aims to provide community perception information to Castlegar and District Community Services Society, the OCWS's parent organisation and other local services so that they can efficiently target their informational campaigns to the demographics that would most benefit from them, while taking into account what beliefs might be correlated with lower levels of support.

Literary Review

Opioid Crisis

HR is not a novel concept, but in the last 30 years or so it has grown in the public eye, largely due to the significant increase in drug related harms and deaths, often labelled under the opioid crisis. Subsequently, a vast body of literature has amassed regarding not only the opioid crisis, but also many other avenues surrounding HR and PWUD.

Opioids have been prescribed by medical practitioners as analgesics or painkillers since the early 19th century. Coming from natural sources (opiates) like the seeds of the poppy *Papaver somniferum*, or synthesised pharmaceutically (opioids), these drugs bind to opioid receptors in the human nervous system, effectively blocking the transmission of pain signals. Because of their effectiveness, their use has been a staple medical practice for hundreds of years. A full analysis of the history of opioids is out of the scope of this report, but due to a complex stew of poor rules and regulations, fraudulent reports, and unscrupulous business practices, the prescription of opioids skyrocketed in the late 1990s, continuing into the early 2000s despite reports of opioid related harm increasing simultaneously (Jones et al., 2018). Aside from being excellent physical pain killers, opioids also diminish mental anguish and create a pleasant

euphoria when they interact with the reward circuit of the human brain. This circuit just so happens to be highly susceptible to tolerance and is directly associated with addiction, both of which increase proportionally with opioid use (Boysen et al., 2023). The addictive nature of opioids and high prescription rates combined with low lethal doses led to incredibly high numbers in both overdoses and overdose related deaths. In response to the opioid epidemic, guidelines for opioid prescriptions were revised. OxyContin, the leading brand of oxycodone, was withdrawn from the Canadian market. This led to a decrease in prescription rates. However, it also made it more difficult for individuals addicted to opioids to access regulated supplies, driving some towards street drugs. (Quan et al., 2020). Following these changes, fentanyl, a highly potent opioid entered the market and quickly took over. In a matter of a few years, opioid deaths, mainly fentanyl and carfentanil (100x stronger than fentanyl), grew nearly 10 fold in British Columbia, leading to the province issuing a statement of emergency in 2016 (Belzak & Halverson, 2018). British Columbia continues to be plagued by these issues as evident by the fact that illicit drug toxicity is the second highest cause of life years lost in BC (BC Center for Disease Control, 2024), indicating a need for more effective implementation of HR theories and practices.

Harms Associated With Substance Use and Abuse

Recreational substance use without lasting adverse effects is possible, yet often risky. These risks become more exaggerated once use becomes an addiction . This is known formally as substance use disorder (SUD) and is defined as continued use even when it causes problems for the individual (Gupta, 2022). An SUD can impact not only the individual's social, mental, and physical health, but can also harm the society it happens in.

The family of someone with a SUD is often impacted, in a variety of ways based on aspects unique to the individuals involved and their preexisting relationships. Some examples of family related harms include emotional burden, economic burden, relationship distress or instability, and lasting effects on children and parents (Daley, 2013). All of these involve an array of negative emotions, that can lead to tension, separation, and for some, violence. The risk for neglect and abuse is elevated for children of parents with SUDs, and alternatively, parents with children who have SUDs may feel guilt, helplessness, or even anger, which negatively impacts their behaviour (Daley, 2013).

SUD is classified as a treatable mental disorder that often co-occurs with other mental disorders such as anxiety disorders, depression, personality disorders, schizophrenia, ADHD, and PTSD. This makes the treatment uniquely challenging due to the comorbidity of two or more interacting conditions (Connery et al., 2020). The causative relationship between SUD and other mental disorders is not unidirectional, in that people with mental disorders may experience substances differently, heightening the propensity for more frequent use, or substance use may trigger the development of other mental disorders (National Institute of Mental Health, 2023). Thus, either way, “SUDs have a profoundly negative effect on overall mental health” (Connery et al., 2020, p. 317).

The physical harms are often what come to mind first when considering the harms of substance use. The National Institute of Drug Abuse outlines a few of these physical risks. Firstly, the risks associated with being intoxicated and being in a motor vehicle accident are increased for people with SUDs. Moreover, substance use can greatly increase the risk of cardiovascular and pulmonary disease, as well as strokes, and cancers. The lethal dose of many opioids is relatively small, increasing the risk of overdose and related death to PWUD. Some

illicit substances are also known to directly damage and destroy the nerve cells in the brain and peripheral nervous system (National Institute of Drug Abuse, 2020). Harms associated mainly with intravenous drug use (IVDU), involve high rates of transmission for HIV, Tuberculosis, and Hepatitis B and C (Connery et al., 2020). Scars, keloids, infections, and bruises, often termed 'track marks,' tend to appear on injection sites following intravenous drug use. These are not only irritating, but can also negatively affect the individual socially.

The harms of substance abuse extend beyond the individual and impact the community in which it occurs. Inability to maintain employment is seen commonly amongst PWUD (Laudet, 2012), which results in businesses losing employees, decreasing the productivity and economic output of a community. Drug related crimes and paraphernalia can also diminish the reputation of neighbourhoods due to the stigma associated with them, resulting in increased policing at a greater financial burden to the community. All of this can precipitate negative perceptions about a community (Abraham et al., 2021). Another financial burden comes from treating the SUD related health problems of individuals without treating the underlying causes.

Effect of Rurality on PWUD

SUDs are more often than not influenced by societal factors, and as such, differences exist when rural areas are compared to urban ones. According to a meta-analysis of existing literature, Thomas et al. found that opioid related harms increased with rurality due to four conditions: economic, physical, social, and policy (2019). Residents in rural areas often experience high economic distress due to factors such as deindustrialization and low employment rates. Rural residents are also more geographically hindered, with lower accessibility to health services and transportation infrastructure. People who use drugs in smaller communities do so with less anonymity leading to increased targeted stigmatisation from the community. Rural

children have higher rates of using substances, potentially due to a lack of opportunities and extracurriculars presented to them. All of these combined contribute to the disproportionate 248% increase in heroin, cocaine, and analgesic related deaths observed in rural areas from 1999-2004 compared to the 16% increase in urban areas (Thomas et al, 2019). These findings are supported by another 2020 meta-study (Ibragimov et al.). The disproportionately high drug-related harms in rural areas suggests that HR services could serve as a real benefit to them.

Harm Reduction Theory and Premise

HR is a philosophy of care and accompanying collection of interventions that intend to reduce the attendant harms or consequences of an unhealthy or undesirable behaviour without necessarily reducing the behaviour's incidence (Lenton & Single, 1998; Single, 1995). It challenges the notion that a behaviour is in itself harmful and attempts to focus interventions on the reduction of consequent harms of a behaviour rather than the behaviour itself. Despite not being the primary intention, subsequent reduction of behaviour does sometimes occur, making the potential for HR to lead to decreased substance use and increased access to social supports and addictions services worth noting. HR had its first practical applications in the early 1900s but became a prevalent term in the 1980s in its use against the HIV epidemic in people who inject drugs (Cook et al., 2010).

Hawk and others (2017) outline six principles of HR for generalized healthcare application: humanism, to give patients respect and dignity; pragmatism, to understand the impossibility of perfect health behaviours; individualism, to recognize that each patient has unique needs and willingness to participate in care; autonomy, to respect patients' right to make decisions about their health and treatment; incrementalism, to celebrate small successes; and

accountability without termination, for patients to be responsible for their own health and behavioural choices but never cut off from resources and care.

As a principle rather than a set of interventions, HR can be theoretically applied to many different topics, such as diabetes management (Gentsch et al., 2024), as well as the legalization of medical assistance in dying (Heilig & Jamison, 1996), abortion (Dea, 2016), and sex work (Barrows, 2008). Exemplified by these cases, Dea posits that HR is best applied to apparently intractable phenomena or behaviours with harms that can be reduced but may, in fact, be worsened by attempts to abolish or prohibit them. She also shows HR as a possible way to find common ground in such staunch disagreements, as it ultimately aligns with the values of both sides: reducing the harms people are subject to (2020). Stemming from this, for HR to be properly implemented it is essential to analyse how people think their values are being realised, which is a key part of our research.

In practice, to call a service directed towards PWUD ‘harm reduction,’ it must (1) be primarily concerned with the reduction of substance use-related harm rather than use itself, (2), if implementing abstinence-oriented strategies, also implement HR strategies for people who continue to use, and (3) demonstrate that its services are likely to result in a net reduction of harms consequent to substance use (Lenton & Single, 1998).

Social Determinants of Health Behaviours

HR also recognizes the role of social determinants in shaping health behaviours, suggesting that responsibility for these behaviours is influenced by broader societal factors (Short & Mollborn, 2015). The mitigation of one’s adverse outcomes is supported by an understanding that does not solely attribute responsibility to the individual, acknowledging the complex interplay between individual actions and systemic influences. Throughout the world,

substance use is associated with adverse childhood experiences (ACEs; Afifi et al., 2020; Fernandes et al., 2021; Patterson et al., 2014), such as abuse and household instability. Indigenous peoples in BC and Canada are also vastly overrepresented among people who use drugs (PWUD). In BC in 2023, 17.7% of fatal drug overdoses were Indigenous people, up from 15.4% in 2022, even though they only make up 3.4% of the overall population (First Nations Health Authority, 2023). Noncoincidentally, Indigenous peoples in Canada are also overrepresented in having higher exposure to ACEs than non-indigenous Canadians (Radford et al., 2022). With this in mind, optimal implementation of HR measures should incorporate both physical and social interventions and support to best address the uniqueness of each individual's situation.

Harm Reduction Discourse

According to the 2022 Global State of Harm Reduction Report, Canada is the global leader in terms of HR intervention implementation (Frasure & Shirley-Beaven, 2022). However, HR in Canada has been a very dividing event, especially given the nature of the public's media and personal exposure to PWUD amidst the present opioid and drug poisoning crisis. One survey of BC residents in 2011 found that 76% of respondents were in support of HR (Tzemis et al., 2013), but in 2018 this had decreased to 67% (Wild et al., 2021), and 65% said they would support a needle exchange program in their community (Tzemis et al., 2013). A previous population survey found that 64% of Canadians were generally supportive of HR, with variation between the services provided, and variation between provinces, with British Columbia being among the most supportive (Wild et al., 2021). Furthermore, within Canada, BC offers the highest quality formal HR services (Hyshka et al., 2017). Despite that, Castlegar is socially distinct from the large majority of BC's population concentrated within urban centres, and its

geography and economy is not far from Alberta's, which was among the least supportive provinces. This pattern is observable in many rural interior BC communities in that their economies are largely driven by the natural resources sector–akin to Alberta (Trade and Invest British Columbia, n.d.). Given these similarities in economy, organizations providing HR like OCWS, tend to be underserved, operating with little to no funding and amidst criticism and opposition, despite the literature supporting their importance. Data on the extent to which rural interior BC communities are adopting organizations like OCWS, is not available in the literature; this gap is what we are attempting to address.

Wild and others also did not find median support for HR to differ across respondent sex, education, and household income, but did find that those who self-identified as very and mostly politically conservative reported lower levels of support, with the median falling on 3; don't know/no opinion (2021). The current and previous Members of Parliament that represent(ed) the electoral area that Castlegar resides in have been part of Canada's New Democratic Party (NDP) which lies in opposition to the Conservative Party on the right/left axis of the political spectrum. The MPs in question are Richard Cannings (2015-Present) and Alex Atamanenko (2006-2015) (Openparliment, n.d.). With this information, it can be reasonably expected that a majority of Castlegar residents will not have low levels of support for HR. Interestingly, we were not able to find reports on how the major political views differ by occupation/career in Canada suggesting an area for future research. However, anecdotally people in the trades-like industries tend to hold a more conservative viewpoint, and people in the healthcare or social service-esque industries have a more liberal or left sided view. These observations are not grounded in enough evidence to develop an appropriate hypothesis on how levels of support of HR vary by industry based on political preference.

