

Examining gendered treatment barriers among people with  
substance use and co-occurring mental health problems

by

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**Abstract**

Despite the increasing rates of substance use by women, they continue to be underreported in substance use services. Factors related to women's relationships, family responsibilities, and stigma may provide insight into some of the barriers encountered by women. This study compared men and women on general and women-predominant barriers. In addition, this study investigated whether these barriers differed among individuals who use opioids compared to those who use other substances only. In total, 100 self-identifying men and women were recruited from a substance use service in Ontario. Participants completed a questionnaire package which measured demographic information, substance use, mental health and barriers. Although men and women encountered similar general barriers, women experienced significantly more women-predominant barriers. In addition, women reported higher levels of perceived stigmatization compared to men. Barriers did not differ among individuals who used opioids compared to other substances.

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Examining gendered treatment barriers among people with substance use and co-occurring mental health problems

Substance-related disorders are a growing health concern among women across North America (Greenfield, Back, Lawson, & Brady, 2011). While men have historically exhibited higher rates of substance use disorders compared to women, the gender gap in the prevalence of substance use has narrowed in recent years (Ait-Daud & Bashir, 2011) as growing numbers of women are using drugs and alcohol (Greenfield, 2016). In line with this, the National Survey on Drug Use and Health indicated that the rate of past year problematic substance use was similar for males and females ages 12 to 17 (Substance Abuse and Mental Health Services Administration, 2013). In addition, the age of onset for the use of tobacco, alcohol and other substances is now similar for females and males (Centers for Disease Control and Prevention, 2013; Greenfield, 2016; Substance Abuse and Mental Health Services Administration, 2013). Specifically, for both males and females, the mean age of onset for tobacco use was 18 and the mean age of onset for alcohol use was 16 (Substance Abuse and Mental Health Services Administration, 2013). Among Canadians, men and women report similar rates of stimulant use, opioid pain reliever use, and cigarette smoking. In contrast, men report higher rates of alcohol and illicit drug use, while women report higher use of sedatives and psychoactive pharmaceuticals (Health Canada, 2012; Statistics Canada, 2015). Overall, then, women and men are beginning to exhibit comparable ages of onset and rates of use for a variety of substances.

Despite the increasing rates of substance use by women, they are disproportionately underrepresented in substance use services and treatment programs (Greenfield et al, 2007). This may be because women experience multiple obstacles and

barriers to accessing appropriate treatment services (Brady & Ashley, 2005; Taylor, 2010). These barriers include the fear of losing their children, social stigma, a lack of reliable and financially accessible child care and a lack of flexible and woman-centred services (Green, 2006; Health Canada, 2001; Poole & Isaac, 2001). However, little research has directly compared the treatment barriers faced by men and women. Instead, most research regarding gendered treatment barriers has been limited to woman-only samples (Jackson & Shannon, 2012; Otiashvili et al., 2013; Small, Curran, & Booth, 2010). In addition, prior research has not examined whether these gendered barriers to treatment differ depending on the type of substance used. The lack of research pertaining to the treatment barriers encountered by women who use opioids is especially noteworthy in view of the rising rates of opioid-related morbidity and mortality among women (Greaves, Schmidt, Poole, Hemsing, & Boyle, 2015; Mack, Jones, & Paulozzi, 2013).

To address these shortcomings, this study was designed to examine the treatment barriers encountered by men and women, and whether they depend on the type of substance used. In addition, I investigated whether women who use opioids are disproportionately affected by certain treatment barriers compared to women who use other substances.

In what follows, I begin with a review of the relevant research literature. In this section, I show that several of the harms associated with substance use are magnified for women relative to men. This may be particularly true among women who use opioids as social and physiological factors increase women's risk of opioid-related morbidity and overdose. Furthermore, opioid-related harms tend to be compounded among women with experiences of trauma and those with co-occurring mental health concerns. Despite

women's increased susceptibility to several substance-related harms, they remain disproportionately underrepresented in substance use services. To shed light on this, I describe three major theoretical frameworks that have been used to explain gender differences in substance use and treatment-seeking behaviours. I then review the available literature on general and gender-specific substance use treatment barriers, discussing them in terms of internal characteristics, program characteristics, and socioenvironmental characteristics.

Based on this review, I present five hypotheses regarding gender differences in substance use treatment barriers, and whether or not these barriers differ among women who use opioids compared to other substances. I then describe methods of a study designed to test these hypotheses as well as the analyses used to test them. Finally, I present the findings from this study and discuss its implications, limitations, as well as potential directions for future research.

### **Women and Substance Use**

The growing prevalence of substance use among women has precipitated increased attention to gender differences in the experiences of substance use (Greenfield et al., 2007; Tuchman, 2010). A large body of research shows that men and women differ in terms of the pathways to substance use, disease progression, consequences of use, treatment access, and treatment outcomes (Ait-Daud & Bashir, 2011; Becker, McClellan, & Reed, 2017; Greenfield, 2016; Hines, 2013). For instance, sex differences in percentage of body fat, hormones, and the metabolic processing of substances can predispose females to a faster progression from the onset of substance use to problematic substance use and related health consequences (Back, Lawson, Singleton, & Brady,

2011). As a result, women may be more vulnerable than men to some of the medical, mental, and social harms associated with substance use (Canadian Centre on Substance Abuse, 2013). This may be particularly true among women who use prescription opioids (Back, Payne, Simpson, & Brady, 2010) as these women disproportionately encounter overprescribing of prescription medications, traumatic experiences and co-occurring mental health concerns (Hemsing, Greaves, Poole, & Schmidt, 2016). Together, these factors contribute to women's increased risk of prescription opioid-related harms (Health Canada, 2012; Mack et al., 2013).

### **Women and Prescription Opioids**

The nonmedical use of prescription opioids is a growing concern across North America. Nonmedical use is defined as the use of a prescription drug without a prescription, in a dose or duration other than prescribed, and/or for purposes other than prescribed (Hemsing et al., 2016; United Nations, 2011). There continues to be an alarming rise in opioid-related morbidity and mortality across Canada (Health Canada, 2012), and in the United States (CDC, 2013).

Canada has the second highest consumption rate of prescription opioids in the world, following the United States (International Narcotics Control Board, 2013). According to the Canadian Alcohol and Other Drug Use Monitoring Survey, one in six Canadians ages 15 and older reported past year prescription opioid use (Health Canada, 2012). The high prevalence of prescription opioid use in Canada has contributed to a drastic increase in unintentional deaths related to opioid overdose (Hemsing et al., 2016; Ulan, Davison, & Perron, 2013). In Ontario alone, deaths related to prescription opioid overdose doubled between 1991 and 2004, rising from 13.7 to 27.2 deaths per million

(Ulan et al., 2013). Furthermore, opioid-related emergency department visits in Ontario rose by approximately 250% between 2005 and 2011. Due to their high abuse potential and risk of overdose, the nonmedical use of prescription opioids is considered to be a serious public health and safety concern (Greaves et al., 2015), contributing to the third highest burden of substance use related disease in Canada (Darnall, Stacey, & Chou, 2012).

The prevalence and severity of prescription opioid-related problems tend to differ based on gender and may have a particularly significant effect on the health of women relative to men (Fischer, Nakamura, Ialomiteanu, Boak, & Rehm, 2010; Hemsing et al., 2016). The National Advisory Committee on Prescription Drug Use (Ulan et al., 2013) revealed that the consumption of all psychopharmaceutic drugs is higher among women (27%) than men (21%). Furthermore, the Canadian Alcohol and Other Drug Use Monitoring Survey indicated that, relative to men (15.5%), women (18.1%) more frequently used prescription opioids in the past year (Health Canada, 2012). Similarly, in a sample of 29,906 individuals from 220 substance use treatment centres across the United States, women were 1.5 times more likely to report prescription opioid use (29.8%) and problematic use (15.4%) within the past 30 days compared to men (21.1% and 11.1%, respectively) (Green, Grimes, Serrano, Licari, Budman, & Butler, 2009).

Alternatively, some research has indicated that women are less (Back et al., 2010) or equally (McHugh et al., 2013) likely to report the nonmedical use of prescription opioids compared to men. In addition, prescription opioid-related emergency department visits are similar among women and men (Crane, 2013). According to Ontario data, opioid-related hospitalizations and emergency department visits among young adults (15-

25 years of age) were similar for men and women, higher among men between the ages of 25, and 44 and higher among women 45 years and older (Public Health Ontario, 2017). Moreover, in all age groups, the rates of opioid-related deaths were higher among Ontario men than women, with the exception of the 65+ age group, where the rate was similar among men and women.

Although men are more likely to die from opioid overdose, deaths related to opioid overdose continue to rise at a drastically sharper rate among women compared to men (Centers for Disease Control, 2013). For instance, between 1999 and 2010 in the United States, fatalities attributed to prescription opioid overdose rose by over 400% among women and by 265% among men. In addition, prescription opioid-related deaths among women rose from 8.2 per 100,000 in 1999 to 11.8 per 100,000 in 2015 (Hedegaard, Warner, & Miniño, 2017). Together, such findings make it clear that women represent a large and growing population of individuals who use prescription opioids and who, as a result, experience alarmingly high rates of life-threatening, opioid-related health concerns.

Due to their heightened vulnerability to the adverse effects of opioid use, it is imperative that women who use opioids have access to support and psychological services aimed at minimizing opioid-related harms. However, in order to understand and respond to the treatment needs of women with opioid-related problems, we need to acknowledge the sex and gender differences that make women more vulnerable than men to the consequences associated with substance use, including pain and prescribing practices and a phenomenon known as “telescoping.”

**Pain and prescribing practices.** Women are more likely to report chronic pain, be prescribed opioids to manage the pain, and be prescribed higher doses over a longer period of time (Greaves et al., 2015; Green et al., 2009; Mack et al., 2013; McHugh et al., 2013). In addition, women are more likely to receive long-term prescriptions of analgesics and sedatives to manage depression, anxiety and other psychological disorders (Simoni-Wastila, 2000). Women are also more likely to seek support in primary care settings instead of specialized treatment services (Green, 2006), which may inhibit the identification and appropriate treatment of substance-related disorders. Moreover, women may view prescription opioids as safer and socially acceptable compared to other drugs, increasing the appeal of prescription opioid use (McHugh et al., 2013; Tuchman, 2010).

**Telescoping.** Women's increased vulnerability to the medical problems associated with prescription substance use can be partially understood by examining sex-related differences that lead to the faster progression from the onset of substance use to problematic use among women, commonly referred to as "telescoping" (Back et al., 2011; Hernandez-Avila et al., 2004). Research by Hernandez-Avila and colleagues (2004) examined gender differences in the age of onset of cocaine, opioid, cannabis, and alcohol use, the amount of time between regular use and treatment entry, and Addiction Severity Index (ASI) scores. Results demonstrated that, although the age of onset was similar for women and men, women experienced shorter periods of use prior to treatment entry. Moreover, despite their shorter pre-treatment periods of regular substance use, upon treatment entry, women's levels of substance use and severity were similar to those of men. Relative to men, women reported more severe mental health-, physical health-, and employment-related problems due to their substance use.

In line with the “telescoping” phenomenon, research by Back and colleagues (2011) demonstrated that while women, on average, were six years older than men when they first used prescription opioids, they were only three years older than men when they began to use them regularly. Relative to men, then, women progressed more rapidly from first use to regular prescription opioid use.

### **Theoretical Perspectives on Women’s Substance Use**

A handful of theories have been considered to explain why some women may be particularly vulnerable to the development of substance use problems. These theories draw attention to the role of women’s experiences of trauma, their relational way of being, in addition to stereotypes and the stigmatization of women. These theories also suggest various factors that may influence women’s decisions and/or their ability to seek support for their substance use concerns.

**Trauma and the self-medication hypothesis.** Women are more likely than men to encounter traumatic life experiences, including child abuse, intimate partner violence, sexual assault and the resulting physical and psychological turmoil, which may increase their vulnerability to substance-related disorders (Cole & Logan, 2010; United Nations Office on Drugs and Crime, 2011). This is consistent with trauma theory, which posits that individuals use substances as a form of self-medication in order to cope with traumatic life experiences and their aftereffects (Lazarus & Folkman, 1984). The self-medication hypothesis has been proposed to explain why experiences of trauma along with the ensuing distress and mental health problems may lead to the problematic use of several substances, including alcohol, heroin, cocaine, and cannabis (Arendt et al., 2007; Suh, Ruffins, Robins, Albanese, & Khantzian, 2008).

Moreover, the self-medication hypothesis of substance-related disorders posits that for self-medication to occur, a drug's psychopharmacologic effects interact with one's psychological state (i.e., negative affect) and personal history (Khantzian, 1985). Indeed, some individuals are more prone to use particular types of drugs to self-medicate. For instance, Khantzian (1997) argued that individuals with a history of violence are more likely to self-medicate with opioids because the calming properties of opioids counteract the anxiety-related psychological pain stemming from the violence experienced by the individual. The negative reinforcement associated with opioid use, namely, the reduction of psychological distress, compels the continuation of opioid use (Duncan, 1974), and the eventual development of an opioid use disorder.

In line with the self-medication hypothesis, findings from the National Epidemiologic Survey on Alcohol and Related Conditions (Bolton, Robinson, & Sareen, 2009) indicated that 64.4% of women who used prescription or illicit drugs did so to alleviate anxiety. In addition, the National Centre on Addiction and Substance Abuse (2003) revealed that, compared to men and boys, women and girls are more likely to have experienced sexual and physical abuse, to report feeling depressed, and to report using substances to elevate mood, reduce tension, and cope with interpersonal conflict. In contrast, boys and men were more likely to use substances for amusement, sensation-seeking, and social reasons.

Moreover, in a study of 248 women attending a substance use treatment centre in British Columbia (Poole, 2007), 63% of the women reported experiencing adult physical abuse, 48% reported a history of childhood physical abuse, 41% reported adult sexual abuse, and 46% reported childhood sexual abuse. Similarly, a systematic literature review

found that 55 to 99% of women with substance use problems reported a lifetime history of physical and/or sexual violence compared to 36 to 51% of women in the general population (Najavits, Weiss, & Shaw, 1997). Furthermore, in a sample of 98 women from 9 Ontario-based substance use treatment centres, 85.7% reported being victimized as a child, adult, or both (Cormier, Dell, & Poole, 2004). Correspondingly, research by Keyser-Marcus and colleagues (2015) demonstrated that women with substance-related disorders consistently reported higher rates of trauma compared to their male counterparts. Specifically, women were over twice as likely to report physical or sexual trauma and over five times as likely to endorse a history of both physical and sexual trauma. While childhood physical and sexual trauma were typically perpetrated by a family member (84% and 59%, respectively), many of these women reported physical trauma perpetrated by a partner (59%) and sexual trauma perpetrated by a stranger (47%) as an adult. In addition, women who experienced any trauma were more likely to report depression, anxiety, suicidal thoughts, and suicide attempts compared to those with no trauma history. Notably, women who experienced both physical and sexual trauma were three times more likely to report depression and six times more likely to report anxiety, compared to women who experienced sexual trauma alone. Furthermore, in an examination of patients in an Australian detoxification facility, Dore and colleagues (2012) reported that, relative to men, women were five times as likely to have been sexually assaulted. These women were also more likely than their male counterparts to have post-traumatic stress disorder (PTSD), depression, a history of self-harm and suicide attempts, and to have recent suicidal ideation.

The link between substance use and PTSD among women has been established for over 20 years. For instance, in the 1994 National Co-morbidity Survey, women with PTSD were over twice as likely to have an alcohol use disorder and over four times as likely to have a drug use disorder compared to women without PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Likewise, Najavits and colleagues' (1997) literature review demonstrated that approximately 30 to 59% of women with substance-related disorders also have co-occurring PTSD-related symptoms. More recently, in a community sample of women, those with cocaine use and alcohol use disorders were significantly more likely to have PTSD and related symptomatology compared to individuals without a substance-related disorder (Johnson, Cottler, Callahan O'Leary, & Abdallah, 2010). In addition, women with concurrent cocaine and alcohol use disorders were over three times as likely to meet the criteria for PTSD, endorse PTSD symptoms, and/or report PTSD-related impairment.

Together, these findings indicate that histories of violence and trauma are extremely common among women with substance-related problems and that these traumatic experiences are associated with other mental health problems (i.e., depression, anxiety, PTSD) in complex and mutually reinforcing ways (Dell & Poole, 2005). Consequentially, women who have experienced trauma may be especially likely to use substances as a way of coping with the aftereffects of trauma. In addition, they may be reluctant to seek professional help for their substance use due to their fear of losing the desirable psychotropic effects, experiencing withdrawals, and suffering the psychological pain that was temporarily masked by their substance use (Back et al., 2010). Some women may not access specialized substance use services because they are reluctant to

share their traumatic experiences with others and want to avoid the risk of being misunderstood or re-traumatized in the process (BC Society of Transition Houses, 2011).

Women with histories of trauma and violence may be particularly at risk of developing a prescription opioid problem (Cole & Logan, 2010; Mccauley et al., 2009). A longitudinal study of the association between trauma and problematic prescription opioid use revealed that the experience of emotional and physical trauma was associated with increased odds of problematic prescription opioid use (Quinn et al., 2016). Specifically, experiencing one or two traumas was associated with a 50% increased likelihood of problematic use, three traumas were associated with more than twice the likelihood of problematic use, and experiencing four or five traumas was associated with three times the likelihood of problematic painkiller use. Similarly, in a qualitative study of 756 women with recent experiences of intimate partner violence, more extensive and severe histories of violence were associated with the nonmedical use of prescription opioids (Cole & Logan, 2010). These women also experienced higher rates of chronic pain, which often allowed them to access opioids through legitimate prescriptions.

Thus, while women may begin using opioids to alleviate pain, they may continue using opioids beyond the prescribed amounts in their efforts to cope with the psychological effects of victimization. This is supported by data from the Addiction Severity Index Multimedia Version Connect (ASI-MV Connect) database, which indicated that, relative to men who use prescription opioids nonmedically, women who use them nonmedically were more likely to have been prescribed opioids for pain and to report emotional, physical and sexual victimization (Green et al., 2009). Furthermore, in a sample of victimized women on probation and parole, those who engaged in the

nonmedical use of prescription opioids were more likely to have PTSD, severe psychological distress, and concurrent mental health concerns (Hall, Golder, Higgins, & Logan, 2016). Thus, the compound experiences of victimization, trauma, and psychological distress may intersect to increase women's susceptibility to nonmedical prescription opioid use.

**Relational theory.** The relational theory of substance use recognizes the centrality of relationships in the lives of women and how these relationships influence the onset and progression of substance use (Calhoun, Messina, Cartier, & Torres, 2010). This theory emphasizes that women tend to define themselves in terms of their relationships. As such, connections with others are integral to the self-worth and well-being of women. In order to better understand women's experiences with substance use, relational factors must be acknowledged (Manhal-Baugus, 1998). Oftentimes, women may initiate substance use to feel connected with their partner (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991). For these women, substance use may be viewed as way to spend more time with a partner who uses substances.

