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Substance Use in Lesbian, Gay, and Bisexual Populations: An Update on Empirical Research and Implications for Treatment

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Abstract

Historically, substance use problems were thought to be more prevalent in lesbian, gay, and bisexual (LGB) populations, and correcting skewed perceptions about substance abuse among LGB individuals is critically important. This review provides an update on empirical evidence on LGB substance use patterns and treatment outcome, with specific focus on clinical implications of findings. Compared to earlier studies, the recent research included in this review has used more sophisticated methodologies, more representative samples, and also has investigated multiple dimensions of sexual orientation in relation to substance use patterns. Findings from recent research suggest that lesbians and bisexual women are at greater risk for alcohol and drug use disorders and related problems, and that gay and bisexual men are at greater risk for illicit drug use and related problems. Several sociocultural factors have emerged as correlates of substance use patterns in LGB populations (e.g., affiliation with gay culture, HIV-status), and several demographic characteristics (e.g., female, older age) do not appear to be as robust of protective factors against substance abuse for LGB individuals compared to heterosexual populations. Bisexual identity and/or behavior in particular seem to be related to increased risk for substance abuse. In terms of treatment outcome, limitations of extant research prevent conclusions about the relative impact of LGB-specific interventions, and further research that includes women and uses more equivalent comparison interventions is needed. Clinical implications of research findings are discussed for case identification, selection of treatment goals (e.g., moderation versus abstinence), targets for intervention, and specific treatment modalities.

Keywords

substance use; lesbian; gay; bisexual; review; treatment

Alcohol and drug abuse and dependence are prevalent problems in the U.S. and major public health concerns that affect individuals, families, and communities. The National Comorbidity Survey Replication, a nationally representative U.S. survey, estimated that the

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lifetime prevalence of alcohol and drug abuse (with or without dependence) are 13% and 8%, respectively (Kessler, Berglund, Demler, Jin, Merikangas, et al., 2005). In addition to being a prevalent problem, public safety is decreased by drunk driving and alcohol-related aggression and domestic violence. The prevalence of problem drinking and drunk driving fuel prevention and treatment efforts, and researchers and treatment providers have been trying to improve treatment services with two broad strategies: (a) improving the effectiveness of treatments by tailoring them for specific populations; and (b) reducing factors that prevent individuals from seeking available treatment services. This review evaluates recent empirical evidence on substance use patterns and treatment outcome in the lesbian, gay, and bisexual (LGB) populations, with specific focus on clinical implications of findings in order to promote provision of effective and culturally-sensitive treatment for LGB individuals.

Substance Use from a Social Learning Perspective

Social learning theory (Bandura, 1977; Baucom & Epstein, 1990; Rotter, 1954) provides a useful conceptual framework for understanding substance use patterns in LGB populations. Social learning theory posits that behavior is controlled by antecedent stimuli and behavior-specific consequences, that behavior is learned through observation and imitation, and that cognition mediates the learning and presentation of the behavior. Researchers and clinicians guided by social learning theory view substance use patterns in terms of peer substance use, triggers that lead to urges or use, psychosocial and physical consequences of use, and thoughts/expectancies about substance use. Research clearly supports the role of peer and partner drinking in shaping individual patterns of use (e.g. Homish & Leonard, 2008; McCrady, 2004; Roberts & Leonard, 1998) and treatment of alcohol use disorders often includes close examination of social network drinking. Furthermore, the effects of social network substance use are not limited to romantic partners, and there is a strong correlation between drinking habits and perceptions of peer drinking (e.g. Fromme & Ruela, 1994).

Working from a social learning perspective leads researchers and clinicians to predict differences between LGB and heterosexual substance use for several reasons. First, LGB communities historically have been centered on activities that involve drinking and drug use (e.g. bars, circuit parties). Although LGB communities have become increasingly heterogeneous, this trend could lead to social networks of LGB individuals that consist of heavier substance users than those of heterosexual individuals, and also could make it more difficult for LGB individuals to avoid triggers for substance use (e.g. bars, peers who drink). Second, expectancies about drinking/drug use and perceived normality of use in LGB communities could increase the likelihood of LGB individuals making the decision to drink heavily or use drugs. Finally, the additional stress related to being a sexual minority could contribute to elevated substance use. Meyer (1995, 2003) has proposed a *minority stress model* for understanding LGB experiences in the context of stressors unique to the LGB population; after a review of the literature he concluded that higher prevalence of mental health disorders in the LGB population is caused at least partially by stigma-related social stressors (Meyer, 2003).