A significant barrier to public support of access to HR is the idea of risk compensation: if the risks associated with substance use decrease, overall substance use will increase and admission in treatment programs will decrease (Winograd et al., 2020). This belief isn't new or unique to substance use. It's been used to try and oppose needle exchanges, vaccines for HPV, and drugs that protect against HIV (Underhill, 2013). Risk compensation has been observed through several studies in various circumstances. The use of filtered or low-tar cigarettes has been linked with an increase in smoking frequency, lung cancer, and cardiovascular disease (Institute of Medicine, 2001). Vaccination for Lyme disease reduces other measures such as tick repellant (Brewer et al., 2007) and drinking diet sodas may increase consumption of other calories (Fowler et al., 2008). There is limited evidence suggesting an inverse relationship between familiarity and training with an HR intervention such as Naloxone, and risk compensation ideation (Winograd et al., 2020). Education initiatives focused on HR could help reduce risk compensation as a barrier, by targeting those with the least understanding. This research is designed to aid in such targeted educational efforts by providing a model of HR understanding within Castlegar. Risk compensation ideology can often manifest alongside stigmatised beliefs.

Effect of Stigma on PWUD

Stigma can have a multitude of negative impacts on PWUD and the availability of HR measures (Wild et al., 2021). It is defined as the "social mischaracterization of individuals, which highlights a negative attribute" (Abraham et al., 2021, p. 183). The aim of many social projects is to manipulate the stigma associated with the concept they are addressing, because it can be so impactful. Stigma evolves from a perception to a barrier in the form of NIMBYism. NIMBY ("not in my backyard") is a way to describe the belief held by members of the public that may

agree with the premise that HR is a benefit or need while simultaneously expressing concerns that the provision of such services will bring deleterious effects to the vicinity through the people that are accessing them (Rouhani et al., 2022). NIMBYism, which has notably hindered the implementation of HR services, has been found to be associated with the belief that PWUD are dangerous and that overdose prevention sites attract crime to neighbourhoods (Rouhani et al., 2022; Socia et al., 2021). The latter is repeatedly contradicted by evidence that areas gaining overdose prevention sites see decreases in crime following service implementation (e.g. Davidson et al., 2021).

When stigma occurs in a negative manner, it can harm the people who are mischaracterized. Specifically, many PWUD face an unearned loss of credibility, social outcasting, and prejudiced healthcare, leading to an avoidance of treatments and a mistrust of medical professionals (Abraham et al., 2021). These defaming experiences can accumulate and evolve from social to mental and physical diseases (Abraham et al., 2021). This problem is especially apparent for PWUD in rural areas due to decreased anonymity and limited availability or access to neutralizing information on factors associated with drug use (Ezell et al., 2021). This finding (along with the information listed in the above *Effects of Rurality* section) challenges a uniquely rural myth that substance use does not occur in rural areas, which outlines the complexity and irrationality of the public perception of HR in communities such as Castlegar. Consistent with this, Wild et al.'s finding that “stigma toward PWUD appears to undermine public opinion toward HR services” (2021, p.14) is supported, reinforcing the paramount need for an analysis of the public's beliefs of stigmatising ideas in designing effectively implemented HR.

Harm Reduction Interventions

Since its inception, HR for substance use has evolved in many different directions, encompassing both services and supplies. The provision of these HR interventions is often coupled with low-threshold (meaning abstinence is not a requirement to receive care) access to education, health and social services, and referral to substance use treatment (Strike et al., 2006). As different HR strategies garner different levels of understanding and support, the following paragraphs outline the mechanism and public opinion of each.

Naloxone. Naloxone is an opioid antagonist that can be administered through an intramuscular injection or nasal spray. It blocks the opioid receptors, displacing any circulating opioid and temporarily removing the effects of drug toxicity. Multiple studies report no significant change in opioid use in people who use opioids regularly after receiving intramuscular or intranasal naloxone kits and training on how to use them (Coffin et al., 2016; Dwyer et al., 2015; Jones et al., 2017; Doe-Simkins et al., 2014; Maxwell et al., 2006). It should be noted that one study found that 35% of one sample of people who regularly use heroin predicted that they may feel more comfortable using higher doses of heroin if provided naloxone (Seal et al., 2003) and another interview study showed similar themes (Heavey et al., 2018). Seal and others, when surveying the population in the same area as their previous study, found a significant decrease of heroin use in the 6 months after receiving naloxone training and supplies, contradicting the previous self-reported data (2005). The majority of Canadians (72%) and British Columbians (72.8%) support or strongly support naloxone as HR (Wild et al., 2021).

Safer Injection and Smoking Supplies. One of the cheapest and most direct forms of HR is the distribution of sterile injection and smoking supplies like syringes and pipes with the objective of reducing sharing, transmission of infections, and harms to the skin and respiratory

tract. Providing sterile injection supplies to people who inject drugs (PWID) has been demonstrated to reduce transmission of HIV (Aspinall et al., 2014; Fernandes et al., 2017; Tonin et al., 2024; Wodak & Cooney, 2004) and HCV (Fernandes et al., 2017; Tonin et al., 2024) without increasing rates of drug use initiation, frequency of use, or duration of use for any illicit drug (Wodak & Cooney, 2004). Anecdotally, the public holds a misconception that contradicts the aforementioned effect on use (a misconception that we are attempting to measure empirically). There's considerable evidence that the availability of safer equipment reduces risky substance use behaviours, such as using broken pipes and sharing needles (Fernandes et al., 2017; Tapper et al., 2023, MacArthur et al., 2014). Further, the option of safer smoking supplies can decrease the frequency of injection in PWUD (Reid et al., 2023), which itself may decrease risk of overdose, infection, and time spent in hospital (Megerian et al., 2024). A slight majority of Canadians (59.5%) and British Columbians (57.6%) report that they support needle distribution (Wild et al., 2021). The same cannot be said for safer inhalation kits, which are only supported by 43.9% and 42.9% of the Canadian and British Columbian population, respectively (Wild et al., 2021).

Supervised Consumption Sites. Also known as overdose prevention sites (OPSs), supervised consumption sites are locations where trained staff monitor people in their substance use so that they can help prevent and treat an overdose. Within the first 12 weeks of opening Insite in Vancouver, there was a significant independent association between the facility’s presence and reduced public injection drug use, publicly discarded syringes, and other injection-related litter (Wood et al., 2004). After a year, this OPS was also associated with a 30% increase in detoxification services, which subsequently increased long-term addiction treatment use and reduced use of the OPS (Wood et al., 2007). Similar to needle distribution, 54.8% of

Canadians and 55.5% of British Columbians surveyed reported support for supervised consumption (Wild et al., 2021), with the caveat that some may support the implementation in their nation, but not in their backyard (Rouhani et al., 2022; Socia et al., 2021).

Substance Checking. Substance checking uses chemical technologies to analyse substances, identifying strong contaminants to prevent drug overdoses. This process can detail all chemicals present or focus on specific ones like fentanyl or benzodiazepines using portable test strips. These services also monitor trends in illicit drug supplies. For example, from January to March 2024, the British Columbia Centre on Substance Use found that 22% of tested drugs were misidentified, 43% contained fentanyl, and 27% benzodiazepines (2024). Between January 2023 and February 2024, 73% of substances tested in Castlegar contained fentanyl, and 70% contained benzodiazepines (British Columbia Centre on Substance Use, 2024). Vulnerable groups, such as those with low income or experiencing homelessness, often cannot replace contaminated drugs and may instead reduce dosages to lower overdose risks. A moderate majority of Canadians (69.7%) and British Columbians (71.3%) support drug checking as a HR intervention (Wild et al., 2021)

Opioid Agonist Therapy. Opioid Agonist Therapy (OAT), sometimes called opioid substitution therapy, includes the provision of medications such as methadone or buprenorphine. These are opioids, but unlike illicit opioids, they are long-acting and slow-releasing. They are prescribed to reduce craving and withdrawal symptoms due to opioid dependence, and have also successfully reduced illicit heroin use, frequency of injection, criminal activity, high health risk behaviours, while aiding PWUD in stabilizing their lives (Hedrich & Hartnoll, 2021). OAT has also been shown to decrease risk of overdose in people who use opioids (Pierce et al., 2015). Low-threshold OAT is only supported by 49.3% of Canadians and 50.3% of British Columbians

(Wild et al., 2021). In BC, there is second-line OAT of methadone, and technically oral morphine, injectable hydromorphone and injectable diacetylmorphine (heroin). However, the prescription of the oral morphine and injectable OAT requires a specialist in addictions medicine (Guidelines and Protocols Advisory Committee, 2023) that makes these options unavailable to Kootenay residents.

Safer Supply. Safer supply is the practice of providing regulated, pharmaceutical-grade forms of illicit substances to people with SUDs. It is intended to reduce harms associated with uncertainty of the contents of a substance, most notably the possibility of overdose-inducing contaminants amidst a toxic drug supply. Though safer supply provision is not a current policy, clinicians' prescriptions of opioids to individuals at high risk of drug poisoning has been characterized as 'safer supply prescribing' (Young et al., 2022), and the Drug User Liberation Front of Vancouver, B.C., has periodically provided unsanctioned safer supply services on a buyer's club model (Kalicum et al., 2024). One study on the effect of safer opioid access found that, for people who inject fentanyl intravenously, their use of fentanyl tended to decrease as their safe supply approached the right dosage for them (Gagnon et al., 2023). Provision of non-injected opioids as treatment for opioid dependence also lowers frequency of injection (Csete, et al., 2016; Gagnon et al., 2023). Because safer supply has not been formally implemented, there is limited data on public perception of it, especially in rural BC. One study analysed public support of safer supply in Alberta and Saskatchewan finding that 63.5% and 56.3% of people respectively supported safer supply (Morris et al., 2023). It can be assumed that due to political differences, and existing patterns, the level of support from residents of BC would be higher (Wild et al., 2021). Conversely, informal accounts from the OCWS have stated

that they face high backlash from the community in regards to safer supply, despite not offering it as a service. We aim to formally address this gap in perception data with our research.

Decriminalization. British Columbia has been granted temporary exemption from the Controlled Drugs and Substance Act by Health Canada from January 31, 2023 until January 31, 2026, meaning that people 18 years or older are not arrested or charged for possession of opioids, cocaine, methamphetamine, or ecstasy, up to a combined total of 2.5 grams. Notably, this exemption doesn't apply within schools from kindergarten to grade 12, licensed childcare facilities, playgrounds, splash pads, wading pools, skate parks, and airports (Province of British Columbia, n.d.). This change aims to address the harms associated with criminalization, such as creation of stigmas and threats that acts as a barrier between PWUD and services, congestion of the criminal justice system, and the opportunity cost of using resources in the policing and penalization related to criminalized possession (Wood et al., 2010). One guiding objective that drives decriminalization is shifting substance issue interventions from the domain of criminal justice to that of health and the premises of HR (Unlu et al., 2020). Given the complex nature of decriminalization, it is difficult to address the public's general support. Limited literature examining the opinions of PWUD in BC has found that decriminalization has been improperly implemented (Ali et al., 2023). Additionally, the Canadian Drug Policy Coalition suggests that public frustration with decriminalization may stem from insufficient government attention to related social issues, such as rising homelessness rates (Anmol et al., 2024). More empirical analysis should be done on public perception of decriminalization in BC.

Methods

Participants & Distribution

In order to assess Castlegar and area residents on their attitudes towards harm reduction, an online survey was created with questions designed to flesh out opinions on a broad range of HR topics. The sampling objective of this research was to get a representative distribution of Castlegar's populace. To do this, our survey recruitment method was to recruit as many residents of Castlegar as possible, without targeting any demographic specifically. A poster with a QR code linked to the survey was designed with the intention of creating an eye-catching and compelling image without portraying any partiality regarding HR. 150 copies of this poster were distributed in-person by the primary investigators to as many businesses and bulletin boards as possible within Castlegar and the surrounding area, RDCK areas I and J. Attention was paid to ensure that posters were indiscriminately distributed and would be accessible to a diverse array of socioeconomic classes and cultures. Posts were also made to local Facebook groups of various topics asking members to consider participating and sharing the survey. It is not known how many participants this snowball sampling gathered or how far it reached.