In line with the relational theory of substance use, research suggests that women are more likely to initiate and maintain drug use through their partners (Homish, Leonard, & Cornelius, 2010; Powis, Griffiths, Gossop, & Strang, 1996). In a British sample of people who use heroin and cocaine, 51% of heterosexual women who use heroin were first injected by their partner (compared to 10% of men who use heroin), while 90% of men who use heroin were first injected by a friend (Powis et al., 1996). Similarly, a longitudinal study in the United States demonstrated that wives' but not husbands' nonmedical use of prescription drugs was predicted by their partners' use (Homish et al.,

2010). Moreover, wives' nonmedical use of prescription drugs (i.e., opioids, tranquilizers, sedatives, and stimulants) was related to lower levels of marital satisfaction (Homish et al., 2010), suggesting that some women may also turn to substance use as a way of dealing with relationship conflict. In this context, women may not perceive their substance use as a significant problem, viewing it instead as byproduct of their relational problems (Greenfield, 2016). In doing so, women may seek to focus on repairing the relationship instead of addressing their substance use, minimizing the significance of their substance use to themselves and others. This may delay the realization that they have a substance use problem and, in turn, delay them from seeking help.

In addition, heterosexual women with substance-related problems are more likely than their male counterparts to have a partner with problematic substance use (Greenfield, 2016; Khan et al., 2013; Riehm, Iguchi, Zeller, & Morral, 2003). Frequently, women's partners who use substances are unsupportive of treatment and may instead encourage the continuation of substance use, posing a significant barrier to seeking or accessing treatment (Greenfield, 2016). In these situations, women may feel pressure to choose between their relationship and their health. Consequentially, a woman may fear the loss of her partner if she decides to access treatment.

Such relational pressures may be particularly detrimental to women in abusive relationships. In a report on violence against women, mental health, and substance use, the Canadian Women's Foundation revealed that women commonly initiate or escalate substance use as a response to their abusive partners (BC Society of Transition Houses, 2011). Many women in abusive relationships reported engaging in substance use to conciliate their partners, while others did so to cope with the abuse. In addition, some

women reported being coerced to engage in substance use as mechanism for their partner to gain control over them. Often, the abusive partner was the primary drug provider and financial source, rendering these women increasingly dependent on their abuser. One's decision to terminate substance use and access treatment ultimately ran the risk of abandonment and the loss of financial resources.

Furthermore, a woman may feel physically threatened by her partner who uses substances, and fear that seeking treatment will be met with further abuse (Greenfield, 2016). This was the case for those who reported that efforts to terminate substance use were commonly met with increased control and violence by their abuser, making it difficult for them to access support and community services (BC Society of Transition Houses, 2011). Thus, not only are relationships intertwined with the onset and development of substance use problems in women, they can also perpetuate substance use and prevent women from accessing the treatment and resources necessary for recovery.

**Stigma theory.** Ervin Goffman proposed one of the earliest accounts of stigma, defining it as attribute or behavior (i.e., female substance use) that is “deeply discredited” by society, causing stigmatized individuals to be devalued, rejected and discriminated against by others (Goffman, 1963). More recently, different kinds of stigma have been suggested, including public stigma, enacted stigma, self-stigma, and perceived stigma (Corrigan, Watson, & Barr, 2006; Corrigan & Watson, 2002; Luoma, 2011; Luoma et al., 2007).

Public stigma reflects how the general public views a stigmatized group (Corrigan & Watson, 2002). Enacted stigma is described as a manifestation of public stigma, as it

refers to discrimination targeted toward the stigmatized group by the public.

Alternatively, self-stigma occurs when an individual identifies with a stigmatized group and internalizes negative thoughts, feelings, and self-evaluations associated with the stigmatized identity (Corrigan, Watson, & Barr, 2006; Luoma et al., 2007). In addition, self-stigma is commonly related to expectations and fear of experiencing enacted stigma, which can prevent the stigmatized individual from seeking help (i.e., treatment) in order to avoid further stigmatization (Scambler, 1998). Such expectations have been referred to as perceived stigma, a component of self-stigma, which encompasses the stigmatized group's beliefs regarding the level of public stigma and the likelihood of enacted stigma (Luoma, 2011). Unsurprisingly, expectations and fear of stigma are widely reported by individuals with substance use problems as a deterrent to entering treatment (Cumming, Troeung, Young, Kelty, & Preen, 2016; Cunningham, Sobell, Sobell, Agrawal, & Toneatto, 1993; Wu, Blazer, Li, & Woody, 2011). In fact, stigma has been cited as one of the most pervasive barriers to substance use treatment (Luoma, 2011).

Experiences of stigma are compounded for individuals with multiple stigmatized identities. This is often the case for individuals with substance-related disorders, as this population has an increased risk of poverty as well as concurrent mental health disorders (Kozloff et al., 2013; Room, 2005), both of which are attached to stigmatized identities. For instance, someone struggling with substance use and concurrent mental health disorders not only has to face the stigma attached to substance use, but also the stigma attached to mental illness. This puts them at risk of experiencing discrimination along multiple dimensions.

Important to the current research, women with substance use problems also experience a form of compound stigmatization referred to as double deviance (Copeland, 1977). First, these women are stigmatized and considered “devious” because of their substance use problem. Then, they are further stigmatized simply by virtue of being women. According to Copeland, women who engage in substance use have historically been considered “sexually promiscuous” and “morally loose.” This social condemnation stems from traditional ideas about women’s “place” in society as the “preservers of morality” (Ridlon, 1988). Substance use among women directly challenges these traditional gender roles, and stigma is used as an informal means of normative regulation in order to prevent women from engaging in substance use. These notions are reinforced by research demonstrating that women who use drugs scored higher on both public stigma (Brown, 2011) and shame (O’Connor, Berry, Inaba, Weiss, & Morrison, 1994), compared to men who use drugs.

Pregnant women and mothers with substance use problems are even further stigmatized due to the socially sanctioned notion that “good mothers” do not use substances (Reid, Greaves, & Poole, 2008). By using substances, these women are regularly accused of putting their children at risk. They are also assumed to be unsuitable parents. A large body of research has shown that pregnant women and mothers commonly encounter stigma for smoking (Wigginton & Lee, 2013), antidepressant use (Gawley, Einarson, & Bowen, 2011), cocaine use (Ginsburg, Raffeld, Alanis, & Boyce, 2006), alcohol use (Jacobs & Jacobs, 2014), and opioid use (Howard, 2015). Due to the risks associated with prenatal alcohol exposure (i.e., Fetal Alcohol Spectrum Disorders), this stigma may be magnified for women who consume alcohol during pregnancy

(Corrigan et al., 2017). Similarly, the stigma attached to women who used prescription opioids during pregnancy may be heightened due to the risk of Neonatal Abstinence Syndrome (Howard, 2015). A series of interviews with women who used opioids during pregnancy revealed that these women encountered strong negative reactions and stigmatization from medical providers during their postpartum care (Howard, 2015). Several of these women internalized the stigma, experiencing strong feelings of shame, guilt, and self-doubt regarding their capabilities as mothers. Consequently, stigma may be particularly detrimental for women with substance-related disorders as they attempt to navigate the addiction treatment system.

### **Women and Co-occurring Mental Health Problems**

Women are at a higher risk of depression, anxiety and PTSD compared to men (United Nations Office on Drugs and Crime, 2011). This is especially true for women with substance-related disorders, who display significantly higher lifetime mood and anxiety disorders compared to their male counterparts (Brady & Ashley, 2005; Conway, Compton, Stinson, & Grant, 2006; Greenfield, 2016; Wu, Woody, Yang, & Blazer, 2010). In an investigation of co-occurring mental health disorders among patients attending substance use treatment, 73.7% of women were diagnosed with a mental health disorder compared to 55.4% of men (Chen et al., 2011). Early work by Kessler and his colleagues suggested that women who develop an alcohol use disorder are typically more likely to have a pre-existing anxiety disorder compared to men (Kessler et al., 1997). In this sample, women with an alcohol use disorder were more likely to be diagnosed with mood and anxiety disorders, PTSD, eating disorders, and borderline personality disorder, whereas men with an alcohol use disorder were more likely to be diagnosed with another

substance-related disorder, antisocial personality disorder, conduct disorder, and attention-deficit-hyperactivity disorder.

More recently, results from the National Epidemiologic Survey on Alcohol and Related Conditions revealed that women with alcohol use disorders and drug use disorders reported higher lifetime prevalence of mood (38%) and anxiety (43.8%) disorders compared to men (17.6% and 21.9%, respectively; Goldstein, Dawson, Chou, & Grant, 2012). In line with this, research among outpatients with severe mental health concerns confirmed that women with substance-related problems are disproportionately vulnerable to any mood disorder compared to men with substance use problems (Miquel et al., 2013).

In particular, women with mood or anxiety disorders may be susceptible to using prescription opioids to improve affect or reduce stress (Greaves et al., 2015). This was supported by in-depth interviews of men and women with opioid use disorders, demonstrating that women were more likely to use prescription opioids to cope with interpersonal stress (73%) and negative affect (55%) (Back et al., 2011). In addition, American results from the National Survey on Drug Use and Health indicated that nonmedical use of prescription opioids was associated with psychological distress for women, but not men (Back et al., 2010). Furthermore, data from the ASI-MV Connect database identified poor mental health status as a significant risk factor for the nonmedical use of prescription opioids among women (Green et al., 2009).

Depressive symptomology may largely increase women's vulnerability to nonmedical prescription opioid use. Among college women, depression (Mccauley et al., 2011) and suicidality (Zullig & Divin, 2012) were significantly associated with the

nonmedical use of prescription drugs, including opioids. Similarly, an analysis of the American National Epidemiologic Survey on Alcohol and Related Conditions revealed that women who used opioids non-medically reported greater major depression than men, despite having similar levels of opioid use severity (Wu et al., 2010). Moreover, in a clinical sample of men and women with prescription opioid use disorders, McHugh and colleagues (2013) identified that, while there were no gender differences in problematic opioid use, women reported more severe mental health problems, increased rates of depression and PTSD, and a greater tendency to cope with negative affect using opioids.

PTSD has also been commonly cited as a risk factor for women's nonmedical use of prescription opioids (Hemsing et al., 2016; Mccauley et al., 2009; Meier et al., 2014). In a nationally representative sample of American women, PTSD was significantly associated with nonmedical use of prescription drugs, including opioids (Mccauley et al., 2009). More recent findings revealed that concurrent PTSD and prescription opioid use problems were almost three times as common among women relative to men (Meier et al., 2014).

As mentioned previously in the section on trauma and self-medication, women with undiagnosed mental health disorders may use substances to ease symptoms associated with the disorder as a means of coping or self-medication (Substance Abuse and Mental Health Services, 2005). This may complicate symptoms of depression or anxiety and increase women's risk of developing a concurrent substance-related disorder. If left untreated, co-occurring substance use and mental health problems may be particularly detrimental to women's health. For instance, an examination of nationally representative hospital discharge data across the United States revealed that women

represented a larger proportion of hospitalizations related to substance use and co-occurring disorders compared to men (Ding et al., 2011). Furthermore, research on PTSD-related hospitalizations from 2002-2011 revealed that 26.6% of women and 27.3% of men with PTSD had a concurrent substance-related disorder (Haviland, Banta, Sonne, & Przekop, 2016).

### **Substance Use Treatment Barriers**

It is important to have a comprehensive understanding of both the general and women-predominant barriers that may impede women's and men's access to treatment for substance-related problems. While women with substance use disorders face many of the same treatment barriers as men, their struggle with substance use is further complicated by barriers that uniquely and disproportionately affect women. Consequentially, women are more likely than men to encounter multiple barriers to substance use services (Green, 2006). Furthermore, several of the risk factors discussed above (i.e., relationships, trauma, and comorbidity) may play a critical role in determining women's ability or willingness to access care. These factors may contribute to the relative underrepresentation of women in substance use treatment compared to men (Greenfield et al., 2007). Both general and gendered barriers can be discussed in terms of three major classes: 1) Internal characteristics 2) Program characteristics, and 3) Socioenvironmental characteristics.

**General internal barriers.** Internal barriers to substance use treatment refer to personal beliefs and attitudes, emotions, and other psychological states that make it difficult for someone to access care. A meta-analysis on barriers to treatment for methamphetamine use indicated that internal barriers were the most common, surfacing

in 10 out of the 11 studies examined (Cumming et al., 2016). The internal barriers reported in this study included: embarrassment, belief that treatment was unnecessary, preferring to withdraw alone, privacy concerns, negative perceptions regarding treatment effectiveness, perceived negative attitudes of staff towards clients, shame and fear associated with seeking treatment, denial of a substance use problem, lack of desire to stop using, and a lack of understanding or awareness of services. Similarly, data from the 2008-2013 National Survey of Drug Use and Health indicated that, among individuals who did not receive substance use treatment despite their perceived need for it, 37% reported that they were not ready to stop using, and 13% reported that treatment was not a priority for them (Ali, Teich, & Mutter, 2017).

In addition, in a study examining barriers to opioid substitution therapy among those who use intravenous opioids in the Ukraine, negative attitudes and beliefs about methadone were predominant, including the belief that methadone had negative side effects (Bojko et al., 2015). Furthermore, a study concerning barriers to opioid substitution therapy among individuals with opioid use disorders in Germany revealed that many of them were unaware of treatment options, heard negative things about treatment, desired to continue opioid use, and had concerns about their ability to follow the rules during treatment. It has also been proposed that some individuals may be deterred from seeking treatment due to a fear that it would result in a loss of rewarding psychotropic effects, and may lead to an increase in physical and psychological pain (Back et al., 2010).

Some individuals may not recognize the severity of their use due to beliefs regarding the perceived “safety” of certain substances. Similarly, individuals may

underestimate or ignore the risks associated with substance use. The failure to recognize that a problem exists is relevant to all substance use and may delay the individual from seeking support for substance-related problems for an extended amount of time (Rapp, Carr, Lane, Wang, & Carlson, 2006). In addition, some individuals may deliberately minimize or hide their substance use problems from health care providers, inhibiting proper identification and treatment (Stuart, 2009).

**Women-predominant internal barriers.** Some internal barriers are magnified for women. For instance, it has been noted that guilt, self-blame, shame, and feelings of stigmatization can be particularly disabling to women's help-seeking behaviours (Cole & Logan, 2010; Green, 2006; Health Canada, 2001). In addition, the higher prevalence of concurrent mental health problems among women may impede women's ability to find appropriate services. As a result of these concurrent conditions, women may not perceive their substance use as a priority compared to other mental health concerns. In addition, women may view their substance use as a mere byproduct of stress related to family problems or another mental health condition. Consequentially, these women may delay seeking treatment in specialized substance use settings (Greenfield et al., 2007). This appears to be reflected in research by Poole and Isaac (2001) where 43% of their sample of pregnant and mothering women who use substances delayed treatment because they did not believe they had a substance use problem, and 55% did so because they believed they could handle their substance use problem themselves.

Even when women did recognize the need for substance use treatment, symptoms of depression and anxiety inhibited many women from seeking support. For instance, 60% of Poole and Isaac's sample "felt too worthless or depressed to get it together to go"

to treatment. In addition, 66% of the women were ashamed of having a substance use problem and did not want others to find out. Moreover, they were afraid of the way others would treat them for being a substance using mother or mother-to-be (57%).

**General programmatic barriers.** Programmatic barriers refer to aspects of the structure and organization of treatment services that may inhibit certain individuals from successfully accessing those services. In their meta-analysis of the treatment barriers encountered by people who use methamphetamines, Cumming and colleagues (2016) identified a variety of program-level barriers in the existing literature, including: the lack of available beds or space in treatment facilities, extensive waiting lists, service fees, and the lack of coordination between mental health and addiction services. In addition, the cost of treatment, lack of counselling services, waiting lists, inaccessible locations, and strict treatment rules were cited by physicians as common barriers to opioid substitution therapy. Furthermore, an American study of young adults who use prescription opioids noted that wait lists were the most common barrier to substance use treatment, reported by 59% of the sample (Liebling et al., 2016).

In addition, an analysis of the National Survey on Alcohol and Related Conditions suggested that 17.3% of individuals with substance use and co-occurring disorders were unable to access treatment due to structural barriers. Of these, not knowing where to access treatment was the most prevalent, followed by not having time, and not having a way to get to treatment (Kaufmann, Chen, Crum, & Mojtabei, 2014). Similarly, individuals with substance use problems may be unable to access treatment because they are unaware of the services that are available to them, often due to a lack of information regarding treatment options (Kaufmann et al., 2014; Motta-Ochoa et al., 2017).

For instance, interviews with a sample of Canadians with co-occurring mental health and substance use problems (Motta-Ochoa et al., 2017) indicated that information about addiction services was limited, making it difficult to find a program that suited their needs. Many respondents also indicated that lengthy waiting times undermined their motivation and often restricted them from successfully entering treatment. This finding is consistent with a large body of research demonstrating wait lists to be a pervasive barrier among treatment-seeking individuals (Grella, Gil-Rivas, & Cooper, 2004; Priester et al., 2016; Timko, Schultz, Britt, & Cucciare, 2016). Wait lists can be especially difficult for individuals who wait for treatment following medical detoxification, leading many to relapse during this period (Motta-Ochoa et al., 2017).

In addition, although several treatment programs are covered by universal health care in Canada, many individuals interviewed by Motta-Ochoa and colleagues (2017) reported financial cost as an obstacle to treatment entry. Several of the respondents had low incomes, which indirectly impeded their ability to access care through unstable housing, a lack of transportation, and supplementary expenses associated with treatment. Similarly, recent findings from the National Survey of Drug Use and Health suggest that approximately one quarter of Americans with substance-related disorders is unable to receive treatment due to financial reasons (Ali, Teich, & Mutter, 2016). Thus, while costs associated with treatment are often greater in the United States, financial barriers affect individuals seeking treatment across North America (Ali et al., 2017; Browne et al., 2016; Grella et al., 2004; Priester et al., 2016; Rosen, Tolman, & Warner, 2004).

Moreover, the lack of coordination and integration among services is a common barrier to the treatment of individuals with both substance use and mental health concerns

(Padwa, Guerrero, Braslow, & Fenwick, 2015; Priester et al., 2016; Stuart, 2009; Timko et al., 2016). A focus group of addiction and mental health workers in Ontario revealed that there is often a disconnect between services (Stuart, 2009). Both groups of health care providers recognized several system and program barriers that impede integration of care across health, mental health, addictions, social, and legal domains. For instance, mental health workers often lack the knowledge, skills, competence, and/or confidence to manage substance-related concerns, and the same is true for addictions workers and mental health concerns. As such, many of the respondents emphasized the need for improved knowledge exchange across programs and services in the health care system. Furthermore, occasionally, individuals with co-occurring substance use and mental health problems are unable to access care for one condition until the other condition is stabilized or “under control” (Stuart, 2009; Torrey et al., 2001), which often results in not receiving care for either condition.

Barriers to substance use treatment may be magnified for individuals without access to a primary care physician (Ross et al., 2015). For many, primary care serves as the first point of contact in the health care system, as well as an ongoing source of support for health-related needs. Unfortunately, individuals with mental health and/or substance use problems experience greater difficulty accessing primary care (Benjamin-Johnson, Moore, Gilmore, & Watkins, 2009). Interviews with health care providers and individuals with mental health and/or substance use problems revealed numerous health-related, system-level barriers to primary care (Ross et al., 2015). Many participants reported challenges related to finding a regular primary care physician, including substance use and mental health symptoms, poverty, housing instability, physical

disability, and criminal histories. Participants expressed that these complex care needs contribute to an unwillingness among physicians to take on certain clients. In addition, time pressures were cited as a barrier to accessing primary care. Many respondents indicated that lengthy wait times, the ability to address only one problem at a time, and insufficient time allotted to appointments made it difficult to address their health needs within the primary care system. Many participants also felt that primary care physicians were ill-equipped to respond to their mental health concerns, yet extensive wait lists and financial restraints deterred them from accessing additional mental health services.

