Substance Use and Mental Health among Lesbian and Bisexual Women:
A Sample of Women in Residential Treatment

by

Jackson Flagg
BA, University of Victoria, 2007

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

MASTER OF ARTS

in the Social Dimensions of Health Program

Supervisory Committee

Substance Use and Mental Health among Lesbian and Bisexual Women:
A Sample of Women in Residential Treatment

by

Jackson Flagg
BA, University of Victoria, 2007

Supervisory Committee

Dr. Scott Macdonald (Department of Health Information Science)
Supervisor

Dr. Eric Roth (Department of Anthropology)
Co-Supervisor

Abstract

Supervisory Committee
Dr. Scott Macdonald (School of Health Information Science)
Supervisor

Dr. Eric Roth (Department of Anthropology)
Co-Supervisor

Background: Research suggests sexual minority women have higher rates of substance

use and mental health problems than straight women. Specifically, past studies have

shown alcohol consumption and dependence rates are higher among sexual minority

women, in addition to use of some drugs. Similarly, research shows mental health

problems such as anxiety, depression and suicide rates are elevated among sexual

minority women. These differences in mental health and substance use characteristics by

sexual orientation may be explained by the negative health effects of social

marginalization and the common use of drinking establishments for sexual minorities.

Objective: The objective of this thesis is to compare substance use and mental health

characteristics between lesbian/bisexual women and straight women, including: a)

demographic variables; b) alcohol and drug consumption and dependence; c) the social

context of substance use (i.e., use with others, motivations to use and locations of use);

and, d) mental health characteristics.

Methods: Data were obtained from a sample of residential treatment clients in treatment

for primarily alcohol and/or cocaine problems. Respondents were asked to fill out self-

administered questionnaires, which included details on demographics, substance use,

mental health and the social context of use, as well as information on sexual orientation

and gender identity. Bivariate and logistic regression analyses were performed to examine differences by sexual orientation.

Results: Some sexual orientation differences were found regarding alcohol consumption and dependence during bivariate analysis. In logistic regression results, methamphetamine use was significantly ($p<.01$) elevated among bisexual women and tranquilizers use was elevated among lesbian and bisexual women when compared to straight women. Bivariate analysis revealed lesbian and bisexual women reported higher levels on motivations to use, but this difference was not significant in multivariate regression results. After regression adjustments, lesbian and bisexual women had higher levels of anxiety and higher rates of suicide attempts. Lastly, lesbian and bisexual women reported substance use with sex workers and sex clients more often than straight women, but no other differences in location and motivations to use were seen in the regression results.

Conclusion: Among this sample of residential treatment clients, some mental health and substance use characteristic differences were found. These finding can assist in determining the best treatment practices for sexual minority women.

Table of Contents

List of Tables

Acknowledgments

Chapter 1: Introduction

Research indicates sexual minorities have higher rates of substance use and mental health problems when compared to their heterosexual counterparts (Burgard, Cochran & Mays, 2005; Degenhardt, 2005; Drabble, Midanik & Trocki, 2005; Green & Feinstein, 2012; McCabe, Hughes, Bostwick, West & Boyd, 2009; McCabe, West, Hughes & Boyd, 2013; Meyer, 2003; Sandfort, de Graaf, Bijl & Schnabel, 2001). Until the mid-2000s, most studies on sexual orientation, substance use and mental health problems focused on sexual minority men, and less so on women (Cochran & Cauce, 2006). In addition, older research employed purposive sampling of sexual minorities from places such as community events, bars or organizations specific to sexual minorities, which provided a narrow view of this population's health outcomes. Contemporary studies on substance use, mental health problems and sexual orientation have employed larger representative surveys which allowed comparison by gender (i.e., between sexual minority men and heterosexual men and between sexual minority women and heterosexual women). Findings from these studies vary depending on how sexual orientation is defined – that is, by identity, (lesbian, gay, bisexual or straight), behaviour or attraction. Overall non-heterosexuality is associated with more substance use and mental health problems and there are unique differences between men and women.

King, et al. (2008) conducted a meta-analysis on sexual minorities and substance use and mental health problems. After analysis of 25 studies published between 1997 and 2004, they concluded that non-heterosexuals were at higher risk for suicide attempt, depression and anxiety disorders, and alcohol and other substance dependence. Gender analysis also showed non-heterosexual women were at higher risk for substance dependence, substance disorder and suicide attempts than non-heterosexual men. Another meta-analysis conducted by Green &

Feinstein (2012) reviewed 13 studies assessing substance use among sexual minorities and found: 1) lesbian and bisexual women at higher risk for alcohol and drug use problems and disorders; 2) gay and bisexual men at higher risk for drug use disorders; and 3) bisexual identity and/or behaviour related to even greater risk for substance use and related problems among both men and women. Since these two meta-analyses, other studies have shown similar results. McCabe et al. (2013) found lesbian and bisexual women roughly three times more likely to have a lifetime substance use disorder (including alcohol and other drugs) than heterosexual women, however gay and bisexual men were no more likely to have a lifetime alcohol use disorder than heterosexuals, but roughly two times more likely to have a substance use disorder. Further, recent evidence from the Netherlands showed sexual minorities (based on sexual behaviour) are at higher risk for psychiatric disorders (Sandfort et al., 2001).

Most research on substance use and mental health problems among sexual minorities has been conducted in the United States. There is little Canadian research on substance use and mental health problems between heterosexuals and sexual minorities that include analysis by gender. The only exception is analysis of the Canadian Community Health Survey (Brennan, Ross, Dobinson, Veldhuizen & Steele, 2010; Pakula & Shoveller, 2013; Steele, Dobinson, Veldhuizen & Tinmouth, 2009). Other Canadian studies focused on gay and bisexual men (Public Health Agency of Canada, 2011) and particular high-risk populations (Chow et al,. 2012). This thesis adds a Canadian analysis to the study of sexual minorities and substance use and mental health problems by focusing on lesbian and bisexual women from a sample of substance use treatment clients in British Columbia and Ontario.

This thesis contributes to existing knowledge by analyzing lesbian and bisexual women compared to straight women in the study sample; while narrowing the research gap between

sexual minority men and women. Because the sample was restricted to substance use residential treatment clients, the analysis allows for better identifying other non-substance use factors that may be related to sexual orientation (e.g., mental health characteristics). Further, the proportion of lesbian and bisexual women in the sample is 23%, which is dramatically higher than population level estimates of roughly 2% (Tjepkema, 2008). This dramatic difference suggests lesbian and bisexual women may be overrepresented among the population of heavy substance users who obtain treatment. This thesis will further the existing knowledge regarding substance use and mental health characteristics of sexual minorities by assessing four research objectives.

These objectives are to examine lesbian and bisexual women compared to straight women in terms of:

1. Demographic characteristics, including age, ethnicity, marital status, education and income;

2. Drug and alcohol using behaviours, including drug type, drug use frequency and amount, alcohol use frequency and amount and severity of alcohol and/or cocaine dependence;

3. The context in which substance use occurs, including locations of use, use with others and motivations to use (i.e., conformity, enhancement, social and coping);

4. Mental health characteristics, including anxiety, depression, perceived stress and history of suicide attempts

This thesis is structured in chapter format. Chapter 2 presents the theoretical framework and literature review. Chapter 3 outlines the materials and methods for this thesis's analysis. Chapter 4 presents the analysis results and Chapter 5 discusses the findings, implications and limitations of this thesis.

Chapter 2: Theoretical Framework and Literature Review

Researchers have employed theories and concepts to help understand substance using behaviour and mental health characteristics of sexual minority people. This chapter will review two main theories used to explain differential health outcomes in sexual minorities: Ilan Meyer's *minority stress* concept and Albert Bandura's *social learning* theory. Then this chapter will discuss the complexities of sexual orientation as a social concept, outline the role of drinking establishments as an aspect of lesbian, gay and bisexual (LGB) culture and, present research on estimated differences in mental health and substance use problems between sexual minorities and heterosexuals, including analysis of residential treatment clients and factors unique to sexual minorities of colour.

2.1 Minority Stress Theory

The *minority stress* concept, developed by Ilan Meyer (1995) states social stress impacts stigmatized minority groups in the form of discrimination and prejudice (Meyer, 1995; Meyer, 2003; Meyer, 2007). For example, non-heterosexual people will be impacted by homophobia or heterosexism and people of colour will be impacted by racism. According to Meyer (2007), minority stress has three main characteristics: a) it is additive to the general stressors of everyday life, which applies to all persons; b) it is constant, as is evident in static discriminatory institutional structures and policies; and, c) it is socially-based. Meyer frames minority stress in a distal-proximal lens, meaning distal (external) negative events happen to the minority person that are related to their minority status, and proximal (internal) processes arise within the minority person as a result of these distal events, which increases stress and affects him or her negatively.

A minority person will experience stress due to the ubiquity of the dominant culture, social structures and norms which, typically, do not reflect those of the minority. This creates a disconnect between the dominant and minority groups that manifests as experiences, conflicts, events and systemic or systematic structures that alienate the minority group in favour of the majority. Minority stress can be experienced by many types of marginalized groups, such as: non-heterosexual people; transgender people; women; people with disabilities; people of colour; and, immigrants. In addition, multiple minority statuses can intersect to further stress. For example, a LGB person of colour may experience both racism and homophobia. As a result of minority stress, minority groups' experiences negatively affect their mental and physical health, including the development of substance use and mental health problems. In the case of lesbian and bisexual women, minority stress can be experienced through a dual minority status of non-heterosexual and female.

With respect to sexual minorities, including lesbian and bisexual women, minority stress can be experienced through homophobia, heteronormativity, stigma, prejudice, individual and institutional discrimination, anti-gay violence, harassment, concealment of one's sexual orientation and internalized heterosexism (formerly called internalized homophobia). The latter, internalized heterosexism, is an individual's psychological absorption of society's negative attitudes towards sexual minorities or same-sex sexual behaviours (Meyer, 1995). Internalized heterosexism is what Meyer deems a proximal stress, which results from distal events, such as discrimination and anti-gay violence. A person struggling with internalized heterosexism may feel shame or self-disgust with same-sex sexual attraction or behaviour – this can lead to feelings of isolation and lower self-esteem. Psychologists have theorized internalized heterosexism might be associated with higher rates of mental health and substance use problems (Hamilton &

Mahalik, 2009; Herek & Garnets, 2007; Weber, 2008). However, Brubaker, Garret & Dew (2009) reviewed 16 studies testing that hypothesis and found mixed results. The present study did not include analysis of internalized heterosexism because there are mixed results supporting the theory's credibility and, in this author's opinion, it is problematic to assert an inward psychological characteristic is to blame for a person's health outcomes.

Unlike internalized heterosexism, discrimination and anti-gay violence are clearly documented among sexual minorities (Mays & Cochran, 2001; McCabe, Bostwick, Hughes, West & Boyd, 2010; Krieger & Sidney, 1997; Hatzenbuehler, McLaughlin, Keyes & Hasin, 2010). Non-heterosexuals experiencing minority stress in the form of discrimination may feature higher rates of substance use and mental health problems, including disorders such as anxiety, as well as problematic substance use or dependence as a result of coping efforts.

McCabe, et al., (2010) tested Meyer's minority stress concept using the National Epidemiological Survey on Alcohol and Related Conditions to examine relationships between incidences of discrimination based on gender, race and sexual orientation and substance disorders (defined as abuse or dependence on either alcohol and/or drugs). In total, 38.2% of LGB respondents reported they had experienced discrimination based on sexual orientation in the last year, and 47.4% reported it prior to the last 12 months. Additionally, LGB people had higher rates of substance disorders than heterosexuals (27.6% versus 10.5%, respectively).

With respect to discrimination and substance use disorders among LGB people in the sample, McCabe et al. (2010) reported adjusted odds ratio based on combinations of the three types of discrimination. Among LGB respondents results showed those who experienced all three types of discrimination (gender, sexual orientation and race/ethnicity) either in the past year or in their lifetime, were four times more likely to have a substance use disorder. Adjusted odds

ratios for having a substance use disorder among LGB respondents were higher for those who experienced other combinations of discrimination, but none were statistically significant. This suggests the impact of gender, sexual orientation and racial/ethnicity discrimination has a larger effect than does sexual orientation discrimination alone.

Correspondingly, the experience of minority stress through actual events of discrimination can lead a sexual minority person to expect or be aware of perceived prejudice or discrimination, which leads to social stress (Meyer, 2003). As Allport (1954) explains, if a minority group learns to expect acts of discrimination, then increased "vigilance" is necessary to cope with that perceived threat (as cited in Meyer). The amount of energy expended to adapt behaviours based on perceived threats of discrimination, in addition to the resulting increase in anxiety, can lead to a greater likelihood for substance use and mental health problems.

According to Meyer (2007), there is a positive aspect of experiencing minority stress. Meyer states minority stress and discrimination based on sexual orientation can lead to social solidarity among sexual minorities, which can foster resiliency against substance use and mental health problems. But, marginalization of sexual minorities limits the number of locations to congregate and create social solidarity, forcing them into isolated places, often isolated drinking establishments where substance use is more common (Johnson & Summers, 2009). Given the role of drinking establishments for sexual minorities, many theorists have applied social learning theory (or a variation of it) to explain why substance use is higher among sexual minorities than heterosexuals (Chow, et al., 2012; Degenhardt, 2005; Green & Fienstien, 2012; Trocki, Drabble & Midanik, 2005; Trocki & Drabble, 2008).

2.2 Social Learning Theory

Social learning theory, first developed by Albert Bandura (1977), proposes behaviour is learned from observing and mimicking one's environment. Rather than a focus on rewards and punishments as determinants of human behaviour, Bandura postulated people's behaviour is modelled after what they see (Piotrowski, 2001).

According to Green & Feinstein (2012), social learning theory can be applied to substance using behaviour – an individual's substance use patterns can be modeled in terms of peer use, social triggers to use and norms or expectations about substance use. Therefore, a significant aspect of culture for sexual minorities is attendance at drinking establishments, such as bars, night-clubs or circuit parities. The consequence is that people are then influenced by the environment centred on drinking and other substance use. In fact, Lea, Reynolds & de Wit (2013) found hazardous drinking and past-month club drug use was more strongly linked to attendance at a lesbian/gay bar than at a straight/mixed bar among a sample of same-sex attracted Australians.