Survey Design, Assessments, and Measures

Demographic Information

In order to best direct informational campaigns, it was important to see how results differed among the results of Castlegar. Participants were asked their age range, community of primary residence, occupation category, highest level of education, and gender identity. People under the age of 18 were not allowed to take the survey because of the complex and sensitive subject matter requiring a certain level of cognitive and emotional maturity to understand or answer.

Social Distance Scale for Substance Users

As in Brown (2011), Link et al.'s 7-item Social Distance Scale (SDS; 1987) was modified such that the subject of the questions was "someone who regularly uses substances." Brown found the modified Social Distance Scale for Substance Users (SDS-SU) to have good internal consistency (α=.80) and construct validity (indicated by low SDS-SU scores in those with greater familiarity with people who use substances (*rho* = −.11, $p < .01$) and those who elected that they would be more comfortable spending time with someone with a SUD ($t(561) = 6.17$, $p < .01$, $d = .52$.).

Familiarity

One of the objectives of this research was to gain a better understanding of how familiar Castlegar is with HR services, including which are and aren't being provided in Castlegar, and to whom. Self-rated familiarity with and availability of HR interventions in Castlegar were gauged by checkboxes. As well, there was uncertainty as to which groups of people the public believes to use substances and access HR services locally, so participants were also asked to check which occupation categories they believed to contain people who would benefit from access to HR services.

Attitudes

The other primary objective of this research was to understand how people living in Castlegar felt about the provision of HR interventions. First, generalized support or opposition was rated with a 5-point likert scale. 8 sections, one for each HR intervention as outlined above, then followed in order of increasing contention surrounding the particular intervention. The ordering took some inspiration from the "foot-in-the-door" technique, where respondents are more likely to answer more controversial questions after they have answered some lighter ones.

Each section included a preamble of the definition of the intervention to maximize validity of the measure.

Each of the sections included the following items, specified to the relevant HR intervention of the section. To assess participants' understanding/opinions on the functions of HR interventions, they were asked to rate their agreement with the statements that the intervention's availability increases health and safety of substance users, and that providers of the intervention are an access point for health and social services. To gauge support, participants were asked to rate their agreement with the statements that they support the idea of having the intervention in their community, and that others in their community support the intervention. All of these measurements of agreement were done using a 5 point likert scale ranging from strongly disagree to strongly agree. Additionally, to address a common reason for opposition to HR–that it enables substance use, participants were asked to rate their agreement with the statement that the intervention encourages substance use and were asked to choose what effect the availability of the intervention has on the frequency of substance use: whether it decreases it, increases it, maintains it (where use would extinguish without the HR intervention), or has no effect on it. A 200-character text box was then provided for additional thoughts on each HR intervention.

Theories and Practical Approaches to Addiction

Finally, to aid the inference of what ideas were influencing each set of answers, a section was included asking participants to rate their agreement with different major themes and concepts in the discourse surrounding substance use. The questions were designed to differentiate if people understood the fundamentals of Addiction theory which could influence how they perceive HR. Assessment was done using a 5 point likert scale ranging from strongly disagree to strongly agree.

Data Analysis

Quantitative

The two questions assessing awareness of different interventions' availability and benefit to different occupations were analyzed as tests of participants' understanding. For the question asking "which of the following harm reduction interventions are available in Castlegar?" the sum of interventions falsely identified as available was subtracted from the amount of interventions successfully identified as available. At the time of the survey's distribution, all interventions but safer supply and a supervised consumption site were available. Therefore, the highest and lowest possible scores are 5 and -2, respectively. Average scores of the sample and proportions that selected each choice were recorded. For the subsequent question asking "people in which of the following occupation categories could benefit from access to harm reduction services?" proportions of respondents who selected each occupation category, as well as those that selected all or none, were recorded.

The questions asking about each HR strategy's effect on frequency was meant to find differing proportions of people who believed that the HR strategy increases substance use. So the proportions of answers between demographics were first analysed for variance with a Pearson's chi-squared test. The p-values of these tests were corrected in the same pool and procedure as the remaining Likert scales explained below. After correction, the significant results were assessed post hoc by a Z-test for significant pairs.

Questions that assess a respondents familiarity with HR, attitudes towards HR in general and opinions on specific HR practices, aside from effect on frequency, were transformed into 4 or 5-point Likert scales (4-point for familiarity, 5-point for the rest). Familiarity was rated from 1 being "I have never heard of it" to 4 being "I have seen it in practice," while the rest of the

questions were transformed as 1 to 5 from “Strongly Disagree” to “Strongly Agree,” respectively. Using a Shapiro-Wilk test of normality, all of these questions across all responses were found to deviate from normality (all $P<0.001$). Because of this, a Kruskal-Wallis H test was used to find significance between demographic groups on each question. Due to high correlation and thematic similarity between questions and to reduce the number of questions and aggregate more meaningful data, some similar questions were combined. All HR sections’ questions on whether that specific practice encourages substance use were averaged into one variable for each participant, and the sections for safer injection supplies and safer smoking supplies were combined into one. With the large number of questions still being investigated between these Likert scales and the categorical frequency responses, the Holm–Bonferroni method with an alpha value of 0.05 was used to counteract the issue of multiple comparisons. Each demographic-question pair that had significant non-equivalence after the correction was then examined pair-wise using Dunn’s test with a Bonferroni correction to find the differing pairs.

Since the tests used did not allow demographic variables to be inherently isolated while controlling for collinearity with all other demographic membership among members of a single demographic group, demographic variables with at least one overlapping significant result had proportions of group membership in the other pertinent demographic compared to each other using Holm-Bonferroni corrected z-tests.

One-way ANOVA was used to compare the mean responses across the eight HR intervention sections concerning agreement with the statements that "[the intervention] increases the health and safety of substance users," "I support the idea of having [the intervention] available in my community," and "[the intervention] encourages substance use." In post-hoc analysis, two-tailed Welch’s t-tests were performed between each intervention and the combined

others to determine which interventions garnered answers statistically different from the others. To correct for family-wise error, the Holm-Bonferroni Method and Bonferroni correction were applied to the ANOVAs and t-tests, respectively.

Connections between agreement with statements in the 'Theories of and Practical Approaches to Addiction' section and support of HR were analyzed by calculating Pearson's r between Likert scale values of each pair. A two-tailed *t* statistic was used to find significance, *p*. The Holm-Bonferroni Method was applied to the thirteen tests.

Qualitative

To systematically address the answers submitted to the text boxes, each of the three primary investigators independently created codes and assigned them to text box entries. The analyses were then combined; codes of more than one researcher sharing similar themes were combined and their corroborating instances were recorded.

Ethics Statement

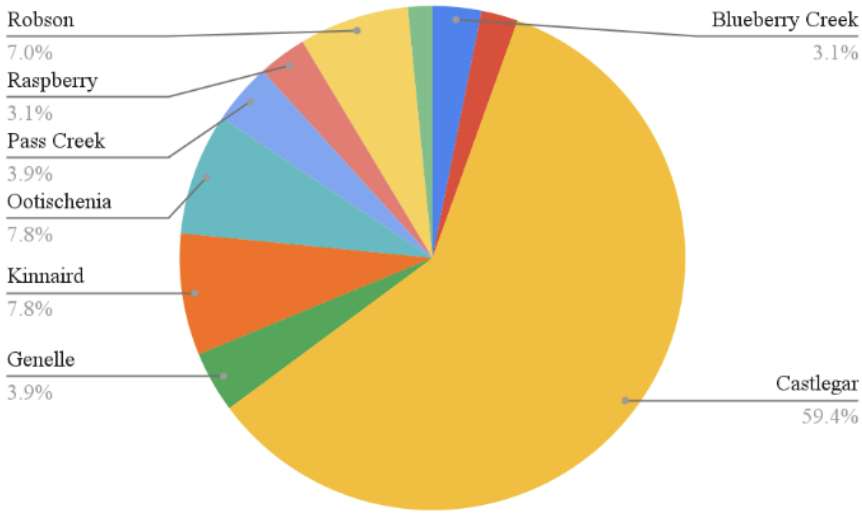
This study's concept and methods were approved by the Selkirk College Research Ethics Board.

Results

After removing respondents outside of the target area, the survey had 128 responses. Women made up 55.5% of the respondents, followed by 39.8% men, 2.3% non-binary and 2.3% preferring not to answer. 59.4% of respondents primarily reside in the city of Castlegar, with the rest of the responses spread across various locations, where each area, from Genelle to Thrums, had between 1.6% and 7.8% of respondents (Figure 1).

Figure 1

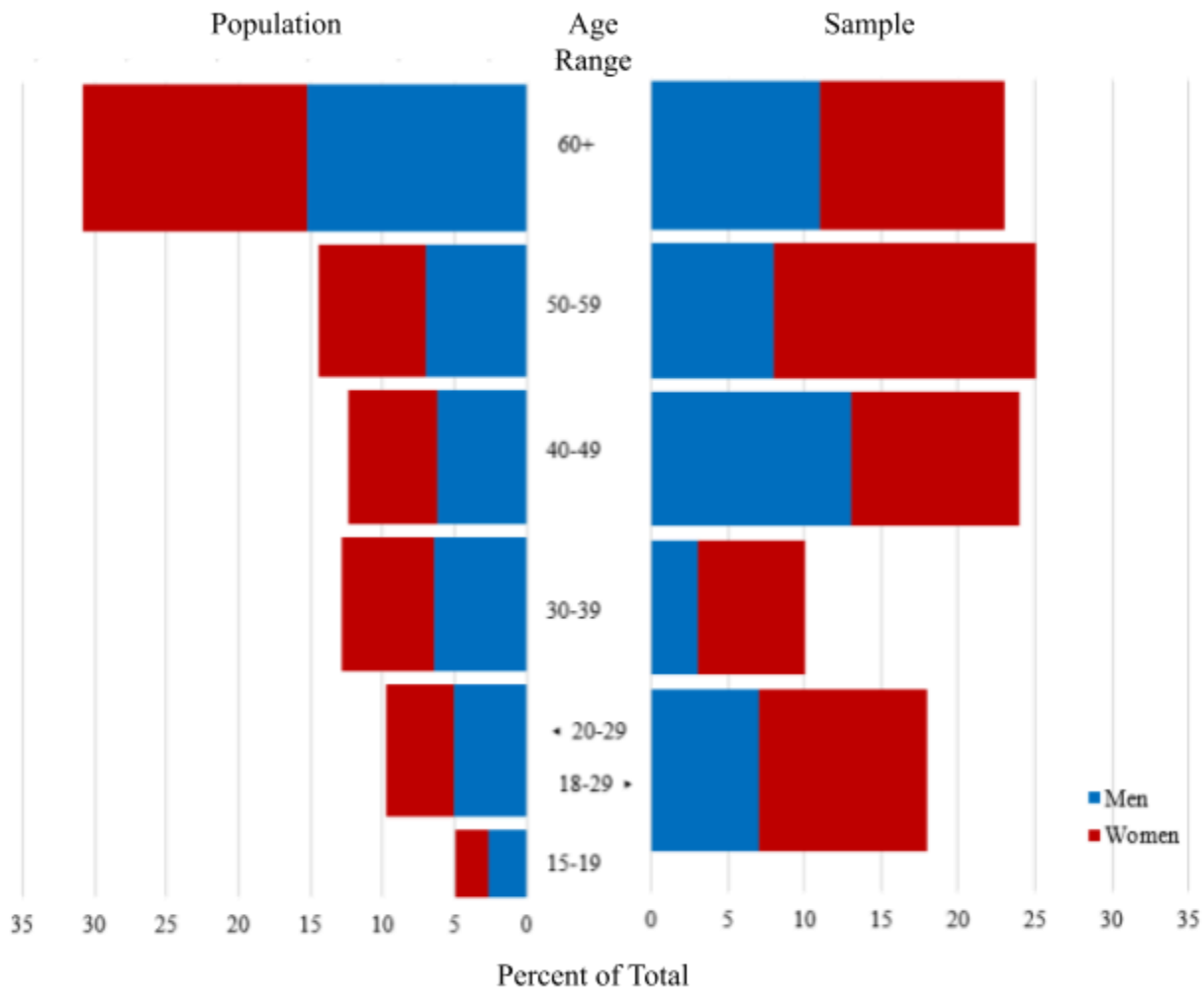
Geographic Distribution of Survey Participants



As seen in Figure 2, 18.0% or respondents were aged 18-29, 10.9% were 30-39, 24.2% 40-49, 24.2% 50-59, and 22.7% were 60 or over. Also seen in Figure 2 is how the distribution of the sample compares to that of the population.