The inability to access a regular primary care physician may be especially detrimental for individuals with opioid use disorders, as this may impede their ability to receive highly beneficial and evidence-based treatment medications to manage opioid use disorders (i.e., opioid agonist therapies, such as buprenorphine/naloxone and methadone). In addition, many primary care providers are ambivalent about prescribing opioid agonist medications due to limited training in addiction medicine, reluctance to manage complex needs, and the stigma associated with substance use (Luce & Strike, 2011; Nosyk et al., 2013). Historically, coverage for opioid agonist therapy varies across provinces in Canada, further disadvantaging individuals who are uninsured and ineligible for coverage (Luce & Strike, 2011).

**Women-predominant programmatic barriers.** Women with substance use and concurrent disorders may be particularly disadvantaged by programmatic treatment barriers (Taylor & Ashley, 2005). As mentioned, substance use problems are less likely to be identified among women by health care professionals and, as a result, women may be less likely to be referred to specialized treatment services (Greaves et al., 2015). In

addition, many women with substance use and co-occurring mental health conditions may not receive the appropriate assessment and diagnoses for both conditions, preventing them from receiving care for the undiagnosed disorder (Brady & Ashley, 2005). Thus, ineffective referral networks and a lack of coordination and integration among primary health, mental health, anti-violence, and substance use services may inhibit women with substance use problems from accessing appropriate care (BC Society of Transition Houses, 2011; Greaves et al., 2015; Green, 2006; Greenfield et al., 2007).

Programmatic barriers to substance use treatment are further magnified by women's disproportionate family responsibilities, coupled with a lack of services that are responsive to the needs and situations of women, mothers, and caregivers. For instance, women commonly report a lack of woman-centred services, flexible services, or reliable and affordable childcare (Health Canada, 2001; Greenfield, 2007; Taylor, 2010, Tuchman 2010). Unfortunately, few treatment programs allow children on-site, offer accessible childcare, or assist with childcare costs and arrangements (Tuchman, 2010). Even when such resources do exist within their community, women are often unaware of them (Greenfield, 2016). In addition, family responsibilities may make it more difficult for women to afford treatment (Brady & Ashley, 2005; Green, 2006; Tuchman, 2010).

**General socioenvironmental barriers.** Socioenvironmental barriers consist of relationships and broad social attitudes or beliefs regarding substance use that may deter individuals from seeking or accessing treatment. Among individuals with substance use problems, these can range from negative social networks (Motta-Ochoa et al., 2017) and relationships with health care providers (Priester et al., 2016), to stigma and

discrimination rooted in health, social, political, and legal systems (Ali et al., 2016; Timko et al., 2016; Kauffmann et al., 2013).

Social networks have been described as both a barrier to and facilitator of treatment access among individuals with substance use problems (Leahy et al., 2015; Tracy, Munson, Peterson, & Floersch, 2010). On the one hand, negative networks involving peers and/or relatives who actively use, normalize, and encourage substance use can be detrimental to help-seeking efforts (Motta-Ochoa et al., 2017), on the other hand, being surrounded by a positive social network and supportive relationships can encourage treatment and recovery (Tracy et al., 2010).

Individuals with substance use problems experience pervasive stigmatization (Room, 2005) which may systematically hinder their access to care and resources (Priester et al., 2016). Based on data from the World Health Organization, Room and colleagues (2005) ranked 18 characteristics in terms of their level of social disapproval across 14 different countries. In the majority of countries, “drug addiction” and “alcoholism” were among the most socially disapproved. Society-level stigma may infiltrate healthcare services as practitioners unintentionally adopt negative stereotypes and biases about individuals with substance use problems (Timko et al., 2016, Priester et al., 2016). The resulting stigma may be reflected in the level of care provided to individuals with substance-related disorders, causing some individuals to feel unwelcome or uncomfortable. Thus, individuals with substance use problems may avoid treatment services in fear of being labelled an “addict” or experiencing discrimination (Luoma, 2011; Timko et al., 2016; Ali et al., 2016; Motta-Ochoa et al., 2017). Moreover, some

individuals may not seek treatment due to a belief that they may lose support and acceptance from family and friends (Luoma et al., 2007).

Stigma may disproportionately affect individuals with substance use problems who simultaneously constitute marginalized populations, including ethnic minorities (Ro, Casares, & Treadwell, 2006), sexual minorities (Allen & Mowbray, 2016), women (Greenfield, 2016), and individuals with low socioeconomic status (Kozloff et al., 2013), serious mental illnesses (Stuart, 2009), criminal histories (Radcliffe & Stevens, 2008), and HIV (Remien et al., 2015). Not surprisingly, individuals with intersecting stigmatized identities are likely to experience exacerbated barriers to treatment (Pecoraro et al., 2013).

**Women-predominant socioenvironmental barriers.** Especially among women, certain dynamics and aspects of their relationships may serve to prevent them from seeking or accessing care. Perhaps the most influential relationships in the lives of many women are those shared with their children. Women are more likely than men to be primary caregivers of children and, as a result, women may have greater difficulty than men attending regular, structured treatment due to family responsibilities (Brady & Ashley, 2005). Conversely, a woman's role as a caregiver may increase her readiness to change and act as a motivation for treatment, facilitating participation (Jeong, Pepler, Motz, DeMarchi, & Espinet, 2015).

Nevertheless, women's roles as parents and caregivers largely guide their experiences with substance use as well as their decisions to connect with community services. Notably, the mothers in Poole and Isaac's (2001) study prioritized their children over their own health and avoided treatment to ensure the safety and security of their

children. The importance of one's children was illustrated by the barrier most commonly cited by this sample: the fear of losing custody of their children as a result of accessing treatment (62%). Specifically, women worried that public disclosure of their substance use problem would result in the involvement of child protection services.

The fear of losing one's children has been frequently cited as a significant factor in determining a woman's willingness to seek substance use treatment (BC Society of Transition Houses, 2011; Cumming et al., 2016; Health Canada, 2001). While these women may be aware that they need treatment, the possibility of having their children apprehended by child protection services or losing custody to their partner prevents them from entering treatment. This fear underlines the importance of family in the lives of many women with substance use problems, as well as their commitment to protect and care for their children.

Women may also experience relational barriers in the context of intimate relationships. For instance, women with histories of male-perpetrated physical and sexual trauma may avoid mixed-gender treatment settings to prevent fear, discomfort, and re-traumatization (Greenfield et al., 2007). In addition, women who seek treatment for their substance use problems may undergo resistance and hostility from partners who have substance use problems themselves (Health Canada, 2001; Poole & Isaac, 2001; Tuchman, 2010). This direct lack of support may discourage women from entering treatment in order to avoid conflict and to please the substance using partner. This is consistent with Poole and Isaac's (2001) findings, where 30% of substance using mothers and pregnant women reported that their partners did not want them to get help and 17% reported that their partner actively tried to stop them from getting help.

Moreover, women with substance use problems may experience a lack of support from other family members. For instance, family members may disapprove of and distance themselves from women with substance use problems as a result of the associated shame and stigma (Taylor, 2010). Thus, women with substance use problems may feel isolated and misunderstood, further decreasing their motivation to enter treatment (Health Canada, 2001). To prevent this, some women may hide their substance use problems from their loved ones. This was the case for 32% of substance using mothers and pregnant women who reported that they avoided treatment because they did not want their family to find out about their substance use problems (Poole & Isaac, 2001). Taken together, women with substance use problems are less likely than men to have relationships that are conducive to treatment and recovery (Tuchman, 2010).

In addition to experiencing several relational barriers to substance use treatment, women with substance use problems face widespread social stigmatization and discrimination (Greenfield, 2007). Substance use among women is disproportionately stigmatized compared to substance use among men. This may foster guilt and denial of a substance use problem among women, preventing them from seeking treatment (Brady & Ashley, 2005; Greenfield, 2010). This stigma may also instill feelings of shame and embarrassment, which can prevent women from exposing their substance use problem to others in fear of disapproval.

Pervasive stereotypes and labelling of women with substance use problems stem from society's rigid definition of a "good mother" (Health Canada, 2001). Women who use substances are not viewed as consistent with this definition and are more likely to be penalized by society for disclosing their substance use problem and seeking treatment,

preventing many women from doing so (Greenfield et al., 2007). In addition, service providers may non-consciously subscribe to society's negative attitudes about women with substance use problems (Health Canada, 2001; Howard, 2016), thereby disempowering their ability to successfully engage women in treatment services. This stigma is often magnified for women with multiple, co-occurring disorders and may depend on the type of substance used. For instance, women with opioid-related problems may be particularly vulnerable to social prejudice and discrimination related not only to their substance use, but to their use of opioids.

### **The Present Research**

Despite the narrowing gender gap in the prevalence of substance-related disorders, women continue to be vastly underreported in substance use services (Greenfield, 2016). Factors related to women's relationships, family responsibilities, mental health, and histories of trauma may provide insight into some of the challenges encountered by women as they attempt to navigate the addiction treatment system.

While the existing literature documents treatment barriers that may disproportionately affect women, there remains little evidence that men and women experience different types of barriers. This is because many studies that demonstrate treatment barriers among women rely on women-only samples (Otiashvili et al., 2013; Poole & Isaac, 2001; Small et al., 2010; Tracy et al., 2010), failing to compare the barriers encountered by men and women. In addition, most of the studies that include both men and women fail to measure those barriers that tend to disproportionately affect women (e.g., lack of childcare) (Chen, Strain, Crum, & Mojtabei, 2013; Morgenstern, Hogue, Dasaro, Kuerbis, & Dauber, 2008; Rapp et al., 2006). Furthermore, despite women's heightened vulnerability to opioid-related harms in recent years, research that acknowledges treatment barriers among women who use opioids is scarce.

Given these gaps in previous research, the objectives of the present study were to:

- (1) directly compare men and women on a range of general barriers to substance use treatment, in addition to those that have been proposed to largely affect women only, and
- (2) examine if some factors uniquely affect women who use opioids nonmedically, compared to other substances.

### Hypotheses

Based on the available research, I hypothesized the following:

- 1) While men and women will be equally likely to encounter most general treatment barriers, women will be more likely to report barriers related to relational factors, family responsibilities, and mental health.
- 2) In addition, women are expected to report higher levels of perceived stigma, depression, anxiety, and symptoms of trauma-related stress compared to men.
- 3) Women with higher levels of perceived stigma, depression, anxiety, and symptoms of trauma-related stress are expected to report more barriers compared to those with lower levels.
- 4) Women who use opioids are expected to report higher levels of perceived stigma, depression, anxiety, and symptoms of trauma-related stress compared to women who use other substances
- 5) Women who use opioids are expected to encounter more barriers compared to women who use other substances.

## Method

### Participants and Procedure

Participants were 50 men ( $M_{age} = 37$ ,  $SD_{age} = 12.61$ ) and 50 women ( $M_{age} = 35$ ,  $SD_{age} = 12.58$ ) seeking treatment from a variety of substance use services in the Substance Use and Concurrent Disorders Program (SUCD) at The Royal Ottawa Mental Health Centre, which is a large mental health hospital based in Ottawa, Ontario. Participants were recruited from a number of programs including: the Regional Opioid Intervention Service (ROIS, 11.9%), the Concurrent Disorders Unit (CDU, 28.8%), the Transitional Aged Youth Program (TAY, 11.9%), the Assessment and Stabilization Unit (ASU, 29.7%), and the Alcohol Medical Intervention Clinic (AMIC, 17.8%). These programs provide clients with a range of services, including medically assisted withdrawal management, opioid agonist therapy, and treatment for substance use and mental health problems. English speaking men and women ages 18 and older ( $M_{age} = 36$ ,  $SD_{age} = 12.52$ ) were considered eligible to participate in this study. One individual identified as a trans man and was included the sample of men as this was the gender grouping with which they identified most closely. Furthermore, one participant was excluded from analysis as they did not indicate a gender.

Participants were recruited from each service during their regular visits. New and returning clients were asked by a member of the clinical staff whether a research assistant (RA) could approach them. Following, the RA met with participants who agreed to be approached. The RA then described the study and inquired about their interest in participating in this study. They explained the purpose of the study to eligible participants and obtained written informed consent (see Appendix A) from those who agreed to

participate. The study took each participant approximately 30 minutes to complete, and all participants received a \$15 gift card as compensation for their time. Upon receipt of the gift cards, participants signed a payment acknowledgement form (see Appendix B). To obtain an equal sample of men and women, the recruitment of men was stopped once a sample of 50 men was reached and the recruitment of women continued until a sample of 50 women was reached. Funding for this study was provided by the Director of Clinical Programming and Research at the Royal's SUCD service. Approval for this study was obtained by the Royal Ottawa Health Care Group (ROHCG) and the Carleton University Research Ethics Board (CUREB).

### **Measures**

Participants were provided with a comprehensive self-report questionnaire package (see Appendix C) that measured demographic information, a range of substance use and mental health problems, perceptions of stigma, experiences of trauma, and barriers to substance use treatment.

**Demographic Information Questionnaire.** Demographic information was collected using a questionnaire package developed by the SUCD team. Questions pertained to client age, gender, ethnicity, employment status, education, legal status, living situation, transportation, substance use, mental health and health-related concerns. The demographic questionnaire also included items that measured opioid use (i.e., "Were you using opioids prior to coming to the Royal?"), as well as participants' drug(s) of choice. Participants who indicated that they were using opioids before coming to The Royal and/or reported opioids as one of their drugs of choice were coded as "yes" for opioid use. In contrast, those who indicated that they were not using opioids before

coming to The Royal and did not specify opioids as a drug of choice were coded as “no” for opioid use.

**Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST):**

Participants’ recent alcohol and drug use was assessed using a modified version of the ASSIST (WHO ASSIST Working Group, 2002), a measure in which respondents were instructed to indicate how often they used a range of substances (i.e., cannabis, cocaine, amphetamines, sedatives, hallucinogens, opioids, alcohol, and tobacco) within the past 30 days. Possible responses ranged from 0 “Never” to 4 “Daily or almost daily”. A specific substance involvement score was calculated by summing the responses to questions for each drug class. In addition, a total substance involvement score was calculated by summing the responses to questions for all drug classes. Finally, an indicator of polysubstance use was created by summing all the dichotomized scores for each substance. The ASSIST has been found to demonstrate good concurrent, construct, and discriminative reliability (Humenuik et al., 2008) and test-retest reliability (WHO ASSIST Working Group, 2002). Likewise, the ASSIST demonstrated a high degree of internal consistency for this study, Cronbach’s alpha = .873.

**Drug Abuse Screening Test (DAST-20):** Drug use severity was assessed using the DAST-20 (Skinner, 1982). Respondents were asked to indicate “yes” or “no” to a series of 20 questions concerning drug use (e.g. “Are you always able to stop using drugs when you want to?”) and its consequences (e.g. “Have you had medical problems as a result of your drug use?”) within the past 12 months. Total scores were calculated by summing the number of times participants responded “yes” to an item. These scores indicate mild use (1-5), moderate use (6-10), substantial use (11-15), and severe use (16-

20). The DAST-20 has demonstrated high internal consistency, adequate convergent validity (Skinner, 1982), and moderate to high levels of test-retest reliability (Yudko, Lozhkina, & Fouts, 2007). For this study, the DAST demonstrated high internal consistency, Cronbach's alpha = .895.

**Alcohol Use Disorders Identification Test (AUDIT):** The AUDIT is a 10-item self-report questionnaire intended to measure the presence of an alcohol use disorder (Babor, Higgins-Biddle, Saunders, & Menteiro, 2001). Items measure the frequency of alcohol-related behaviours (e.g. "How often do you have six or more drinks on one occasion?"), problematic alcohol use (e.g. "How often during the last year have you found that you were not able to stop drinking once you started?"), and related consequences (e.g. "Have you or someone else been injured because of your drinking?"). Typically, response options range from "Never" (0) to "Daily or almost daily" (4), although the wording of some response options is different. To obtain a total AUDIT score, each individual item score was summed. Higher scores suggest increasingly unhealthy or harmful alcohol consumption. Furthermore, total scores of 8 or higher for men and 7 or higher for women are considered to indicate hazardous alcohol use (Bohn & Babor, 1995). For this study, the AUDIT displayed a high level of internal consistency, Cronbach's alpha = .940.

**Patient Health Questionnaire (PHQ-9):** The PHQ-9 is a 9 item questionnaire intended to measure the presence and severity of depression (Kroenke, Spitzer, & Williams, 2001). Items assess participants' frequency of problems and symptoms associated with depression within the last two weeks. Responses range from "Not at all" (0) to "Nearly every day" (3). Sample items include, "Little interest or pleasure in doing

things” and “Feeling bad about yourself or that you are a failure or have let yourself or your family down.” Total scores were calculated by summing the responses from each item, and can be interpreted to reflect mild (5), moderate (10), moderately severe (15), and severe depression (20). The PHQ-9 has been shown to be an accurate indicator of depression with high levels of reliability and validity (Kroenke et al., 2001). For this study, the internal consistency of the PHQ-9 was high, Cronbach’s alpha = .900.

**Generalized Anxiety Disorder 7-Item Scale (GAD-7):** The GAD-7 is a brief, 7 item tool used to screen for the presence and severity of anxiety (Spitzer et al., 2006). It assesses how frequently, within a two-week period, an individual experiences feelings and problems commonly associated with anxiety. Sample questions include, “Not being able to stop or control worrying” and “Being so restless that it is hard to sit still.” On a 4-point scale, participants’ responses can range from “Not at all” (0) to “Nearly every day” (3). Total GAD-7 scores were calculated by summing individual item responses, with higher scores reflecting greater levels of anxiety. Specifically, scores of 5, 10, and 15 signify mild, moderate, and severe anxiety, respectively (Spitzer et al., 2006). This measure is sensitive not only to generalized anxiety disorder but can also be sensitive and specific to other anxiety disorders including panic disorder, and social phobia. In addition, the GAD-7 has yielded high levels of internal consistency reliability, and construct validity (Löwe et al., 2008). The internal consistency of the GAD-7 in this study was high, Cronbach’s alpha = .928.

**Global Appraisal of Individual Needs-Short Screener (GAIN-SS):** The GAIN-SS was used to identify four broad behavioural health disorders among participants, including internalizing disorders, externalizing disorders, substance-related problems, and

problems related to crime and/or violence (Dennis, Feeney, Stevens, & Bedoya, 2008). The questionnaire is structured by asking respondents when they last had psychological, behavioural, and personal problems. Possible responses include “Never,” (0) “More than a year ago,” (1) “2-12 months ago,” (2) and “Past month” (3). Total scores for each of the four behavioural problem subscales were calculated by tallying the number of times a respondent indicated a 2 or a 3 (i.e., a problem within the past year). Scores of 0, 1-2, and 3-5 are considered to represent a low, moderate, and high probability of being diagnosed with each behavioural health disorder, respectively (Dennis et al., 2008). There is evidence that each of the subscales in the GAINN-SS have good discriminant validity, and structure that is consistent with the overall scale. In addition, the GAIN-SS as a whole has demonstrated high levels of test-retest reliability and internal consistency (Dennis, Chan, & Funk, 2006). For this study, the GAIN-SS yielded a considerable degree of internal consistency, Cronbach’s alpha = .875.