Applying social learning theory to substance using behaviour among sexual minorities suggests the popularity of bars, nightclubs and parties creates acceptance, expectations and normalization of substance use among this population. Historically, the social oppression of homosexual behaviour was the gateway that pushed this population out of the public eye into drinking establishments in order to socialize (Green & Feinstein, 2012; Johnson & Summers, 2009). Contemporarily, homosexual behaviour has become more acceptable in recent decades in North America, but the use of drinking establishments by sexual minorities is still common (Drabble & Trocki, 2005; Hughes, 2003; Lea, et al., 2013; Gruskin, Bryne, Kools & Altschuler, 2006).

According to Johnson & Summers (2009), the emergence of gay and lesbian bars began in the 1500s after the migration of workers from rural to urban centres provided the social safe-haven for sexual minority people. Due to prosecution of homosexuality and the harsh oppression faced by those exhibiting homosexual behaviour, gay and lesbian bars provided a safer area to congregate, meet other sexual minority people and find sexual partners. By the 1900s, London, Paris, Berlin and New York had dozens of bars for gay and lesbian people.

Unfortunately, drinking establishments for sexual minorities were targets of police raids in the United States (and elsewhere) after World War II and LGB people were subject to prosecution (Johnson & Summers, 2009). A pivotal moment for the gay and lesbian community in North America was the riot at the Stonewall Inn on June 29, 1969 in New York City. The inn was a drinking establishment that catered to the city's marginalized groups, especially gay and lesbian people. The riot was sparked by a police raid at the Stonewall Inn searching for homosexuals to prosecute. The Stonewall Riot sparked the beginning of the Gay Liberation Front in the United States with a series of protests days after the initial riot (Johnson & Summers). It may be the Gay Liberation Front resulted from the resiliency LGB people found while experiencing Meyer's minority stress concept.

Contemporarily, sexual minorities still gather at drinking establishments (Drabble & Trocki, 2005; Hughes, 2003; Lea, et al., 2013; Gruskin, et al. 2006). There are particular "gay bars" or night-clubs which cater and advertise to LGB patrons. LGB people are attracted to socially-safe LGB-friendly spaces, where drug and alcohol use is common. Gruskin et al. (2006) surveyed 35 lesbian and bisexual identified women from the San Francisco area to explore the role of lesbian bars. The four main reasons the women attended lesbian bars were: to facilitate lesbian identity (including "coming out"); be comfortable in an environment free of sexual

orientation discrimination; reduce stress by consuming alcohol; and find sexual partners. The association between sexual minorities, drinking establishments and substance use is well summarized by Cabaj (2000):

> Gay men and lesbians have faced great societal prohibitions, not only against the expression of their sexual feelings and behavior, but also against their very existence. Legal prohibitions on homosexual behavior, overt discrimination, and the failure of society to accept or even acknowledge gay people have tended to limit the types of social outlets available to gay men and lesbians to bars, private homes, or clubs where alcohol and other drugs often play a prominent role. Often, the role models for many young gay men and lesbians just coming out are gay people using alcohol and other drugs, met at bars or parties (p. 8).

As the above quote states, oppression of sexual minorities and the subsequent attendance at drinking establishments contributes to the normalization of substances and an increased risk of substance use in order to cope with stress and other mental health problems.

The minority stress concept and social learning theory can help researchers understand the underlying reasons for the disproportionate burden of these health problems on sexual minorities. However, substance use and mental health characteristics differ within sexual minority populations as well. For example, differences may be found by gender, between homosexual and bisexual people and by race or ethnicity (Meyer, 2010; Meyer, Schwartz & Frost, 2008; Meyer, Dietrich & Schwartz, 2008). In addition, as previously stated, population-level predictions of substance use and mental health problems will differ depending on how sexual orientation is measured.

2.3 Sexual Orientation

Savin-Williams (2006) defined 'sexual orientation' as, "the preponderance of erotic feelings, thoughts, and fantasies one has for members of a particular sex, both sexes, or neither sex" (p. 41). The typical measurement of a person's sexual orientation is one of gay, lesbian, bisexual, or straight, but can be measured across three dimensions, which need to be

distinguished from each other: sexual identity, sexual behaviour and sexual attraction (Green & Feinstein, 2012). Sexual identity refers to how an individual identifies or 'labels' himself or herself, for instance, a man may identify as gay presenting himself as such among his social circles. Sexual behaviour is an individual's sexual acts that could be with any gender. Sexual attraction is simply thoughts or fantasies an individual has regarding sex with a particular gender (e.g., a non-sexually active person can still have sexual thoughts or fantasies).

There is no standardized measure of sexual orientation – researchers have employed all three dimensions of sexual orientation to capture sexual minority respondents in surveys. For example, the Netherlands Mental Health Survey and Incidence Study asked respondents the gender of their sexual partners in a specific time-frame; thus, enabling analysis of heterosexually-active respondents compared to homosexually-active respondents. Because of this, estimates of the number of sexual minorities in the population vary depending on how the construct is measured, limiting the ability to compare across studies (Hughes & Eliason, 2002). For example, in the National Epidemiological Survey on Alcohol and Related Conditions (USA) 2% of respondents reported LGB identity, 4% reported same-sex behaviour and 6% reported same-sex attraction (McCabe et al., 2013).

The proportion of respondents in surveys who report a sexual minority identity (i.e., lesbian, gay or bisexual) is somewhat small. Estimates using population-level household surveys range from 1.9% to 2.9% for gay and bisexual men and 1.5% to 2.2% for lesbian & bisexual women (estimates from the 2012 Canadian Alcohol and Drug Use Monitoring Survey, 2003-2005 Canadian Community Health Survey, 1995 National Survey of Midlife Development and the 2004/2005 National Epidemiologic Survey on Alcohol and Related Conditions). As with all surveys, some level of response bias is present. However, possible response bias specific to

sexual minorities makes it challenging to estimate actual prevalence of LGB people in the population. For example, LGB people may be less likely to respond to or complete surveys or respondents may be reluctant to disclose their sexual identity in fear of stigma or privacy concerns.

Ridolfo, Miller & Matland (2012) note non-response categories in surveys, such as "don't know" or "refused", are sometimes higher in frequency than the sexual minority categories. To explore this issue, Ridolfo and colleagues assessed the validity of sexual identity responses in questionnaires by conducting 126 follow-up interviews with the questionnaire participants. When asked why participants chose a particular sexual identity on the questionnaire, some themes arose. Some participants who reported they were LGB, stated sexual identity was a political statement rooted in community action. And for heterosexuals, choosing a 'straight' category was a default for 'not gay' or 'normal'. Categorization may be most problematic for people who are "coming out" with their sexual orientation or who are "questioning". Further, some people of colour associated gay with whiteness and were therefore less likely to choose a sexual minority category. The latter is also a subject Meyer (2010) discusses – Meyer notes that the intersection of sexual orientation and race/ethnicity may be best conceptualized as a unique identity separate from simply sexual minority or person of colour.

Congruent with the minority stress concept, it appears LGB people are overrepresented among some vulnerable sub-populations, such as street-involved people, recreational drug users (Chow et al., 2012) and treatment clients (Cochran, Peavy & Santa, 2007). In these cases, there are more lesbian and bisexual women in the sample than gay and bisexual men, which is the opposite of population level estimates. For example, 33% woman-identified respondents in a study on recreational drug users in two major Canadian cities reported they were either lesbian or

bisexual (C. Chow, personal correspondence, March 19, 2013). This disproportion of lesbian and bisexual women among some high risk groups points to the need to further understand the mental health and substance use profile of these women, which this thesis attempted to do.

This thesis used the sexual identity of women in the sample, (i.e., lesbian, bisexual or straight) to assess mental health and substance use problems because it is indicative of the person's social and political position. In addition, lesbian or bisexual identity is more congruent with the minority stress concept because an individual who identifies overtly as lesbian or bisexual may be more vulnerable to societal discrimination – this suggestion is supported by research showing sexual identity is more strongly associated with substance use and dependence than are attraction or behaviour (McCabe et al., 2009).

2.4 Drinking Establishment Utilization, Substance Use and Mental Health

The following section discusses sexual minorities': 1) use of drinking establishments as a large factor in the context of substance use; 2) frequency and consumption patterns of substance use; and, 3) mental health problems or disorders. Emphasis will be on women in the review, but, where relevant, sexual minorities as a group will be discussed. Residential treatment clients and sexual minorities of colour are also discussed.

2.4.1 Context of Substance Use: Drinking Establishments

The historical prosecution of LGB people influenced a culture of substance use within drinking establishments. Contemporarily, drinking establishments, including night clubs, bars, raves, bathhouses and circuit parties are still popular venues for many sexual minorities (Trocki, et al, 2005). Trocki & Drabble (2008), using a sample from the San Francisco area, found higher rates of bar patronage among bisexual women compared to heterosexual women, but no significant differences for lesbian women. Lea, et al., (2013) found drug and alcohol use was

higher in gay and lesbian bars than bars considered mixed (LGB and straight patrons) and straight bars among sexual minorities. Trocki, et al., using the 2000 National Alcohol Survey, found sexual minority women had higher rates of alcohol at bars compared to their heterosexual counterparts. The latter study did not assess drug use, only alcohol use. The use of lesbian and gay drinking establishments by sexual minorities is beneficial because it facilitates social and sexual connections, but consequently the popularity of substances at these venues leads to a higher risk of drug and alcohol use for these patrons (Gruskin, et al., 2006; Meyer, 2003)

Substances used commonly in drinking establishments have been coined 'club drugs'. Halkitis & Palamar (2008) explain what is meant by club drugs: "Club drugs, also known as party drugs or designer drugs, are those substances that traditionally have been associated with social venues such as dance clubs, raves, and circuit parties" (p. 872). Halkitis & Palamar state common club drugs are MDMA/ecstasy, ketamine, gamma-hydroxybutyrate (GHB), methamphetamine (crystal meth) or powder cocaine. In addition, alcohol is commonly used in drinking establishments, either alone or concurrently with club drugs. Social learning theory suggests if sexual minorities attend drinking establishments more often than heterosexuals they are more likely to engage in club drug and alcohol use. This theory is supported by examining the high number of LGB respondents among a sample of club drug users from British Columbia (described above) – 12.9% of male respondents identified as gay or bisexual and 33.3% of the female respondents identified as lesbian or bisexual (C. Chow, personal communication, March 19, 2013).

Common drugs used recreationally among sexual minorities include ketamine, MDMA/ecstasy, alcohol, cocaine, crystal meth and GHB (McDowell, 2000; Chow, et al., 2012; Halkitis & Palamar, 2008; Degenhardt, 2005; Parsons, Kelly & Wells, 2006). For example, in a

sample of 852 regular ecstasy users in Australia, 23% identified as a lesbian or bisexual woman and 13% identified as a gay or bisexual man (Degengardt, 2005). Compared to the estimates of LGB people in the general population the high number of LGB people in this Australian sample suggests ecstasy is a popular drug among LGB individuals.

The use of club drugs and sexual behaviour among sexual minorities has been studied extensively (Degenhardt, 2005; Colfax, et al., 2001; Green & Halkitis, 2006; Halkitis, Parsons & Wilton, 2003; O'Bryne & Holmes, 2001). The majority of research regarding club drug use centred on associations between club drug use and sexual behaviour in urban settings. However, this has primarily been a topic for gay and bisexual men due to the additional interest in HIV/AIDS and its association with substance use and riskier sexual activities (Colfax et al., 2001; O'Bryne & Holmes, 2001) Evidence also suggests club drug use and sexual behaviour is associated among lesbian and bisexual women. Degenhardt (2005) found 12% of lesbian and bisexual women reported having six or more sexual partners compared to only 4% of heterosexual women reporting six or more partners in the sample of ecstasy users from Australia. Sexual behaviour of lesbian and bisexual women is not a topic discussed in this thesis, but it is essential to acknowledge that drinking establishments may serve as the primary location where sexual minorities meet partners due to the inability to be 'out' in general locations.

Drabble & Trocki (2005) focused on sexual minority women using the 2000 National Alcohol Survey. The authors analyzed overall alcohol use and alcohol use at bars among four categories of sexual minority women: lesbian-identified, bisexual-identified, heterosexual-identified with reports of same-sex partners and exclusively heterosexual. Drabble & Trocki found differences between exclusively heterosexual women and the sexual minorities regarding alcohol were significant – bisexual women were six times more likely to report alcohol

dependence and lesbians were seven times more likely compared to exclusively heterosexual women. However, when examining bar-going and drinking behaviour, sexual orientation identity (i.e., lesbian or bisexual vs. heterosexual) differences were less apparent in the findings. Bisexual women were not more likely to visit bars once or more a month compared to exclusively heterosexual women, but were almost three times more likely to drink four or more drinks in bars. Lesbian women were 2.5 times more likely to visit bars in comparison to exclusively heterosexual women, but were not more likely to drink four or more drinks in bars.

This difference of bar-going and drinking behaviour between lesbian and bisexual women in this study suggests the normalization of substance use among sexual minorities or the importance of drinking establishments may be different between lesbian and bisexual women. However, Lea, et al. (2013) found contrary results, that is, attendance at gay and lesbian bars was more strongly associated with higher rates of substance use than attendance at bars in general. Same-sex attracted men were more likely to report club drugs use at gay and lesbian bars and same-sex attracted women were more likely to report hazardous alcohol use at gay and lesbian bars.

There is less research regarding sexual minority women, substance use and drinking establishments than sexual minority men. Because alcohol use is more problematic among sexual minority women than heterosexual women, attention should be given to the role of drinking establishments and alcohol use for these women (Amadio & Chung, 2004; Drabble & Trocki, 2005; Green & Feinstein, 2012). Additionally, the physiological differences (e.g., weight and metabolism) between men and women warrant attention. Women metabolize alcohol differently than men and it is recommended they drink less (Butt, Beirness, Gliksman, Paradis, & Stockwell, 2011). Similarly, the same dose of drugs is often used by both men and women, but

women, often being smaller, can experience more harms or adverse effects from drugs, MDMA in particular (Liechti, Gamma & Vollenweider, 2001).