Figure 2

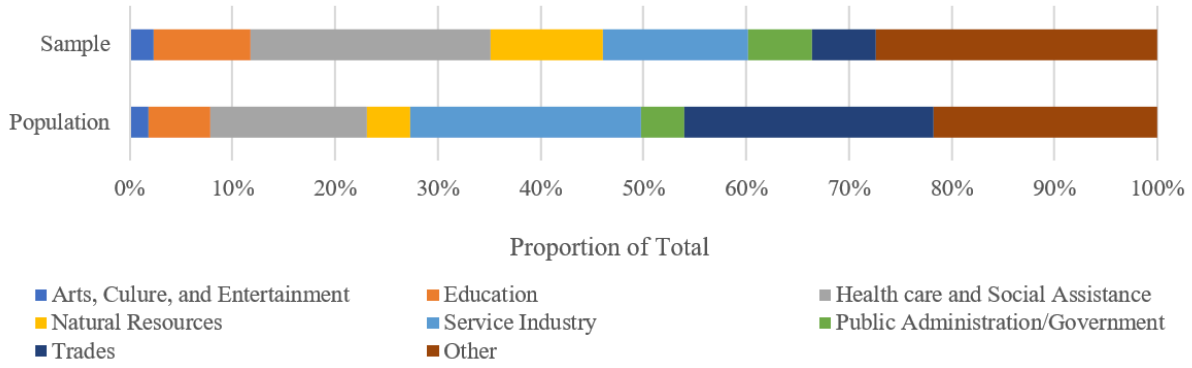
Distribution of Sample to Population by Age and Gender



The occupations of our survey respondents varied largely. In order of decreasing percentage of the total, respondent's occupations fell under: health care (19.7%), service industry (14.2%), retired (13.4%), resource industry (11.0%), education (9.4%), student (7.1%), trades (6.3%), government (6.3%), self-employed (3.9%), social services (3.9%), arts/culture/heritage (2.4%), and unemployed (2.4%). The distribution of occupational categories of our sample is compared to the studied population in Figure 3.

Figure 3

Distribution of Sample and Population Across Occupation Categories

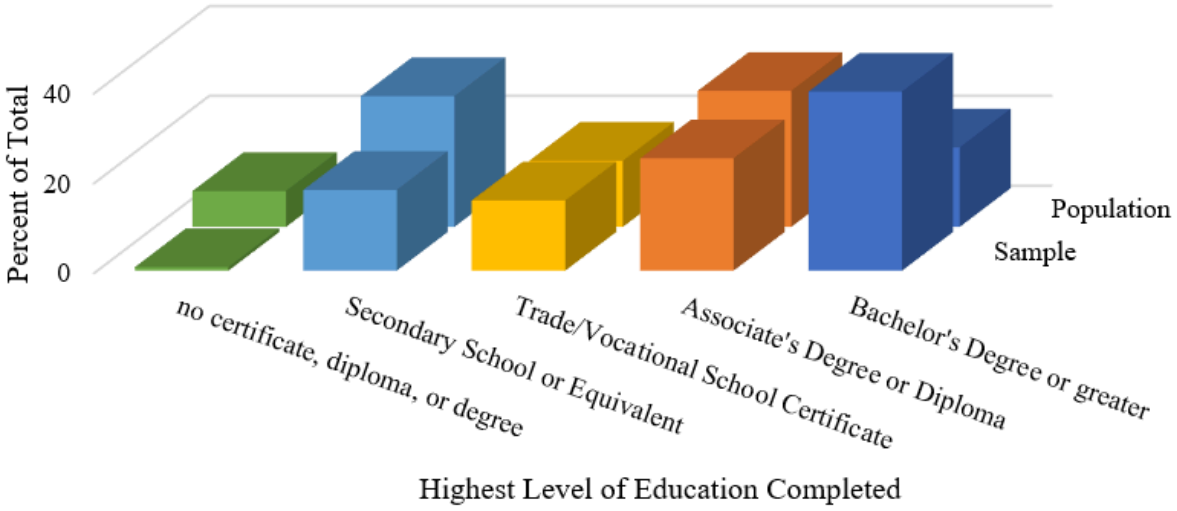


Note. Population data used were adapted from Statistics Canada. (2023). Census Profile. 2021 Census.

Our survey also measured the highest levels of education completed by respondents. In order of decreasing percentage of the total, respondent's highest completed level of education was: bachelor's degree or higher (40.2%), associate's degree (25.2%), secondary school or equivalent (18.1%), trade/vocational school (15.7), no certificate, diploma, or degree (0.8%). The distribution of the highest level of education completed of our sample is compared to the studied population in Figure 4.

Figure 4

Distribution of Sample and Population in Highest Level of Education Completed



Note. Population data used were adapted from Statistics Canada. (2023). Census Profile. 2021 Census.

Given significant differences across both gender and education levels in some outcome variables, proportions of men and women with each level of education as their highest were compared by Holm-Bonferroni-corrected two-tailed z-test. A significant difference between those with secondary school as their highest level of education was found between men and women ($z = 2.54$, $p < .0125$), with many more men having secondary school as their highest level. Following correction, the greater proportion of women having a degree at the Bachelor's level or higher was not found to be significant ($z = -2.20$, $p = .028$, $\alpha = .017$).

Quantitative

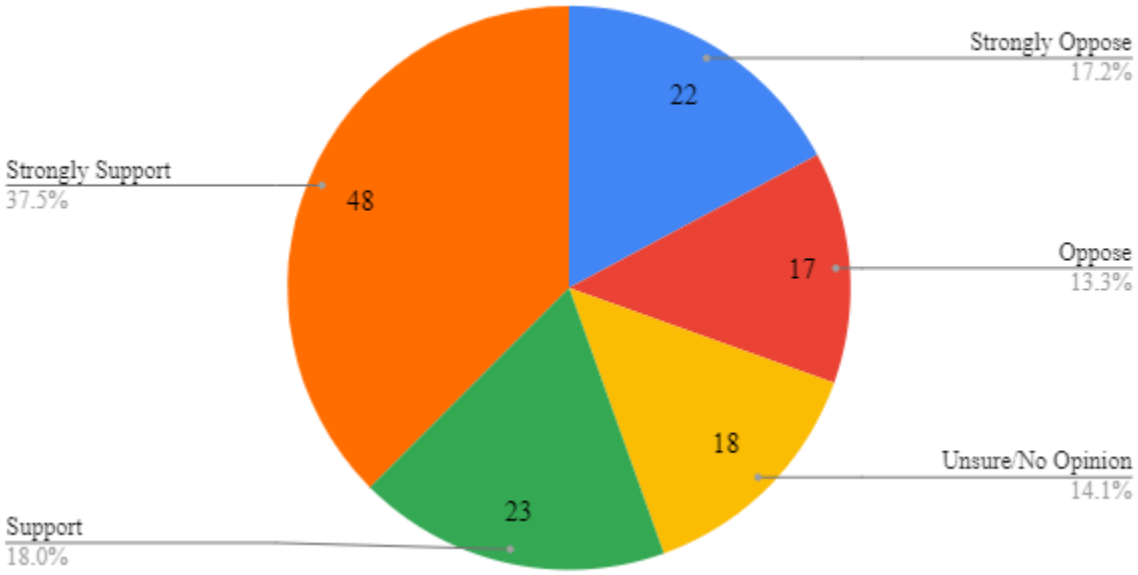
Descriptive

Overall, 55.5% of respondents were in support or strongly in support of HR in general for PWUD (Figure 5). Percentage of the population supporting or strongly supporting the intervention's availability was 81% for naloxone, 51% for safer injection supplies, 50% for safer smoking supplies, 65% for substance checking, 52% for supervised consumption sites, 62% for

OAT, 38% for decriminalization, and 41% for safer supply. Levels of self-reported familiarity differed little across HR interventions, as seen in Figure 6. The mean, mode, and median levels of agreement broken down by intervention are available in Appendix A.

Figure 5

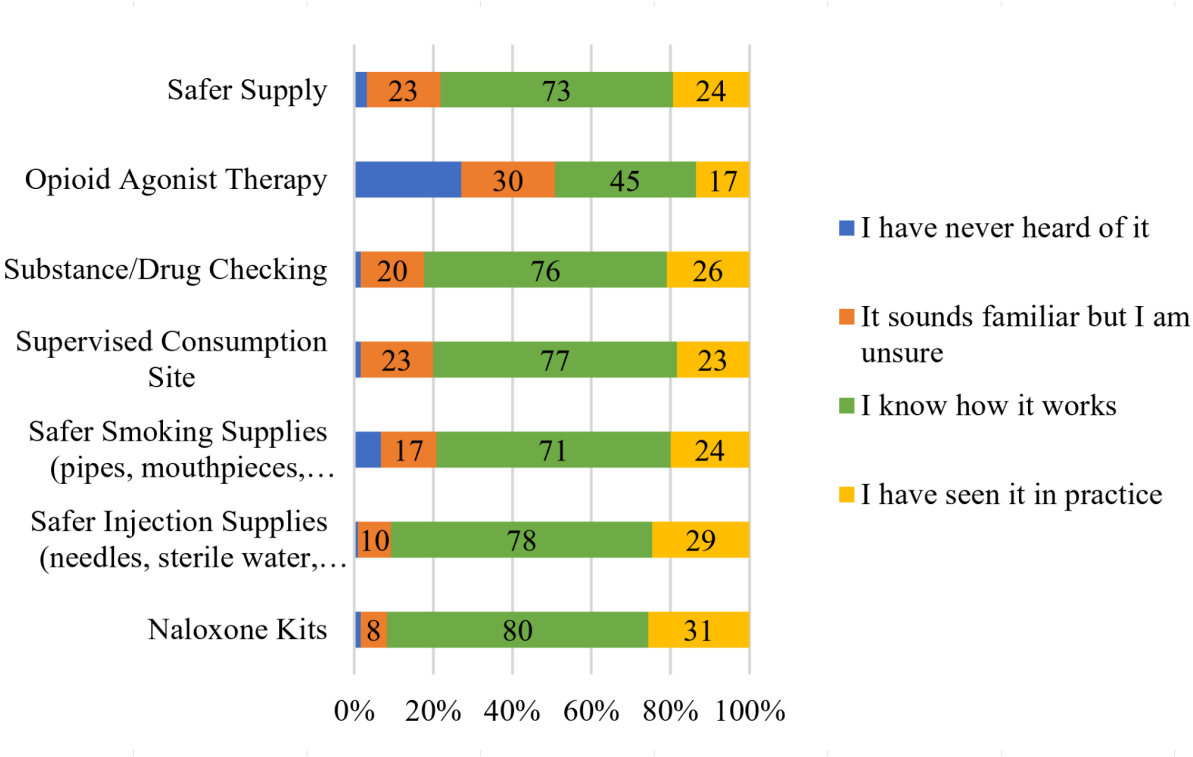
Proportion of Sample at Each Level of Support for HR in General



Note. Percentage choosing each option is expressed under the name of each selection, while counts choosing each are numbered on pie slices.