**Perceptions of Stigmatization by Others for Seeking Help (PSOSH):** The PSOSH scale consists of 5 items developed to measure individuals’ perceptions of the stigma attached to help-seeking and how others may react to it (Vogel, Wade, & Ascheman, 2009). The questionnaire is structured by first asking respondents, “If you sought mental health services, to what degree do you think that people you interact with would \_\_\_\_.” For the purpose of this study, the questionnaire was adapted to reflect substance use services instead of mental health services. To do so, it was re-worded to ask, “When you were seeking substance use services, how much did you think that the people you interact with would \_\_\_\_.” Items include, “React negatively to you,” “Think bad things of you,” “See you as seriously disturbed,” “Think of you in a less favourable

way,” and “Think you posed a risk to others.” Participants then responded on a 5-point scale ranging from “Not at all” (1) to “A great deal,” (5) with higher scores signifying greater perceived stigma from others. The PSOSH scale has demonstrated a high level of internal consistency, test-retest reliability, and concurrent validity (Vogel et al., 2009). For this study, the PSOSH yielded a high level of internal consistency, Cronbach’s alpha = .912.

**Post-Traumatic Stress Disorder Checklist-Civilian Version (PCL-C):** The PCL-C (Weathers, Litz, Huska, & Keane, 1994) was used to assess symptoms of trauma-related stress within the past month. The measure consists of 17 items, with response options ranging from “Not at all” (1) to “Extremely” (4). Greater traumatic stress symptom severity is indicated by higher total scores. The PCL-C has demonstrated high levels of internal consistency, test-retest reliability, discriminant validity, as well as convergent validity (Ruggiero, Ben, Scotti, & Rabalais, 2003). The PCL-C also demonstrated a high level of internal consistency for this study, Cronbach’s alpha = .929.

**Barriers to Treatment Inventory (BTI):** A range of barriers to substance use treatment were assessed using the BTI (Rapp et al., 2006), which measures the existence of 59 barriers, each of which is categorized in terms of one’s perceived absence of a problem, negative social support, fear of treatment, privacy concerns, time conflict, poor treatment availability, and admission difficulty. These subcategories and corresponding items can be found in Appendix D. In the original scale, participants are asked to indicate how much they believe that each barrier would affect their entry into treatment. Importantly, for the purpose of this study, items were reworded to reflect the extent to which each barrier affected their ability to access treatment prior to receiving services at

The Royal's SUCD program. For instance, each of the barriers listed were referred to in the past tense (i.e., "I do not think I have a problem with drugs" was changed to "Before coming to the Royal, I didn't think I had a problem with drugs," and so on). In addition, some items were removed due to stigmatizing language, redundancy, and ambiguous language. A breakdown of all the revisions that were applied to the BTI scale can be found in Appendix D. Responses on the BTI range from "Disagree strongly" (0) to "Agree strongly" (4), and higher values indicate greater barriers to treatment. The BTI has demonstrated both good reliability and convergent validity. For this study, the BTI demonstrated a high level of internal consistency, Cronbach's alpha = .900.

Unfortunately, the BTI does not include many of the barriers that researchers have described as disproportionately detrimental to women's ability to access treatment. To resolve this, a handful of items from Poole and Isaac's (2001) study were added to the original BTI. These woman-predominant barriers included: "I was afraid of the way people would treat me because I'm a parent," "I felt to worthless or depressed to go to treatment," "I was afraid I would lose my children If I went to treatment," "I didn't have anyone to take care of my children while I was at treatment," and "My partner didn't want me to get help". Although not mentioned by Poole and Isaac, I also included the following: "I was uncomfortable attending a mixed-gender program" and "My mental health problems made it difficult for me to access treatment". The latter was incorporated to portray women's heightened vulnerability to certain mental health concerns, as indicated in the literature review above. Together, these women-predominant items were treated as an additional subscale of the BTI. The resulting BTI scale contained 50 items, and all adjustments to the scale are reflected in Appendix D.

### **Analytic Strategy**

All analyses were conducted using SPSS package 21 (SPSS Inc., Chicago, IL). Prior to analyzing the data, they were screened for errors. In addition, statistical assumptions for each test were checked (i.e., outliers, normality, homogeneity of variance, etc.) and reported in the upcoming section on data screening. Independent samples *t*-tests, a multivariate analysis of variance (MANOVA) and a simple multiple regression were used to evaluate between group differences on continuous values. All inferential tests were two-tailed, using a significance level of  $\alpha = .05$ . In addition, for all tests containing multiple comparisons, Bonferroni adjusted *p*-values were used at the hypothesis-level rather than the more conservative, and preferred, approach of calculating adjusted *p*-values across all tests in the study. This approach is explained in more detail in the section on limitations.

### **Hypothesis 1**

An independent samples *t*-test was conducted to determine whether men and women differed in the number of substance use treatment barriers experienced prior to accessing services at the Royal (i.e., total BTI score). In addition, to determine whether men and women experience different types of barriers, multiple independent samples *t*-tests were conducted to compare men and women on separate subscales of barriers, including women-predominant barriers (i.e., relational, family responsibility and mental health barriers), absence of problem, negative social support, fear of treatment, privacy concerns, time conflict, poor treatment availability, and admission difficulty. The *t*-test comparing men and women on total BTI scores and those comparing men and women on individual subscales were conducted using separate analyses due to the high degree of

multicollinearity between the subscales and the overall BTI scale. To account for the use of multiple comparisons and reduce the risk of making a Type I error, Bonferroni adjusted  $p$ -values of .0055 (.05/9) were used. In addition, Cohen's  $d$  (1988) coefficients were calculated to demonstrate the effect size of each  $t$ -test. According to Cohen's  $d$ , values of .20, .50, and .80 are considered small, medium, and large effect sizes, respectively.

### **Hypothesis 2**

A one-way MANOVA was used to compare men and women on measures of perceived stigma, depression, anxiety, and symptoms of trauma-related stress, as reflected by participants' scores on the PSOSH, PHQ-9, GAD-7 and PCL-C, respectively. After checking for significance at the multivariate level, univariate results were also examined using an Bonferroni adjusted  $p$ -values of .0125 (.05/4) to account for multiple comparisons.

### **Hypothesis 3**

A multiple regression analyses was used to determine if women with higher levels of perceived stigma, depression, anxiety and symptoms of trauma-related stress encounter more barriers compared to women with lower levels. For this analysis, all men were excluded from analysis. Separate analyses were performed to test factors related to overall barriers (i.e., total BTI score) as well as those related to each barrier subscale (i.e., absence of problem, negative social support, fear of treatment, privacy concerns, time conflict, poor treatment availability, admission difficulty, and women-predominant barriers), using an inclusion criterion of  $\alpha = .05$ . To account for the use of multiple comparisons, Bonferroni adjusted  $p$ -values were used to evaluate the significance of each

regression model. Tests of each barrier variable was conducted using an adjusted alpha level of .0055 (.05/9).

For each test, the variables entered as potential predictors included: gender, depression (PHQ-9), anxiety (GAD-7), symptoms of trauma-related stress (PCL-C), and perceptions of stigma (PSOSH).

#### **Hypothesis 4**

Independent samples *t*-tests were used to compare levels of perceived stigma, depression, anxiety, and symptoms of trauma-related stress among women who use opioids and women who use other substances only. Specifically, men were excluded from analysis and four separate *t*-tests were performed to compare PSOSH, PHQ-9, GAD-7, and PCL-C scores among women who use opioids and those who use other substances only. Bonferroni adjusted *p*-values of .0125 (.5/4) were used to account for multiple comparisons.

#### **Hypothesis 5**

An independent samples *t*-test was used to determine whether women who use opioids encounter more substance use treatment barriers (i.e., total BTI score) compared to women who use other substances only. Eight additional *t*-tests were used to explore whether women who use opioids encounter different types of barriers, as measured by the BTI subscales (i.e., absence of problem, negative social support, fear of treatment, privacy concerns, time conflict, poor treatment availability, admission difficulty, and women-predominant barriers). Bonferroni adjusted *p*-values of .0055 (.05/9) were used for each *t*-test to accommodate the use of multiple comparisons.

## Results

### Data Screening

**Missing data.** A missing data analysis was conducted for each measure of interest. The amount of missing data ranged from 0 % to 2% and was distributed as follows: 1) no missing data for the Barriers to Treatment Inventory (BTI), 2) no missing data for the Patient Health Questionnaire (PHQ-9), 3) no missing data for the Generalized Anxiety Disorder Scale (GAD-7), 4) 2% missing for the Perception of Stigmatization by Others for Seeking Help Scale (PSOSH), and 5) 2% missing for the PTSD Checklist - Civilian Version (PCL-C). Since the amount of missing data for each measure was considerably less than 10% (Bennett, 2001) it was considered non-problematic and no further missing value analyses were performed.

**Linearity and homoscedasticity.** The linearity and homoscedasticity among variables of interest were evaluated by examining scatterplot matrices for each combination of variable pairs. The data for each variable combination formed an elliptical pattern, indicating that these assumptions were adequately met (Harlow, 2014). In addition, Levene's tests indicated that homogeneity of variance existed for the total BTI scale and all subscales except for the negative social support ( $F = 8.19, p = .005$ ) and women-predominant ( $F = 7.14, p = .009$ ) subscales. When reporting the results for these subscales, equal variances were not assumed. Furthermore, Levene's tests indicated that homogeneity of variance existed for the PHQ-9, GAD-7, PSOSH, and PCL-C.

For the one-way MANOVA, homogeneity of the variance-covariance matrix was examined by evaluating Box's  $M$ , which indicated that this assumption was met, Box's  $M = 10.43, p = .445$ . Furthermore, the homogeneity of residual variances was tested for the

multiple regression analyses by examining residual plots, which revealed that this assumption was also met for each variable of interest.

**Univariate and multivariate outliers.** Standardized z-scores for each variable of interest were used to detect the presence of potential outliers. Z-scores greater than 3.29 are considered univariate outliers (Tabachnick & Fidell, 2007). When observing the z-scores, no univariate outliers were identified. Additionally, Mahalanobis distance was examined to test for the presence of multivariate outliers, and the values obtained were compared to the  $\chi^2$  distribution ( $df = 4, p = .001$ ). When testing hypothesis 2, one multivariate outlier was detected using a critical value of 18.47, with an observed value of 21.64. The one-way MANOVA was conducted with and without the multivariate outlier and results remained unchanged, thus the multivariate outlier was not excluded from analysis.

Finally, Cook's Distance was also examined to screen for influential cases. The criterion used to determine whether a case was influential was Cook's  $D > 1$ . Using this criterion, no influential cases were identified.

**Univariate and multivariate normality.** Univariate normality was tested for all variables of interest, including total BTI, BTI subscales, PHQ-9, GAD-7, PSOSH, and PCL-C. A combination of methods was used to test for univariate normality, including the examination of normal distribution plots and P-P plots, Shapiro Wilk tests, skew, and kurtosis. Skewness statistics above 2 and kurtosis statistics above 7 are considered problematic (West, Finch, & Curran, 1995).

While the total BTI scale was normally distributed, several of its subscales were not. For instance, privacy concerns (kurtosis = -0.78,  $SE = 0.48$ ), time conflict (kurtosis =

-0.97,  $SE = 0.48$ ), poor treatment availability (kurtosis = -0.72,  $SE = 0.48$ ), and admission difficulty (kurtosis = -0.91,  $SE = 0.48$ ) had substantial kurtosis, while the women-predominant (skewness = 0.70;  $SE = 0.24$ ) and negative social support (skewness = 0.55;  $SE = 0.24$ ) subscales were positively skewed. Furthermore, Shapiro-Wilk tests indicated violations of normality for each subscale.

In addition, Shapiro Wilk tests revealed that the assumption of normality was violated for the PHQ-9 (Shapiro-Wilk = .960,  $p = .005$ ), GAD-7 (Shapiro-Wilk = .940,  $p < .001$ ) and PSOSH (Shapiro-Wilk = .948,  $p = .001$ ) variables, while the PCL-C variable was normally distributed, Shapiro-Wilk = .980,  $p = .146$ . This was also supported when examining skewness and kurtosis statistics. The GAD-7 had substantial skew (skewness = -0.41,  $SE = 0.24$ ) and kurtosis (kurtosis = -0.92,  $SE = 0.48$ ), while the PHQ-9 only had substantial skew (skewness = -0.40,  $SE = 0.24$ ), and the PSOSH only had substantial kurtosis (kurtosis = -0.96,  $SE = 0.48$ ). However, because  $t$ -tests and linear multiple regression analyses are considered robust to violations of normality when large, equal sample sizes are present (Boneau, 1960), transformation of the data was not performed.

Additionally, multivariate analysis of variance assumes that multivariate normality is present. To test this assumption, I conducted an omnibus test of multivariate normality based on Small's Chi Squared test, which indicated that this assumption was also violated,  $\chi^2 = 28.03$ ,  $p < .01$ . In multivariate analyses of variance, the Pillai's Trace statistic is considered more robust to violations of assumptions (Tabachnick & Fidell, 1983). Accordingly, since assumptions of both univariate and multivariate normality were violated, the Pillai's Trace statistic was interpreted for hypothesis 2.

**Multicollinearity.** The presence of multicollinearity was examined by assessing the variance inflation factor (VIF) and tolerance values for each variable (Field, 2013). VIF values that exceed 10 are considered problematic, as are tolerance values greater than .20. None of the VIF or tolerance values exceeded these cut-offs, indicating that multicollinearity was not present.

### **Preliminary Analysis**

Means and standard deviations for all study variables are presented in Table 1. These figures are provided for the total sample as well as for each individual gender. Frequencies and percentages for a number of demographic variables are presented in Appendix E, including ethnicity, highest level of education, employment, relationship status, living arrangements and various indicators of mental health and substance use. In sum, most participants were Caucasian (84%), single (52%) and did not have children (58%). In addition, many participants reported that their highest level of education was a high school (42%) or college (30%) diploma. Furthermore, 26% of participants worked full-time, while several others were on ODSP (22%), disability leave (13%) or Ontario Works (13%). In contrast, 12% of participants reported being unemployed. Most participants either lived alone (26%), with a significant other (26%), or with their parents (26%).

In regards to substance use and mental health, 42% of women reported opioid use compared to 34% of men, while men and women displayed similar levels of polysubstance use (76% and 72%, respectively). Moreover, approximately a quarter of participants reported lifetime IV drug use (26%). Additionally, several participants reported recent use of tobacco (75%), alcohol (73%), cannabis (44%), and sedatives

(34%). For most participants, drug use severity excluding alcohol was classified as substantial (37%) or severe (21%). Moreover, participants largely reported moderate (28%) to severe (45%) symptoms of anxiety. Similarly, symptoms of depression among participants were predominantly moderately severe (32%) or severe (33%).

Pearson correlation coefficients were used to examine the relationships between the study variables for the overall sample (see Table 2), women only (see Table 3), and men only (see Table 4). Across the total sample, the BTI was positively correlated with each of its subscales ( $r = 0.23-0.73$ ). In addition, the BTI was positively correlated with stigma and all mental health variables ( $r = 0.31-0.44$ ). Furthermore, stigma and all mental health variables were positively correlated with one another ( $r = 0.25-0.76$ ).

Table 1

*Descriptive Statistics by Gender and Total Sample*

Measure	Women		Men		Total	
	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range	<i>M (SD)</i>	Range
Age	35 (12.58)	18 - 64	37 (12.61)	18 - 68	36 (12.52)	18 - 68
Children	2.09 (1.11)	1 - 4	1.74 (0.93)	1 - 4	1.93 (1.02)	1 - 4
BTI	85.16 (26.79)	21 - 154	78.28 (23.49)	18 - 123	82.03 (25.37)	18 - 154
BTI-1	6.66 (4.02)	0 - 16	6.8 (3.59)	0 - 13	6.73 (3.79)	0 - 16
BTI-2	4.48 (3.63)	0 - 12	3.94 (2.52)	0 - 12	4.21 (3.12)	0 - 12
BTI-3	7.64 (3.58)	0 - 16	7.32 (3.67)	0 - 16	7.48 (3.61)	0 - 16
BTI-4	3.6 (2.16)	0 - 8	3.78 (1.95)	0 - 8	3.69 (2.05)	0 - 8
BTI-5	3.82 (2.26)	0 - 8	3.76 (2.21)	0 - 8	3.79 (2.22)	0 - 8
BTI-6	4.52 (2.28)	0 - 8	3.7 (2.12)	0 - 8	4.11 (2.23)	0 - 8
BTI-7	5.7 (2.46)	0 - 8	4.74 (2.15)	0 - 8	5.22 (2.35)	0 - 8
BTI-8	10.2 (6.07)	0 - 23	7.16 (4.4)	0 - 20	8.68 (4.49)	0 - 23
PSOSH	10.35 (6.06)	0 - 20	6.82 (5.41)	0 - 20	8.6 (5.96)	0 - 20
PCL-C	57.9 (16.94)	24 - 85	52.6 (14.34)	18 - 77	55.32 (15.78)	18 - 85
DAST-20	10.9 (6.26)	0 - 19	8.78 (6.88)	0 - 19	9.89 (6.62)	0 - 19
GAD-7	14.24 (5.5)	3 - 21	12.18 (6.31)	0 - 21	13.28 (5.99)	0 - 21
PHQ-9	16.92 (6.85)	0 - 27	14.66 (7.05)	0 - 27	15.89 (7.05)	0 - 27

*Note.* BTI = Barriers to Treatment Inventory, BTI-1 = Absence of Problem, BTI-2 = Negative Social Support, BTI-3 = Fear of Treatment, BTI-4 = Privacy Concerns, BTI-5 = Time Conflict, BTI-6 = Availability of Treatment, BTI-7 = Admission Difficulty, BTI-8 = Women-Predominant, PSOSH = Perceptions of Stigmatization by Others for Seeking Help, PCL-C = PTSD Checklist- Civilian Version, DAST-20 = Drug Abuse Screening Test, GAD-7 = Generalized Anxiety Disorder Scale, PHQ-9 = Patient Health Questionnaire

Table 2

*Bivariate Correlations among Main Study Variables for Total Sample*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PHQ	-												
2. GAD	.76*	-											
3. PSOSH	.40*	.25*	-										
4. PCL-C	.64**	.59**	.41**	-									
5. BTI	.42**	.31**	.44**	.34**	-								
6. BTI-1	.14	.07	.15	.14	.59**	-							
7. BTI-2	.25*	.17	.24*	.22*	.64**	.51**	-						
8. BTI-3	.32*	.27**	.37**	.23*	.73**	.28**	.43*	-					
9. BTI-4	.19	.12	.27**	.17	.57**	.75**	.47**	.37**	-				
10. BTI-5	.28*	.19	.04	.11	.51**	.19	.25*	.23*	.20*	-			
11. BTI-6	.17	.14	.24*	.27**	.49**	.03	.24*	.35*	-.02	.20*	-		
12. BTI-7	.28**	.30**	.16	.27**	.23*	-.14	-.08	.21*	-.10	.22*	.28**	-	
13. BTI-8	.37**	.31**	.46**	.22*	.66**	.23*	.39**	.43**	.24*	.30*	.40**	.20*	-
<i>n</i>	100	100	98	98	100	100	100	100	100	100	100	100	100

\* $p < .05$ ; \*\* $p < .01$ 

*Note.* PHQ-9 = Patient Health Questionnaire, GAD-7 = Generalized Anxiety Disorder Scale, PSOSH = Perceptions of Stigmatization by Others for Seeking Help, PCL-C = PTSD Checklist- Civilian Version, BTI = Barriers to Treatment Inventory, BTI-1 = Absence of Problem, BTI-2 = Negative Social Support, BTI-3 = Fear of Treatment, BTI-4 = Privacy Concerns, BTI-5 = Time Conflict, BTI-6 = Availability of Treatment, BTI-7 = Admission Difficulty, BTI-8 = Women-Predominant