Substance Use in Lesbian, Gay, and Bisexual Populations

Historically, substance use problems were thought to be more prevalent in LGB populations. Earlier research supported this notion, reporting that up to one-third of gay men and two-thirds of lesbians had drinking problems. In a review of the literature, Bux (1996) drew attention to methodological flaws in the existing research, such as the recruitment of participants from bars and a lack of appropriate comparison groups. In light of the methodological limitations, Bux (1996) noted the following trends that are addressed in the

current review: (a) lesbians and gay men appeared to be less likely to abstain from alcohol than heterosexuals; (b) lesbians appeared to be at higher risk for heavy drinking and alcohol-related problems than heterosexual women; (c) gay men did not appear to be at higher risk for alcohol-related problems than heterosexual men; (d) older age and female gender were not protective factors against substance use in LGB populations as they are in heterosexual populations; and (e) there was little empirical support for the popular beliefs that the LGB lifestyle, gender role conflict, or rejection of LGB identity contributed to substance use problems. Since that time, researchers have begun using more sophisticated methodologies to examine substance use in LGB populations, such as using more representative samples and assessing multiple dimensions of sexual orientation.

The assessment of multiple dimensions of sexual orientation is considered a methodological improvement over previous research, as it is now recognized that sexual orientation is a multidimensional construct including at least three components – sexual attraction, sexual behavior, and sexual identity. For those who are unfamiliar with this nuanced conceptualization of sexual orientation, we will briefly describe how each component is typically defined. Sexual attraction refers to the desire to have sexual relations with one or both sexes; sexual behavior refers to any mutually voluntary activity with another person that involves genital contact and sexual arousal, even if intercourse or orgasm did not occur; finally, sexual identity refers to personally selected labels attached to the perceptions and meanings individuals have about their sexuality. Notably, these three components of sexual orientation are not perfectly correlated with one another and they may be differentially associated with psychological outcomes (for a detailed discussion, see Savin-Williams, 2006).

Using conclusions drawn by Bux (1996) as a benchmark, the current review evaluates the empirical research on substance use patterns in LGB communities in the U.S. that has been published since 1996, with a focus on clinical implications in order to promote provision of effective and culturally-sensitive treatment for LGB individuals. The authors conducted literature searches using PubMed and PsychINFO, using a combination of search terms that included: (homosexual or gay or lesbian or bisexual or same-sex) and (alcohol or drug or substance or addiction). Due to the multitude of sociocultural differences, studies that focus on youth (defined as less than 18 years old for the purposes of this review), transgender individuals, and non-U.S. populations were not included in this review. Additionally, only studies that used large-scale, probability samples were included in the section *"Differences between LGB and Heterosexual Populations,"* because they provide the most accurate information about such differences in substance use patterns – studies that examined sexual orientation differences in substance use without adequate comparison samples were excluded from this review since earlier such studies contributed to skewed perceptions about LGB substance use patterns (for a review, see Bux, 1996).

In sum, the current review discusses empirical findings, methodological limitations, and clinical implications of recent research on substance use patterns, sociocultural factors related to substance use and substance-related problems, and substance abuse treatment in LGB populations. It is noteworthy that there is a large amount of variability in how substance use is operationalized in different studies. For instance, some studies focus on substance use over a specific period of time (e.g., lifetime, past year, past month), others focus on specific types of maladaptive substance use (e.g., diagnosable substance use disorders, binge drinking, heavy episodic drinking, intoxication), and still others use more idiosyncratic operationalizations (e.g., abstinence from substance use, amount of substance consumed). Although this variability makes it difficult to integrate the results of certain studies, it has the benefit of providing a more comprehensive understanding of substance use patterns and their implications. We have made an effort throughout this review to specify

how each study defined substance use and how such differential operationalization may have influenced the findings.

Differences Between LGB and Heterosexual Populations

As noted, Bux (1996) concluded that lesbians and gay men appeared to be less likely to abstain from alcohol than heterosexuals, and that lesbians (but not gay men) appeared to be at elevated risk for heavy drinking and alcohol-related problems compared to heterosexuals. Since then, there have been several large-scale, national probability surveys that included questions about substance use and sexual orientation. A total of 12 studies comparing LGB and heterosexual populations were included in this review and they are presented roughly in chronological order to show the evolution of the literature (see Table 1 for a summary of these studies).