Figure 6

Levels of Self-Reported Familiarity Between HR Interventions

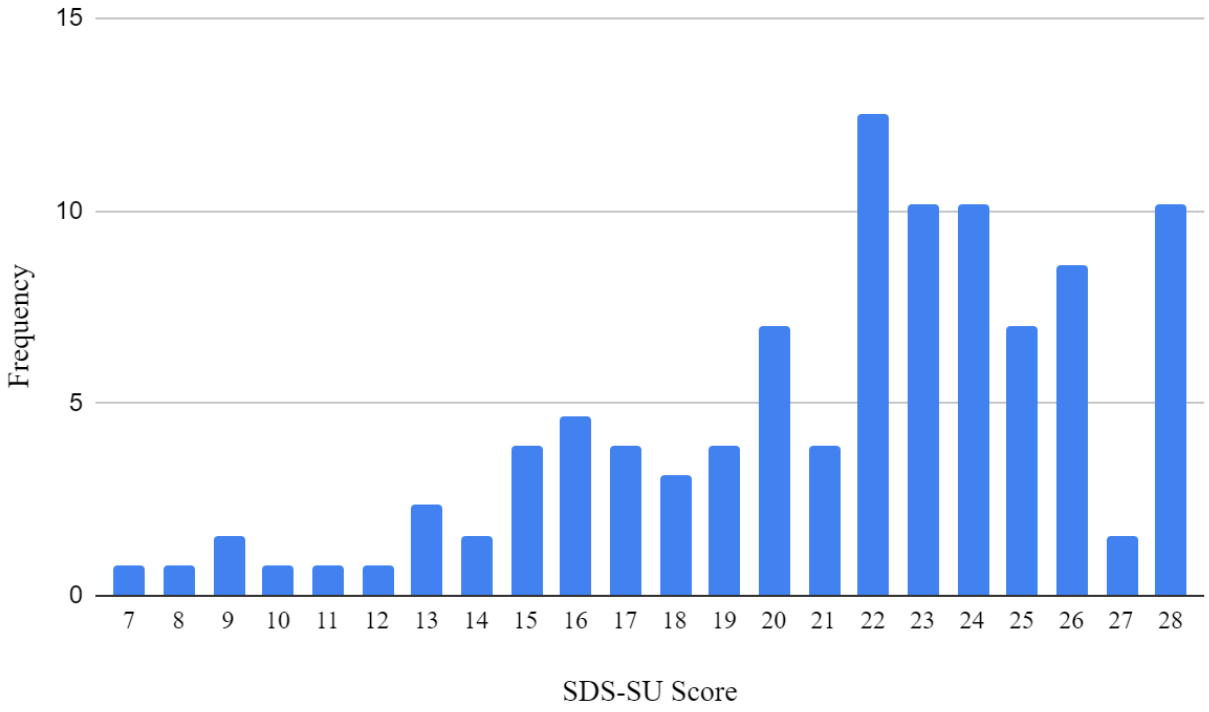


Note. Responses are shown as a percentage of total entries to the question, where more than one option could be selected per participant. Counts are shown as labels on bars.

Stigma was assessed with the SDS-SU, using a range of 7-28 with greater scores indicating greater preferred social distance from PWUD. The mean score of participants moderately exceeded the scale's midpoint (17.5), at 21.30 (SD=5.04), while the median and mode were both 22. Across items, 18.9% of respondents had a mode response value of 1 or 2, indicating less preference for social distance from PWUD. 81.1% had a mode response value of 3 or 4, indicating greater preference for social distance. SDS-SU scores are shown as a histogram in Figure 7.

Figure 7

SDS-SU Scores of Sample

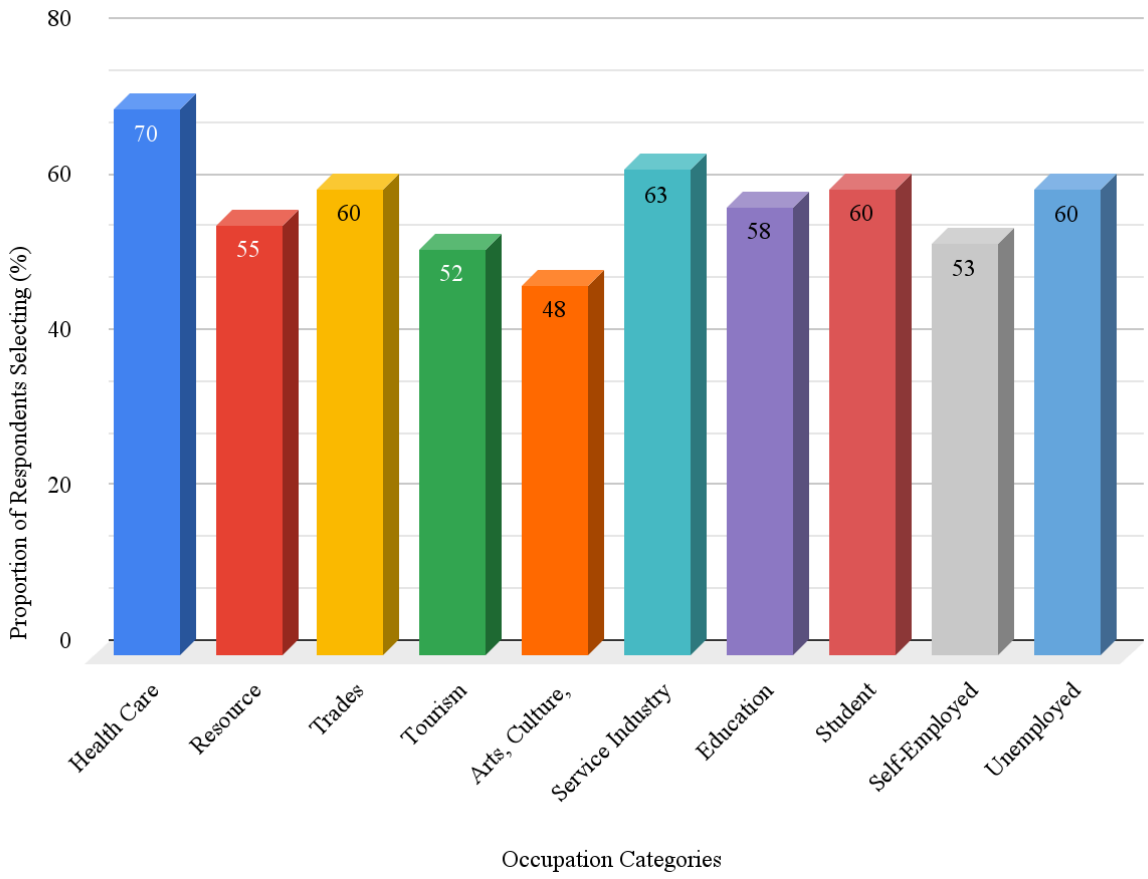


When assessing awareness of HR availability, the mean score was 2.44, the median score was 2, and the mode score was 1. Safer supply was incorrectly identified as available by 22% of respondents, while only 9% of respondents reported the misunderstanding that there is a supervised consumption site in Castlegar. 95%, 47%, and 34% of respondents correctly recognized the availability of naloxone, drug checking, and OAT, respectively. While 55% identified safer injection supplies as available, 44% said the same about safer smoking supplies.

47% of the sample reported that people of all occupations benefit from the availability of HR for substance use; on the other hand, 21% selected no occupations as benefitting. The proportions that selected each occupation are shown in Figure 8.

Figure 8

Proportions of Sample Selecting Each Occupation Category in Response to the Question "As far as you have been made aware, people in which of the following occupation categories could benefit from access to HR services? Please check all that apply."

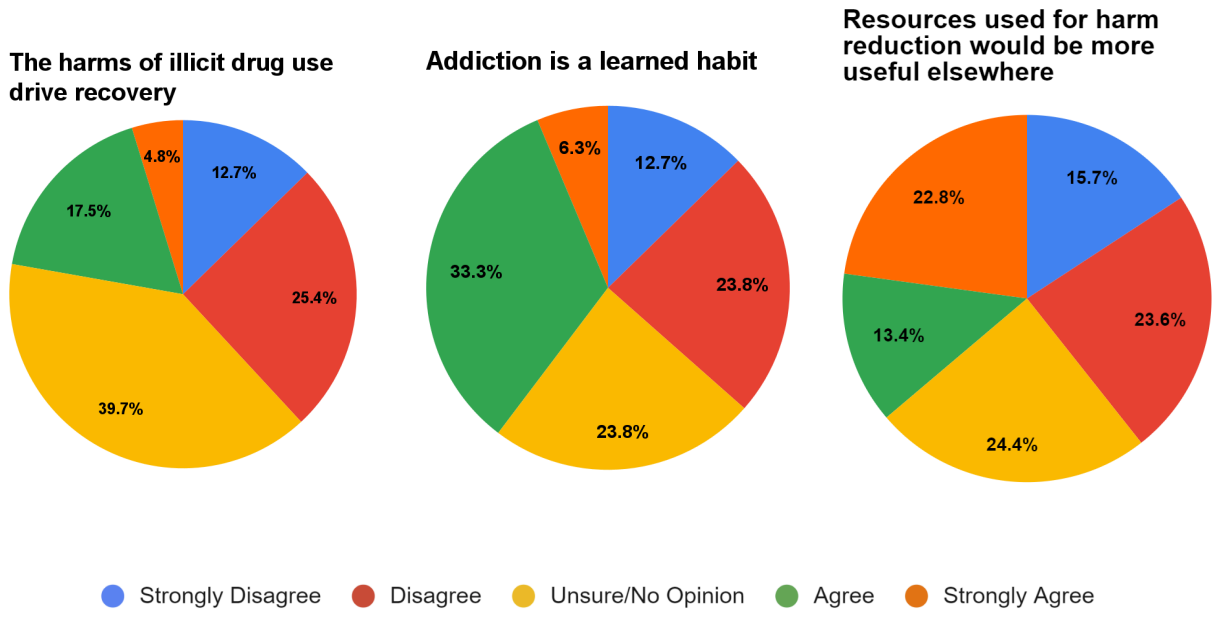


Ideas including "addiction is a choice: (59.1%), "addiction is caused by a lack of purpose or fulfilment in life" (57.9%), "the only option for an addict to recover is abstinence" (51.2%), "an addict must hit rock bottom before recovering" (62.2%), and "rehab cures addiction" (55.9%), were disagreed or strongly disagreed with by a slight majority of respondents, while the majority agreed or strongly agreed that: "addiction is a chronic disease" (64.6%) that "hijacks the brain's reward system" (77.2%) and can be caused by "trauma, stress, and mental health

disorders" (93.7%) as well as "social" (88.2%) and/or "genetic" (72.4%) factors. Respondents had more varied levels of agreement and greater uncertainty/indifference with the statements that "resources used for HR would be more useful elsewhere," "the harms of illicit drug use drive recovery," and "addiction is a learned habit" (Figure 9).

Figure 9

Proportions of Sample that Selected Each Choice on Items Rating Agreement with "The harms of illicit drug use drive recovery," "Addiction is a learned habit," and "Resources used for HR would be more useful elsewhere."



Inferential

After analysing all 290 demographic-question combinations for respondents' familiarity and attitudes towards HR, the correction for multiplicity limited our significant results to 10 demographic-question combinations, all with an unadjusted *p*-value of less than 0.00011. Still, there were nine significant differences identified in Likert scale responses, and one in response to HR's effect on frequency. Nine were associated with differences in gender and one correlated with different levels of education. All following *p*-values were adjusted for multiplicity. Our

results indicate that respondents who reported completing a Bachelor's degree or higher were more likely to report that addiction is a chronic disease than respondents who reported secondary school (p<0.001), Associate's degree (p=0.031), or Trades certificate (p=0.043) as the highest level of education completed. Respondents who identified as a man were more likely to report that HR encourages substance use than respondents who identified as a woman (p<0.001) or non-binary person (p=0.019). Additionally, they were more likely to respond that resources spent on HR would be more useful elsewhere (p<0.001), and that safer injection supplies increase the frequency of substance use (p<0.001) than respondents who identified as a woman. Men were also less likely than women to report that addiction is a chronic disease (p<0.001), that decriminalization or safer substance use supplies increases the health and safety of PWUD (p=0.001; p<0.001), or that they support OPSs (p<0.001) or safer substance use supplies (p<0.001). Respondents who reported as a woman or non-binary person were more likely than respondents who identified as a man to also report that they support safer supply (p<0.001; p=0.047).