With respect to club drugs, Parson, et al. (2006), in a study of club drug users in New York, found lesbian and bisexual women use club drugs at higher rates than heterosexual women. The authors examined lifetime use of six club drugs (ecstasy, ketamine, GHB, cocaine, methamphetamine and LSD) between heterosexual and lesbian and bisexual women. Although not statistically significant, bivariate results showed 20.5% of lesbian and bisexual women had used any club drugs in the past three months, compared to heterosexual women who reported 16.5% on the same measure. However, subsequent logistic regression controlling for demographic variables revealed lesbian and bisexual women were 1.4 times more likely to have used any club drug in the past three months. Logistic regression also showed sexual minority women more likely to report having used the following specific club drugs ever in their life: methamphetamine (OR=1.86), LSD (OR=1.63), Ecstasy (OR=1.51), cocaine (OR=1.46), Ketamine (OR=1.41). No differences were seen by sexual orientation for lifetime GHB use among the women.

The preceding discussion implied rates of drug and alcohol use among sexual minorities may be higher because of this population's increased attendance at drinking venues compared to heterosexuals. These venues provide a socially-safer space for sexual minorities to socialize and meet others. However, the opposite could be true: if fewer sexual minorities attended drinking establishments, lower rates of club drug and alcohol use could result in this population. In a global study by Simon, Rosser, West & Weinmeyer (2008) on structural change within LGB communities, respondents interviewed across 17 cities all reported a decline in the number of gay/lesbian bars and previous gay/lesbian bars becoming mixed with heterosexuals (with the

exception of London and cities in the former Communist Bloc). If increased societal acceptance of LGB people translates into a reduction in gay and lesbian bars and an increased mix of heterosexuals and sexual minorities at drinking establishments, rates of alcohol and drug use among LGB people may decline.

2.4.2 Substance Use and Mental Health among Lesbian and Bisexual Women

In contrast to research on drinking establishments, which are confined to purposive sampling, mental health and substance use indicators have been included in population-level surveys. This allows for better generalizability to the greater population. Most studies have used DSM (Diagnostic and Statistical Manual of Mental Disorders) specific criteria gathered through trained interviewers to examine prevalence of mental health disorders and substance use disorders, but also substance use frequency and consumption patterns, suicide attempts and treatment utilization. As mentioned above, two major meta-analysis studies concluded sexual minorities are at higher risk for mental health and substance use problems (Green & Feinstein, 2012; King et. al, 2008). This section examines some major studies reviewed in these meta-analyses and discusses newer studies on sexual minority women and mental health and substance use. Overall, findings suggest sexual minority women have poorer mental health and substance use outcomes compared to heterosexual women.

Canadian research on sexual minority women and their mental health and substance use problems has utilized the Canadian Community Health Survey (CCHS). Other contemporary studies reviewed are from large American national surveys, such as the National Comorbidity Survey, N=4,910 (Gilman, Cochran, Mays, Hughes, Ostrow & Kessler, 2001), the National Epidemiologic Survey on Alcohol and Related Conditions, N=34,653 (Bostwick, Boyd, Hughes & McCabe, 2010), the National Household Survey of Drug Abuse, N=9,908 (Cochran & Mays,

2000) National Alcohol Survey, N=7,612 (Drabble, Midanik & Trocki, 2005), California Quality

of Life Survey, N=2,079 (Grella, Cochran, Greenwell & Mays, 2011), and the National Latino

and Asian America Survey, N=4,498 (Cochran, Mays, Alegria, Ortega & Takeuchi, 2007).

Other surveys analyzed are the Australian Longitudinal Study on Women's Health Survey,

N=8,850 (Hughes, Szalacha & McNair, 2010) and the Netherlands Mental Health Survey and

Incidence Study, N=7,076 (Sandfort, et al., 2001).

Substance Use

Research on sexual minorities and substance use has centred on analysis of substance use

disorders (alcohol and drugs), substance use consumption patterns and social consequences of

substance use (e.g., aggressive behaviour). Results are mostly consistent in that sexual minority

women are at greater risk for alcohol disorders, high alcohol consumption and greater social

consequences from alcohol compared to heterosexual women. Research on drug use among

sexual minority women is less consistent, but does suggest higher rates of marijuana use and/or

dependence (Cochran, Ackerman, Mays & Ross, 2004; Corliss, Grella, Mays & Cochran, 2006;

McCabe, et al., 2009).

Numerous studies have shown high adjusted odds ratios for alcohol dependence and high

rates of alcohol consumption for these women. In an analysis of the 2000 National Alcohol

Survey, lesbian women were seven times more likely to meet criteria for DSM-defined alcohol

dependence in the past year and bisexual women were six times more likely when compared to

heterosexual women (Drabble, et al., 2005). Analysis of the National Household Survey of Drug

Abuse showed women who reported homosexual behaviour had significantly higher odds for

alcohol dependence (AOR=2.85) than exclusively heterosexually-active women (Cochran &

Mays, 2000). Using the same survey, Cochran, Keenan, Schober & Mays (2000) showed

homosexually-active women compared to heterosexually-active women had higher odds of: ever drinking (AOR = 3.64) or drinking in the past month (AOR = 2.90); drank once a week or more often (AOR = 3.06); drank nearly every day (AOR = 5.15); considered drunk three or more times in the past 12 months (AOR = 2.27); considered drunk once or more per week (AOR = 4.00). In the Australia Longitudinal Study on Women's Health Survey results of women ages 25-30, 25% of lesbian-identified women were classified as binge drinkers, compared to 20% of bisexual-identified, 20% of mainly heterosexual-identified and 12% of exclusively heterosexual-identified women. Subsequent logistic regression results showed only bisexual-identified and mainly heterosexual-identified women were at higher risk of binge drinking compared to exclusively heterosexual women (Hughes, et al., 2010). Correspondingly, the CCHS asked respondents about risky drinking, defined as over eight drinks a week. After demographic adjustments, lesbian women were 2.67 times more likely to report risky drinking and bisexual women were two times more likely to report risky drinking compared to heterosexual women.

Further confirmation of alcohol dependence among homosexually-active women was seen from the Netherlands Mental Health Survey and Incidence Study (Sandfort, et al., 2001) and the National Epidemiological Survey of Alcohol and Related Conditions (NESARC). In the latter survey, McCabe, et al., (2009) analyzed DSM-defined past-year alcohol dependence and found an adjusted odds ratio of 3.6 for lesbian women and 2.9 for bisexual women with heterosexual women as the reference, but interestingly no elevated risk of heavy drinking in the past 12 months for these women. In a later study, McCabe, et al. (2013), using the NESARC again, examined the risk of a lifetime alcohol use disorders (abuse or dependence) among women by sexual orientation and found lesbian women were 3.2 times more likely to have the disorder and bisexual women were 2.2 times more likely when compared to heterosexual

women. Further, Welch, Howden-Chapman & Collings (1998) found (out of a survey of New

Zealand lesbian women) 48.1% viewed alcohol as used excessively in the lesbian community.

In contrast, the National Comorbidity Survey did not show sexual minority women

(based on behaviour) were at significantly higher risk for an alcohol disorder (Gilman, et al.,

2001). However, sexual minority women were over two times more likely to report any

substance use disorder (i.e., drugs or alcohol).

Past research on drug use among sexual minority women is more scant than alcohol

research among this population. In the Australian survey of young women, bisexuals were

almost three times more likely to have reported marijuana use in the past 12 months, but lesbian

women were not (Hughes, et al., 2010). However, use of illicit drugs in the past 12 months

(excluding marijuana) showed high odds among sexual minority women; compared to

exclusively heterosexual women, mainly heterosexual women were 3.36 times more likely to

report illicit use, bisexual women 3.08 times and lesbian women were 2.90 times more likely to

report illicit drug use. Analysis of more specific subgroups of drugs is found in the 1996

National Household Survey of Drug Abuse. The survey includes information on respondents'

drug use (marijuana, cocaine, hallucinogens, heroin, inhalants, sedatives, stimulants, analgesics

and tranquilizers). Using this survey, Cochran, et al., (2004) found some very high adjusted odds

ratios on these drug indicators for women who reported any same-sex partners in the past 12

months compared to exclusively-heterosexual women. Popular drugs for homosexually-active

women to have ever used in their life were marijuana (AOR=5.7), cocaine (AOR=5.0),

hallucinogens (AOR=2.9), inhalants (AOR=3.3), sedatives (AOR=4.9) and stimulants

(AOR=2.6). For recent drug use among homosexually-active women marijuana was very

popular, with these women over four times more likely to have used it in the past 30 days and

four times more likely to meet criteria for marijuana dependence than their exclusively-heterosexual counterparts. The authors also looked at dysfunctional use of the classes of drugs – defined as one to two symptoms present from the DSM criteria. Homosexually-active women were almost four times more likely to report dysfunctional use of cocaine and four times more likely to report dysfunctional use of hallucinogens and any drug. In addition, homosexually-active women were four times more likely to meet criteria for marijuana dependence and three times more likely for any drug dependence. Other studies assessing substance use disorders or dependence show higher rates of these in sexual minority women. Sandfort, et al. (2001), using the Netherlands Mental Health Survey and Incidence Study, found homosexually-active women were four times more likely to meet criteria for past 12 months substance use disorder, and eight times more likely to meet drug dependence criteria compared to heterosexual women. Furthermore, the National Comorbidity Survey showed that homosexually-active women were more likely to meet criteria for DSM-defined drug abuse (AOR=4.4).

The National Epidemiological Survey on Alcohol and Related Conditions (NESARC) includes questions about sexual orientation based on identity, behaviour and attraction, substance dependence and disorder as defined in the DSM diagnostic criteria. Results show sexual minority women had higher rates of dependence and disorders compared to non-sexual minority women and sexual minority men. McCabe, et al. (2010) using the same survey found the proportion of substance disorders in the past 12 months was 25.8% for lesbian women, 24.3% for bisexual women and 5.8% for heterosexual women.

McCabe, et al. (2009) stated in the general population men have higher rates of substance use than women. But in their analysis of the NESARC, sexual minority effects were larger for females on all substance use disorder indicators across the three sexual orientation

dimensions. Notably, McCabe et al. showed lesbian women were 11 times more likely to have marijuana dependence and 12 times more likely to have other drug dependence in the last year compared to heterosexual-identified women. McCabe et al. (2013) analyzed lifetime drug use disorder using the NESARC, and found lesbian women were almost three times more likely to meet the criteria and bisexual women were almost four times more likely compared to heterosexual women. McCabe et al. state the NESARC data showed LGB identity had overall higher odds of substance use and dependence when compared to sexual orientation based on behaviour and attraction – this suggests sexual minority visibility and "outness" is associated with substance use.

The NESARC also asks respondents about lifetime substance abuse treatment utilization. McCabe et al. (2013) examined treatment utilization among respondents who had a substance use disorder based on the three dimensions of sexual orientation. Most notable was that bisexual-identified people and those who reported sex with both sexes were roughly two times more likely to have used substance abuse treatment in their lifetime when compared to their heterosexual counterparts. This is similar to results from the California Quality of Life Survey, which showed that female sexual minorities had higher rates of perceived treatment needs and treatment utilization compared to other groups, but lower rates of unmet needs in the past 12 months (Grella, et al. 2011).

The social consequences of substance use are not a focus of this thesis, but they do work as a proxy indicator of the severity of problem use. Utilizing the National Alcohol Survey, Drabble, et al., (2005) found social consequences due to alcohol were more prevalent among lesbian and bisexual women than heterosexual women. Lesbian women were at significantly higher odds of reporting being drunk greater or equal to 2 times in the past year (AOR=2.5),

reporting greater or equal to two social consequences in the past year (AOR=10.9). Likewise, bisexual women were 2.5 times and 8.1 times more likely to report these two indicators when compared to heterosexual women. During bivariate analysis, combing the lesbian and bisexual women in the sample and comparing them to heterosexual women also showed higher rates of alcohol-related social consequences. Lesbian and bisexual women were significantly more likely to report fights (15.7% vs. 1.3%), arguments (23.5% vs. 4.6%), an angry spouse because of drinking (8.8% vs. 1.8%), a doctor suggesting cutting down (8.9% vs. 1.2%), lost work time (3.1% vs. 0.6%) and trouble with the law when driving was not involved (2.2% vs. 0.4%). Other studies have also found alcohol-related social consequences for sexual minority women are more prevalent than heterosexual women (Hughes, Haas, Razzano, Cassidy & Matthews, 2000; Wilsnack, et al., 2008).

Mental Health

As discussed, the only Canadian studies using large-scale surveys on mental health and substance use among LGB people have utilized the CCHS. This survey does not include a comprehensive set of questions regarding drugs and alcohol, but does for mental health, including self-perceived mental health status, mood and anxiety disorders and suicidality. Respondents were asked to report if they had ever been told by a health care practitioner they have a mood or anxiety disorder. For self-perceived mental health, respondents were asked to rate their mental health as: excellent, very good, good, fair or poor. All CCHS studies showed similar results, with more dramatic differences between bisexual and heterosexual women, than between lesbian and heterosexual women.

Tjepkema (2008) used the combined 2003 to 2005 CCHS to assess bivariate differences among women by sexual orientation. More lesbian and bisexual women reported mental health

concerns than did heterosexual women. For bisexual women, 17.0% reported fair or poor self-perceived mental health, compared to 6.7% for lesbian women and 5.3% of heterosexual women. Among women, 25.2% of bisexual women, 11.4% of lesbian women, and 7.7% of heterosexual women reported a mood disorder. Similar results were found for anxiety disorders. Prevalence rates were 17.1% for bisexual women, 8.7% for lesbian women and 5.8% for heterosexual women. Other studies have used the CCHS to assess health disparities among LGB people and adjusted for demographic variables.

Steele, et al. (2009) used the 2003 CCHS and found adjusted odds of suicide ideation was dramatically higher among lesbian and bisexual women compared to heterosexual women (AOR=5.93 and 3.54, respectively), and bisexual women were almost four times more likely to report fair or poor mental health compared to heterosexual women. The most recent analysis of CCHS using the 2007-2008 data was conducted by Pakula & Shoveller (2013). Again, these authors examined mood disorders among LGB respondents compared to heterosexual respondents. Adjusted logistic regression showed LGB respondents (as a group) were 2.93 times more likely to report a mood disorder than their heterosexual counterparts. Regarding women, the adjusted odds of lesbian and bisexual women reporting a mood disorder was 2.60 compared to heterosexual women.