Cochran, Keenan, Schober, and Mays (2000) as well as Cochran, Ackerman, Mays, and Ross (2004) analyzed data from the 1996 National Household Survey on Drug Abuse to compare substance use between adults who reported a same-sex sexual partner in the past year ("homosexually-experienced") and those who reported only opposite-sex sexual partners in the past year ("exclusively heterosexual"). The sample (total $n = 9,908$ individuals; 2% "homosexually-experienced") was primarily White (70-76% depending on the group), with the remainder identifying as Black (11-12%), Hispanic (7-14%), or Other (4-9%), and there were no significant racial/ethnic differences among groups. Results indicated that homosexually-experienced and exclusively heterosexual men did not differ in alcohol use, alcohol-related problems, or treatment utilization. However, compared to exclusively heterosexual women, homosexually-experienced women reported more alcohol use (lifetime, past year, and past month), drinking more frequently, consuming larger amounts of alcohol, and getting drunk more often. Homosexually-experienced women also were more likely to suffer from "alcohol dependency syndrome" and, quite interestingly, were more likely to have received treatment for their drinking than exclusively heterosexual women. It is important to note that an official DSM-IV diagnosis could not be derived from these data due to lack of assessing withdrawal symptoms. Therefore, the term "alcohol/drug dependency syndrome" is used to denote probable alcohol/drug use disorder based on three or more DSM-IV symptoms of alcohol/drug dependence. Homosexually-experienced men and women also reported higher lifetime use of illicit drugs and were more likely to report one or more symptoms of drug dependence than exclusively heterosexual adults (primarily marijuana for women and marijuana, cocaine, and hallucinogens for men). Homosexually-experienced women also were more likely to suffer from "drug dependency syndrome" than heterosexual women. In sum, Cochran and colleagues' (2000, (2004) findings suggest that women with a recent history of same-sex sexual behavior are more likely to have alcohol and drug problems than exclusively heterosexual women, whereas men with a recent history of same-sex sexual behavior are more likely to have drug (but not alcohol) problems than heterosexual men. It is important to emphasize that these studies used past year sexual behavior as a proxy for sexual orientation and more recent research has improved upon this methodology by assessing multiple components of sexual orientation.

Gruskin, Hart, and Ackerson (2001) examined data from a survey sent to a random sample of women enrolled in the health maintenance organization Kaiser Permanente. They compared women who self-identified as lesbian or bisexual to those who identified as heterosexual (total $n = 8,113$; 1.5% lesbian/bisexual), and examined potential differences in three age cohorts (20-34, 35-49, and ≥ 50). The sample was primarily White (74-79% depending on the group) and there were no significant racial/ethnic differences between the groups. Results indicated that lesbians and bisexual women ages 20-34 were less likely to abstain from alcohol, reported significantly more frequent heavy drinking, and reported

higher weekly alcohol consumption than heterosexual women. However, these differences were not significant for women ages 34-49 or 50 and older. Therefore, this study is inconsistent with earlier research, providing evidence that older age may be a protective factor against substance use in lesbians and bisexual women (discussed further later in this paper).

Burgard, Cochran, and Mays (2005) analyzed data from the 1998-2000 California Women's Health Survey, which considered lifetime and past year sexual behavior (total n = 11,204; 3% homosexually-experienced women). The sample was primarily White (62-73%), with homosexually-experienced women being particularly likely to identify as White. Results indicated that homosexually-experienced women, compared to exclusively heterosexual women, reported drinking more times per month, drinking more heavily per occasion, were more likely to drink each week, and were more likely to binge drink. These differences were larger in the 26-35 year old cohort than the 46 and older cohort, but differences in the older cohort were still significant. Drabble, Midanik, and Trocki (2005) used a nationally representative sample, the 1999-2001 National Alcohol Survey, to assess patterns of alcohol use and treatment-seeking. This study used measures of both sexual behavior and self-reported sexual orientation to create four categories of sexual orientation: gay/lesbian identity, bisexual identity, heterosexual identity with reports of same-sex partners, and exclusively heterosexual (total n = 7,248; 1% gay/lesbian, 1% bisexual, and 2% heterosexual with reports of same-sex partners). The authors did not report the racial/ethnic composition of the entire sample, but they did report that men who identified as heterosexual but reported same-sex partners were less likely to identify as White than exclusively heterosexual men (55% and 74%, respectively) and more likely to identify as Black (22% and 11%, respectively). There were no racial/ethnic differences among sexual orientation groups for women. Results indicated that exclusively heterosexual men were more likely to abstain from alcohol than gay men, and exclusively heterosexual women were more likely to abstain from alcohol than lesbians, bisexual women, or heterosexual women with same-sex partners. Additionally, lesbian and bisexual women were more likely than exclusively heterosexual women to report alcohol-related problems (e.g., arguments, angry relationship partners, occupational or legal problems). In line with Cochran and colleagues' (2000, (2004) findings, this study reported that lesbian and bisexual women were more likely to seek help for their drinking than exclusively heterosexual women.