A statistically significant difference was found between interventions with agreeance to the statements that "I support the idea of having [the intervention] available in my community,"($F(7,1008) = 13.62$, $p = 6.6\text{x}10^{-17}$) "[the intervention] increases the health and safety of substance users," ($F(7,1005) = 10.36$, $p = 1.4\text{x}10^{-12}$), and "[the intervention] encourages substance use"($F(7,1008) = 5.67$, $p = 1.97\text{x}10^{-6}$). The support for availability of naloxone, ($t(197) = 8.07$, p <.005) substance checking ($t(183) = 3.43$, p < .005), and OAT ($t(200) = 4.34$, p < .005) was significantly greater than that of all others, while decriminalization had significantly less support ($t(157) = -4.40$, p < .005). Reported belief in the benefits to users' safety was also significantly greater in the cases of naloxone ($t(182) = 3.17$, p < .005) and substance checking

($t(186) = 4.35$, $p < .005$), but was similarly lesser in for decriminalization ($t(148) = -6.21$, $p < .005$). Finally, the mean agreement that the HR intervention encourages substance use was significantly elevated in reference to decriminalization ($t(164) = 3.97$, $p < .005$) and lowered in reference to OAT ($t(184) = -4.92$, $p < .005$).

Lower levels of support for HR in general were strongly correlated with agreement to the statements that "addiction is a choice" ($r = -.60$, $p < .004$), "the only option for an addict to recover is abstinence" ($r = -.59$, $p < .004$), and "resources used for HR would be more useful elsewhere" ($r = -.63$, $p < .004$), and were weakly correlated with agreement with the statements that "addiction is caused by a lack of purpose or fulfilment in life" ($r = -.23$, $p < .01$), "an addict must hit rock bottom before recovering" ($r = -.27$, $p <.008$), and "rehab cures addiction" ($r = -.25$, $p < .01$). Greater support for HR was moderately correlated with agreement that addiction is a "chronic disease" ($r = .40$, $p < .005$) and that it can be caused by "social" ($r = .42$, $p < .005$) or "genetic" ($r = .33$, $p < .0007$) factors as well as "trauma, stress, and mental health disorders" ($r = .35$, $p <.006$). There was no significant correlation with HR support or opposition with the statements that "addiction is a learned habit", "addiction hijacks the brain's reward system," (r = .17,p=.055) and "the harms of illicit drug use drive recovery".

Qualitative

180 written responses were given by 39 respondents, representing 30% of the sample. 39 comments were made about naloxone, 23 each about safer injection supplies and safer consumption sites, 21 about OAT, 20 about decriminalization, 19 about safer smoking supplies, 18 about substance checking, and 17 about safer supply.

A number of common codes emerged among responses (Table 1). The most prevalent (N=15, 38% of commenters) was an emphasis on health and lifesaving, with comments stressing

the value of well-being and an absolute value of human life as well as the importance of HR to protect it. The second most prevalent (N=12, 31%) were comments identifying the practice as encouraging drug use and sometimes describing how the HR intervention acts to enable use. The final code with double-digit instances (N=10, 26%) identified answers that showed concern for how HR may negatively affect the greater Castlegar community, often showing an attitude commonly referred to as NIMBY, where people may tolerate or even support HR only as long as it is not visible or close to them in their everyday life. Some other codes included responses that emphasize quitting or recovery as goals in their answers (N=6, 15%), or similarly wanted SUD treatment to be more encouraged or even mandatory(N=5, 13%). Five respondents (13%) made comments suggesting that HR is a poor use of taxpayer dollars or that the resources allocated would provide more good elsewhere. Four respondents (10%) provided answers that opposed the premise of HR entirely, with a position that harm should be increased. Two of such responses stated explicitly “let them die”. On the other hand, 6 respondents (15%) either indicated that they felt insufficiently informed to make conclusions or wrote that they wanted to see more education or information surrounding HR available.

Table 1

Common Codes Identified in Written Responses, with Their Number of Instances and Proportion of Total Commenters.

Code	Number of Respondents Expressing	Proportion of Commenters (%)
Emphasis on Health and Lifesaving	15	38
HR Enables Substance Use	12	31
Concern for HR's Effect on Greater Community	10	26
Abstinence-Focused	6	15
Wants More Education/Indicates Uncertainty	6	15
HR is Poor Allocation of Resources	5	13
Emphasizes Treatment	5	13
Wants to Allow Harm	4	10

Written responses were also analyzed by section. In the naloxone section, an emphasis on well-being and lifesaving was held by 23% of responses, and another 23% showed a concern for HR enabling drug use. The emphasis on health was also shared by 30% of comments on safer injection supplies, 21% on safer smoking supplies, 22% on both substance checking and OPSs, 10% on OAT, and 6% on safer supply. Enabling was also a concern in 18% of responses regarding safer supply and 15% of comments regarding decriminalization, making it the most common code in the latter section. The second most common code in both the safer injection supplies (22%) and OPS (17%) sections was expression of concern for the greater community especially regarding the littering of paraphernalia, and sometimes showing NIMBY ideology.

Respondents explicitly expressed uncertainty or a desire for more information in 12% of comments on safer supply and 10% of comments on OAT.

Beyond the comments that shared themes with multiple others, many comments shared notable perceptions. While multiple comments showed opposition to HR as a poor use of public resources, only 2 made note of decreased overall burden on systems through the provision of HR. One comment thoughtfully highlighted the negative effects of stigma, but followed it with a proposition that suppression of use through enforcement is the best possible option. Multiple respondents expressed frustration with the idea of free safer injection supplies for PWUD while people who need regular supplies for other medical needs are responsible for paying for their own, like needles or test strips for people with diabetes or menstruation products for women with financial concerns, or epinephrine pens for people with anaphylactic allergies. Some were also concerned about people who access OAT or safer supply distributing their medication to minors and the broader market.

Discussion

Sample

Of the 140 initial survey responses, 128 respondents were from Castlegar and the desired greater area, (Figure 1) which is the intended service area for the OCWS. Respondents aged 40-59 and 18-29 were overrepresented when compared to the actual populace (Figure 2), but this provided a more equal weight to each 10-year age group in the survey. Women made up more of the sample than the population, with this disparity slightly exacerbated in 30-39 and 50-59 age groups (Figure 2). Trades workers were largely underrepresented in our sample, but employees in the natural resources industry were slightly overrepresented. Health care and social assistance and education also made up more of the sample than the population (Figure 3). However,

government, arts, culture, and entertainment appear fairly representative of the population. It is possible that ambiguities between classifications, especially between trades and natural resources in Castlegar, may have led to some incorrect entries. Despite trades workers being underrepresented in the sample, people who have a trades/vocational school certificate are very closely represented, lessening the concern that the large trades demographic is underrepresented. The notable differences between the highest level of education completed by respondents and the studied population were that people with a bachelor's degree or higher were overrepresented, and that people with secondary school or equivalent are under-represented (Figure 4). Overall, these differences are large enough to merit attention, yet not so vast as to prevent the application of our findings to the OCWS service area.

Stigma

The rightward skewness of SDS-SU results (Figure 7) and large majority of participants indicating greater preferred social distance on most questions may indicate a high level of stigma towards PWUD held by most members of the Castlegar. However, an online study of 899 adult Americans observed a mean SDS-SU score per item to be 3.08, possibly translating to a mean overall score of 21.56 (Kulesza et al., 2015), which would slightly exceed our mean score of 21.30. The same study did not find the SDS-SU to be a significant predictor of support for overdose prevention sites or needle and syringe programs. However, with the possible relation of this score to community perceptions of PWUD, it’s an important consideration when designing information campaigns for a community that prefers to distance themselves from PWUD.

Attitudes

For the question “Please rate your level of support or opposition of harm reduction in general for people who use substances,” 55.5% of our respondents indicated support or strongly

support, while 30.4% chose oppose or strongly oppose (Figure 5). The level of support is less than the 76% of BC residents who were in support of HR in 2011 (Tzemis et al., 2013), and the 67% in 2018 (Wild et al., 2021). This could suggest a downward trend of support from residents, which is detrimental for organizations supplying HR, and further highlights the importance of working to analyse and understand community perceptions of evidence-based practices. Local HR organisations should be conscious about this relatively low level of support from their community while noting that it could be due to a general downward trend across the province.

Demographic Differences

Likely due to the much larger sample sizes of respondents identifying as men (N=51) or women (N=71) than those of an individual age group, community, occupation, or education, nine of our ten significant results in comparing demographics are associated with gender differences. Of these results, they all indicate men being less in support of HR. Men indicated more than women that HR encourages substance use, that the resources would be better spent elsewhere, that safer injection supplies increases substance use, and that decriminalization doesn't increase the health and safety of PWUD. Notably, women were more likely to say that addiction is a chronic disease than men. In a framework of intersectionality, these differences in support could be due to the fact that women face more gender-based discrimination than men (Canadian Women's Foundation, n.d.) and may therefore be more sympathetic to the struggles of other marginalized groups experiencing discrimination and barriers to care. This would be especially true for women who use drugs, as they have more difficulties accessing HR services, and they more frequently face gender-based violence (Austen et al., 2023; Valencia et al., 2020). Furthermore, women who use drugs are more likely to have comorbid mental disorders, other than antisocial personality disorder, which manifests more in men who use drugs (Zlotnick et al.,

2008; Valencia et al., 2020). This could be a possible explanation for greater agreement among women with the idea that addiction is a chronic disease. As well, the greater comorbidity of mental disorders with SUD in women may be reflected in a greater understanding among them of how the symptoms of mental health disorders could potentially drive one to disordered substance use. This understanding could inspire greater compassion and desire to reduce the harms experienced by PWUD. Women may have shown more support than men due to different lived experiences, or their support may be proceeding from an experience of compassion different from men, as previously exemplified through functional magnetic resonance imaging (Mercadillo et al., 2011). Interestingly, men in general being more likely to show antisocial personality traits (Zlotnick et al., 2008; Alegria et al., 2013) could account for their lack of support for social services like HR. Another possible source of variation between the answers of genders could be the difference between their distribution among education levels. Services can use the above findings to target towards men any information on the relevant topics of difference.

People who reported completing a bachelor's degree or higher level of education were significantly more likely to say that addiction is a chronic disease than those who reported other forms of education as their highest level. The respondents who have completed a bachelor’s degree or higher could show a greater understanding of addictions theory due to more social science classes, or specifically addictions focused classes, as well as different exposure to literature on behaviour, choice, or neuropharmacology. One possible hypothesis to explain the significant correlation between education level and disease model belief was that a disproportionate number of Castlegar residents with a bachelor’s degree or higher would be healthcare employees with more occupational training or formal education in addictions theory

or related fields such as psychology. However, from our survey, 40.2% of the general public had a bachelor's degree or higher, while 40.0% of respondents working in healthcare had a bachelor's or higher, dispelling this concern. The results of these demographic differences would indicate that education about the nature of addiction referring to the disease model of addiction may benefit from formatting in a way that is attractive and accessible for those with less than a bachelor's degree.

Intervention Differences

Naloxone, substance checking, and OAT were all found to be significantly more supported than the other interventions in this study. Naloxone and substance checking were also found by Wild et al. (2021) to be the second and third most supported interventions, respectively, in BC, behind community outreach. This might have been related to the more widespread or stronger belief reported that naloxone and substance checking are beneficial to PWUD's safety and that OAT encourages substance use less. It may be that naloxone and substance checking most directly and obviously reduce the harms of drug *toxicity* specifically, while OAT is more associated with and controlled by medical professionals and is more directly connected in practice to recovery from SUD rather than maintenance. As explored below, further analysis of why these interventions are more supported could be useful for increasing support of other interventions. On the other hand, decriminalization was significantly more reported to encourage substance use and less reported to benefit PWUD's health and safety. As mentioned in the literature review, more literature assessing public perceptions of decriminalization would be beneficial. Until then, it might be hypothesized that the current political landscape surrounding decriminalization is lowering reported support. From January of 2023 until January of 2026, BC has been piloting decriminalization as a provincial policy, and some people that support or

oppose decriminalization in general have issues with its current implementation in particular. Lacking significant highs or lows in support of OPSs or safer injection and smoking supplies can be interpreted as a positive result for local providers, indicating that support of these generally followed the support of all other harm reduction interventions. It may be an indication that these interventions are open as the subject of more education, or that education may not benefit the most from focusing on particular HR interventions.