The 1992 National Comorbidity Survey included information on DSM disorder diagnoses among LGB respondents. Homosexually-active women were roughly three times more likely to have generalized anxiety disorder and post-traumatic stress disorder. Further, homosexually-active women were roughly two times more likely to have simple phobia, any anxiety disorder, major depression and any mood disorder.

The National Epidemiologic Survey on Alcohol and Related Conditions, analyzed by Bostwick, et al. (2010), was able to assess health outcomes between lesbian and bisexual women. Lesbian women were 1.5 times more likely to report a lifetime mood disorder compared to heterosexual women, but not a past 12 month mood disorder. The opposite was seen for anxiety disorders – lesbian women were no more likely to have a lifetime anxiety disorder compared to heterosexual women, but 1.7 times more likely to have one in the past year. Among bisexual women compared to heterosexual women, analysis showed adjusted odds ratios between two and almost three for any past 12 months and lifetime mood or anxiety disorder, respectively. In a similar vein, previous analysis of the National Survey of Midlife Development in the US showed lesbian and bisexual women were almost four times more likely to meet DSM defined criteria for generalized anxiety disorder (Cochran, Sullivan & Mays, 2003).

One of the national surveys, the 1996 National Household Survey of Drug Abuse (USA), did fail to show any differences on mental health indicators among sexual minority women. Cochran & Mays (2000) assessed four mental health disorders among homosexually-active women and found none of the disorders to be significant (this included, major depression, generalized anxiety disorder, agoraphobia or panic attack). However, a study of sexual minority women matched to the respondents in the Chicago Study of Health and Life Experiences of Women found depression levels in sexual minority women higher than exclusively heterosexual women and this was most pronounced in bisexual women (Wilsnack, et al., 2008).

Few large surveys have analyzed mental health problems among sexual minorities outside of the USA. In the Australian sample of young women, bisexual women fared the worst on the authors' measures of perceived stress, depression and anxiety, followed mostly equally by lesbian and mostly heterosexual women compared to exclusively heterosexual women. For

example, 44% of bisexual women scored greater or equal to 10 out of a possible 30 for

depression symptoms, followed by 34% of mainly heterosexual women, 29% of lesbian women

and 25% of exclusively heterosexual women (Hughes et al., 2010) . In the Netherlands, Sandfort

et al. (2001) analyzed the prevalence of psychiatric disorders among people with homosexual or

heterosexual behaviour (past 12 months and lifetime) using the Netherland Mental Health Survey

and Incidence Study. Psychiatric disorders were classified according to the DSM criteria and

included: mood disorders (depression, dysthymia, bipolar), anxiety disorders (panic disorder,

agoraphobia, social phobia, simple phobia, obsessive-compulsive and generalized anxiety), and

psychoactive substance use disorders (alcohol abuse, alcohol dependence, drug abuse and drug

dependence). Homosexually-active women were more likely to have a mood disorder

(AOR=2.41) and major depression (AOR=2.44).

The same data from the Netherlands was also used to explore suicidality (defined as a

cluster of symptoms that predict the likelihood of someone committing suicide) and its

association with age, perceived discrimination and psychiatric morbidity among homosexually-

active respondents (de Graaf, Sandfort & ten Have, 2006). Four symptoms of suicide were

assessed: death ideation, death wishes, suicide contemplation and suicide attempt. Among

homosexually-active women, only suicide contemplation was significant when compared to

heterosexually-active women. However, when controlling for the presence of at least one

lifetime mental disorder (defined with DSM criteria), suicide contemplation among

homosexually-active women disappeared. Additionally, no association between sexuality, age

and suicide symptoms was found among women.

Another analysis of mood and anxiety disorders was conducted by Grella, et al., (2011)

using the California Quality of Life Survey using DSM criteria. Sexual orientation was assessed

by grouping respondent's reported sexual behaviour and identity together. Sexual minority women (i.e., lesbian or bisexual identified or reports of same-sex behaviour), compared to exclusively heterosexual identity and behaviour reported a higher rate of mood and anxiety disorders, 38.1%, compared to heterosexual women at 23.4%. The author's also assessed mental health and substance use treatment utilization and perceived unmet need. Interestingly, sexual minority women had higher rates of treatment utilization and less reported unmet treatment needs. This is congruent with work by Cochran & Mays (2000), which showed homosexually-active women were almost three times more likely to have sought mental health and/or substance abuse treatment services in the past year compared to exclusively heterosexual women, and with McCabe et al. (2013), which showed greater treatment utilization among sexual minority women and with Cochran, et al. (2003). These findings suggest sexual minority women may seek out mental health and substance use treatment more often than heterosexual women.

2.4.3 Residential Treatment Clients

There are few studies conducted on LGB people in treatment for substance use. Cochran & Cauce (2006) and Cochran, et al., (2007) used the Treatment and Assessment Report Generation Tool (TARGET), a Washington-state database of people in outpatient substance use treatment programs, to examine sexual orientation and substance use. Cochran & Cauce (2006) grouped the respondents in the data based on primary substance of abuse (alcohol, marijuana, methamphetamine, heroin and cocaine and crack) and looked at proportion differences between LGBTQ (lesbian, gay, bisexual, transgender and questioning) and heterosexual respondents. Among women, heterosexuals were more likely to report alcohol as their primary substance and LGBTQ women were more likely to report heroin (in addition to reporting a higher frequency of their primary drug in the last 30 days). The latter is contrary to many of the population level

surveys mentioned that show alcohol is a common problem for lesbian and bisexual women. It is surprising heroin was the main drug related to seeking treatment in this sample – the other studies reviewed did not show higher rates of heroin use among sexual minority women in the general population. However, this sample included transgender women and women questioning their sexuality. The authors also examined rates of: previous mental health treatment; current mental health treatment; pervious mental health hospitalization; and, current prescription for psychotropic medications. More LGBTQ respondents (as a group) were overrepresented on these variables; however, no differences were seen among the women.

In a follow-up study, Cochran, et al., (2007) looked at the same sample of LGBTQ clients, but examined within group differences. Five groups were created: lesbian women, gay men, bisexual women, bisexual men, transgender and questioning individuals. The last two groups had too few respondents to analyze. Among the group, bisexual women endorsed the highest usage of methamphetamine (46.4% of bisexual women, 32.6% for gay men, 27.3% for bisexual men and 26.3% for lesbian women); however, controlling for age rendered the differences not significant. Lesbian and bisexual women were equally as likely to endorse cocaine use. Lesbian and bisexual women were significantly more likely to report heroin use (28.5% and 25.5%, respectively) than the other groups. Lesbian and bisexual women were also the least likely to report alcohol as their primary substance of concern.

Results from Cochran, et al. (2007) showed differences between groups within the LGB population. Similarly, there may be differences in health outcomes within the LGB or sexual minority population by other characteristics (e.g., race or ethnicity, ableism, transgender-status, immigrant status or age). Some evidence shows that sexual minorities of colour have lower rates of substance use and mental health problems. The below section discusses findings in this

respect, although there is very little research conducted for sexual minority women of colour, specifically.

2.4.4 People of Colour

The experience of sexual minorities of colour may differ from White sexual minorities or heterosexual people of colour. Meyer's minority stress concept would predict that experienced racism and racialization would be additive to homophobia and heterosexism to create higher rates of mental health and substance use problems among this group. In contrast, evidence suggests some sexual minorities of colour are at lower risk for mental health and substance use problems (Meyer, et al., 2008).

The 2002-2003 National Latino and Asian American Survey includes information on sexual identity, sexual experiences and lifetime and past year mental health and substance use disorders. There are no White respondents in the survey so analysis was between sexual minority Latino or Asian respondents and their heterosexual counterparts. Cochran, et al. (2007) used the survey to assess psychiatric morbidity among the sample of Latino and Asian respondents to see if trends in substance use differ from the evidence in the general population and to test if sexual minority people of colour have poorer mental health and substance use outcomes than heterosexual people of colour. Results showed slight increased risk for suicide attempt in the past year for sexual minority men and drug abuse/dependence and depression disorders in sexual minority women. The authors conclude that the results are similar to sexual orientation differences in general population trends; and thus, do not suggest an additive factor of race/ethnicity of mental health and substance use outcomes among sexual minority people of colour.

Meyer, et al., (2008) also hypothesized that the additive stress of prejudice because of race or ethnicity combined with a minority sexual orientation would contribute to even more mental health and substance use problems than just sexual orientation alone. But, their analysis of 388 Black, Latino, and White LGB people from New York did not support their hypothesis. Black LGB respondents had the lowest levels of mental health and substance use disorders (anxiety, mood or substance use disorders). Latino and White respondents showed little variation on the disorders assessed. However, Latino respondents were three times more likely to report a serious lifetime suicide attempt compared to White LGB respondents.

2.4.5 Summary

The above literature review suggests sexual minority women are at higher risk for mental health and substance use problems than heterosexual women. Most studies show lesbian and bisexual women are at least three times more likely to meet criteria for DSM-defined alcohol dependence (after adjustments for demographic variables). In addition, alcohol consumption rates among sexual minority women may be higher. With respect to Canada, Steele, et al. (2009) showed lesbian women were almost three times more likely to report drinking over eight drinks a week and bisexual women were two times more likely (compared to heterosexual women). However, assessment of the residential treatment clients in the Washington State TARGET database showed heterosexual women were more likely to report alcohol as their primary substance than LGBTQ women. Regarding drug use, studies suggest marijuana, methamphetamines and heroin are common problem substances for sexual minority women and rates of any drug dependence is higher for these women compared to their heterosexual counterparts. Additionally, evidence suggests sexual minority women have higher rates of alcohol-related social consequences and mental health and substance use treatment utilization.

Regarding mental health differences by sexual orientation, analysis of the CCHS showed lesbian and bisexual women reported poorer mental health and higher rates of attempted suicide. For DSM-defined mental health disorders, the National Household Survey of Drug Abuse showed no elevated risk among sexual minority women but other studies found higher risks of anxiety and depression. This is congruent with results from the Australian sample which found higher rates of anxiety, depression and stress among sexual minority women. Lastly, sexual minorities of colour do not appear to be at elevated risk of mental health and substance use problems compared to their white counterparts.

This thesis' research contribution was to add to the above literature by analyzing substance use and mental health characteristics of lesbian and bisexual women, which helps fill the gendered research gap and reduces the paucity of Canadian research on the topic. The study's sample of women in residential treatment provides reliable data on substance use and mental health characteristics of lesbian, bisexual and straight women. The proportion of the sample that identified as lesbian or bisexual women is 23%, which is substantially higher than population-level estimates of lesbian and bisexual women. Analysis of this sample is, thus, important because it enables examination of statistically significant differences by sexual orientation and provides a health profile of heavy substance using sexual minority women.

Chapter 3: Materials and Methods

3.1 Research Design

Study data were obtained from Dr. Scott Macdonald's "Patterns and consequences of cocaine and alcohol use for substance abuse treatment clients" study of five residential treatment centres. This was study conducted between 2010 and 2012 supported by the Canadian Institute of Health Research (funding resource number 89906). The study utilized cross-sectional self-administered questionnaires given to clients in five residential treatment facilities for primarily alcohol and/or cocaine problems. Treatment clients were screened in order to create three treatment groups: 1) dependent on cocaine (cocaine group); 2) dependent on alcohol (alcohol group); and, 3) concurrently dependent on both cocaine and alcohol (concurrent group). Dependence was assessed with the Severity of Dependence Scale (SDS), which has a range of 0 to 15 (Gossop et al., 1995). Scores of three or more on the SDS are indicative of dependence (Kaye & Darke, 2002).

Out of the five residential treatment facilities included, two were from British Columbia (Aurora Centre at the BC Women's Hospital & Health Centre and Peardonville House Treatment Centre in Abbotsford) and three from Ontario (New Port Centre in Port Colborne, and the Jean Tweed Centre and Bellwood Health Services in Toronto). In order to gather an equal gender distribution, three of those facilities were for women only. Respondents were given a $20.00 gift certificate in compensation for their time. The study was approved by the University of Victoria's Human Research Ethics Board and appropriate hospital ethics boards.

Data Collection

Questionnaires were collected between November 2009 and February 2012 from treatment clients ages 18 to 65. A total of 627 eligible treatment clients were approached, with 616 completed surveys producing a response rate of 98.2%. A significant strength of this study is that clients in substance use treatment are less likely to underreport substance use due to the likelihood of already acknowledging the severity of their substance use problem (Macdonald, 1987).

Measures

Sexual orientation was assessed by asking respondents "what is your sexual orientation", with response categories: straight, gay, lesbian or bisexual. Respondents were also asked about their sex and gender-identity. For the latter, response categories were: male, female, transgender, and other. Measures of substance use (alcohol, cocaine and other drugs), mental health (anxiety, depression, stress and suicide) and context of use were examined to assess differences by sexual orientation. This thesis defines context of use as "the physical setting and social environment where use occurs. Contextual explanations focus on socio-environmental constraints and influences, including peer groups". Context of use in this thesis includes location of substance use, use with others and motivations to use. Table 1, 2 and 3 provide a summary of these measures.

Table 1: Substance Use Variables Analyzed by Sexual Orientation

Alcohol use in past 12 months	Proportion of respondents who reported use of alcohol in the past 12 months
Average number of days drank in a week	Average number of days drank in a week, ranging from 0 days to 7 days per week (past 12 months)
Average number of drinks consumed when drinking	Average number of drinks consumed on days drank (past 12 months)
Maximum number of drinks in a day	Maximum number of drinks in 24 hours (past 12 months.)
Type of substances used and the number of days per week used	Average number of days per week (0 to 7) respondents used the following substances (past 12 months) • Marijuana or hash • Sleeping pills • Pep pills, stimulants (excluding cocaine) • Tranquilizers, such as valium • LSD/acid/mushrooms • Methamphetamine/crystal meth • Heroin
Weekly amount of cocaine/crack	Weekly amount of cocaine/crack (grams) was calculated based on the amount the respondent reported in one of the following units: 8balls, grams, ounces, or money spent. The weekly amount was capped at 84 grams per week.
Severity of Dependence Scale for: • Alcohol • Cocaine • Concurrent use of alcohol and cocaine	The Severity of Dependence Scale (SDS) is a five item scale assessing the degree of dependence on a particular drug (Gossop et al, 1995). In the Alcohol and Cocaine Study, respondents were assessed the severity of their dependence on: a) alcohol; b) cocaine; or, c) alcohol and cocaine. The five questions comprising the SDS scale are: 1. Did you think the use of [named drug] was out of control? 2. Did the prospect of missing [named drug] make you anxious or worried? 3. Did you worry about your use of [named drug]? 4. Did you wish you could stop? 5. How difficult did you find it to stop using/go without [named Drug]? Response options were scored 0 to 3, ("never/almost never", "sometimes", "often" and "always"). The SDS ranges from 0 to 15, with higher numbers indicative of more dependence. A score of 3 or more is indicative of dependence.