Table 3

*Bivariate Correlations among Main Study Variables for Women*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PHQ	-												
2. GAD	.78**	-											
3. PSOSH	.33*	.09	-										
4. PCL-C	.68**	.58**	.31*	-									
5. BTI	.37**	.33*	.37**	.30*	-								
6. BTI-1	.18	.10	.07	.20	.64**	-							
7. BTI-2	.27	.20	.17	.24	.70**	.67**	-						
8. BTI-3	.27	.21	.33*	.13	.78**	.34*	.74**	-					
9. BTI-4	.25	.20	.17	.18	.61**	.80**	.65**	.42**	-				
10. BTI-5	.42**	.43**	.07	.32*	.63**	.26	.34*	.37**	.15	-			
11. BTI-6	.21	.20	.24	.28	.52**	.08	.22	.37**	.06	.37**	-		
12. BTI-7	.32*	.28*	.21	.17	.17	.32*	-.05	.18	-.22	.31*	.45**	-	
13. BTI-8	.28*	.25	.44**	.17	.67**	.21	.35*	.50**	.25	.50**	.49**	.25	-
<i>n</i>	50	50	49	50	50	50	50	50	50	50	50	50	50

\* $p < .05$ ; \*\* $p < .01$ 

*Note.* PHQ-9 = Patient Health Questionnaire, GAD-7 = Generalized Anxiety Disorder Scale, PSOSH = Perceptions of Stigmatization by Others for Seeking Help, PCL-C = PTSD Checklist- Civilian Version, BTI = Barriers to Treatment Inventory, BTI-1 = Absence of Problem, BTI-2 = Negative Social Support, BTI-3 = Fear of Treatment, BTI-4 = Privacy Concern, BTI-5 = Time Conflict, BTI-6 = Availability of Treatment, BTI-7 = Admission Difficulty, BTI-8 = Women-Predominant

Table 4

*Bivariate Correlations among Main Study Variables for Men*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PHQ	-												
2. GAD	.73**	-											
3. PSOSH	.41**	.33*	-										
4. PCL-C	.59**	.59**	.47**	-									
5. BTI	.46**	.27	.49**	.36*	-								
6. BTI-1	.10	.04	.26	.08	.55**	-							
7. BTI-2	.21	.13	.31*	.16	.53**	.27	-						
8. BTI-3	.36**	.30*	.43**	.34*	.68**	.23	.37**	-					
9. BTI-4	.14	.05	.46**	.18	.55**	.68**	.22	.33*	-				
10. BTI-5	.15	-.02	-.01	-.14	.39**	.11	.12	.10	.25	-			
11. BTI-6	.08	.02	.14	.21	.43**	-.02	.23	.32*	-.08	.03	-		
12. BTI-7	.18	.26	-.02	.33*	.26	.11	-.20	.24	.08	.12	.01	-	
13. BTI-8	.43**	.33*	.37**	.21	.64**	.30*	.43**	.37**	.27	.04	.20	-.01	-
<i>n</i>	50	50	49	50	50	50	50	50	50	50	50	50	50

\* $p < .05$ ; \*\* $p < .01$ 

*Note.* PHQ-9 = Patient Health Questionnaire, GAD-7 = Generalized Anxiety Disorder Scale, PSOSH = Perceptions of Stigmatization by Others for Seeking Help, PCL-C = PTSD Checklist- Civilian Version, BTI = Barriers to Treatment Inventory, BTI-1 = Absence of Problem, BTI-2 = Negative Social Support, BTI-3 = Fear of Treatment, BTI-4 = Privacy Concern, BTI-5 = Time Conflict, BTI-6 = Availability of Treatment, BTI-7 = Admission Difficulty, BTI-8 = Women-Predominant

Among women, the BTI was positively correlated with all subscales ( $r = 0.52-0.78$ ) except the admission difficulty subscale ( $r = 0.17$ ). Furthermore, the BTI was positively correlated with stigma and all mental health variables ( $r = 0.30-0.37$ ).

Lastly, among men, the BTI was positively correlated with all subscales ( $r = 0.39-0.68$ ) except the admission difficulty subscale ( $r = 0.26$ ). Additionally, the BTI was positively correlated with perceived stigma ( $r = 0.46$ ), depression ( $r = 0.49$ ) and symptoms of trauma-related stress ( $r = 0.36$ ), but not anxiety ( $r = 0.27$ ).

### **Gender Differences in Barriers**

Findings from the independent samples *t*-tests (see Table 5) revealed that men and women did not differ in overall, general treatment barriers. This was demonstrated by the similar total BTI scores among men ( $M = 78.28, SD = 23.49$ ) and women ( $M = 85.16, SD = 26.79$ ),  $t(98) = -1.37, p = .175, d = .27$ .

However, as hypothesized, women ( $M = 10.20, SD = 6.07$ ) displayed significantly higher scores on the women-predominant BTI subscale compared to men ( $M = 7.16, SD = 4.40$ ),  $t(89.32) = -2.87, p = .005, d = .57$ . This supports the hypothesis that women are more likely to encounter treatment barriers related to relational factors, family responsibilities, and mental health.

Moreover, men and women did not differ on any of the other BTI subscales. For instance, men ( $M = 6.80, SD = 3.59$ ) and women ( $M = 6.66, SD = 4.02$ ) displayed similar scores on the absence of problem subscale,  $t(98) = 0.18, p = .855, d = .04$ . In addition, men ( $M = 3.94, SD = 2.52$ ) and women ( $M = 4.48, SD = 3.63$ ) displayed similar scores on the negative social support subscale,  $t(87.35) = -0.87, p = .390, d = .17$ . Similarly, men ( $M = 7.32, SD = 3.67$ ) and women ( $M = 7.64, SD = 3.58$ ) did not differ on the fear of

treatment subscale,  $t(98) = -0.44, p = .660, d = .09$ . Likewise, men ( $M = 3.78, SD = 1.95$ ) and women ( $M = 3.60, SD = 2.16$ ) did not differ on the privacy concerns subscale,  $t(98) = 0.44, p = .663, d = .09$ . Furthermore, men ( $M = 3.76, SD = 2.21$ ) and women ( $M = 3.82, SD = 2.26$ ) reported similar scores on the time conflict subscale  $t(98) = -0.13, p = .893, d = .03$ . Men ( $M = 3.70, SD = 2.12$ ) and women ( $M = 4.52, SD = 2.28$ ) also reported similar scores on the poor treatment availability subscale,  $t(98) = -1.86, p = .066, d = .37$ . Finally, men ( $M = 4.74, SD = 2.15$ ) and women ( $M = 5.70, SD = 2.46$ ) did not differ on the admission difficulty subscale,  $t(98) = -2.87, p = .04, d = .42$ . All tests were two-tailed, using a significance level of  $\alpha = .05$ . In addition, Bonferroni adjusted  $p$ -values of .0055 (.05/9) were used to compensate for examining multiple comparisons.

### **Gender Differences in Mental Health and Stigma**

A one-way MANOVA was performed to test for gender differences in depression, anxiety, symptoms of trauma-related stress, and perceived stigma. Results indicated a significant multivariate effect for gender, Pillai's Trace = .11,  $F(4, 92) = 2.81, p = .03, \eta^2 p = .109$ .

Follow-up univariate analyses were performed using Bonferroni adjusted  $p$ -values of .0125 (.5/4) for multiple comparisons (see Table 6). Results revealed that women ( $M = 10.5, SD = 6.03$ ) reported higher levels of perceived stigma compared to men ( $M = 6.82, SD = 5.41$ ),  $F(1, 95) = 10.04, p = .002, \eta^2 p = .096$ . However, men ( $M = 14.55, SD = 7.08$ ) and women ( $M = 16.98, SD = 6.57$ ) reported similar symptoms of depression,  $F(1, 95) = 3.06, p = .083, \eta^2 p = .031$ . In addition, men ( $M = 12.08, SD = 6.33$ ) and women ( $M = 14.25, SD = 5.43$ ) reported similar symptoms of anxiety,  $F(1, 95) = 3.27, p = .074, \eta^2 p =$

.033. Finally, men ( $M = 52.45$ ,  $SD = 14.45$ ) and women ( $M = 57.9$ ,  $SD = 16.94$ ) reported similar symptoms of trauma related stress  $F(1, 95) = 2.91$ ,  $p = .091$ ,  $n^2p = .03$ .

Table 5

*Gender Differences in Treatment Barriers*

Measure	Women		Men		$t(98)$	$d$
	$M (SD)$	Range	$M (SD)$	Range		
BTITotal	85.16 (26.79)	21 - 154	78.28 (23.49)	18 - 123	-1.37	.27
BTI-1	6.66 (4.02)	0 - 16	6.8 (3.59)	0 - 13	0.18	.04
BTI-2	4.48 (3.63)	0 - 12	3.94 (2.52)	0 - 12	-0.87	.17
BTI-3	7.64 (3.58)	0 - 16	7.32 (3.67)	0 - 16	-0.44	.09
BTI-4	3.6 (2.16)	0 - 8	3.78 (1.95)	0 - 8	0.44	.09
BTI-5	3.82 (2.26)	0 - 8	3.76 (2.21)	0 - 8	-0.13	.03
BTI-6	4.52 (2.28)	0 - 8	3.7 (2.12)	0 - 8	-1.86	.37
BTI-7	5.7 (2.46)	0 - 8	4.74 (2.15)	0 - 8	-2.87	.42
BTI-8	10.2 (6.07)	0 - 23	7.16 (4.4)	0 - 20	-2.87**	.57

*Note.* BTI = Barriers to Treatment Inventory, BTI-1 = Absence of Problem, BTI-2 = Negative Social Support, BTI-3 = Fear of Treatment, BTI-4 = Privacy Concerns, BTI-5 = Time Conflict, BTI-6 = Availability of Treatment, BTI-7 = Admission Difficulty, BTI-8 = Women-Predominant

\*  $p < .05$ . \*\*  $p < .01$

Thus, as hypothesized, women experienced higher levels of perceived stigma for seeking help for their substance use compared to men. However, although the mean ratings of depression, anxiety, and trauma-related stress appeared to be higher among women, these differences were not statistically significant.

Table 6

*Gender Differences in Mental Health and Stigma*

Measure	Women		Men		<i>F</i> (1,95)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
PHQ-9	16.98	6.57	14.55	7.08	3.06	.332
GAD-7	14.25	5.43	12.08	6.33	3.27	.296
PSOSH	10.5	6.03	6.82	5.41	10.04**	.008
PCL-C	57.9	16.94	52.45	14.45	2.91	.364

*Note.* PHQ-9 = Patient Health Questionnaire, GAD-7 = Generalized Anxiety Disorder Scale, PSOSH = Perceptions of Stigmatization by Others for Seeking Help, PCL-C = PTSD Checklist- Civilian Version

\*  $p < .05$ . \*\* $p < .01$

### **Mental Health, Stigma and Barriers**

Multiple regression analyses were conducted to evaluate whether mental health (i.e., depression, anxiety, and symptoms of trauma-related stress) and stigma predicted treatment barriers in a sample containing women only. A separate multiple regression analysis was performed for overall BTI scores as well as for each individual BTI subscale. Once again, to compensate for testing multiple subscales, Bonferroni adjusted  $p$ -values of .0055 (.5/9) were used for each test.

The first multiple regression analysis was conducted to predict overall treatment barriers. Results indicated that mental health and perceived stigma did not significantly predict general treatment barriers among women. Together, these four predictors explained 23% of the variance in total BTI among women,  $F(4, 43) = 3.21$ ,  $p = .022$ ,  $R^2 = .23$ .

To predict women-predominant barriers, a second multiple regression analysis was performed. Results indicated women-predominant barriers were not significantly

predicted by mental health or perceived stigma. Nonetheless, these four predictor variables accounted for 25% of the variance in women-predominant barriers,  $F(4, 43) = 3.52, p = .014, R^2 = .25$ .

A third multiple regression analysis was performed to predict barriers related to the fear of seeking treatment among women. Findings demonstrated that, once again, none of the variables of interest were significantly predictive of fear-related barriers. Together, these variables accounted for 16% of variance,  $F(4, 43) = 2.06, p = .103, R^2 = .16$ .

In addition, a fourth multiple regression analysis was performed to predict barriers related to time conflict among women, indicating that these barriers were not significantly predicted by symptoms of depression, anxiety, trauma-related stress, or perceived stigma. These predictors accounted for 20% of variance in time conflict barriers,  $F(4, 43) = 2.73, p = .041, R^2 = .20$ .

To predict barriers related to admission difficulty, a fifth multiple regression analysis was conducted. Findings revealed none of the variables of interest were significant predictors of admission difficulty, together accounting for 13% of the variance,  $F(4, 43) = 1.62, p = .188, R^2 = .13$ .

A sixth multiple regression analysis was conducted to predict barriers related to poor treatment availability among women. Results demonstrated that poor treatment availability was not significantly predicted by mental health or perceived stigma, which explained 11% of variance,  $F(4, 43) = 1.35, p = .267, R^2 = .11$ .

A seventh multiple regression analysis was conducted to predict barriers related to privacy concerns, revealing that mental health and perceived stigma did not significantly predict such barriers among women,  $F(4,43) = 0.81, p = .528, R^2 = .07$ .

An eighth multiple regression analysis was conducted to predict barriers related to negative social support, indicating that neither mental health nor perceived stigma were predictive of these barriers among women,  $F(4,43) = 0.99, p = .421, R^2 = .09$ .

Finally, a multiple regression analysis was performed to predict barriers related to the perceived absence of problem,  $F(4, 43) = 0.53, p = .716, R^2 = .05$ ; however, none of the hypothesized independent variables were significant predictors of these barriers among women.

### **Opioid Use, Mental Health and Stigma**

A series of independent samples *t*-tests was performed to determine whether women who use opioids report higher levels of depression, anxiety, symptoms of trauma-related stress and stigma. A separate test was performed for each mental health concern and for perceived stigma, using Bonferroni adjusted *p*-values of .0125 (.5/4) to account for multiple comparisons. For each analysis, a woman-only sample was used and women who use opioids were compared to those who do not.

Findings revealed that the mental health of the women in this study was not significantly influenced by the type of substance used. For instance, women who use opioids ( $M = 15.86, SD = 7.59$ ) and women who do not use opioids ( $M = 17.69, SD = 6.29$ ) reported similar symptoms related to depression,  $t(48) = -0.93, p = .356, d = .26$ . Similarly, women who use opioids ( $M = 14.33, SD = 5.9$ ) and women who do not use opioids ( $M = 14.17, SD = 5.29$ ) reported similar symptoms of anxiety,  $t(48) = 0.10, p =$

.920,  $d = .03$ . Furthermore, women who use opioids ( $M = 58.57$ ,  $SD = 18.58$ ) and women who do not ( $M = 57.37$ ,  $SD = 15.89$ ) reported similar symptoms of trauma related stress,  $t(46) = 0.24$ ,  $p = .810$ ,  $d = .07$ . Finally, although women who use opioids ( $M = 12.29$ ,  $SD = 5.83$ ) exhibited higher mean ratings of perceived stigma compared to women who do not use opioids ( $M = 8.89$ ,  $SD = 5.92$ ), these differences were not significant,  $t(47) = 2.00$ ,  $p = .052$ ,  $d = .58$ . However, it is important to note that, since Cohen's  $d$  is above 0.5, the effect size of this test is considered moderate.

### **Opioid Use and Barriers**

Finally, several independent samples  $t$ -tests were performed to predict barriers among women who use opioids compared to women who use other substances only. Once again, only the sample of women were included in analyses. Findings revealed that women who use opioids ( $M = 84.24$ ,  $SD = 29.72$ ) experienced similar general treatment barriers as those who use other substances only ( $M = 85.83$ ,  $SD = 24.98$ ),  $t(48) = -0.20$ ,  $p = .838$ ,  $d = .06$ . In addition, women who use opioids ( $M = 5.76$ ,  $SD = 4.40$ ) and those who do not ( $M = 7.31$ ,  $SD = 3.66$ ) reported similar barriers related to perceived absence of problem,  $t(48) = -1.36$ ,  $p = .181$ ,  $d = .38$ . Similarly women who use opioids ( $M = 3.90$ ,  $SD = 3.69$ ) and women who do not use opioids ( $M = 4.90$ ,  $SD = 3.59$ ) did not differ in barriers related to negative social support,  $t(48) = -0.95$ ,  $p = .345$ ,  $d = .27$ . Additionally, women who use opioids ( $M = 7.48$ ,  $SD = 4.45$ ) did not differ from women who use other substances ( $M = 7.76$ ,  $SD = 2.87$ ) in fear-related treatment barriers,  $t(31.86) = -0.27$ ,  $p = .800$ ,  $d = .07$ . Moreover, women who use opioids ( $M = 2.86$ ,  $SD = 1.98$ ) and those who do not ( $M = 4.14$ ,  $SD = 2.15$ ) reported similar treatment barriers related to privacy concerns,  $t(48) = -2.15$ ,  $p = .037$ ,  $d = .62$ . In addition, women who use opioids ( $M = 3.86$ ,  $SD = 2.69$ ) reported similar barriers related to time

conflicts as women who use other substances only ( $M = 3.79$ ,  $SD = 1.93$ ),  $t(48) = 0.10$ ,  $p = .922$ ,  $d = .03$ . Furthermore, women who use opioids ( $M = 4.90$ ,  $SD = 2.07$ ) and those who do not ( $M = 4.24$ ,  $SD = 2.42$ ) reported similar barriers related to treatment availability,  $t(48) = 1.02$ ,  $p = .315$ ,  $d = .29$ . Similarly, women who use opioids ( $M = 6.00$ ,  $SD = 2.63$ ) and women who use other substances only ( $M = 5.48$ ,  $SD = 2.36$ ) did not differ in barriers related to admission difficulty,  $t(48) = 0.73$ ,  $p = .469$ ,  $d = .21$ . Lastly, women who use opioids ( $M = 10.90$ ,  $SD = 6.75$ ) and women who use other substances only ( $M = 9.69$ ,  $SD = 5.59$ ) reported similar experiences of women-predominant barriers,  $t(48) = 0.70$ ,  $p = .490$ ,  $d = .20$ .

These results suggest that opioid use did not have a significant influence on the amount or type of barriers encountered women. Thus, results did not support the hypothesis that women who use opioids would encounter more barriers compared to women who use other substances.

## Discussion

Previous research has indicated that women experience multiple obstacles to accessing appropriate substance use treatment services, including stigma, caregiving responsibilities and relational factors (Taylor, 2010). In addition, it has been shown that women with substance-related problems commonly present with histories of trauma and co-morbid mental health concerns, which may further limit women's ability to access and remain in treatment (Office on Women's Health, 2017). Moreover, women represent a large and growing population of individuals who use opioids and who, as a result, experience alarmingly high rates of life-threatening, opioid-related health concerns (Centres for Disease Control, 2013). Thus, opioid use may further interfere with women's ability to access treatment. Collectively, these factors may explain why women are commonly underreported in substance use treatment services. However, due to a lack of research that empirically examines gender differences in barriers to substance use treatment; the exact nature and relative prevalence of certain barriers remain unclear.

Given the above, in this study I compared men and women on substance use treatment barriers, mental health and stigma. In addition, I examined whether mental health, stigma, and barriers differed among women who use opioids compared to those who use other substances. The findings of this research shed light on the nature of the relations among gender, mental health and stigma, as well as their effects on perceived barriers to substance use treatment.