The source of these attitudes may be partially elucidated by the comments provided in each section. Health and lifesaving, the most common theme in comments, is a core theoretical tenet of HR (Lenton & Single, 1998) and enabling, the second most common theme in comments, is a major reason for opposition to HR (Underhill, 2013). The latter is a concern that logically follows an emphasis on abstinence or treatment, other common codes. As in the finding of significantly higher agreement that naloxone benefits health, emphasis on health and safety was one of the most common codes regarding naloxone; however, concern over enabling was just as common, contrasting with the finding that naloxone was thought to encourage substance use significantly less than all other interventions. Opposition to decriminalization may be partly derived from the belief that it encourages substance use, a significant result found in quantitative analysis as well as the most common code of the section. Though a greater part of the comments regarding safer supply were related to enabling, analysis of all quantitative results did not reveal a significant difference in believed encouragement of substance use. This may support the hypothesis mentioned above that there are particular concerns with BC's implementation of decriminalization that are not derived from an opposition to a greater availability of substances. As expected, sections on safer injection supplies and OPSs garnered written responses expressing NIMBY attitudes and concern for the greater community. Though improperly

discarded syringes have evidently caused misgivings within our sample, it's worth noting that the safer injection supplies provided by the OCWS include a sharps container and encouragement to use it. Syringe exchange has been suggested to decrease syringe litter (Strike et al., 2006), but the field may benefit from future research into the success of this particular sharps container tactic. Similarly, NIMBYism is a common source of opposition to OPSs (Rosen et al., 2024;Rouhani et al., 2022) that is not supported by literature on these sites (Davidson et al., 2021;Wood et al., 2004). It is possible that the number of written responses reflects participants' passion surrounding different interventions or alternatively their comfort in speaking about them. Different interpretations could lead education to focus on the less-commented interventions, as there may be more of a clean slate upon which to provide information, or on the more-commented interventions, as these would be the most contentious topics to discuss.

Theories and Practical Approaches

Understanding which ideologies are most correlated with HR support or opposition is an important start in deducing what values are considered when the public reasons about the benefit of HR in their community, and is key in revealing what principles need to be fostered or debunked in educational campaigns. Generally, a majority of respondents showed an understanding of addiction theory stating disagreement with myths such as 'addiction is a choice,' and agreement with fundamental theories such as 'addiction can be caused by trauma, stress, and mental health disorders.' The three questions showing varied levels of agreement (Figure 9) could be used as guidance when attempting to address gaps in the public's education of addition theory, such as by addressing the shared processes of learning and addiction (Lewis, 2017) or by showing the fiscal benefits of HR (Bernard et al., 2020). Just as many comments were coded as abstinence-focused, the idea that the only option for an addict to recover is

abstinence was one of the most strongly correlated with low levels of HR support. This contrasts with a move in addictions theory away from complete abstinence as the ubiquitous goal, making 'success' more about maintenance and ability of the person to function and gain a greater control over their life (Volkow, 2022). There may be benefits to portraying the improved outcomes of this model as opposed to one focused on abstinence, such as the 12-step approach of AA or NA (Huhn & Gipson, 2021), which may also affect the ideas that "an addict must hit rock bottom before recovering" or that "rehab cures addiction." Similarly, education on the nature of addiction would address the negative effect of the idea that "addiction is a choice" while bolstering the positive effects of the more substantiated models of addiction as akin to a chronic disease largely correlated with social (Galea et al., 2004) and genetic (Galea et al., 2004; Merikangas & McClair, 2012; Price, 2008) factors as well as trauma, stress, and mental health disorders (Merikangas & McClair, 2012). It should be considered in the development of such materials or programs that the correlation strength and significance was slightly greater for social factors than for genetic factors. Though the positive effect of belief that "addiction hijacks the brain's reward system" was not significant, it could likely play a part in this education. It was unexpected that belief that "harms of illicit drug use drive recovery" was not correlated with lesser HR support, as it appears entirely antithetical to HR theory. Accompanied by the finding that the most selected response to this question showed uncertainty or indifference, this may indicate that the resultant harms of substance use that HR focuses on may not be well understood, despite the written responses indicating a desire for harm to not be minimized, sometimes in such a way as to use the consequences as a way to decrease substance use.

Awareness

A large majority of respondents indicated that they were familiar with the workings of each HR intervention, and or they had seen it in practice, although much less were familiar with OAT (Figure 6). This is surprising because OAT is one of the earliest implemented substance use related HR interventions, starting in Canada back in 1959 (Eibl et al., 2017). We hypothesise that even though we explained what it is in our preamble later, respondents were not familiar with the term *Opioid Agonist Therapy*, and instead would have recognized a more colloquial term like *methadone treatment*. The large levels of familiarity with each intervention suggest that further opinions on them given by respondents were done so from a basis of understanding. However, these familiarity ratings are self-reported and as such are subject to social desirability bias and people being confident in their misunderstandings or misconceptions of the interventions.

Considering the range of possible scores (-2 to 5) when assessing the sample's awareness of different interventions' availability, the mean (2.44), median (2), and mode (1) scores indicate room for education in this area. On the other hand, the mean being greater than the median indicates a distribution of scores leaning to the higher range of scores. Confirming anecdotal input received by the OCWS before this study, safer supply was the intervention most incorrectly identified as available. This may be due to misunderstanding of the term prior to the preamble offered in each section, but either conclusion indicates that education about safer supply and its availability could see results. The small difference between participants' understanding of the availability of safer injection and smoking supplies was unexpected, and may connect to the greater visibility of the former as described above or be due to the fact that safer injection supplies have been in Canada since the 1980s (Laupland & Embil, 2012), but safer smoking supplies have only been around since the early 2000s (Malchy, et al., 2008). As less than half of

the sample identified the availability of drug checking, the providers of such services may want to promote awareness of this service's availability in the community. The smaller number of participants believing OAT to be available in the community may be connected to the lesser understanding of what OAT is or may truly reflect a deficit in its availability due to insufficient medical services available to provide continuous addictions care to all that need it.

The OCWS made it clear to us that people from a variety of occupational backgrounds have accessed their services and could otherwise benefit from accessibility to HR. In other words, drug use is generally non-discriminant across occupations in their service area. To test the public's awareness of this, we added a question in our survey that allowed respondents to check off occupations they think could benefit from access to HR services. Only 47% correctly selected all categories, and 21% selected none, possibly suggesting a limited understanding of who accesses or could benefit from HR services in their community (Figure 6). Written answers indicate that in some cases this could be correlated to a general opposition to harm reduction. Either reason would lead to the conclusion that more education on the benefits of HR and the universal nature of SUD across demographics could benefit the people and service providers of Castlegar. Healthcare was the most chosen option, potentially due to the added benefit of them being able to administer HR. It was unexpected that "unemployed" was not chosen more than the others, considering anecdotal observation of the local discourse, but it is a somewhat hopeful result to find that a similar proportion of people selected each option. Contrary to the literature that says people with occupations in Arts or Culture have higher rates of substance use (Sutphin, 2023), our survey showed this occupation chosen as the least likely to benefit from HR availability. OCWS should be aware that many people in their community are unaware that people from all occupations access or could benefit from access to HR in their community.

Limitations

A major limitation to this study's ability to find significant results was the vast amount of questions for such a limited population surveyed. Future studies on similarly rural communities should condense the number of results being examined or survey items being asked to maintain a higher statistical strength. An assessment of support for each individual intervention would yield more statistically powerful data.

This survey was intended to be thorough and specific, but several responses indicated that the respondents were interpreting questions other than the ways we had intended. One respondent indicated in a comment box that they preferred that "substance users" didn't have access to HR, but then answered "Unsure/No Opinion" to whether they support HR in general for people who use substances. At the start of each section was a brief summary about what the HR practice for that section is and why it's used. However, many respondents mentioned their opinion on providing a safer supply or OPS sites in the safer injection supplies, safer smoking supplies, and substance checking sections or safer supply and decriminalization in the OAT section. Some also mentioned that they felt they were repeatedly asked the same question, which could have led to some acquiescence bias or respondent fatigue. On the other hand, if participants read this preamble, it could have influenced their opinions on each intervention, even though they were written to be as objective as possible.

Several responses mentioned the idea that people who use substances will do so regardless of whether they have access to and use safer equipment or substances. This idea was used both as evidence of a need to provide safer supplies, and as evidence that it is not needed.

Many respondents vouched in their comments for increased accessibility of HR. However, the vast majority were specifically in the naloxone section.

All commenters provided a response in the naloxone section, with some comments indicating that the comment may be generalised to HR as a practice or not specifically related to naloxone. As well, the number of comments per section lessened following the first section on naloxone, suggesting that the qualitative responses may be subject to bias through some attrition, or that participants were more likely to talk about more common HR approaches.

As inexperienced researchers we did not anticipate these misinterpretations of our survey and as such did not design it with them in mind. None of us have formal training with statistical analysis and due to this our results may be not wholly reliable due to improper application of tests. However, this is not highly probable because we do have a strong fundamental understanding of calculus and mathematics, and we met with professors fluent in statistical analysis to guide us. We also are third year college undergraduate students which means our framework for understanding, and use of language may be specific to young people in academia, which could have resulted in the confusion from respondents. It should not go without mentioning that as much as we work to inhibit our personal biases through conscious action and consultation with our professors, we are all male and hold an insider-outsider researcher positioning for this survey (Tilley, 2016), thus, implicit bias in the interpretation of results and design of the survey may have unintentionally affected responses and discussion.

Conclusion

The strongest indication from our results pertaining to demographic differences is that the beliefs of Castlegar's men are most out of line with what current literature reports for HR's benefits to PWUD. This finding should inform future research into the reasons for HR support differences between men and women. A specific association to investigate is the link between gender differences in HR support and self-reported or unconscious empathy, as empathy is

imperative for sound moral judgement (Vanderhoek, 2016). Overall, this study wasn't building off of any local research, instead acting as a foundational study to inform future research directions, working in a somewhat exploratory nature.

The few responses that expressed humble uncertainty or a desire for more information are hopeful in indicating the possible success of informational campaigns in Castlegar. Inspiration for specific methods of education should be taken from other upcoming and recent research, such as Ashworth et al.'s (2024) indicating rural populations as particularly receptive of anonymous stories about personal recovery as a method to reduce substance use stigma.

Besides the explained differences between support for HR interventions, support for HR did not appear to differ most notably between interventions, but rather had the strongest correlations with specific ideas. For this reason, we propose that educational campaigns focus on Castlegar's perceptions of the person who uses drugs themselves, the nature of addiction and SUD, and the reasoning behind harm reduction. A focus on reducing stigma and incorporating specific findings of this paper relevant to demographic differences and specific awareness gaps should be of most benefit to local providers, PWUD, and the general population.

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Appendix A

The Mean, Mode, and Median Levels of Agreement Broken Down by Intervention

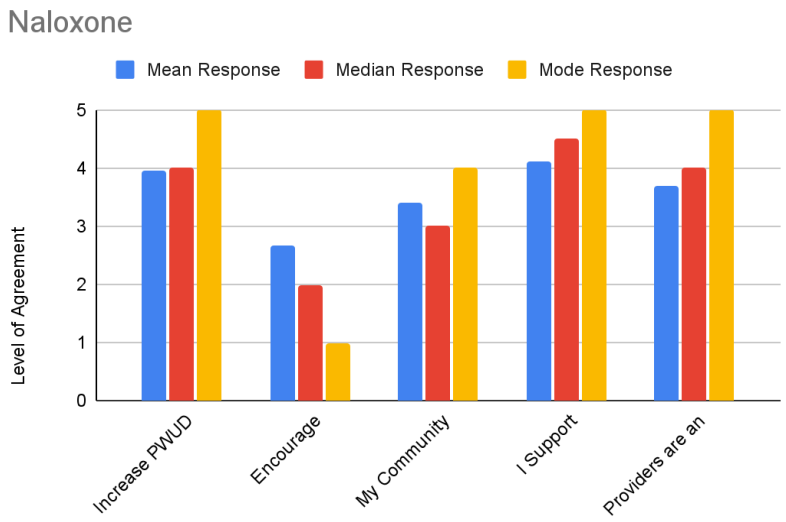

Figure B1. The mean, mode, and median levels of agreement towards questions surrounding naloxone.