With a significant methodological improvement, McCabe, Hughes, Bostwick, and Boyd (2005) were the first to provide data on substance use patterns using all three major dimensions of sexual orientation (identity, attraction, and behavior) in a large random sample of undergraduate students (total n = 8,337; 1% only homosexual identity, 1% mostly homosexual identity, 1.5% bisexual identity, and 7.5% mostly heterosexual identity). The sample was primarily White (68%), with the remainder identifying as Asian (13%), Black (6%), Hispanic (4%), or Other (9%). Participants were asked about their sexual identity, who they were sexually attracted to, and with whom they have had sex in their lifetime. Surprisingly, they found few significant differences between homosexual and heterosexual individuals across all 3 dimensions of sexual orientation. However, they did find that men attracted only to men were more likely to report past month marijuana use than men attracted only to women. Additionally, men who had sex only with men were *less* likely to engage in heavy episodic drinking than men who had sex only with women – this finding is inconsistent with the majority of evidence, possibly due to the more specific classification of LGB that includes behavior, attraction, and identity. This study found interesting trends related to bisexuality, which will be discussed later in this paper.

Parsons, Kelly, and Wells (2006) examined differences in club drug use between heterosexual and lesbian/bisexual women in a sample of club-going adults (total n = 1,104;

46% lesbian/bisexual). Club drug use was operationalized as lifetime use and recent use (within the past three months) of ecstasy, ketamine, GHB, cocaine, crystal meth, or acid. The sample was primarily White (58%), with the remainder of the sample identifying as Latina (16%), Black (10%), Asian/Pacific Islander (6%), and mixed or other (10%). Results indicated that lesbian/bisexual women were significantly more likely than heterosexual women to report lifetime use of any club drug as well as lifetime use of LSD, ecstasy, cocaine, and methamphetamine; the difference for lifetime ketamine use was marginally significant in the same direction. Lesbian/bisexual women were also marginally significantly more likely to report recent use of any club drug, but recent club drug use was not analyzed as a function of the specific type of drug. These findings suggest that sexual minority women are more likely than heterosexual women to use club drugs. However, it should be noted that participants were recruited from clubs, so it is possible that they were under the influence at the time of the study and it is unclear if these results generalize to other types of drugs or to women who do not go to clubs.

Parsons, Halkitis, and Bimbi (2006) examined differences in club drug use between heterosexual and LGB individuals (total $n = 566$; 51% LGB). The sample was 54% White, with the remainder identifying as African American (10%), Asian/Pacific Islander, (9%), Latino/a (16%), and mixed (11%). Male and female young adults (aged 18-25; 51% male) reported on their frequency of club drug use (MDMA, LSD, cocaine, ketamine, methamphetamine, and GHS) using a Likert-type scale ranging from never to daily. The only significant differences that emerged between heterosexual and LGB individuals were that heterosexuals were significantly more likely to use LSD than LGB individuals, and heterosexual women were significantly less likely to use cocaine than sexual minority women. The results of this study emphasize the importance of keeping different types of drugs separate in statistical analyses, rather than combining them into a single category, as there may be differences in sexual orientation-related disparities for different drugs. The authors note that their findings (specifically, the fact that sexual orientation-related disparities were only found for two drugs and one of those differences indicated that heterosexuals were more likely than LGB individuals to use) are inconsistent with previous research. However, they do not speculate on why this is so. It is possible that their findings differ from previous research due to their inclusion of individuals who were recruited from non-club social venues (e.g., coffeehouses) as well as clubs. However, they did not find significant differences in drug use as a function of recruitment venue.