The Severity of Dependence Scale (SDS) is a five item scale assessing the degree of dependence on a particular substance. Gossop, et al. (1995) applied the SDS to five different samples of drug users and found it was a reliable measure of dependence across different drugs.

The five questions comprising the SDS scale are: 1) Did you think the use of [named drug] was out of control? 2) Did the prospect of missing [named drug] make you anxious or worried? 3) Did you worry about your use of [named drug]? 4) Did you wish you could stop? 5) How difficult did you find it to stop using/go without [named drug]? The SDS ranges from 0 to 15, with higher numbers indicative of more dependence. Because the SDS can easily be applied to different substances among varying samples of users, the SDS was applied in this study to assess severity of dependence for alcohol and/or cocaine. Kaye & Darke (2002) found a score of three or more on the SDS scale represented the optimal point to compare DSM-defined dependence.

Table 2: Context of Substance Use Variables Examined by Sexual Orientation

Location of use	Own home	Ten locations of substance use were assessed in the survey data. The question asks "In the past 12 months before treatment, about how often did you use both cocaine and alcohol in the following places". There were five response options for how often the respondent used substances in the certain locations ("never", "sometimes", "about half the time", "most of the time", "practically all of the time"). Responses were dichotomized to create a variables assessing respondents who answered "practically all the time or most of the time" versus "never, sometimes, about half the time".
	Other's home	
	Dealer's home	
	Party	
	Bar	
	School	
	Workplace	
	Public place	
	Vehicle	
	Hotel or motel	
Use with others	Alone	Regarding use with others, the question asks: in the past 12 months before treatment, about how often did you use both cocaine and alcohol with the following people? Eight categories of people were presented with five responses available for each category ("never", "sometimes", "about half the time", "most of the time", "practically all of the time"). Responses were dichotomized into "practically all the time or most of the time" versus "never, sometimes, about half the time".
	Partner or lover(s)	
	Relative(s)	
	Friend or acquaintances	
	Dealer(s)	
	Stranger(s)	
	Sex worker(s)	
	Sex client(s)	
Motivation for use	To cope with negative affect	
	Enhancement	
	To be social	
	To conform	

Motivation to use questions were adapted from the Drinking Motives Measure (DMM) developed by Cooper (1994). There are 20 items each assessed with the question, "how often would you say that you use both cocaine and alcohol for the following reasons"? Response categories are "almost never or never", "some of the time", "half of the time", "most of the time", "almost always or always". The 20 items represent four subscales each ranging from 5 to 25: 1) to cope with negative affect; 2) enhancement; 3) to be social; and, 4) to conform. Previous studies found the DMM to be a reliable indicator of motivations for substance use. Galen, Henderson & Coovert (2001) successfully applied the DMM to a group of inpatient male alcohol treatment clients. Simons, Corriea & Carey (2000) used the DMM to assess differences in motivations to use alcohol compared to marijuana among a sample of college students. Further, Martens, Cox, Beck & Heppner (2003) utilized factor analysis to validate the DMM among a sample of college athletes.

The DMM was modified from its original form for the study and applied to alcohol and cocaine use among this sample. Specific methods for the study are discussed in Martin, Macdonald, Pakula & Roth (2013). Martin et al. show the modified DMM applied in the study is valid and reliable. Further, Macdonald, et al. (in press) showed the motivations to use scales have good inter- reliability.

Table 3: Mental Health Outcome Variables Examined by Sexual Orientation

Suicide attempt	Reported suicide attempt during the past 12 months before treatment
Anxiety Scale	The anxiety scale used in the study was developed by Knight, Holcom & Simpson (1994). The scale uses a five-point Likert scale and asks 7 questions regarding symptoms of depression. Scores range from 7 to 35, with higher scores indicating higher depression. Responses were asked of the past year.
Perceived Stress Scale	The perceived stress scale, developed by Cohen, Kamarck & Mermelstein (1983) but adapted for use of the Alcohol and Cocaine Study, uses a five-point Likert scale with 10 individual questions to assess respondents' stress levels in the past year. Scores range from 10 to 50, with higher numbers indicating more stress. Respondents were asked to think of the past month.
Depression Scale	The depression scale was developed by Knight, Holcom & Simpson (1994). The scale uses a five-point Likert scale with six questions for a score ranging from 6 to 30, with higher scores indicating higher depression. Responses were asked of the past year.

Mental health among respondents was assessed using itemized scales for anxiety, perceived stress and depression (as well as a question about previous suicide attempts). The scales are calculated from a set of questions asking respondents about the frequency of certain feelings with the possible responses of: "never"; "rarely"; "sometimes"; "often"; and, "always". The depression scale (Knight, Holcom & Simpson, 1994) uses a 6 item scale with questions regarding how often respondents feel things such as worry, loneliness, and suicide. The scale ranges from 6 to 30 with higher numbers indicating higher levels of depression. The anxiety scale, created by Knight, et al., uses seven items to assess symptoms such as trouble sleeping, trouble sitting for a long time or feeling keyed-up. The scale ranges from 7 to 35 with higher scores indicative of higher anxiety levels. Perceived stress was measured with a 10 item scale developed by Cohen, Kamarck & Mermelstein (1983). The perceived stress scale ranges from 10 to 50 with higher scores indicative of higher levels of stress. Previous analysis of this study found the mental health scales showed good inter-reliability (Macdonald et al., in press).

3.2 Analysis Plan

Bivariate and logistic regression analysis assessed the variables of interest (substance use, context of use and mental health) between lesbian and bisexual women and straight women. With respect to the itemized scales of interest (e.g., depression), if there were less than 20% of the items missing for any particular respondent, then responses were imputed using the mean of the answers from the other items (Martin, et al., 2013). For bivariate analyses, t-tests were used for continuous variables (equality of variance was assumed unless Levene's test was not significant), Fisher's Exact Test was used for dichotomous variables and Chi-square test employed for larger tables

Covariates in the logistic regression models included: age (continuous); marital status (coded as cohabitating or not); ethnicity (coded as white or person of colour); personal income (continuous); education (less than post-secondary or at least some post-secondary); and, treatment group (three categories: alcohol group, cocaine group, concurrent group). The rationale for inclusion of these covariates was based on past research and hypotheses.

Age was included in the model because some studies show substance use declines with age among heterosexuals, but not among sexual minorities (Green & Feinstein, 2012). In studies of the general population, it appears marriage and cohabitation are a protective factor against risky behaviour, mental health problems and substance use (Duncan, Wilkerson & England, 2006). To theorize, it is possible partnered sexual minorities use substances more often because they are more likely to attend drinking venues together, or it is possible single respondents attend drinking venues more in search for potential partners. Therefore, marital status was included as a covariate. Some evidence suggests sexual minorities of colour have lower rates of substance use, thus ethnicity was included as a covariate (Drabble et al., 2005; Lea et al., 2013). Personal

income was included in the analysis because higher incomes may translate into more money to spend on substances. Household income was not included because the survey question did not specify household income was specific to family income. Because sexual minorities in this sample were less likely to be married or living common-law, household income may represent income from people such as roommates, not family income, which would be shared between partners and available to spend on drugs and/or alcohol.

In this thesis, sexual orientation group membership was the outcome variable in the logistic regression models. Many previous studies have used sexual orientation as the predictor variables to assess health and behavioural outcomes. However, this thesis uses group membership as the outcome variable in the logistic regression models in order to test associations, not causation. Additionally, the variables of interest in the study data were not dichotomous (unlike conventional epidemiological studies with 'disease' or 'no disease' data). In order to preserve the original data distribution, the variables of interest were added as predictor variables in order to predict sexual orientation group membership (i.e., lesbian/bisexual women versus straight women). All analyses were conducted using SPSS version 22.

Chapter 4: Results

4.1 Demographic Characteristics (Research Objective 1)

To examine research objective one (demographic characteristics) the sample was classified based on answers to the sexual orientation and gender-identity questions except in the case where the gender-identity was missing or ambiguous, in which case they were categorized based on their sex. Two of these women indicated their sex was 'male', but their gender identity was female, one of whom identified as bisexual and one as straight. Although the lived experience of people born into a sex they do not identify with may be different, these respondents did not indicate they were transgender. Thus, one was classified as a bisexual woman and one as a straight woman. One respondent indicated her sexual orientation was "try-sexual" and one respondent indicated she was both straight and bisexual. These two respondents were classified as bisexual, in order to capture all non-heterosexuals. After these adjustments there were 239 straight women, 58 bisexual women, 17 lesbian women and one case missing.

Significance tests were conducted on all measures to assess differences between the lesbian and bisexual women. Almost all indicators showed no differences between these women, with few exceptions (table 4). Bisexual women used methamphetamine (including crystal meth) and cannabis significantly more frequently during a typical week compared to lesbian women. Bisexual women indicated they used meth 1.19 days per week compared to lesbian women at 0.00 days per week (p=.001). Regarding cannabis use, bisexual women reported using 2.52 days per week compared to lesbians reporting 0.88 days per week (p=.009). Although the results are not shown in table 4, bisexual women reported higher frequency of substance use in a vehicle when examining frequencies across all five response categories for

that question (p=.049). There were also significant differences between lesbian and bisexual

women among the treatment groups (p <.001) with bisexual women overrepresented among the

concurrent group and lesbian women overrepresented among the alcohol group. Therefore,

treatment group was added as a covariate in the analysis in order to control for this factor.

Bisexual women were significantly younger than lesbian women (32 years of age vs. 38 years of

age, respectively, p=.042), but no differences were seen by income, education or marital status.

Table 4: Statistically Significant Bivariate Differences between Lesbian and Bisexual Women on all Variables – Mean or Percent (Valid Cases)

	Lesbian (n=17)	Bisexual (n=58)	p-value
Number of days drugs used per week			
Meth (incl. crystal meth)	0.00	1.19	**.001**
Cannabis	0.88	2.52	**.009**
Group			
Cocaine	13.3% (2)	23.2% (13)	
Alcohol	46.7% (7)	14.3% (8)	**.024**
Concurrent	40.0% (6)	62.5% (35)	
Age			
Years	38	32	**.042**

Due to the overall similarities between lesbian and bisexual women, they were analyzed

as a group against straight women. In addition, this combination increases statistical power by

increasing the available sample and is a common practice in social research. Many studies

examining health outcomes and sexual orientation combine the homosexual and bisexual

respondents.

Sample Demographics

Significance tests were conducted on the sample's demographic information, including

age, ethnicity, marital status, education, income and the type of treatment centre respondents

were recruited through. Table 5 shows the sample demographics of the survey respondents.

Some significant demographic differences were seen between lesbian and bisexual women and straight women.

Lesbian and bisexual women were significantly younger than straight women (33.4 years of age vs. 37.6 years, p=.001). With respect to ethnicity, the survey question included seven options – the distribution is shown in table 5. There were more people of colour (assumed to be all categories excluding 'white') among the lesbian and bisexual women (24% vs. 13%, p<.01). Analysis of the respondents from the mixed gender versus women only treatment centres showed more lesbian and bisexual women were recruited from the women only centres (32% compared to 20% from the mixed gender centres, p=.018)

No other significant demographic differences were found between the two groups, including marital status, income and education. Marital status had six categories (married, living with a partner, widowed, divorced, separated and single). Education levels had 11 categories (no schooling, some elementary school, completed elementary school, some high school, completed high school, some community college, completed community college, some university, completed university degree, post-graduate degree and professional degree). Analysis of income included both personal income and household income. Using crude estimates of these latter demographic variables utilizing all possible response categories showed no differences between lesbian and bisexual women compared to straight women.

Table 5: Sample Characteristics between Women by Sexual Orientation Group: t-tests and cross tabs – Mean or Percent (Valid Cases)

	Straight (n=239)	Lesbian & Bisexual (n=75)	Total Sample (n=314)
Age			
Years (mean)	**37.6**	**33.4****	**36.6**
Education			
Some post-secondary	57%	57%	57%
Ethnicity			
White	81%	72%	79%
Aboriginal	11%	24%	14%
Black	3%	1%	3%
Indo-Canadian	0.8%	0%	0.6%
Asian	0%	0%	0%
Latino	0%	0%	0%
Other	5%	3%	4%
Total for People of Colour[1]	**16%**	**26%***	**18%**
Marital Status			
Married/Common-Law	33%	23%	30%
Income			
Personal > $30,000	31%	24%	30%
Household > $50,000	33%	24%	31%
Treatment Centre Type[2]			
Women Only	**32%**	**68%****	**35%**

* p <.05 **p <.01 ***p< .001
Statistical tests include t-test, Fisher's Exact and Chi square
Equality of variance not assumed for continuous variables if Levene's test was significant at p<.05
1. Represents the proportion of the sample who did not indicate a "White" ethnicity
2. Percent of respondents recruited from the three women-only treatment facilities

Bivariate Analysis

Bivariate analysis showed some significant differences on the substance use indicators

and mental health indicators by sexual orientation (table 6). Regarding meth use, bisexual

women reported higher frequency of use than straight women (1.19 days per week versus 0.24 days, respectively). Please note, lesbian women reported meth use 0 days out of the week, therefore they were excluded from that analysis. No other frequency of substance use differences were seen for the other six classes of drugs or for grams of cocaine/crack used per week. However, lesbian and bisexual women reported a significantly higher maximum number of drinks consumed in 24 hours than straight women (27 vs. 20 drinks, respectfully). Lesbian and bisexual women were also overrepresented among the concurrent group; however, no sexual orientation differences were found for the entire SDS scale.