An investigation of gender and treatment barriers revealed that men and women reported similar levels of general substance use barriers, which were measured by the BTI scale and its original subscales. However, the incorporation and examination of a

women-predominant barrier subscale based on previous research (Poole & Isaac, 2002) exposed a major discrepancy between men and women. As predicted, women reported substantially higher levels of women-predominant barriers related to family responsibilities, relational factors, and mental health. This is consistent with the argument that certain factors uniquely and disproportionately undermine women's ability or willingness to access care (Green, 2006; Tuchman, 2010).

The women-predominant barrier subscale used in this study encompassed several of the factors outlined in previous literature. Collectively, these items indicated that the women in this study more commonly encountered barriers related to a lack of childcare, stigma associated with being a parent who uses substances, the fear of losing one's children, mental health concerns, and relationship issues. As many of these barriers were related to family responsibilities and relationship factors, these findings are consistent with the relational theory of substance use, which stresses the centrality of relationships in the lives of women and how these relationships can influence the onset, progression, and maintenance of substance use among women (Calhoun et al., 2010). In sum, this finding supported the hypothesis that women would encounter more women-predominant barriers, while men and women would encounter similar general barriers. By directly comparing men and women on women-predominant barriers, these results extend the existing body of literature that is predominantly theoretical or descriptive in nature.

Relatedly, women in this study also encountered heightened levels of perceived stigmatization for seeking help for their substance use compared to men. This finding is in line with stigma theory and Copeland's (1977) notion of double deviance whereby women who use substances are primary stigmatized for their substance use problem and

further stigmatized for their womanhood. The magnitude of this stigma has been argued to be more profound among pregnant women who use substances (Reid et al., 2008), however none of the women in this sample reported pregnancy, thus the relationship between pregnancy and stigma could not be explored. Nonetheless, the finding that women experienced more perceived stigmatization reinforces prior research demonstrating that women more commonly report stigma and shame related to their substance use (Brown, 2011; O'Connor et al., 1994). This provided partial support to the second hypothesis, which predicted that women would encounter higher levels of stigma and mental health concerns compared to men.

Contrary to what was initially expected, men and women did not differ in symptoms of depression, anxiety, or trauma-related stress. While women indeed reported higher average levels of each mental health concern, none of these results were statistically significant. Given the clinical sample used in this study, this may be attributed to a ceiling effect whereby most participants, regardless of gender, reported moderately severe to severe levels of depression, anxiety, and trauma-related stress. Therefore, any gender differences related to mental health may have been muted. It is worthwhile to note that this finding does not necessarily contradict the notion that women have a higher risk of depression, anxiety, and trauma-related stress compared to men (United Nations Office on Drugs and Crime, 2011) as this sample was not reflective of the general population.

In this thesis research, I also investigated whether mental health and perceived stigma predicted substance use treatment barriers among women. It was found that, neither general nor women-predominant barriers were significantly predicted by

symptoms of depression, anxiety, trauma-related stress, or perceived stigma. This finding did not provide support for the hypothesis that women with higher levels of mental health problems and perceived stigma would encounter more barriers compared to those who do not. In contrast, all women in this study encountered similar barriers regardless of their mental health profiles or perceptions of stigma.

As a response to the increase in opioid-related morbidity and mortality among women, I sought to examine the effects of opioid use on mental health, stigma, and treatment barriers among women. Although women who used opioids were expected to exhibit higher levels of perceived stigma, depression, anxiety, and symptoms of trauma-related stress compared to women who used other substances, this hypothesis was not entirely supported. Importantly, women who reported opioid use experienced higher average levels perceived stigma compared to women who use other substances. Although this finding was not statistically significant, it did yield a moderate effect size, suggesting that the “double deviance” phenomenon proposed by Copeland (1977) may indeed be more prominent among women who use opioids. Given the current climate of fear and judgement surrounding the ongoing opioid crisis, coupled with ubiquitous media coverage, nonmedical opioid use is considered particularly reprehensible by the public. Thus, by engaging in nonmedical opioid use, these women stray even farther from the traditional gender roles ascribed to them by society.

Nevertheless, women who used opioids did not report increased depression, anxiety, or symptoms of trauma-related stress as initially expected. This may be explained by a ceiling effect as most participants in this study exhibited substantial concurrent mental health problems, irrespective of their substance of choice. In sum,

women who used opioids presented with similar symptoms of depression, anxiety, and trauma-related stress, yet they perceived, on average, more stigmatization than those who use other substances only.

Opioid use was also examined as a potential predictor of substance use treatment barriers among women, however opioid use had no effect on overall barriers or barrier subscales. Arguably, then, substance use treatment barriers might not differ depending on the substance used.

### **Limitations and Future Directions**

The results of this study should be interpreted in the context of a number of limitations. First, although great effort was made to follow appropriate sampling procedures, recruitment for this study was not entirely random. Specifically, nonproportional quota sampling was used to ensure an equal number of men and women in the sample. This meant that the recruitment of men was discontinued once a sample of 50 men had been reached. The recruitment of women then continued until the desired sample size of 100 participants was obtained. Although this allowed for an adequate and equal sample of men and women to facilitate comparisons based on gender, it may have limited the generalizability of results to other substance use treatment services since there are typically fewer women compared to men. Although this drawback should be kept in mind while interpreting these results, only ten female participants were recruited after the desired sample of men was attained, so this likely had a minimal effect on results. To remediate this, future research should recruit a larger, representative clinical sample to increase generalizability as well as robustness to unequal sample sizes. Due to time constraints and limited resources, this was beyond the scope of the current study.

It is also important to note that the analyses in this study used Bonferroni adjusted  $p$ -values corresponding to the number of comparisons examined in each separate hypothesis as opposed to the number of comparisons in the entire study. This method is more liberal, and less favourable compared the latter. However, given the exploratory nature of this study, I sought to test several hypotheses that have been consistently overlooked by previous research in this area. Given the relatively small sample, combined with the number of analyses required to test these hypotheses, the use of study-wide Bonferroni adjusted  $p$ -values may have masked these noteworthy findings. This being said, findings from this study should be interpreted with caution as this approach may have inflated the risk of making a Type 1 error. In the future, it would be beneficial to examine these gendered treatment barriers using a narrower analytic focus with fewer comparisons to minimize the risk of making a Type 1 error.

Furthermore, sample sizes were unequal for individuals who used opioids and those who did not. This was true not only for the total sample, but also for men and women as separate groups. Consequently, relatively small, unequal samples were present in the analyses where I examined the effects of opioid use and gender on mental health and treatment barriers. These small, unequal groups may have resulted in power issues (Hayes, 2013), which likely contributed to some of the null findings associated with opioid use.

Additionally, a sampling bias may have occurred due to an unequal distribution of participants from each substance use service at the Royal. For instance, due to differences in capacity, length of stay, and turnover for each service, more participants were recruited from certain services (i.e., CDU, AMIC, ASU) compared to others (i.e., ROIS, TAY). These patient populations may differ on certain characteristics, such as mental health status

and substance use severity, which may have influenced the results of this study. Due to its relatively small sample size and limited resources with my research, I was unable to control for this. I purposely recruited participants from a variety of substance use services at the Royal in order to obtain a sufficient sample size in a limited timeframe. If time and resources permit, future research may be interested in recruiting participants from a more homogenous substance use treatment service (i.e., inpatient-only) to avoid these potentially confounding variables.

As mentioned, all participants in this study were already accessing some form of substance use treatment at The Royal. Thus, to capture barriers to treatment, participants were asked to recall the barriers they encountered prior to accessing services at the Royal. This was not ideal, as some participants may have had more recent experiences with barriers compared to others. As a result, treatment barriers were likely more salient among those with recent treatment-seeking experiences, which may have influenced their responses on the BTI. It is possible then, that two participants who encountered similar barriers may have reported entirely different scores on the BTI, due to issues with time lapse, memory and salience. To remediate this, it would be valuable to conduct a similar study investigating general and women-predominant barriers among a treatment-seeking population before connecting with a treatment provider.

Furthermore, to avoid distress and the potential re-traumatization of participants with histories of trauma, I did not directly measure past traumatic experiences (i.e., asking participants to recall specific traumatic events). Instead, the PCL-C was used to measure symptoms associated with trauma-related stress as a more indirect indicator of past trauma. As a result, I was unable to explicitly test whether women with histories of trauma

encountered more barriers than those without histories of trauma. While the symptoms of trauma-related stress were unrelated to most barriers among women, it remains unclear whether an alternative measure of trauma may have yielded different results. It may be beneficial, yet challenging, for future research to develop a more direct measure of trauma that elicits minimal discomfort among respondents.

Finally, the original BTI scale was altered to incorporate women-predominant barriers that were previously not reflected. In addition, the language of the scale was changed to past-tense and some items were removed. These adjustments may have affected the validity and/or reliability of the original scale. This being said, the significant positive correlations between the revised BTI and each of its subscales, as well as its high degree of internal consistency (Cronbach's  $\alpha = .900$ ) provide some evidence that the revised scale is valid and reliable. Furthermore, while it was beyond the scope of this study for my M.A. research, further research is needed to examine substance use treatment barriers among other underserved subpopulations, including pregnant women, those who identify with the LGBTQ+ community, transitional aged youth, and cultural minorities. Barriers that reflect and respond to these diverse realities should be incorporated into a more comprehensive measure of treatment barriers.

### **Implications**

Although gendered treatment barriers have been cited in previous studies (Greenfield, 2016; Otiashvili et al., 2013; Poole & Isaac, 2001), researchers have neglected to directly compare men and women on gendered treatment barriers, overlooking these meaningful distinctions. Others have limited their analyses to general treatment barriers, leaving important factors undetected (Rapp et al., 2006). This was the first known study to

empirically analyze and compare gendered barriers among men and women. This is noteworthy as it allows us to identify the factors underlying women's relative underrepresentation in substance use treatment services.

Ultimately, findings from this study contribute to our current knowledge of gendered treatment barriers and may be used to aid in the movement toward accessible services that better reflect the realities of women and are responsive to their needs. In addition, these findings increase our understanding of how certain barriers differentially affect subpopulations of women, including women who experience high levels of perceived stigma. Moreover, it draws some attention to the unique situation of women who use opioids, and how they may encounter higher average levels of stigmatization for their opioid use compared to women who use other substances only. High levels of perceived stigma may deter women from accessing appropriate care for their substance use. To target stigma among communities and professionals, it may be beneficial to implement educational awareness campaigns that address substance use and the stigma that surrounds it.

Communities, psychologists, and other health care providers need to recognize and respond to these barriers to ensure that available services reflect the realities of women and are receptive to their needs. At the same time, further research into gender-specific care, as well as research aimed at identifying and mitigating stigmatization and barriers to care among women who use opioids, is essential given the rising rates of opioid use, harms, and overdose among women across Canada and elsewhere.

Ideally, an improved understanding of these barriers will allow community service providers to develop and expand on substance use programs in ways that acknowledge and

address these barriers. At the very least, these findings may raise compassion and awareness about women with unmet substance use treatment needs, while challenging stigmatizing notions about women with substance use and co-occurring mental health concerns.

### **Conclusion**

This study demonstrated that, although men and women encounter similar general barriers to substance use treatment, women are particularly vulnerable to barriers related to family responsibilities, relational factors, mental health, and stigma. In addition, women experience greater levels of perceived stigmatization compared to men. This may be especially true among women who use opioids as they encounter, on average, more perceived stigmatization compared to women who used other substances only. This study responded to a critical gap in previous literature by empirically examining gender differences in barriers to substance use treatment. In light of these findings, future research should develop and validate a more comprehensive measure of substance use treatment barriers that reflects the needs and realities of both men and women. In practice, increased effort should be made to mitigate these barriers and the accompanying stigmatization attached to women as they seek support for their substance use.

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## Appendix A: Consent Form

### BARRIERS TO SUBSTANCE USE TREATMENT RESEARCH STUDY

#### CONSENT TO PARTICIPATE IN A RESEARCH STUDY: INFORMATION FORM

Principal Investigator:	<b>Kim Corace, Ph.D., C. Psych.</b> Royal Ottawa Mental Health Centre Ottawa, ON	Research Assistant:	<b>Silvana Agterberg</b> Royal Ottawa Health Care Group Ottawa, ON
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Contact Person:	<b>Silvana Agterberg</b> [REDACTED] [REDACTED]
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#### **What is the Purpose of the Study?**

You are being asked to participate in a study conducted by Dr. Corace. The purpose of this study is to examine the barriers to substance use treatment experienced by individuals before receiving services at the Royal. Your participation is important, as a better understanding of these barriers can help service providers to develop and expand on substance use programs in ways that acknowledge and address these barriers, making treatment more accessible for those who seek it.

#### **What will I be asked to do?**

For this study, you will be asked to complete a questionnaire package measuring demographic information, a range of substance use and mental health problems, perceptions of stigma, and barriers to substance use treatment. This will require approximately 30 minutes of your time and you will be compensated with a \$15.00 gift card to Tim Horton's.

#### **What are the risks or discomforts?**

It is expected that completing questionnaires may be fatiguing and stressful for some people. Some people may find it difficult to answer questions about their problems. If you feel extreme discomfort during an assessment, a trained professional will be available to help. Your doctor and health care team are here to support you.

#### **What are the benefits of this study?**

The information learned from this study will help to increase our understanding of barriers for individuals seeking treatment for substance use and mental health problems. Ideally, this research will improve access to services for persons seeking treatment for substance use and mental health problems in the future.

#### **Can I Quit at any Time?**

Your participation in this study is **completely voluntary** and you are free to withdraw your participation at any time without any consequences. Your choice to not participate, or your

choice to withdraw, will not affect any treatment needs that you may have at The Royal Ottawa Mental Health Centre.

**What about Confidentiality and Anonymity?**

Your information will be kept confidential and private. You will not be required to indicate your name on any of the questionnaires you complete, and your name will **never** appear on questionnaires, reports or presentations that may arise from this study. Confidentiality will be maintained by assigning you a unique code number that does not contain any of your identifying information. Data stored in the computer will be traceable by your personal identification code and your name will not be used. Data stored on the computer will be password protected. Your data will be stored in a locked cabinet in a locked room. Only members of the SUCD research team will have access to your data.

All content and handling of data is in compliance with the Personal Information Protection and Electronic Documents Act (PIPEDA) and the provincial Personal Health Information Protection Act, 2004 (PHIPA) guidelines for managing electronic data. Research data may be reviewed by the ROHCG Research Ethics Board and/or the Research Quality Associate for quality assurance purposes.

Please be advised that if the researcher or study personnel judge you to be at an acute danger to yourself or others, based upon your responses, then steps will be taken to ensure your safety and others' safety, including dissolving confidentiality, and enlisting appropriate medical assistance, such as your family doctor, or appropriate mental health care staff.

**Who Can I Speak to if I Have Any Questions?**

You will receive a copy of the information and consent form for your records. For other questions about the study, you may direct them to the research assistant, Silvana Agterberg, at [REDACTED] or through email at [REDACTED]. You may also contact Dr. Kim Corace, Principal Investigator at [REDACTED]. The chair of the Research Ethics Board at the Royal Ottawa Mental Health Centre is Dr. Pierre Blier and he may be contacted at [REDACTED].

**INFORMED CONSENT FORM****Consent Statement:**

I have received Information on the Barriers to Substance Use Treatment Research Study, I have had the opportunity to ask questions, and I have been provided with the attached written information. I understand that the information used will be summarized in order to maintain confidentiality. I am aware that my participation is entirely voluntary and that I may withdraw at any time without giving a reason and without it affecting me in any way. All of my questions have been answered to my satisfaction.

- |   |
|---|
| <input type="checkbox"/> <b>I agree</b> to participate in the Barriers to Substance Use Treatment Research Study        |
| <input type="checkbox"/> <b>I do not agree</b> to participate in the Barriers to Substance Use Treatment Research Study |

Signature Patient \_\_\_\_\_ Date \_\_\_\_\_

Name of Patient (Please Print) \_\_\_\_\_

Witness Signature \_\_\_\_\_ Date \_\_\_\_\_

Name of Witness (Please Print) \_\_\_\_\_

## Appendix B: Payment Acknowledgement Form



Mental Health - Care & Research  
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### BARRIERS TO SUBSTANCE USE TREATMENT RESEARCH STUDY

#### PARTICIPANT ACKNOWLEDGEMENT OF COMPENSATION

Principal Investigator:	<b>Kim Corace, Ph.D., C. Psych.</b> Royal Ottawa Mental Health Centre Ottawa, ON	Research Assistant:	<b>Silvana Agterberg</b> Royal Ottawa Health Care Group Ottawa, ON
Contact Person:	<b>Silvana Agterberg</b> [REDACTED] [REDACTED]		

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**AMOUNT of PAYMENT: \$15 Tim Horton's gift card**

This form is to record that you, the participant, received the amount specified above in gift card for your participation in the study, in compensation for your time.

If you have any questions about this study, please feel free to contact Silvana Agterberg, at [REDACTED]  
[REDACTED]

#### ACKNOWLEDGEMENT STATEMENT

I have read and I understand the information above, and my signature below indicates that I have received the amount specified above in gift card for my participation in the study.