Ford and Jasinski (2006) analyzed data from the 1999 College Alcohol Survey to examine the relationship between sexual orientation (defined as lifetime sexual behavior) and drug use in a nationally representative sample of U.S. college and university students (total $n =$ 9,389; 2% homosexual and 4% bisexual). The sample was primarily White (78%). Results indicated that there were no significant differences in marijuana or other illicit drug use between homosexually-experienced and exclusively heterosexual individuals, which suggests that patterns of elevated substance use in LGB adults may not extend to undergraduate college samples. However, this is inconsistent with McCabe et al.'s (2005) findings that men attracted only to men were more likely to report past month marijuana use than men attracted only to women. It is also inconsistent with McCabe et al.'s findings that bisexuality is generally associated with increased substance use, and these findings will be discussed in greater detail later in this paper. The inconsistency between these two studies may be due, in part, to how each study operationalized sexual orientation. Ford and Jasinksi defined sexual orientation on the basis of sexual behavior, whereas McCabe et al. assessed sexual attraction, behavior, and identity. McCabe et al. only found a significant association between same-sex *attraction* and past month marijuana use, but they did not find a significant association between same-sex *behavior* and past month marijuana use (which is

actually consistent with the fact that Ford and Jasinski did not find a significant association between same-sex behavior and marijuana use).

In a follow-up study, Jasinski and Ford (2008) analyzed data from the 2001 College Alcohol Survey (total *n* = 7,659; 4% homosexual and 4% bisexual) to examine the relationship between sexual orientation (defined as lifetime sexual behavior) and binge drinking. The sample was again primarily White (74%). Results indicated that gay men were significantly *less* likely to binge drink than heterosexual men, and this is consistent with results from other college samples (e.g. McCabe, et al., 2005). Gay men also were significantly less likely to endorse norms that are permissive of binge drinking compared to heterosexual men, which is likely to account for the difference in binge drinking between the groups and is consistent with social learning theory views of substance use that posit impact of both expectancies and perceived norms on substance use patterns. There was not a significant difference in binge drinking between lesbians and heterosexual women; this finding is interesting since evidence consistently shows elevated rates of problematic drinking in non-college samples of lesbians and bisexual women relative to heterosexual women. Perhaps the elevated rates of binge drinking in college samples cancel out the typical LGB/heterosexual differences during this period and lesbian/bisexual women simply continue to have elevated drinking, while heterosexual women show reductions in their drinking as they age. In sum, it is currently unclear to what extent patterns of elevated substance use in LGB individuals extend to college students and this may depend in part on how sexual orientation is operationalized.

Cochran and colleagues extended their findings to Latino and Asian American populations using data from the National Latino and Asian American Study (Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007), which was a methodological improvement from their earlier studies since sexual identity and past year sexual behavior were evaluated. Participants were categorized as LGB if they identified as such *or* reported same-sex sexual behavior in the past year; they were categorized as heterosexual if they identified as such *and* had only opposite-sex sexual behavior in the past year (total *n* = 4,498; 5% LGB). The sample consisted of 58-76% Latino individuals (depending on the group) and 24-43% Asian American individuals (depending on the group). Results indicated that lesbian and bisexual women were more likely to report a recent history of a drug use disorder compared to heterosexual women, but this difference did not extend to alcohol use disorders and it was not evident in men. It appears that the increased rate of substance use disorders (SUD) in LGB populations extends to Latino and Asian American adults, but perhaps only for drug use among women. Cochran and colleagues suggested that these individuals might be at a lower risk for SUD as a result of protective factors that may be associated with lower risk in Latino and Asian American populations in general (e.g., foreign nativity, Alegría et al., 2007; family cohesion, Maton, 1993).

All of aforementioned studies relied solely on self-report measures of substance use. In the first study to employ face-to-face interviews for data collection, Wilsnack, Hughes, Johnson, Bostwick, Szalacha, Benson, et al. (2008) compared rates of problem drinking in a large sample of Chicago-area self-identified lesbians (*n* = 405; 46% White) to a national sample of age- and education-matched urban heterosexual women (*n* = 548; 69% White). Results indicated that exclusively heterosexual women (compared to mostly heterosexual, bisexual, mostly lesbian, and exclusively lesbian women) were significant less likely to report alcohol use at a young age, heavy episodic drinking, intoxication, drinking-related problems, and alcohol dependence symptoms. These results are consistent with results from survey studies, lending further support for the validity of the pattern of lesbian/bisexual women having elevated rates of alcohol use disorders and alcohol-related problems.