Mental health characteristics differences were more apparent between the lesbian and bisexual women compared to straight women, with the former group showing poorer mental health. Lesbian and bisexual women scored significantly higher on the anxiety and perceived stress scales compared to straight women. Average scores for anxiety were roughly 26 for lesbian and bisexual women and 24 for straight women (range is 7 to 35). Perceived stress scores were also slightly higher among lesbian and bisexual women (36 versus 35 on the 10 to 50 point scale). Further, 34% of lesbian and bisexual women reported a suicide attempt in the past 12 months compared to only 13% of straight women. No differences were seen for depression scores between the groups.

Table 6: Bivariate Analysis of Substance Use and Mental Health between Women by Sexual Orientation Group – Mean or Percent (Valid Cases)

	Lesbian & Bisexual (n=75)	Straight (n=239)	p-value
Average Number of Days Drug Used per Week [1]			
Marijuana or hash	2.15	2.28	.740
Sleeping Pills	2.39	2.34	.907
Pep pills, stimulants (excl. cocaine)	1.08	0.55	.081
Tranquilizers, such as valium	1.56	1.21	.345
LSD/acid/mushrooms	0.09	0.04	.397
Heroin	0.81	0.72	.737
Meth/crystal meth (bisexual women only) [2]	**1.19**	**0.24**	**.006**
Grams of Cocaine and/or Crack per week	11.46	10.19	.569
Alcohol Use			
Drank alcohol (past 12 months)	93.3% (70)	91.1% (216)	.719
Average number of days drank in a week	4.43	4.30	.667
How many drinks consumed in a day drank	12.54	9.99	.108
Maximum number of drinks in 24 hours	**27.11**	**20.32**	**.011**
Treatment Group			
Alcohol	**21.1% (15)**	**37.2% (87)**	
Cocaine	**21.1% (15)**	**29.9% (70)**	**.001**
Concurrent	**57.7% (41)**	**32.9% (77)**	
Severity of Dependence			
Alcohol	7.91	7.89	.974
Cocaine	10.24	10.30	.931
Alcohol & Cocaine	9.11	8.83	.675
Mental Health Characteristics			
Depression (Scores 6 -30) [3]	21.43	20.80	.236
Anxiety (Scores 7 – 35) [4]	**25.75**	**23.85**	**.010**
Perceived Stress (Scores 10 – 50) [5]	**36.49**	**34.58**	**.024**
Suicide Attempt (past 12 months)	**34.1% (14)**	**13.4% (15)**	**.009**

1. Responses of classes of drugs used greater than 7 days were categorized as 7
2. Meth/crystal meth analysis excluding lesbian respondents
3. Scale ranges from 6-30 with higher scores indicating higher depression
4. Scale ranges from 7 to 35 with higher scores indicating higher anxiety
5. Scale ranges from 10 to 50 with higher scores indicating higher stress

Table 7 below outlines the bivariate analyses of factors associated with the context of substance use. The table shows the proportion of respondents who reported "practically all the time" or "most of the time" versus "never", "sometimes" or "about half" on the survey questions regarding frequency of using substances in these contexts (i.e., use with others, locations of use and motivations to use).

Table 7: Bivariate Analysis of Context of Substance Use among Women by Sexual Orientation (Use with Others, Location of Use and Motivations to Use) – Proportion reporting "practically all the time" or "most of the time" versus "never", "sometimes" or "about half" – Mean or Percent (Valid Cases)

	Straight (n=239)	Lesbian & Bisexual (n=75)	P-Value
Use with…..[1]			
Alone	**60.7% (142)**	**47.3% (35)**	**.044**
Partner or lover(s)	37.9% (88)	45.9% (34)	.224
Relative(s)	9.2% (21)	13.5% (10)	.277
Friends or acquaintance(s)	37.2% (86)	46.6% (34)	.171
Dealers(s)	16.2% (37)	18.9% (14)	.595
Strangers(s)	6.9% (16)	12.2% (9)	.151
Sex Workers(s)	**2.6% (6)**	**13.9% (10)**	**.001**
Sex Client(s)	**3.9% (9)**	**10.8% (8)**	**.038**
Location of Use[1]			
Own Home	**78.2% (183)**	**64.9% (48)**	**.030**
Other's Home	**30.5% (71)**	**46.7% (35)**	**.012**
Dealer's Home	17.9% (41)	17.6% (13)	1.00
Party	30.9% (71)	38.7% (29)	.257
Bar	26.7% (62)	24.3% (18)	.762
School	1.3% (3)	4.0% (3)	.160
Workplace	5.2% (12)	8.0% (6)	.399
Public Place	16.7% (39)	27.0% (20)	.062
Vehicle	23.8% (55)	29.3% (22)	.360
Hotel or Motel	22.4% (52)	28.0% (21)	.350
Motivations to Use[2]			
To conform	**8.74**	**10.44**	**.026**
Enhancement	**18.62**	**20.57**	**.002**
To be social	15.58	17.14	.076
To cope with negative affect	**19.14**	**20.45**	**.010**

1. Use with others and location of use: responses dichotomized into "most of the time" or "practically all the time" vs. "never", "sometimes" and "about half the time"
2. Motivations to use scale (ranges 5 to 25) tested with t-tests

Results showed statistically significant sexual orientation differences between the varying contexts of substance use. Social learning theory suggests substance use may be higher among sexual minorities because of the utilization of drinking establishments for social purposes. Thus, it is possible differences in the context surrounding substance use vary between lesbian and bisexual women and straight women, which would help to assess whether or not substance use is more normalized among sexual minorities.

The greatest differences between lesbian and bisexual women and straight women were seen on the motivations to use scale. Lesbian and bisexual women scored higher on three of four motivations to use scales (conformity, enhancement and coping) than did their straight counterparts. This means lesbian and bisexual women in the sample were more likely to use drugs to conform, enhance their experience, and to cope with negative affect compared to straight women. Although not quite significant (p=.076), lesbian and bisexual women also scored higher on the social scale. Regarding locations of use, the lesbian and bisexual women in the sample used at home less frequently and more frequently at another person's home compared to straight women. This is in contrary to social learning theory, as lesbian and bisexual women did not report using drugs at parties or bars more than straight women. However, straight women reported using alone more frequently than did lesbian and bisexual women, which does suggest substance use may be used socially among the latter group.

Analysis of whom the respondents reported they used with showed some unexpected significant results. Lesbian and bisexual women reported drug use with sex worker(s) and sex clients(s) significantly more often than straight women. For sex workers(s), 13.9% of lesbian and bisexual women reported use with sex workers "most of the time" or "practically all the time" compared to only 2.6% of straight women reporting such. Likewise, more lesbian and

bisexual women reported use with sex client(s) "most of the time" or "practically all the time" compared to straight women (10.8% and 3.9%, respectively). It is not known whether these lesbian and bisexual women were reporting drug use with friends who also happened to be sex workers or clients or if they were more likely to be engaged in the sex work industry while using drugs.

Results of logistic regression adjusted for covariates showed some differences by sexual orientation among the women. Tables 8 and 9 present the odds ratio of belonging to the lesbian and bisexual group given a one point score increase on the variables of interest. The variables of interest are mostly ordinal or interval, therefore a small odds ratio can translate into much larger odds of group membership across the entire range of the variable.

4.2 Drug and Alcohol Using Behaviours and Dependence (Research Objective 2)

The second research objective was to examine drug and alcohol use among the sample – results are shown in tables 8 and 9. Results showed a one day increase in weekly use of pep pills or stimulants means a respondent was 1.17 times more likely to be in the lesbian and bisexual group. For bisexual women only, a one day increase in weekly use of meth meant a respondent was 1.28 times more likely to belong to the lesbian and bisexual group. The other five classes of drugs examined showed no significant differences by sexual orientation. Further, no significant differences were seen by sexual orientation on the weekly grams of cocaine used or the severity of dependence scales (results not shown).

No alcohol consumption variables were significant. However, maximum number of drinks drank in 24 hours approached significance (p=.068) with a one drink increase in the maximum number of drinks in 24 hours translating into a 1.02 odds ratio of belonging to the lesbian and bisexual group.

Table 8: Multivariate Logistic Regression Models for Drug Use – Adjusted Odds of Lesbian and Bisexual Group Membership among Women – Mean (Valid Cases)

	AOR for Lesbian & Bisexual Group Membership	SE	p-value
Marijuana or Hash†	0.92	.06	.167
Sleeping Pills†	1.01	.05	.877
Pep Pills or Stimulants†	**1.17**	**.08**	**.040**
Tranquilizers such as valium†	1.06	.06	.366
LSD/acid/mushrooms†	1.23	.37	.569
Methamphetamine/Crystal Meth*†	**1.28**	**.10**	**.011**
Heroin	1.00	.08	.986

†Measured as a continuous variable from 0 to 7 days per week
*Bisexual women only
Adjusted for: marital status, ethnicity, education, personal income and treatment group

Table 9: Multivariate Logistic Regression Models for Alcohol Use – Adjusted Odds of Lesbian & Bisexual Group Membership among Women for One Day Increase in Weekly Alcohol Use, One Drink Increase in Average Number of Drinks per day and Maximum Number of Drinks per 24 hours – Mean (Valid Cases)

Alcohol Use	AOR for Lesbian & Bisexual Group Membership	SE	p-value
Average number of days drank in a week¥	1.03	.08	.698
How many drinks consumed in a day drank†	1.10	.09	.245
Maximum number of drinks in 24 hours†	1.02	.01	.068

¥ Measured as a continuous variable from 0 to 7 days per week
†Measured as a continuous variable in number of drinks
Adjusted for: marital status, ethnicity, education, personal income and treatment group

4.3 Context of Substance Use – Location, Use with Others and Motivations (Research Objective 3)

Research objective three examined the context of substance use. The bivariate analysis above showed lesbian and bisexual women, compared to straight women, reported drug use:

more frequently with sex workers and sex clients; more frequently in another person's home; less frequently alone; and scored higher on the social, enhancement and coping motivations to use scale. Regression analysis explained away these differences, with the exception of use with sex workers and sex clients.

Table 10 shows that a respondent reporting substance use with sex workers "most of the time" or "practically all the time" was over ten times more likely to belong to the lesbian and bisexual group. This odds ratio suggests a strong association between sexual minority women and substance use with sex workers. However, it is not clear if these women were actively engaged in the sex industry while using drugs with sex workers. Similarly, use with sex clients was also significant. Respondents who reported use with sex clients "most of the time" or "practically all the time" were over three times more likely to belong to the lesbian and bisexual group.

Table 10: Multivariate Logistic Regression Model for Use with Others – Adjusted Odds of Lesbian and Bisexual Group Membership among Women Given Frequency of Drug Use with Others – Percent (Valid Cases)

Use with Others "most of the time" or "practically all the time" [1]	AOR for Lesbian & Bisexual Group Membership	SE	p-value
Alone	0.76	.30	.357
Partner or lovers	1.10	.30	.763
Relatives	1.42	.47	.457
Friends or acquaintances	1.07	.31	.833
Dealers	0.89	.39	.759
Strangers	1.51	.49	.405
Sex Workers	**10.7**	**.74**	**.001**
Sex Client	**3.33**	**.61**	**.047**
1. Compared to "never", "sometimes" and "about half the time" Adjusted for: marital status, ethnicity, education, personal income, age, treatment group			

Analysis of locations of drug use and motivations to use scale between the sexual orientation groups showed no statistically significant differences (results not shown).

4.4 Mental Health Characteristics – Anxiety, Depression, Stress and Suicide (Research Objective 4)

Lastly, to examine research objective four, logistic regression analysis was conducted on the mental health variables of interest (depression, anxiety, perceived stress and suicide attempts). Table 11 shows the results. Significant differences were seen for the anxiety scale and the presence of at least one suicide attempt in the past 12 months. A one point increase on the anxiety scale (range is 7 to 35) meant a respondent was 1.06 times more likely to belong to the lesbian and bisexual group. In addition, the presence of a suicide attempt meant a respondent was four times more likely to belong to the lesbian and bisexual group.

Table 11: Multivariate Logistic Regression Models for Mental Health Characteristics – Adjusted Odds of Lesbian and Bisexual Group Membership among Women – Mean (Valid Cases)

One point increase in Scale for:	AOR for Lesbian & Bisexual Group Membership	SE	p-value
Depression (Scores 6 -30)	1.03	.04	.379
Anxiety (Scores 7 – 35)	**1.06**	**.03**	**.040**
Perceived Stress (Scores 10 – 50)	1.04	.03	.086
Suicide Attempt in past 12 months	**3.98**	**.50**	**.006**
*Adjusted for: marital status, ethnicity, education, personal income and treatment group			

Chapter 5: Discussion and Conclusion

5.1 Results Summary

Substance use differences between lesbian and bisexual women and straight women were less dramatic in this study than previous research on the topic. This may be because the sample was restricted to substance use clients; thus, there would be less substance use variation in the data to detect differences by sexual orientation. There were few notable differences by sexual orientation for alcohol use, except during bivariate analysis, which showed lesbian and bisexual women reported a higher maximum number of drinks in a 24 hour period than did straight women. Additionally, lesbian and bisexual women were overrepresented in the concurrent group, but in logistic regression no other differences were found by sexual orientation on alcohol consumption or alcohol dependence. As for drug use, lesbian and bisexual women reported higher weekly use of tranquilizers compared to straight women. Regarding meth use, no lesbian women in the sample reported weekly use, but bisexual women were more likely to report more weekly meth use than straight women. Because meth is considered a 'club drug', which is common at drinking establishments, bisexual women may attend drinking establishments at higher rates or are more heavily influenced by the normalization of substance use compared to lesbian women.

Analysis of the context of substance use and mental health characteristics showed more differences by sexual orientation than did the substance use variables. In bivariate analysis, more lesbian and bisexual women reporting using substances for enhancement, to conform and to cope with negative affect. The fourth motivation to use scale, to be social, came somewhat close to reaching significance with more lesbian and bisexual women reporting such. In logistic

regression, these associations disappeared – no motivations to use scales remained significant. There were no significant differences between the sexual orientation groups regarding locations of use in the logistic regression results, but bivariate results showed lesbian and bisexual women reported use at home less often and more often at another person's home compared to straight women. Perhaps most surprising is that lesbian and bisexual women were over 10 times more likely to report using with sex workers and three times more likely to report using with sex clients "most of the time" or "practically all the time" compared to straight women. The latter finding suggests more research on the sex industry, drugs and sexual minority women should be conducted.