Participant Initials \_\_\_\_\_ Date \_\_\_\_\_

Witness Signature \_\_\_\_\_ Date \_\_\_\_\_

Name of Witness (Please Print) \_\_\_\_\_

**Appendix C: Questionnaire Package**

Date: \_\_\_\_\_

ID#: \_\_\_\_\_

**Barriers to Substance Use Treatment  
Questionnaire**

## Demographic Information:

### 1. What service at the Royal are you with?

- Regional Opioid Intervention Service (ROIS)       Alcohol Medical Intervention Clinic (AMIC)  
 Transitional Aged Youth Service (TAY)       Concurrent Disorders Unit (CDU)  
 Assessment and Stabilization Unit (ASU)

2. Age: \_\_\_\_\_

3. Gender:       Man       Woman       Trans man       Trans woman

### 4. Level of education (Check the highest level of education completed):

- Grades 1-8       High school       College diploma  
 University degree       Other: \_\_\_\_\_

### 5. Employment Status: (check all that apply)

- Working – Full-time       Working – Part-time       Full-time student  
 Part-time student       Unemployed       Homemaker/parenting  
 Disability leave       Ontario Disability Pension       Ontario Works  
 Retired       Other: \_\_\_\_\_

### 6. What is your ethnicity?

- White       Black       Asian  
 East Indian       Hispanic       First Nations  
 Mixed Heritage (specify): \_\_\_\_\_  
 Other: \_\_\_\_\_

### 7. What is your current relationship status?

- Single       Married       Steady partner  
 Widowed       Divorced/Separated       Other: \_\_\_\_\_

### 8. Who do you currently live with? (Check all that apply):

- Live alone       Live with significant other       Live with children  
 Live with parents       Live with other relatives       Live with friends  
 Live in a group home       Live in a shelter       Homeless  
 Live in a rooming house       Live in a residential rehab house       Other: \_\_\_\_\_

**9. Do you have your own family doctor or nurse practitioner?**

- Yes       No

**10. Do you see a professional for mental health or substance use problems?**

- Yes       No

**11. Do you have any children?**

- Yes       No

If yes, how many? \_\_\_\_\_

**12. Are you currently pregnant? (Female only)**

- Yes       No

**13. Do you have any chronic pain conditions?**

- Yes       No

If yes, which conditions? \_\_\_\_\_

**14. Have you been in detox, hospitalized or otherwise treated for a drug or alcohol problem?**

- Yes       No

**15. What is your primary drug of choice?**

- |                                   |                                     |  |
|-----------------------------------|-------------------------------------|--|
| <input type="checkbox"/> Cannabis | <input type="checkbox"/> Stimulants | <input type="checkbox"/> Inhalants     |
| <input type="checkbox"/> Cocaine  | <input type="checkbox"/> Sedatives  | <input type="checkbox"/> Hallucinogens |
| <input type="checkbox"/> Opioids  | <input type="checkbox"/> Alcohol    | <input type="checkbox"/> Other: _____  |

**16. Have you EVER used any drug by injection?**

- Never       Yes, in the past 3 months       Yes, but not in the past 3 months

**17. Were you using opioids prior to coming to the Royal?** (*Opioids are drugs like oxys, morphine, hydromorphone, codeine, fentanyl, and heroin*)

Yes       No

If yes to 17, please answer 17a and 17b:

**17a. Please circle the opioid(s) you were using before coming to the Royal. In addition, indicate whether or not these were prescribed to you by circling yes or no.**

Please circle any opioids that you used before coming to the Royal	Were the opioids prescribed?	
Percocet .....	Yes	No
Oxys, OxyContin, OxyNEO.....	Yes	No
Morphine.....	Yes	No
Hydromorphone, Dilaudid.....	Yes	No
Fentanyl.....	Yes	No
Heroin.....	Yes	No
Other: _____	Yes	No

**17b. Have you EVER used opioids by injection?**

Never       Yes, in the past 3 months       Yes, but not in the past 3 months

<b>18. Have you EVER been told by a doctor, nurse, or other health care professional that you had: (Check all that apply)</b>		<b>No, Never</b>	<b>Yes, in the last year</b>	<b>Yes, but not in the last year</b>
a)	Major (or clinical) depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b)	Manic-depression or bipolar disorder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c)	Post-traumatic stress disorder (PTSD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d)	Panic attacks or panic disorder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e)	Social phobia or social anxiety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f)	Anxiety disorder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g)	Attention-deficit/ hyperactivity disorder (ADHD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h)	Schizophrenia, schizo-affective disorder, or a psychotic episode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**19. Have you EVER been hospitalized for the treatment of any psychiatric or emotional problems?**

- Never                       Yes, in the past 3 months                       Yes, but not in the past 3 months

## BTI-Revised

Below is a list of barriers or obstacles that people may face when they seek help for their drug/alcohol use. **Please circle the answer that best describes how much each of these barriers affected your ability to access substance use treatment in the past.** (*The word “treatment” refers to a variety of types of treatment services that you may have sought, including but not limited to: residential treatment, day treatment, outpatient treatment, counselling services, group therapy, etc.*)

**Prior to receiving services at The Royal’s SUCD program, how much do you agree or disagree that the following barriers affected your ability to access treatment? Please circle your response.**

		Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
1	I was already getting help for my drug/alcohol use	0	1	2	3	4
2	I couldn't live without drugs/alcohol	0	1	2	3	4
3	I didn't think I had a drug/alcohol problem	0	1	2	3	4
4	I was already making changes to my drug/alcohol use	0	1	2	3	4
5	I didn't want to give up drugs/alcohol	0	1	2	3	4
6	Using drugs/alcohol was a way of life for me	0	1	2	3	4
7	I didn't think treatment would help me	0	1	2	3	4
8	I thought there were more good things about using drugs/alcohol than bad things	0	1	2	3	4
9	I didn't want to talk in groups	0	1	2	3	4
10	I thought my family would be embarrassed or ashamed if I accessed treatment	0	1	2	3	4
11	My health problems made it difficult for me to access treatment	0	1	2	3	4
12	I thought I could handle my drug/alcohol use on my own	0	1	2	3	4
13	I thought I would lose my friends if I accessed treatment	0	1	2	3	4
14	I had things to do at home that made it hard for me to get to treatment	0	1	2	3	4
15	I didn't feel safe going for treatment	0	1	2	3	4
16	I thought my troubles would go away	0	1	2	3	4

		Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
17	I found it hard to find a treatment program that fit my schedule	0	1	2	3	4
18	I was afraid I would fail in treatment	0	1	2	3	4
19	I didn't think I needed treatment	0	1	2	3	4
20	I was afraid I would be put into a hospital	0	1	2	3	4
21	Someone I knew had a bad experience with treatment	0	1	2	3	4
22	I didn't know where to go for treatment	0	1	2	3	4
23	I thought I would have difficulty getting to and from treatment	0	1	2	3	4
24	I didn't think I would understand treatment	0	1	2	3	4
25	I don't like to talk about my personal life with other people	0	1	2	3	4
26	I was afraid of what might happen in treatment	0	1	2	3	4
27	I didn't have the time for treatment	0	1	2	3	4
28	I thought going for treatment would get me in legal trouble	0	1	2	3	4
29	I thought treatment would keep me from spending time with my family	0	1	2	3	4
30	I was afraid about going through withdrawal	0	1	2	3	4
31	I was afraid of the people I might see in treatment	0	1	2	3	4
32	I thought treatment would add more stress to my life	0	1	2	3	4
33	I was too embarrassed and ashamed to access treatment	0	1	2	3	4
34	I didn't want anybody telling me what to do with my life	0	1	2	3	4
35	Friends told me not to go for treatment	0	1	2	3	4
36	Someone in my family didn't want me to go for treatment	0	1	2	3	4
37	There was a waiting list for treatment	0	1	2	3	4
38	I had to go through too many steps to get into treatment	0	1	2	3	4

		Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
39	I felt too worthless or depressed to go to treatment	0	1	2	3	4
40	I was uncomfortable attending a mixed-gender program (i.e. programs that serve both women and men)	0	1	2	3	4
41	My mental health problems made it difficult for me to access treatment	0	1	2	3	4

		Not Applicable	Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
42	I couldn't get time off work or school to go to any form of treatment	0	0	1	2	3	4
43	I had a bad experience with treatment before	0	0	1	2	3	4
44	I had legal problems that kept me from accessing treatment	0	0	1	2	3	4
45	I couldn't afford taking time off work to go to treatment	0	0	1	2	3	4
46	I didn't have anyone to take care of my children while I was at treatment	0	0	1	2	3	4
47	I was afraid of the way people would treat me because I'm a parent	0	0	1	2	3	4
48	I was afraid I would lose my children if I went to treatment	0	0	1	2	3	4
49	My partner didn't want me to go to treatment	0	0	1	2	3	4
50	I thought that I would lose my job if I went for treatment	0	0	1	2	3	4

**Did any other factors make it difficult for you to access substance use treatment before you received services at the Royal? If so, please list below:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

## WHO ASSIST

1. <b>IN YOUR LIFE, have you <u>EVER</u> used any of the following substances?</b>		Circle your response	
a)	Cannabis (marijuana, pot, hash, etc.)	No	Yes
b)	Cocaine (coke, crack, etc.)	No	Yes
c)	Amphetamine type stimulants (speed, diet pills, ecstasy, Ritalin, Concerta)	No	Yes
d)	Inhalants (nitrous, glue, petrol, paint thinner, etc.)	No	Yes
e)	Sedatives or sleeping pills (valium, clonazepam, ativan, etc.)	No	Yes
f)	Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	No	Yes
g)	Opioids (heroin, morphine, hydromorphone, codeine, oxys, fentanyl)	No	Yes
h)	Alcohol:	No	Yes
i)	Tobacco:	No	Yes
j)	Other (specify): _____	No	Yes

2. In the <b>PAST 30 DAYS</b> , how often have you <b><u>USED</u></b> the following substances?		Circle your response			
		Never	Once or Twice	Weekly	Daily or Almost Daily
a)	Cannabis (marijuana, pot, hash, etc.)	0	1	2	3
b)	Cocaine (coke, crack, etc.)	0	1	2	3
c)	Amphetamine type stimulants (speed, diet pills, ecstasy, Ritalin, Concerta)	0	1	2	3
d)	Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3
e)	Sedatives or sleeping pills (valium, clonazepam, ativan, etc.)	0	1	2	3
f)	Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3
g)	Opioids (heroin, morphine, hydromorphone, codeine, oxys, fentanyl)	0	1	2	3
h)	Alcohol:	0	1	2	3
i)	Tobacco:	0	1	2	3
j)	Other (specify): _____	0	1	2	3

3. In the **PAST 30 DAYS**, how often have you had a **STRONG DESIRE OR URGE** to use the following substances?

		Circle your response			
		Never	Once or Twice	Weekly	Daily or Almost Daily
a)	Cannabis (marijuana, pot, hash, etc.)	0	1	2	3
b)	Cocaine (coke, crack, etc.)	0	1	2	3
c)	Amphetamine type stimulants (speed, diet pills, ecstasy, Ritalin, Concerta)	0	1	2	3
d)	Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	1	2	3
e)	Sedatives or sleeping pills (valium, clonazepam, ativan, etc.)	0	1	2	3
f)	Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	1	2	3
g)	Opioids (heroin, morphine, hydromorphone, codeine, oxys, fentanyl)	0	1	2	3
h)	Alcohol:	0	1	2	3
i)	Tobacco:	0	1	2	3
j)	Other (specify): _____	0	1	2	3

## Drug Use Questionnaire (DAST-20)

The following questions concern information about your potential involvement with drugs not including alcoholic beverages during the past 12 months. **Carefully read each statement and decide if your answer is “Yes” or “No”.**

In the statements “drug abuse” refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (e.g. marijuana, hash), solvents, tranquilizers (e.g. Valium), barbiturates, cocaine, stimulants (e.g. speed), hallucinogens (e.g. LSD) or narcotics (e.g. heroin). Remember that the questions do not include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

These questions refer to the past 12 months		Circle your response	
1	Have you used drugs other than those required for medical reasons?	Yes	No
2	Have you abused prescription drugs?	Yes	No
3	Do you abuse more than one drug at a time?	Yes	No
4	Can you get through the week without using drugs?	Yes	No
5	Are you always able to stop using drugs when you want to?	Yes	No
6	Have you had “blackouts” or “flashbacks” as a result of drug use?	Yes	No
7	Do you ever feel bad or guilty about your drug use?	Yes	No
8	Does your spouse (or parents) ever complain about your involvement with drugs?	Yes	No
9	Has drug abuse created problems between you and your spouse or your parents?	Yes	No
10	Have you lost friends because of your use of drugs?	Yes	No
11	Have you neglected your family because of your use of drugs?	Yes	No
12	Have you been in trouble at work because of drug abuse?	Yes	No
13	Have you lost a job because of drug abuse?	Yes	No
14	Have you gotten into fights when under the influence of drugs?	Yes	No
15	Have you engaged in illegal activities in order to obtain drugs?	Yes	No
16	Have you been arrested for possession of illegal drugs?	Yes	No
17	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	Yes	No
18	Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding, etc.)?	Yes	No
19	Have you gone to anyone for help for a drug problem?	Yes	No
20	Have you been involved in a treatment program specifically related to drug use?	Yes	No

## The Alcohol Use Disorders Identification Test (AUDIT)

Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest. **Place an X in one box that best describes your answer to each question.**

		0	1	2	3	4
1	How often do you have a drink containing alcohol?	<input type="checkbox"/> Never	<input type="checkbox"/> Monthly or less	<input type="checkbox"/> 2-4 times a month	<input type="checkbox"/> 2-3 times a week	<input type="checkbox"/> 4 or more times a week
2	How many drinks containing alcohol do you have on a typical day when you are drinking?	<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 3 or 4	<input type="checkbox"/> 5 or 6	<input type="checkbox"/> 7 or 9	<input type="checkbox"/> 10 or more
3	How often do you have six or more drinks on one occasion?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
4	How often during the last year have you found that you were not able to stop drinking once you had started?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
5	How often during the last year have you failed to do what was normally expected of you because of drinking?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
6	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
7	How often during the last year have you had a feeling of guilt or remorse after drinking?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
8	How often during the last year have you been unable to remember what happened the day before because of drinking?	<input type="checkbox"/> Never	<input type="checkbox"/> Less than monthly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily or almost daily
9	Have you or someone else been injured because of your drinking?	<input type="checkbox"/> No		<input type="checkbox"/> Yes, but not in the last year		<input type="checkbox"/> Yes, during the last year
10	Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	<input type="checkbox"/> No		<input type="checkbox"/> Yes, but not in the last year		<input type="checkbox"/> Yes, during the last year

## Patient Health Questionnaire-9 (PHQ-9)

During the <b>last two weeks</b> , how often did you have the following experiences?		Circle your response			
		Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

	Not at all difficult	Somewhat difficult	Very difficult	Extremely Difficult
If you circled <u>any</u> of the above experiences, how difficult did they make it for you to do your work, take care of things at home, or get along with other people?	0	1	2	3

**GAD-7**

Over the <b>last two weeks</b> , how often have you been bothered by the following problems?		Circle your response			
		Not at all	Several days	More than half the days	Nearly every day
1	Feeling nervous, anxious or on edge	0	1	2	3
2	Not being able to stop or control worrying	0	1	2	3
3	Worrying too much about different things	0	1	2	3
4	Trouble relaxing	0	1	2	3
5	Being so restless that it was hard to sit still	0	1	2	3
6	Becoming easily annoyed or irritable	0	1	2	3
7	Feeling afraid as if something awful might happen	0	1	2	3

## GAIN Short Screener – Modified

The following questions are about common psychological, behavioural, and personal problems. These problems are considered significant when you have them for two or more weeks, when they keep coming back, when they keep you from meeting your responsibilities, or when they make you feel like you can't go on.

After each of the following statements, please tell us the last time you had this problem, if ever, by **circling the best answer**.

	Past month	2 to 12 months ago	1+ years	Never
	3	2	1	0
<b>1. When was the last time that you had significant problems...</b>				
a. with feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future?	3	2	1	0
b. with sleep trouble, such as bad dreams, sleeping restlessly, or falling asleep during the day?	3	2	1	0
c. with feeling very anxious, nervous, tense, scared, panicked or like something bad was going to happen?	3	2	1	0
d. with becoming very distressed and upset when something reminded you of the past?	3	2	1	0
e. with thinking about ending your life or committing suicide?	3	2	1	0
<b>2. When was the last time that you did the following things two or more times?</b>				
a. Lied or conned to get things you wanted or to avoid having to do something?	3	2	1	0
b. Had a hard time paying attention at school, work, or home?	3	2	1	0
c. Had a hard time listening to instructions at school, work, or home?	3	2	1	0
d. Were a bully or threatened people?	3	2	1	0
e. Started physical fights with people?	3	2	1	0
<b>3. When was the last time that...</b>				
a. you used alcohol or other drugs weekly or more often?	3	2	1	0
b. you spent a lot of time either getting alcohol or other drugs, using alcohol or other drugs, or feeling the effects of alcohol or other drugs?	3	2	1	0
c. you kept using alcohol or other drugs even though it was causing social problems, leading to fights, of getting you into trouble with other people?	3	2	1	0
d. your use of alcohol or other drugs caused you to give up, reduce or have problems at important activities at work, school, home or social events?	3	2	1	0
e. you had withdrawal problems from alcohol or other drugs like shaky hands, throwing up, having trouble sitting still or sleeping, or that you used any alcohol or other drugs to stop being sick or avoid withdrawal problems?	3	2	1	0

	Past month	2 to 12 months ago	1+ years	Never
<b>4. When was the last time that you....</b>				
a. had a disagreement in which you pushed, grabbed or shoved someone?	3	2	1	0
b. took something from a store without paying for it?	3	2	1	0
c. sold, distributed, or helped to make illegal drugs?	3	2	1	0
d. drove a vehicle while under the influence of alcohol or illegal drugs?	3	2	1	0
e. purposely damaged or destroyed property that did not belong to you?	3	2	1	0

Additional questions (CAMH modified)	Past month	2 to 12 months ago	1+ years	Never
<b>5. When was the last time you had significant problems with...</b> <i>(not related to alcohol/drug use)</i>				
a. missing meals or throwing up much of what you did eat to control your weight?	3	2	1	0
b. eating binges or times when you ate a very large amount of food within a short period of time and then felt guilty?	3	2	1	0
c. being disturbed by memories or dreams of distressing things from the past that you did, saw, or had happen to you?	3	2	1	0
d. thinking or feeling that people are watching you, following you, or out to get you?	3	2	1	0
e. seeing or hearing things that no one else could see or hear, or feeling that someone else could read or control your thoughts?	3	2	1	0
f. videogame playing or internet use that caused you to give up, reduce, or have problems with important activities or people at work, school, home, or social events?	3	2	1	0
g. gambling that caused you to give up, reduce, or have problems with important activities or people at work, school, home, or social events?	3	2	1	0

**6. Do you have any other significant psychological, behavioural, or personal problems that you want treatment for or help with?**

- Yes                       No

If yes, please describe

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

**PSOSH**

When you were seeking substance use services,  
how much did you think that the people you  
interact with would:

Circle your response

		Not at all	A little	Some	A lot	A great deal
1	React negatively to you?	0	1	2	3	4
2	Think bad things of you?	0	1	2	3	4
3	See you as seriously disturbed?	0	1	2	3	4
4	Think of you in a less favourable way?	0	1	2	3	4
5	Think you posed a risk to others?	0	1	2	3	4

## PTSD CheckList – Civilian Version (PCL-C)

Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, **pick the answer that indicates how much you have been bothered by that problem in the last month**.