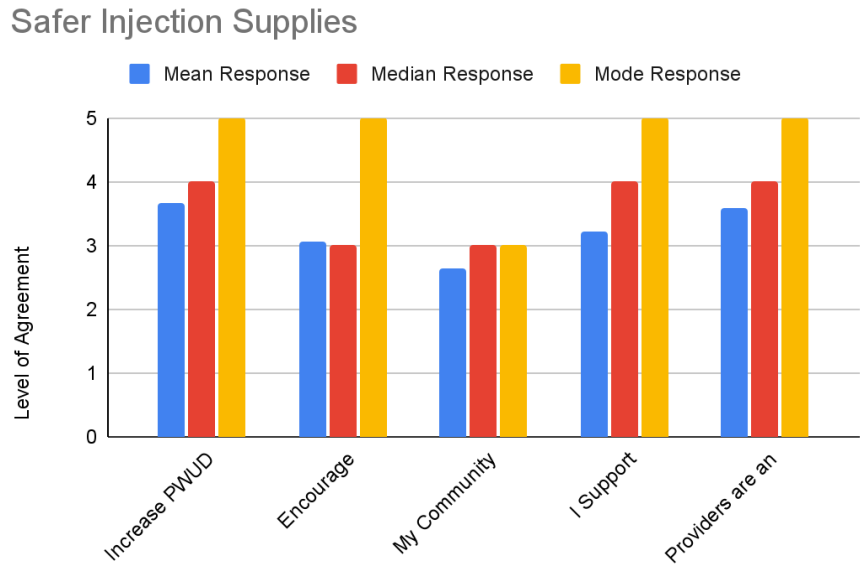

Figure B2. The mean, mode, and median levels of agreement towards questions surrounding safer injection supplies.

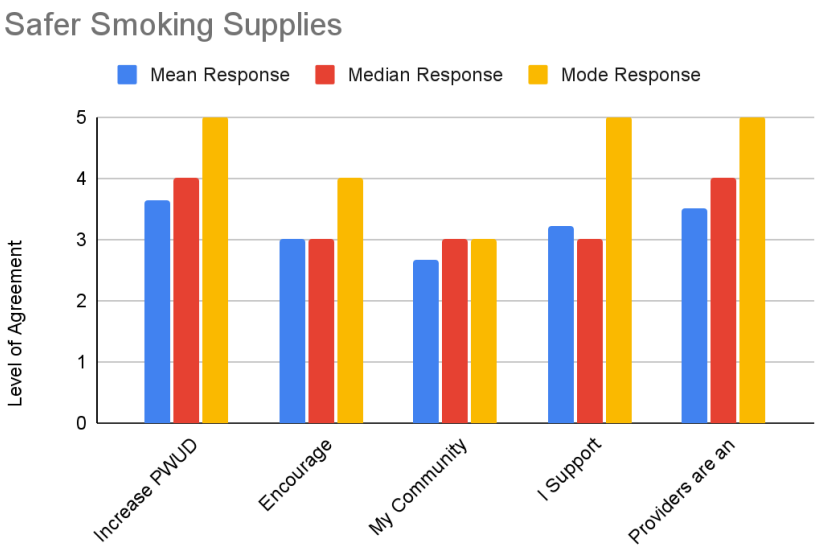

Figure B3. The mean, mode, and median levels of agreement towards questions surrounding safer smoking supplies.

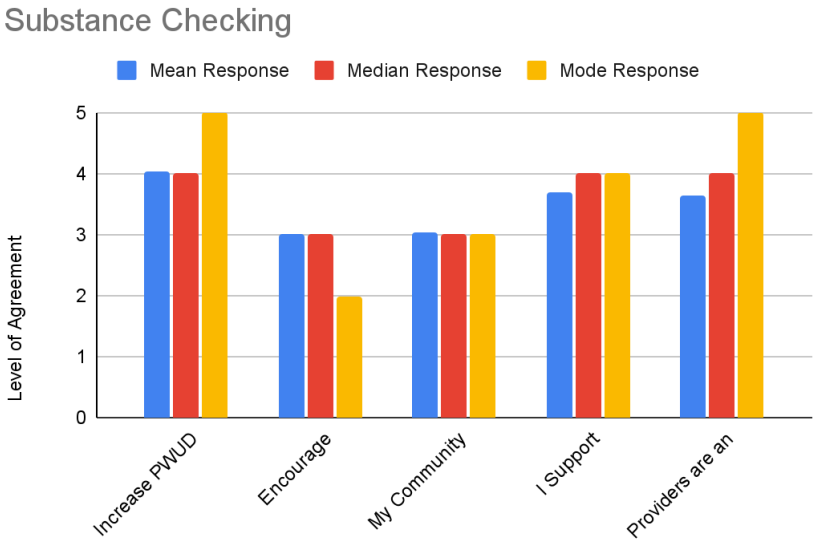

Figure B4. The mean, mode, and median levels of agreement towards questions surrounding substance checking.

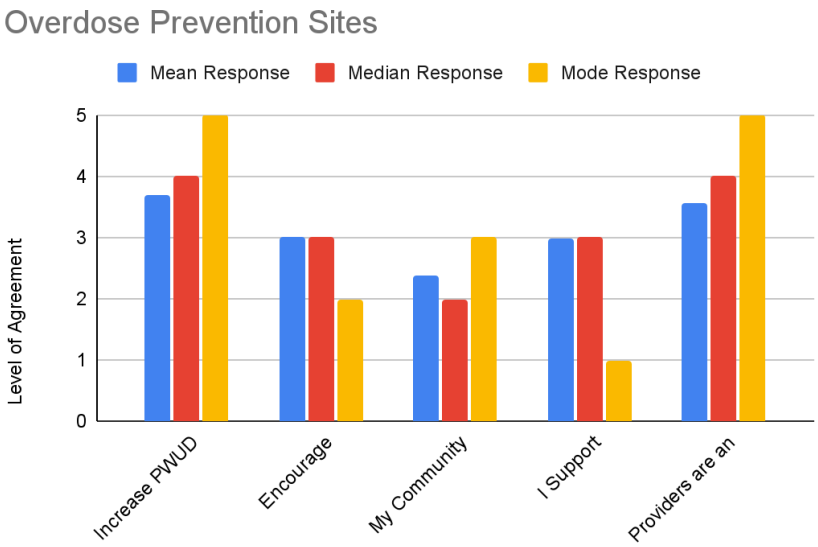

Figure B5. The mean, mode, and median levels of agreement towards questions surrounding overdose prevention sites.

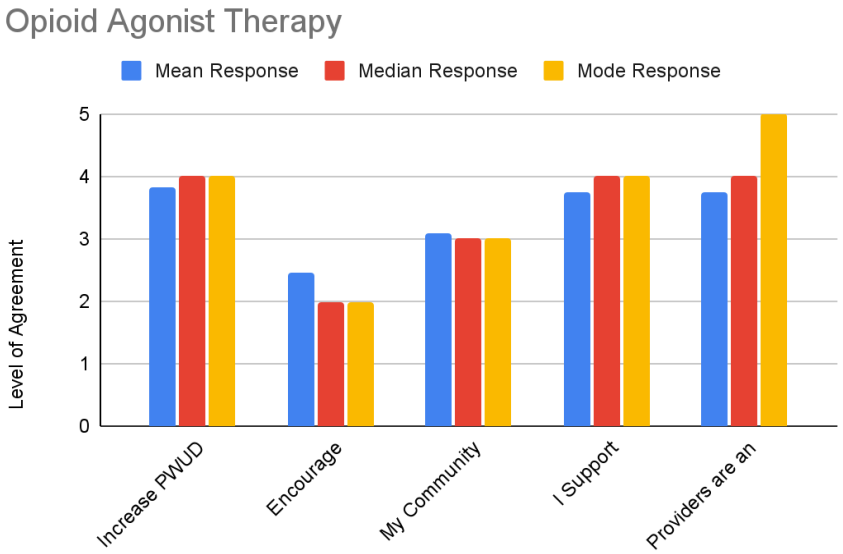

Figure B6. The mean, mode, and median levels of agreement towards questions surrounding opioid agonist therapy.

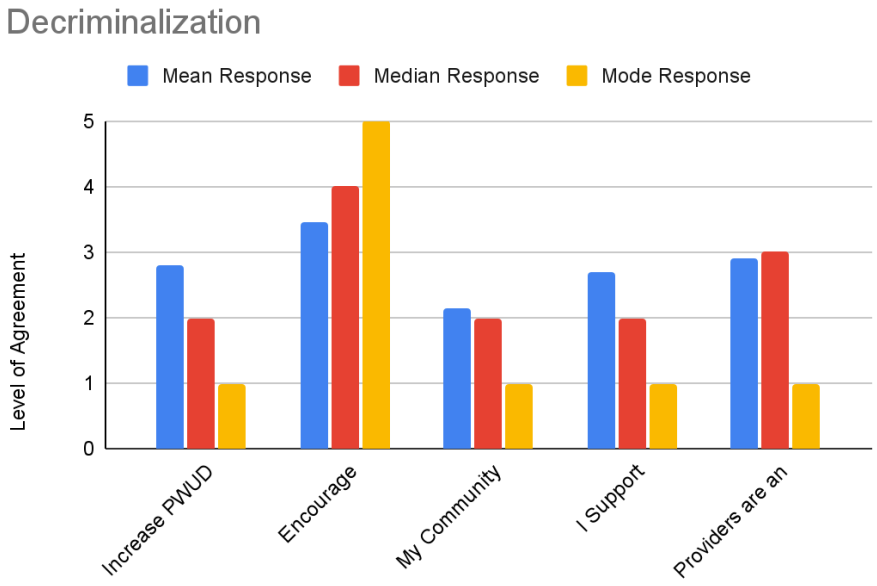

Figure B7. The mean, mode, and median levels of agreement towards questions surrounding decriminalization.

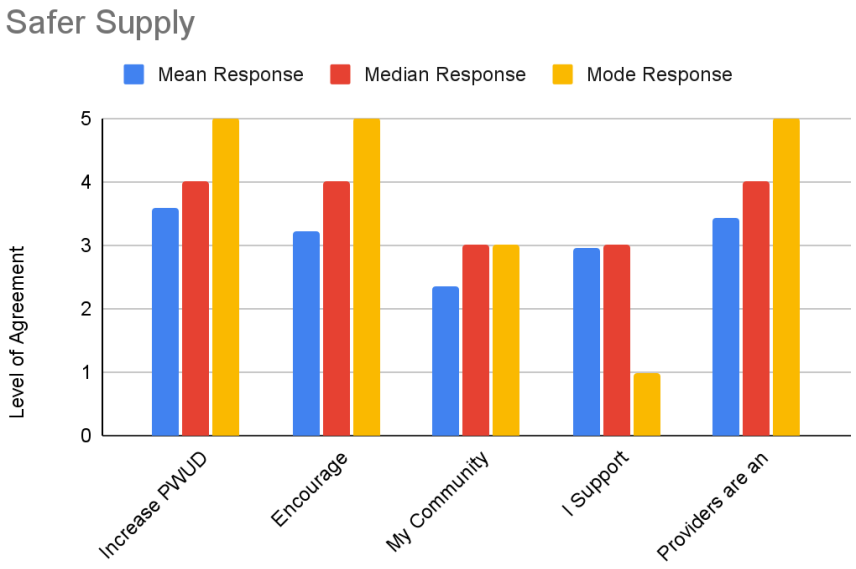

Figure B8. The mean, mode, and median levels of agreement towards questions surrounding safer supply.