Differences in mental health characteristics by sexual orientation were also found among the sample. This is not unexpected given the sample was not restricted to any criteria regarding mental health; thus allowing better detection of significant mental health differences compared to substance use differences. Lesbian and bisexual women were more likely to report anxiety and a recent suicide attempt. These findings are consistent with the literature showing higher rates of suicide and anxiety among sexual minority women. No differences were found for depression levels and perceived stress levels.

The results of this thesis support the minority stress concept and social learning theory, but more support for the former. Regarding minority stress, some mental health problems were higher among lesbian and bisexual women (i.e., anxiety and suicide) during regression analysis. This suggests there may be social stressors unique to sexual orientation for this sample of lesbian and bisexual women that has an impact on their mental health. The social learning theory was somewhat supported. Although there were no differences by sexual orientation for frequency of substance use at bars or parties or with friends, more lesbian and bisexual women reported use at

another person's home and less use in their own home or alone. This suggests, in general, there may be a social aspect of substance use for lesbian and bisexual women. However, the social motivation to use showed no differences by sexual orientation. Similarly, substance use differences were not very strong, except in the case of meth use among bisexual women; therefore, the notion that substance use should be higher among sexual minorities because of frequent bar attendance is not supported strongly from this sample of women.

Nonetheless, although the sample is restricted to only alcohol and/or cocaine dependent women in residential treatment some significant differences were found by sexual orientation. This thesis reduces the paucity of Canadian research on sexual minorities by showing lesbian and bisexual women (among a sample of residential treatment clients) use certain drugs more often, have higher rates of some mental health problems and the factors regarding the context of substance use may vary.

5.2 Limitations

Some limitations exist in this study. The sample is a group of people in treatment for primarily alcohol and/or cocaine problems. There is most likely variation in the primary substances used between lesbian and bisexual women and straight women (i.e., not just alcohol and cocaine); thus, some of the estimates may be biased towards sexual orientation differences with respect to only alcohol and/or cocaine users. The results can also not be generalized to other populations, such as lighter substance users or the general population. Moreover, there are some constraints in the data.

The survey data did not measure DSM-defined depression or anxiety, which limits the ability to compare this thesis's findings to the majority of the literature examining depression and anxiety. However, probably the most limiting factor in the data was that the sample size of

lesbian women was somewhat small, so many of the findings may be biased towards the characteristics of the bisexual women. Future studies including survey questions about sexual orientation may want to broaden the definition of sexual minority to include a category of "unsure or questioning". Including a "questioning" category may capture some sexual minority women who do not identify as lesbian or bisexual or who are not 'out' yet – this would provide a more diverse sample of sexual minority women. Nonetheless, data collected from clients in treatment centres reduces response bias and this study provided a large enough sample of lesbian and bisexual women to examine statistically significant differences by sexual orientation on indicators of mental health, substance use and the context of use.

5.3 Implications

This thesis presented a profile of lesbian and bisexual women in residential treatment for cocaine and/or alcohol problems. Understanding this population's substance use and mental health problems, as well as factors in the context of substance use, can help shape relevant treatment (and prevention) programs for this group. However, it is important to understand there is an intersection of gender and sexual orientation. This intersection creates a unique experience for sexual minority women in comparison to women as one group or sexual minorities as one group. Attention has been given to the treatment needs of LGB or sexual minority people (Matthews, Lorah & Fenton, 2006; Senreich, 2009), as well as attention to women in general, but little or no attention has been given to the treatment needs of sexual minority women.

Researchers have asserted that gay-affirmative substance use treatment services are important to recruit and to effectively treat sexual minorities (Matthews, 2011; Senreich, 2009). Gay affirmative therapy is defined as, "the integration of knowledge and awareness by the therapist of the unique development and cultural aspect of LGBT (lesbian, gay, bisexual and

transgender) individuals, the therapist's own self-knowledge, and the translation of this knowledge and awareness into effective and helpful therapy skills at all stages of the therapeutic process." (Bieschke, K.L., Pereze, R.M. & DeBord, K.A., 2007, as cited in Johnson, S.D., 2012). Senreich (2009), utilizing a sample of former substance use treatment clients (120 LGB and 107 heterosexual respondents) from New York, found LGB respondents were less likely to report a connection to, and satisfaction with, their treatment program. Further, LGB respondents had lower rate of abstention and treatment completion when compared to heterosexual respondents. Owens (2007) used an online survey of 226 LGB respondents to examine mental health services access for sexual minorities. The author found that LGB respondents were over two times more likely to have sought treatment for a mental health concern if they could choose a gay-affirmative provider (AOR = 2.4, p<.05).

Given the specialized needs of sexual minorities with substance use and mental health problems, some LGB specific treatment services do exist across North America. The Lambda Centre in Washington, D.C. tailors its programming to the substance use and mental health needs of LGB clients. In Florida and Minnesota, the Pride Institute has LGBT (lesbian, gay, bisexual and transgender) specific substance use treatment. In Ontario, the Centre for Addiction and Mental Health Rainbow Services Program offers substance use treatment resources to sexual and gender minorities. Prism Services in British Columbia refers LGBTQ2S (lesbian, gay, bisexual, transgender, queer and Two Spirited) people to health care services, including substance use services. But, there are also treatment services specific to women only. For example, out of the five residential treatment centres sampled for the study, three were women-only centres.

Women may have unique substance use and mental health treatment needs, including assistance with childcare, need for female counsellors and treatment groups focusing on issues

for women (Swift & Copeland, 1998). Some research has examined differences in treatment outcomes for women who attended mixed-gender substance use treatment versus gender-sensitive treatment. These studies suggest there is little or no improved outcomes for women who complete women-only treatment programs versus mixed-gender programs (Kaskutas, Zhang, French & Witbrodt, 2004; Dodge & Potocky-Tripodi, 2001; Copeland, Hall, Didcott & Biggs, 1992), but these studies cannot assess if the population of substance using women are more likely to enter treatment if a gender-sensitive program is available.

In their analysis of a sample of women drawn from a women-only treatment centre and two mixed-gender treatment centres, Copeland & Hall (1992) found common reasons for entering a women-only treatment service were because childcare services were offered and it did not have male clients. The same study also found that 23% of the subjects in the women-only treatment centre were lesbian compared to only 6.3% in the total sample. After adjusting for demographic variables, having a lesbian or bisexual orientation meant a women was 3.6 times more likely to be in the women-only treatment centre.

Analysis was conducted in this thesis to test if more lesbian and bisexual clients were recruited from the three women-only sites. Findings supported this – 32% of the respondents from the women-only centres were lesbian and bisexual compared to 20% in the mixed-gender centres (p=.018). The findings from this thesis and Copeland and Hall (1992) suggest the ability to attract lesbian and bisexual women into substance use treatment may be better met with women-only substance use treatment than with mixed-gender treatment.

Even if evidence suggests more sexual minority women are entering women-only treatment at higher rates than they are mixed-gender treatment it does not mean the full treatment needs of these women are being met. The intersection of gender and sexual orientation creates a

unique experience for sexual minority women that may need particular attention by policy makers and clinicians. In a study of lesbian women's mental health using a matched heterosexual comparison group, more sexual minority women preferred a therapist of the same-sex and/or same sexual orientation than did heterosexual women (Hughes, et al., 2000).

Although there is a need for effective mental health and substance use treatment for sexual minority women, it is important to understand that there are many sexual minority women who do not engage in problematic substance use or suffer from mental health problems. Meyer states that minority stress can create solidarity among the minority group, which fosters resilience and counteract the effect marginalization has on health outcomes. It is, thus, important to understand the factors within the sexual minority community or individual that protects against problematic substance use or mental health problems. Understanding these factors can assist in maximizing resilience among sexual minorities in order to enhance health outcomes.

Kwon (2013) suggests a framework which can be used to apply resilience-building to LGB individuals, including sexual minority women. Kwon's framework has three main components: building social support, hope and optimism for the future and emotional competency. Additionally, Kwon noted that activism and social justice efforts to resist prejudice related to sexual orientation helps to shape resilience and safeguard against poor health outcomes. Another study by Russel & Richards (2003) found common factors related to resilience against homophobia in a survey of Colorado LGB people. The survey was administered after the respondents had experienced the passing of a state amendment that institutionally sanctioned discrimination against homosexual and bisexual people. Russel & Richards found five common factors of resilience: mobilization of the greater LGB human rights movement; an opportunity to confront one's own internalized heterosexism; expressing healthy

emotions; discovering positive social support from others; and, the building of the LGB community. Future research may want to investigate how the components Kwon discussed and the factors Russell & Richards uncovered to help leverage and foster resilience among sexual minorities in order to combat substance use and mental health problems.

5.4 Conclusion

This thesis has shown lesbian and bisexual women, within a sample of Canadian residential treatment clients, may consume certain substances more often, experience more mental health problems, use substances with different people and have different motivations to use when compared to straight women. These findings are comparable to evidence in the literature, but more so with the findings regarding mental health problems (suicide and anxiety) among sexual minority women. Regression showed drug use among this sample of lesbian and bisexual women was not particularly different compared to straight women, with the exception of meth use among bisexual women and slightly elevated rates of pep pills for lesbian and bisexual women (in comparison to straight women). Regression findings for alcohol consumption patterns in this thesis's sample did not show differences by sexual orientation; whereas, most other studies found much higher rates of alcohol consumption among sexual minority women compared to straight women. Further, although bivariate analysis of different motivations to use by sexual orientation, these were explained away by regression analyses.

Given the literature and this thesis' findings show higher rates of some substance use and mental health problems among lesbian and bisexual women, it is essential to consider the treatment needs of this population and the methods which can help build resilience against such health problems.

References

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, New Jersey: Prentice-Hall.

Bostwick, W. B., Boyd, C. J., Hughes, T. L., & McCabe, S. E. (2010). Dimensions of sexual orientation and the prevalence of mood and anxiety disorders in the United States. *American Journal of Public Health*, *100*(3), 468–75.

Brennan, D. J., Ross, L. E., Dobinson, C., Veldhuizen, S., & Steele, L. S. (2010). Men's sexual orientation and health in Canada. *Canadian Journal of Public Health, 101*(3), 255–258.

Brubaker, M.D., Garrett, M.T., & Dew, B.J. (2009). Examining the relationship between internalized heterosexism and substance abuse among lesbian, gay and bisexual individuals: a critical review. *Journal of LGBT Issues in Counseling*. *3*(1), 62–89.

Burgard, S.A., Cochran, S.D., & Mays, V.M. (2005). Alcohol and tobacco use patterns among heterosexually and homosexually experienced California women. *Drug and Alcohol Dependence. 77*, 61–70.

Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse.

Cabaj, R.P. (2000). Substance abuse, internalized homophobia and gay men and lesbians. *Journal of Gay & Lesbian Psychotherapy. 3*(3), 5–24.

Chow, C., Vallance, K., Stockwell, T., Macdonald, S., Martin, G., Ivsins, A….Duff, C. (2012). Sexual identity and drug use harm among high-risk, active substance users. *Culture, Health & Sexuality, 15*(3), 311–326.

Cochran, S.D., & Mays, V.M. (2000). Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population. *American Journal of Epidemiology. 151*(5), 516–523.

Cochran, S.D., Keenan, C., Schober, C., & Mays, V.M. (2000). Estimates of alcohol use and clinical treatment needs among homosexually active men and women in the U.S. population. *Journal of Consulting and Clinical Psychology. 68*(6), 1062–1071.

Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology*, *71*(1), 53–61.

Cochran, S. D., Ackerman, D., Mays, V. M., & Ross, M. W. (2004). Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. *Addiction*, *99*(8), 989–999.

Cochran, B.N., & Cauce, A.M. (2006). Characteristics of lesbian, gay, bisexual and transgender individuals entering substance abuse treatment. *Journal of Substance Abuse Treatment, 30*(2), 135–146.

Cochran, B. N., Peavy, K. M., & Santa, A. F. (2007). Differentiating LGBT individuals in substance abuse treatment: Analyses based on sexuality and drug preference. *Journal of LGBT Health Research. 3*(2), 63–76.

Cochran, S.D., Mays, V.M., Alegria, M., Ortega, A.N. & Takeuchi, D. (2007). Mental health and substance use disorders among Latino and Asian American lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology*, *75*(5), 785–794.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health & Social Behaviour*, *24*(4), 385–396.

Colfax, G.N., Mansergh, G., Guzman, R., Vittinghoff, E., Marks, G., Rader, M. & Buchbinder, S. (2001). Drug use and sexual risk behaviour among gay and bisexual men who attend circuit parties: A venue-based comparison. *Journal of Acquired Immune Deficiency Syndromes, 28,* 373–379.

Cooper, M.L. (1994). Motivations for alcohol use among adolescents: development and validation of a four-factor model. *Psychological Assessment, 6*(2), 117–128.

Copeland, J., Hall, W., Didcottb, P., & Biggs, V. (1993). A comparison of a specialist women's alcohol and other drug treatment service with two traditional mixed-sex services: Client characteristics and treatment outcome. *Drug and Alcohol Dependence 32*, 81–92.

Corliss, H. L., Grella, C. E., Mays, V. M., & Cochran, S. D. (2006). Drug use, drug severity, and help-seeking behaviors of lesbian and bisexual women. *Journal of Women's Health*, *15*(5), 556–568.

de Graaf, R., Sandfort, T. G. M., & ten Have, M. (2006). Suicidality and sexual orientation: differences between men and women in a general population-based sample from the Netherlands. *Archives of Sexual Behavior*, *35*(3), 253–62.

Degenhardt, L. (2005). Drug use and risk behaviour among regular ecstasy users: Does sexuality make a difference? *Culture, Health & Sexuality. 77*(6), 599–614.

Dodge, K., & Potocky-Tripodi, M. (2001). The effectiveness of three inpatient intervention strategies for chemically dependent women. *Research on Social Work Practice*, *11*(1), 24–39.

Drabble, L., & Trocki, K. (2005). Alcohol consumption, alcohol-related problems, and other substance use among lesbian and bisexual women. *Journal of Lesbian Studies, 9*(3), 19–30.