Response (In the last month)		Circle your response				
		Not at all	A little bit	Moderately	Quite a bit	Extremely
1	Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	1	2	3	4	5
2	Repeated, disturbing dreams of a stressful experience from the past?	1	2	3	4	5
3	Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?	1	2	3	4	5
4	Feeling very upset when something reminded you of a stressful experience from the past?	1	2	3	4	5
5	Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past?	1	2	3	4	5
6	Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?	1	2	3	4	5
7	Avoid activities or situations because they remind you of a stressful experience from the past?	1	2	3	4	5
8	Trouble remembering important parts of a stressful experience from the past?	1	2	3	4	5
9	Loss of interest in things that you used to enjoy?	1	2	3	4	5
10	Feeling distant or cut off from other people?	1	2	3	4	5
11	Feeling emotionally numb or being unable to have loving feelings for those close to you?	1	2	3	4	5
12	Feeling as if your future will somehow be cut short?	1	2	3	4	5
13	Trouble falling or staying asleep?	1	2	3	4	5
14	Feeling irritable or having angry outbursts?	1	2	3	4	5
15	Having difficulty concentrating?	1	2	3	4	5
16	Being "super alert" or watchful on guard?	1	2	3	4	5
17	Feeling jumpy or easily startled?	1	2	3	4	5

### Appendix D: Revisions to BTI Measure

#### Revised Wording for Pre-existing General Barrier Items

Original Item	Revised Item
“I’m already getting help for my drug problem”	“I was already getting help for my drug/alcohol use”
“I can’t live without drugs”	“I couldn’t live without drugs/alcohol”
“I don’t think I have a problem with drugs”	“I didn’t think I had a drug/alcohol problem”
“I’m already making changes in my drug use”	“I was already making changes to my drug/alcohol use”
“I don’t want to give up drugs”	“I didn’t want to give up drugs/alcohol”
“I can’t get time off work to go to treatment”	“I couldn’t get time off work or school to go to any form of treatment”
“Using drugs is a way of life for me”	“Using drugs/alcohol was a way of life for me”
“Treatment won’t help me”	“I didn’t think treatment would help me”
“There are more good things about using drugs than bad things”	“I thought there were more good things about using drugs/alcohol than bad things”
“I don’t like to talk in groups”	“I didn’t want to talk in groups”
“My family will be embarrassed or ashamed if I go to treatment”	“I thought my family would be embarrassed or ashamed if I accessed treatment”
“I have too many health problems to go to treatment”	“My health problems made it difficult for me to access treatment”
“I think I can handle my drug use on my own”	“I thought I could handle my drug/alcohol use on my own”
“I’ll lose my friends if I go to treatment”	“I thought I would lose my friends if I accessed treatment”
“I don’t think I need treatment”	“I didn’t think I needed treatment”
“I have things to do at home that will make it hard for me to go to treatment”	“I had things to do at home that made it hard for me to get to treatment”
“I don’t feel safe going for treatment”	“I didn’t feel safe going for treatment”
I think my troubles will go away without treatment”	“I thought my troubles would go away”

Original Item	Revised Item
“It will be hard for me to find a treatment program that fits my schedule”	“I found it hard to find a treatment program that fit my schedule”
“I’m afraid I will fail in treatment”	“I was afraid I would fail in treatment”
“I’m afraid I will be put into a hospital”	“I was afraid I would be put into a hospital”
“Someone I know had a bad experience with treatment”	“Someone I knew had a bad experience with treatment”
“I don’t know where to go for treatment”	“I didn’t know where to go for treatment”
“I’ll have difficulty getting to and from treatment”	“I thought I would have difficulty getting to and from treatment”
“I won’t understand treatment”	“I didn’t think I would understand treatment”
“I’ve had a bad experience with treatment before”	“I had a bad experience with treatment before”
“I don’t like to talk about my personal life with other people”	“I don’t like to talk about my personal life with other people”
“I’m afraid of what might happen in treatment”	“I was afraid of what might happen in treatment”
“I have legal problems that keep me from going to treatment”	“I had legal problems that kept me from accessing treatment”
“I can’t afford to pay for treatment”	“I couldn’t afford to take time off work to go to treatment”
“I don’t have the time for treatment”	“I didn’t have the time for treatment”
“Going for treatment might get me in legal trouble”	“I thought going for treatment would get me in legal trouble”
“Treatment will keep me from spending time with my family”	“I thought that treatment would keep me from spending time with my family”
“I can’t go to treatment because I don’t have a baby-sitter or childcare”	“I didn’t have anyone to take care of my children while I was at treatment”
“I’m afraid about going through withdrawal from drugs”	“I was afraid about going through withdrawal”
“I’m afraid of the people I might see in treatment”	“I was afraid of the people I might see in treatment”
“Treatment will add another stress to my life”	“I thought treatment would add more stress to my life”

Original Item	Revised Item
“I’m too embarrassed or ashamed to go to treatment”	“I was too embarrassed and ashamed to access treatment”
“I don’t want anybody telling me what to do with my life”	“I didn’t want anybody telling me what to do with my life”
“Friends tell me not to go to treatment”	“Friends told me not to go to treatment”
“Someone in my family doesn’t want me to go to treatment”	“Someone in my family didn’t want me to go for treatment”
“I will lose my job if I go to treatment”	“I thought that I would lose my job if I went for treatment”
“I will have to be on a waiting list for treatment”	“There was a waiting list for treatment”
“I have to go through too many steps to get into treatment”	“I had to go through too many steps to get into treatment”

#### Items Added to the Original BTI Measure

- “I felt too worthless or depressed to go to treatment”
- “I was uncomfortable attending a mixed-gender program (i.e., programs that serve both men and women)”
- “My mental health problems made it difficult for me to access treatment”
- “I was afraid of the way people would treat me because I’m a parent”
- “I was afraid I would lose my children if I went to treatment”
- “My partner didn’t want me to go to treatment”

#### Barrier Subscales and Associated Individual Barrier Items

##### **Absence of Problem**

- “I didn’t think I had a drug/alcohol problem”
- “I didn’t think I needed treatment”
- “I thought I could handle my drug/alcohol use on my own”
- “I didn’t think treatment would help me”

##### **Negative Social Support**

- “I thought I would lose my friends if I accessed treatment”
- “Friends told me not to go to treatment”
- “Someone in my family didn’t want me to go for treatment”
- “I thought my family would be embarrassed or ashamed if I accessed treatment”

**Fear of Treatment**

- “I had a bad experience with treatment before”
- “I was afraid of what might happen in treatment”
- “I was afraid of the people I might see in treatment”
- “I was too embarrassed and ashamed to access treatment”

**Privacy Concerns**

- “I didn’t want to talk in groups”
- “I don’t like to talk about my personal life with other people”

**Time Conflict**

- “I had things to do at home that made it hard for me to get to treatment”
- “I found it hard to find a treatment program that fit my schedule”

**Poor Treatment Availability**

- “I didn’t know where to go for treatment”
- “I thought I would have difficulty getting to and from treatment”

**Admission Difficulty**

- “There was a waiting list for treatment”
- “I had to go through too many steps to get into treatment”

**Women-Specific (NEW)**

- “I felt too worthless or depressed to go to treatment”
- “I was uncomfortable attending a mixed-gender program (i.e., programs that serve both men and women)”
- “My mental health problems made it difficult for me to access treatment”
- “I was afraid of the way people would treat me because I’m a parent”
- “I was afraid I would lose my children if I went to treatment”
- “My partner didn’t want me to go to treatment”
- “I thought that treatment would keep me from spending time with my family”
- “I didn’t have anyone to take care of my children while I was at treatment”

Items Excluded from the Original BTI Measure

Excluded	Reason
“My drug use seemed normal to me”	Similar to “I don’t think I have a problem with drugs”
“My drug use was not causing any problems”	Similar to “I don’t think I have a problem with drugs”
“No one has told me I have a problem with drugs”	Similar to “I don’t think I have a problem with drugs”
“I don’t think treatment will make my life better”	Similar to “Treatment won’t help me”
“I don’t think of myself as an addict”	Stigmatizing language
“I already have people who help me”	Similar to “I’m already getting help for my drug problem”
“I don’t feel that I will have enough to say about what goes on in treatment”	Confusing language
“Problems with my children would make it hard to go to treatment”	Ambiguous language (“problems”); Similar to “I can’t go to treatment because I don’t have a baby-sitter or childcare”
“I hate being asked personal questions”	Similar to “I don’t like to talk about my personal life with other people”
“I am moving too far away to get treatment”	Similar to “I’ll have difficulty getting to and from treatment”
“I have no insurance to pay for treatment”	Not applicable to Canadian health care system
“The time I spend on drug use activities gets in the way of going to treatment”	Similar to “I don’t have the time for treatment”
“People will think badly of me if I go to treatment”	Similar to “I’m too embarrassed or ashamed to go to treatment”
“It’s too much trouble to go to treatment”	Similar to “I have to go through too many steps to get into treatment”
I would go to treatment if I could pick where I wanted to go	Not applicable to Canadian health care system

**Appendix E: Supplementary Demographic Information**

## Appendix E.1.

*Opioid Use by Gender and Total Sample*

Opioid Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	21	42	17	34	38	38
No	29	58	33	66	62	62
Total	50	100	50	100	100	100

*Note.* Participants who reported opioids as a drug of choice and/or reported pre-treatment opioid use were coded as 'Yes'.

## Appendix E.2.

*Service Use by Gender and Total Sample*

Service	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
ROIS	6	12	6	12	12	11.9
AMIC	11	22	18	36	29	28.8
TAY	8	16	4	8	12	11.9
CDU	17	34	12	24	30	29.7
ASU	8	16	10	20	18	17.8
Total	50	100	50	100	100	100

*Note.* ROIS = Regional Opioid Intervention Service, AMIC = Alcohol Medical Intervention Clinic, TAY = Transitional Aged Youth Program, CDU = Concurrent Disorders Unit, ASU = Assessment and Stabilization Unit.

Appendix E.3.

*Participants who have Children by Gender and Total Sample*

Children	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	23	46	19	38	42	42
No	27	54	31	62	58	58
Total	50	100	50	100	100	100

Appendix E.4.

*Pregnancy among Women*

Pregnancy	Women Only	
	Frequency (#)	Percent (%)
Yes	0	0
No	50	100
Total	50	100

## Appendix E.5.

*Highest Level of Education by Gender and Total Sample*

Education Level	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Grades 1-8	6	12.24	6	12	12	12
High school	19	38.78	22	44	42	42
College Diploma	16	32.65	14	28	30	30
University Degree	7	14.29	8	16	15	15
Other	1	2.04	0	0	1	1
Total	49	100	50	100	100	100

## Appendix E.6.

*Employment Status by Gender and Total Sample*

Employment Status	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Working full-time	8	16.33	18	36	26	26
Working part-time	3	6.12	2	4	5	5
Part-time student	3	6.12	2	4	5	5
Unemployed	7	14.29	5	10	12	12
Disability Leave	7	14.29	6	12	13	13
ODSP	12	24.49	9	18	22	22
Ontario Works	8	16.33	5	10	13	13
Retired	1	2.04	3	6	4	4
Total	49	100	50	100	100	100

*Note.* ODSP = Ontario Disability Support Program

## Appendix E.7.

*Ethnicity by Gender and Total Sample*

Ethnicity	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
White	39	79.59	44	88	83	83.83
Black	2	4.08	0	0	2	2.02
Asian	1	2.04	0	0	1	1.01
Hispanic	0	0	1	2	1	1.01
First Nations	1	2.04	3	6	4	4.04
Mixed	5	10.2	1	2	6	6.06
Other	1	2.04	1	2	2	2.02
Total	49	100	50	100	99	100

## Appendix E.8.

*Relationship Status by Gender and Total Sample*

Relationship Status	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Single	20	40.81	31	62	51	51.51
Married	5	10.2	7	14	12	12.12
Steady Partner	18	36.73	6	12	24	24.24

Divorced or Separated	6	12.24	6	12	12	12.12
Total	49	100	50	100	99	100

Appendix E.9.

*Living Situation by Gender and Total Sample*

Living Situation	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Alone	10	20.41	16	32	26	26.26
With Significant Other	16	32.65	10	20	26	26.26
With Children	2	4.08	1	2	3	3.03
With Parents	10	20.41	16	32	26	26.26
With Friends	5	10.20	3	6	8	8.08
In Group Home	1	2.04	0	0	1	1.01
In Shelter	0	0	1	2	1	1.01
Homeless	0	0	2	4	2	2.02
In Rooming House	0	0	1	2	1	1.01
In Residential Rehab House	4	8.16	0	0	4	4.04
Other	1	2.04	0	0	1	1.01
Total	49	100	50	100	99	100

## Appendix E.10.

*Participants with a Family Doctor or Nurse Practitioner by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	49	98	43	86	92	92
No	1	2	7	14	8	8
Total	50	100	50	100	100	100

## Appendix E.11.

*Participants who See a Mental Health Professional by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	38	76	36	72	74	74
No	12	24	14	28	26	26
Total	50	100	50	100	100	100

## Appendix E.12.

*Chronic Pain by Gender and Total Sample*

Chronic Pain	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	14	28	13	26	27	27
No	36	72	37	74	73	73
Total	50	100	50	100	100	100

## Appendix E.13.

*Drug of Choice by Gender and Total Sample*

Drug of Choice	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Cannabis	15	30	11	22	26	26
Stimulants	7	14	4	8	11	11
Cocaine	14	28	14	28	28	28
Sedatives	5	10	2	4	7	7
Opioids	12	24	8	16	20	20
Alcohol	37	74	31	62	68	68

*Note.* Cumulative percentages not included as some participants reported multiple drugs of choice.

## Appendix E.14.

*Previous Alcohol- or Drug-Related Detox, Hospitalization, or Treatment by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	34	68	42	84	76	76
No	16	32	8	16	24	24
Total	50	100	50	100	100	100

## Appendix E.15.

*Lifetime IV Drug Use by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes, in past 3 months	9	18	4	8	13	13
Yes, but not in past 3 months	6	12	7	14	13	13
Never	35	70	39	78	74	74
Total	50	100	50	100	100	100

## Appendix E.16.

*Pre-Treatment Opioid Use by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	20	40	17	34	37	37
No	30	60	33	66	63	63
Total	50	100	50	100	100	100

## Appendix E.17.

*Type of Opioid Use by Gender and Total Sample*

Opioid Type	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Percocets	9	18	9	18	18	18
Oxys	11	22	11	22	22	22
Morphine	7	14	7	14	14	14
Hydromorpho ne	12	24	11	22	23	23
Fentanyl	10	20	7	14	17	17
Heroin	6	12	6	12	12	12
Other	2	4	7	14	9	9

*Note.* Cumulative percentages not included as some participants reported multiple opioids

## Appendix E.18

*Lifetime IV Opioid Use among Participants with Self-Reported Opioid Use*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes, in past 3 months	7	37	4	15	11	24
Yes, but not in past 3 months	5	26	8	31	13	29
Never	7	37	14	54	21	47
Total	19	100	26	100	45	100

## Appendix E.19.

*Past Hospitalization for Psychiatric or Emotional Problems by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes, in last year	7	14	8	16	15	15
Yes, but not in last year	21	42	12	24	33	33
Never	22	44	30	60	52	52
Total	50	100	50	100	100	100

## Appendix E.20.

*Drug Use Severity by Gender and Total Sample*

Severity	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
None	4	8.16	10	20	14	14.3
Low	8	16.33	9	18	17	17.3
Intermediate	6	12.24	4	8	10	10.2
Substantial	18	36.73	18	36	36	36.7
Severe	13	26.53	8	16	21	21.4
Total	49	100	49	98	98	100

*Note.* Scores are based on the Drug Abuse Screening Test (DAST-20)

## Appendix E.21.

*Generalized Anxiety Symptoms by Gender and Total Sample*

Symptom Severity	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Minimal	4	8	7	14	11	11
Mild	6	12	10	20	16	16
Moderate	13	26	15	30	28	28
Severe	27	54	18	36	45	45
Total	50	100	50	100	100	100

*Note.* Scores are based on the Generalized Anxiety Disorder (GAD-7) Scale

## Appendix E.22.

*Depressive Symptoms by Gender and Total Sample*

Symptom Severity	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Minimal	3	6	5	10	8	8
Mild	6	12	10	20	16	16
Moderate	6	12	5	10	11	11
Moderately Severe	14	28	18	36	32	32
Severe	21	42	12	24	33	33
Total	50	100	50	100	100	100

*Note.* Scores are based on the Patient Health Questionnaire (PHQ-9)

## Appendix E.23.

*Past 30-Day Cannabis Use by Gender and Total Sample*

Cannabis Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	27	56.2	28	56	55	56.1
At least once	21	43.8	22	44	43	43.9
Total	48	100	50	100	98	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.24.

*Past 30-Day Cocaine Use by Gender and Total Sample*

Cocaine Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	36	73.5	35	71.4	71	72.4
At least once	13	26.5	14	28.6	27	27.6
Total	49	100	49	100	98	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.25.

*Past 30-Day Amphetamine Use by Gender and Total Sample*

Amphetamine Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	38	79.2	40	81.6	78	80.4
At least once	10	20.8	9	18.4	19	19.6
Total	48	100	49	100	97	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.26.

*Past 30-Day Sedative Use by Gender and Total Sample*

Sedative Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	32	65.3	32	66.7	64	66
At least once	17	34.7	16	33.3	33	34
Total	49	100	48	100	97	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.27.

*Past 30-Day Hallucinogen Use by Gender and Total Sample*

Hallucinogen Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	44	89.8	46	93.9	90	91.8
At least once	5	10.2	3	6.1	8	8.2
Total	49	100	49	100	98	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.28.

*Past 30-Day Opioid Use by Gender and Total Sample*

Opioid Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	40	83.3	41	83.7	81	83.5
At least once	8	16.7	8	16.3	16	16.5
Total	48	100	49	100	97	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.29.

*Past 30-Day Alcohol Use by Gender and Total Sample*

Alcohol Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	14	28.6	13	26	27	27.3
At least once	35	71.4	37	74	72	72.7
Total	49	100	50	100	99	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.30.

*Past 30-Day Tobacco Use by Gender and Total Sample*

Tobacco Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	11	22.4	14	28.6	25	25.5
At least once	38	77.6	35	71.4	73	74.5
Total	49	100	49	100	98	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.31.

*Past 30-Day Inhalant Use by Gender and Total Sample*

Inhalant Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Never	46	95.8	45	93.8	91	94.8
At least once	2	4.2	3	6.2	5	5.2
Total	48	100	48	100	96	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.32.

*Polysubstance Use by Gender and Total Sample*

Polysubstance Use	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Yes	38	76	36	72	74	74
No	12	24	14	28	26	26
Total	50	100	50	100	100	100

*Note.* Scores are based on the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)

## Appendix E.33.

*Probability of being diagnosed with a Substance Use Disorder, by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Low	3	6	0	0	3	3
Medium	3	6	6	12	9	9
High	44	88	44	88	88	88
Total	50	100	50	100	100	100

*Note.* Scores are based on the Global Appraisal of Individual Needs- Short Screener (GAIN-SS)

## Appendix E.34.

*Problems Related to Crime by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Low	24	48	32	65.3	56	56.6
Medium	19	38	12	24.5	31	31.3
High	7	14	5	10.2	12	12.1
Total	50	100	49	100	99	100

*Note.* Scores are based on the Global Appraisal of Individual Needs- Short Screener (GAIN-SS)

## Appendix E.35.

*Probability of being diagnosed with an Internalizing Disorder, by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Low	1	2	0	0	1	1
Medium	5	10	8	16	13	13
High	44	88	42	84	86	86
Total	50	100	50	100	100	100

*Note.* Scores are based on the Global Appraisal of Individual Needs- Short Screener (GAIN-SS)

## Appendix E.36.

*Probability of being diagnosed with an Externalizing Disorder, by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
Low	7	14	10	20	17	17
Medium	28	56	27	54	55	55
High	15	30	13	26	28	28
Total	50	100	50	100	100	100

*Note.* Scores are based on the Global Appraisal of Individual Needs- Short Screener (GAIN-SS)

## Appendix E.37.

*History of Major Depressive Disorder by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	9	18.4	18	40	27	28.7
Yes	40	81.6	27	60	67	71.3
Total	49	100	45	100	94	100

## Appendix E.38.

*History of Manic Depression or Bipolar Disorder by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	34	73.9	36	81.8	70	77.8
Yes	12	26.1	8	18.2	20	22.2
Total	46	100	44	100	90	100

## Appendix E.39.

*History of PTSD by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	28	58.3	29	69	57	63.3
Yes	20	41.7	13	31	33	36.7
Total	48	100	42	100	90	100

## Appendix E.40.

*History of Panic Attacks or Panic Disorder by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	18	40	28	68.3	46	53.5
Yes	27	60	13	31.7	40	46.5
Total	45	100	41	100	86	100

Appendix E.41.

*History of Social Phobia or Social Anxiety by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	11	23.9	26	57.8	37	40.7
Yes	35	76.1	19	42.2	54	59.3
Total	46	100	45	100	91	100

Appendix E.42.

*History of Anxiety Disorder by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	6	12.5	20	44.4	26	28
Yes	42	87.5	25	55.6	67	72
Total	48	100	45	100	93	100

## Appendix E.43.

*History of ADHD by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	31	70.5	27	61.4	58	65.9
Yes	13	29.5	17	38.6	30	34.1
Total	44	100	44	100	88	100

## Appendix E.44.

*History of Schizophrenia, Schizo-Affective Disorder, or a Psychotic Episode, by Gender and Total Sample*

	Women		Men		Total	
	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)	Frequency (#)	Percent (%)
No	35	77.8	36	87.8	71	82.6
Yes	10	22.2	5	12.2	15	17.4
Total	45	100	41	100	86	100