Drabble, L., Midanik, L.T., & Trocki, K. (2005). Reports of alcohol consumption and alcohol-related problems among homosexual, bisexual and heterosexual respondents: results from the 2000 National Alcohol Survey. *Journal of Studies on Alcohol, 66*(1), 111–120.

Duncan, G. J., Wilkerson, B., & England, P. (2006). Cleaning up their act: the effects of illicit drug use. *Demography, 43*(4), 691–710.

Galen, L.W., Henderson, M. J. & Coovert, M.D. (2001). Alcohol expectancies and motives in a substance abusing male treatment sample. *Drug and Alcohol Dependence 62,* 205–214.

Gilman, S. E., Cochran, S. D., Mays, V. M., Hughes, M., Ostrow, D., & Kessler, R. C. (2001). Risk of psychiatric disorders among individuals reporting same-sex sexual partners in the National Comorbidity Survey. *American Journal of Public Health*, *91*(6), 933–939.

Gossop, M., Darke, S., Griffiths, P., Hando, J., Powis, B., Hall, W., & Strang, J. (1995). The severity of dependence scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction, 90*(5), 607–614.

Green, K.E., & Feinstein, B.A. (2012). Substance use in lesbian, gay and bisexual populations: an update on empirical research and implications for treatment. *Psychology of Addictive Behaviours, 26* (2), 265–278.

Grella, C.E., Cochran, S.D., Greenwell, L., & Mays, V.M. (2011). Effects of sexual orientation and gender on perceived need for treatment by persons with and without mental disorders. *Psychiatric Services, 62*(4), 404–410.

Gruskin, E., Bryne, K., Kools, S., & Altschuler, A. (2006). Consequences of frequenting the lesbian bar. *Women & Health, 44*(2), 103–120.

Halkitis, P. N., Parsons, J. T., & Wilton, L. (2003). An exploratory study of contextual and situational factors related to methamphetamine use among gay and bisexual men in New York City. *Journal of Drug Issues*, *33*(2), 413–432.

Hamilton, C.J., & Mahalik, J.R. (2009). Minority stress, masculinity, and social norms predicting gay men's health risk behaviours. *Journal of Counselling Psychology, 56*(1), 132–141.

Hatzenbuehler, M.L., McLaughlin, K.A., Keyes, K. M., & Hasin, D.S. (2010). The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: a prospective study. *American Journal of Public Health, 100*(3), 452–449.

Herek, G.M. & Garnets, L.D. (2007). Sexual orientation and mental health. *Annual Review of Clinical Psychology, 3*, 353–375.

Hughes, T.L., & Eliason, M. (2002). Substance use and abuse in lesbian, gay, bisexual and transgender populations. *The Journal of Primary Prevention, 22*(3), 263–298.

Hughes, T.L. (2003). Lesbians' drinking patters: beyond the data. *Substance Use & Misuse, 38*(11), 1739–1758.

Hughes, T. L., Haas, A. P., Razzano, L., Cassidy, R., & Matthews, A. (2008). Comparing lesbians' and heterosexual women's mental health : A multi-site survey. *Journal of Gay & Lesbian Social Services, 11*(1), 57–76.

Hughes, T., Szalacha, L.A., & McNair, R. (2010). Substance abuse and mental health disparities: comparisons across sexual identity groups in a national sample of young Australian women. *Social Science & Medicine*, *71*(4), 824–831.

Johnson, M. D., & Summers, C. J. (2009). *Gay and Lesbian Bars, Encyclopedia Copyright* (1–9). Retrieved from http://www.glbtq.com.

Johnson, S.D. (2012). Gay affirmative psychotherapy with lesbian, gay, and bisexual individuals: Implications for contemporary psychotherapy research. *American Journal of Orthopsychiatry, 82*(4), 516–522.

Kaskutas, L. A., Zhang, L., French, M. T., & Witbrodt, J. (2005). Women's programs versus mixed-gender day treatment: Results from a randomized study. *Addiction, 100*, 60–69.

Kaye, S., & Darke, S. (2002). Determining a diagnostic cut-off on the Severity of Dependence Scale (SDS) for cocaine dependence. *Addiction*, *97*(6), 727–731.

King, M., Semlyen, J., Tai, S.S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, *8*, 70–87.

Knight, K., Holcom, M., & Simpson, D. D. (1994). *TCU psychosocial functioning and motivation scales: Manual on psychometric properties*. Fort Worth, Texas: Texas Christian University, Institute of Behavioral Research.

Krieger N., & Sidney S. (1997). Prevalence and health implications of anti-gay discrimination: a study of black and white women and men in the CARDIA cohort. *International Journal of Health Services, 27*(1), 157–176.

Kwon, P. (2013). Resilience in lesbian, gay, and bisexual individuals. *Personality and Social Psychology Review*, *17*(4), 371–83.

Lea, T., Reynolds, R., & de Wit, J. (2013). Alcohol and club drug use among same-sex attracted young people: Associations with frequenting the lesbian and gay scene and other bars and nightclubs. *Substance Use & Misuse*, *48*(1), 129–136.

Liechti, M.E., Gamma, A. & Vollenweider, F.X. (2001). Gender differences in the subjective effects of MDMA. *Psychopharmacology, 154*(2), 161–168.

Macdonald, S. (1987). *The psychosocial characteristics of alcoholics in treatment who were arrested for driving while impaired*. London, Ontario: The University of Western Ontario.

Macdonald, S., Pakula, B., Martin, G., Wells, S., Borges, G., Roth, E., Salmon, A., Stockwell, T. & Callaghan, R. (in press). Health profiles of clients in substance abuse treatment: A comparison of simultaneous users of alcohol and cocaine with users of either drug primarily alone. *Substance Use & Misuse*.

Martens, M.P., Cox, R.H., Beck, N.C., & Heppner, P.P. (2003). Measuring motivations for intercollegiate athlete alcohol use: a confirmatory factor analysis of the drinking motives measure. *Psychological Assessment, 15*(2), 235–239.

Martin, G., Macdonald, S., Pakula, B., & Roth, E.A. (2013). A comparison of motivations for use among users of crack cocaine and cocaine powder in a sample of simultaneous cocaine and alcohol users. *Addictive Behaviours, 39*(3), 699–702.

Matthews, C.R., Lorah, P., & Fenton, J. (2006). Treatment experiences of gays and lesbians in recovery from addiction: A qualitative inquiry. *Journal of Mental Health Counseling, 28*(2), 110–132.

Matthews, C.R. (2011). Gays, lesbians and bisexuals. In B.A. Johnson (Ed.), *Addiction Medicine.* (pp.1355-1374). New York, NY: Springer.

Mays, V. M., & Cochran, S. D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health, 91*(11), 1869–76.

McCabe, S.E., Hughes, T.L., Bostwick, W.B., West, B.T., & Boyd, C.J. (2009). Sexual orientation, substance use behaviours and substance dependence in the United States. *Addiction, 104*(8), 1333–1345.

McCabe, S. E., Bostwick, W.B., Hughes, T.L., West, B.T. & Boyd, C.J. (2010). The relationship between discrimination and substance use disorders among lesbian, gay and bisexual adults in the United States. *American Journal of Public Health, 100*(10), 1946–1952.

McCabe, S.E., West, B.T., Hughes, T.L., & Boyd, C.J. (2013). Sexual orientation and substance abuse treatment utilization in the United States: Results from a national survey. *Journal of Substance Abuse Treatment, 44*(1), 4–12.

Mcdowell, D. (2000). Gay men, lesbians and substances of abuse and the "club and circuit party scene ": What clinicians should know. *Journal of Gay & Lesbian Psychotherapy*, *3*(3), 37–41.

Meyer, I. H. (1995). Stress and mental health in gay men. *Journal of Health and Social Behaviour, 36*(1), 38–56.

Meyer, I.H. (2003). Prejudice, social stress, and mental health in lesbian, gay and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin, 120*(5), 674-697.

Meyer, I. H. (2007). Prejudice and discrimination as social stressors. In I.H. Meyer & M.E. Northridge (Eds). *The health of sexual minorities: Public health perspectives in lesbian, gay, bisexual and transgender populations* (pp. 243-267). New York, NY: Columbia University.

Meyer, I. H., Dietrich, J., & Schwartz, S. (2008). Lifetime prevalence of mental disorders and suicide attempts in diverse lesbian, gay, and bisexual populations. *American Journal of Public Health*, *98*(6), 1004–1006.

Meyer, I.H., Schwartz, S., & Frost, D.M. (2008). Social patterning of stress and coping: Does disadvantaged social status confer more stress and fewer coping resources? *Social Science & Medicine, 67*, 368–379.

Meyer, I. H. (2010). Identity, stress, and resilience in lesbians, gay men, and bisexuals of color. *The Counseling Psychologist*, *38*(3), 442–454.

O'Byrne, P., & Holmes, D. (2011). Desire, drug use and unsafe sex: a qualitative examination of gay men who attend gay circuit parties. *Culture, Health & Sexuality*, *13*(1), 1–13.

Owens, G. P. (2007). Mental health services access for sexual minority individuals. *Sexuality Research & Social Policy, 4*(3), 92–99.

Pakula, B., & Shoveller, J. (2013). Sexual orientation and self-reported mood disorder diagnosis among Canadian adults. *BMC Public Health*, *13*(1), 209–216.

Palamar, J. J., & Halkitis, P. N. (2006). A qualitative analysis of GHB use among gay men: Reasons for use despite potential adverse outcomes. *International Journal of Drug Policy*, *17*(1), 23–28.

Parsons, J.T., Kelly, B.C., & Wells, B.E. (2006). Differences in club drug use between heterosexual and lesbian/bisexual females. *Addictive Behaviors, 31,* 2344–2349.

Piotrowski, N.A. (Ed.) (2001) Salem Health: Psychology & Mental Health. (Vol. 1, pp. 1815-1819). Pasadena, California: Salem Press. Retrieved from: http://go.galegroup.com/ps/retrieve.do?inPS=true&prodId=GVRL&userGroupName=uvictoria&docId=GALE|CX2275200537&contentSegment=&navContext=none

Public Health Agency of Canada (2011). M-Track: Enhanced surveillance of HIV, sexually

    transmitted and blood-borne infections, and associated risk behaviours among men who

    have sex with men in Canada: Phase1 report. Ottawa, ON: Centre for Communicable

    Diseases and Infection Control, Infectious Disease Prevention and Control Branch, Public

    Health Agency of Canada. Retrieved from Government of Canada: http://www.phac-

    aspc.gc.ca/aids-sida/about/mtrack-eng.php#phase-1

Ricks, J.L. (2012). Lesbian and alcohol abuse: identifying factors for future research. *Journal of*

    Social Service Research, 38(1), 37–45.

Ridolfo, H., Miller, K., & Mailand, A. (2012). Measuring sexual identity using survey

    questionnaires: How valid are our measures? *Sexuality Research and Social Policy. 9*(2),

    113-124.

Russell, G. M., & Richards, J. A. (2003). Stressor and resilience factors for lesbians, gay men,

    and bisexuals confronting antigay politics. *American Journal of Community Psychology*,

    31(3), 313–328.

Sandfort, G.M., de Graff, R., Bijl, R.V., & Schnabel, P. (2001). Same-sex sexual behavior and

    psychiatric disorders: Findings from the Netherlands Mental Health Survey and Incidence

    Study (NEMESIS). *Archives of General Psychiatry. 58*(1), 85–91.

Savin-Williams, R.C. (2006). Who's gay? Does it matter? *Current Directions in Psychological*

    Science, 15(1), 40–44.

Senreich, E. (2009). A comparison of perceptions, reported abstinence, and completion rates of

    gay, lesbian, bisexual, and heterosexual clients in substance abuse treatment. *Journal of*

    Gay & Lesbian Mental Health, 13(3), 145–169.

Simon Rosser, B. R., West, W., & Weinmeyer, R. (2008). Are gay communities dying or just in transition? Results from an international consultation examining possible structural change in gay communities. *AIDS Care*, *20*(5), 588–95.

Simons, J., Correia, C.J., Carey, K.B. (2000). A comparison of motives for marijuana and alcohol use among experienced users. *Addictive Behaviors, 25*(1), 153–160.

Spielberger, C.D., Vagg, P.R., Barker, L.R., Dunham, G.W., & Wesbury, L.G. (1980). The factor structure of the state-trait anxiety inventory. In I.G. Sarason and C.D. Spielberger (Eds), *Stress and Anxiety*. Washington, D.C.: Hemisphere.

Steele, L. S., Ross, L. E., Dobinson, C., Veldhuizen, S., & Tinmouth, J. M. (2009). Women's sexual orientation and health: Results from a Canadian population-based survey. *Women & Health*, *49*(5), 353–367.

Stockwell, T., Donath, S., Cooper-Stanbury, M., Chikritzhs, T., Catalano, P., & Mateo, C. (2004). Under-reporting of alcohol consumption in household surveys: a comparison of quantity-frequency, graduated-frequency and recent recall. *Addiction*, *99*(8), 1024–1033.

Swift, W., & Copeland, J. (1998). Treatment needs of women with alcohol and other drug problems: Experiences and views of Australian treatment personnel. *Drug and Alcohol Review, 17*(1), 59–67.

Tjepkema, M. (2008). Health care use among gay, lesbian and bisexual Canadians. *Health Reports, 19*(1), 53–64.

Trocki, K.T., Drabble, L., & Midanik, L. (2005). Use of heavier drinking contexts among heterosexuals, homosexuals and bisexuals: Results from a national household probability survey. *Journal of Studies on Alcohol, 66*(1), 105–110.

Weber, G.W. (2008). Using to numb the pain: Substance use and abuse among lesbian, gay and

    bisexual individuals. *Journal of Mental Health Counseling, 30*(1), 31–48.

Welch, S., Howden-Chapman, P., & Collings, S.C.D. (1998). Brief report survey of drug and

    alcohol use by lesbian women in New Zealand. *Addictive Behaviours, 23*(4), 543–548.

Wilsnack, S.C., Hughes, T.L., Johnson, T.P., Bostwick, W.B., Szalacha, L.A., Benson, P…

    Kinnison, K.E. (2008). Drinking and drinking-related problems among heterosexual and

    sexual minority women. *Journal of Studies on Alcohol and Drugs, 69*, 129–139.