McCabe, Hughes, Bostwick, West, and Boyd (2009) analyzed data from the National Epidemiologic Survey on Alcohol and Related Conditions, which is the first national study to provide data on substance use and DSM-IV substance dependence related to all three major dimensions of sexual orientation (total n = 34,653; 2% identified as LGB, 6% reported same-sex sexual attraction, and 4% reported at least one life-time same-sex sexual partner). The sample was primarily White (71%), with the remainder identifying as Hispanic (12%), African American (11%), Asian (4%), or Native American (2%). Results demonstrated that, across all dimensions of sexual orientation, non-heterosexual orientation generally was associated with increased likelihood for substance use and dependence, and that sexual minority effects (across all dimensions) on substance use and dependence consistently were larger for women than men. Notably, the associations between *sexual identity* and substance use/dependence were larger than the associations between *same-sex attraction or behavior* and substance use/dependence, and this finding could explain differences in previous studies that use different definitions of LGB status. Additionally, past year prevalence rates for substance use/dependence did not vary across the sexual orientation dimensions for heterosexual respondents, but varied substantially among sexual minority individuals. For instance, past-year alcohol dependence was found in 13.3% of women who identified as lesbian, but in only 5.1% of women who reported attraction only to women and 4.0% of women who had only female sex partners. The authors suggested that this could be due to the fact that individuals who identify as LGB may have greater exposure to discrimination than those who engage in same-sex behavior or attraction, but do not identify as LGB. It is also possible that LGB identity translates into more affiliation with gay culture, which can have an impact on substance use patterns (discussed later in this paper).

The fact that McCabe and colleagues (2009) found that non-heterosexual orientation was generally associated with increased substance use/dependence, but McCabe and colleagues (2005) did not, may be due to methodological differences. Their 2005 study focused exclusively on undergraduate students, whereas their 2009 study included a nationally representative sample of adults age 20 or older. Undergraduate students are more likely than the general population to use and abuse alcohol (e.g., Hingson et al., 2002; SAMHSA, 2003) and heterosexual men's involvement in fraternities may make them even more likely to do so. Thus, the unique drinking patterns of college-aged heterosexual men may account for the discrepancies between McCabe and colleagues' 2005 and 2009 studies.

Impact of Sociocultural Factors on LGB Substance Use

Older research was limited by the fact that it often did not address differences within groups of LGB individuals beyond the lesbian/gay male distinction from heterosexual individuals (Bux, 1996), and recent research shows significant variations in substance use patterns within LGB populations. Researchers and clinicians have suggested several sociocultural explanations for elevated LGB substance use including greater social pressures, religious or familial turmoil, sub-cultural differences, and sociocultural implications of being a sexual minority (Beatty et al., 1999; 2003; Bux, 1996; Finnegan & McNally, 2002). The two most commonly cited risk factors for elevated substance use in this population are the importance of the bar scene in LGB communities and sexual minority stress (including discrimination and internalized homophobia; Hughes & Eliason, 2002). As mentioned previously, Meyer (1995, 2003) has developed the *minority stress model* to explain elevated rates of mental health problems in LGB populations, and has reported strong evidence supporting the negative impact of minority-related factors (ie. prejudice, stigma). However, Bux (1996) concluded that, at the time, there was little empirical support for the contentions that the LGB lifestyle, gender role conflict, or non-acceptance of LGB identity contributed to substance use problems. Instead, Bux (1996) concluded that lesbian/bisexual women were

more similar than different from gay men (possibly due to less strict gender roles in LGB communities), that LGB individuals did not appear to mature out of substance use, and that gender differences in substance use patterns were less evident in LGB, compared to heterosexual, populations. Recent research, however, suggests that LGB identity/behavior and affiliation with gay culture do have an impact on substance use problems in LGB populations.

For the purposes of this review, intrapersonal correlates of substance use that are not unique to LGB populations (e.g., psychiatric comorbidities, childhood trauma, ethnicity, education level) were not included. Instead, the focus is on demographic and sociocultural correlates that are unique to LGB populations, which provide more specific clinical implications for these individuals. Specifically, recent empirical evidence suggests several distinct variations in substance use patterns within LGB populations: (a) older age and female gender do not appear to be as robust of protective factors against substance use in LGB communities compared to heterosexual populations; (b) alcohol use appears to be a greater problem than drug use for lesbian/bisexual women, whereas drug use seems to be more significant for gay/bisexual men; (c) bisexuality appears to be a an additional risk factor for problematic substance use; and (d) substance use in LGB populations appears to be impacted by affiliation with gay culture, sexual minority stress, level of outness, and HIV-status.

Age

Age is a protective factor against substance abuse in the general population – rates of substance abuse/dependence are highest amongst individuals aged 18 – 25, and these rates generally decrease with age (SAMHSA, 2004). However, some research suggests that the impact of age on substance use patterns is less pronounced in sexual minority samples. Similar to heterosexual samples, several studies have found that younger age is associated with heavier use of alcohol and drugs in MSM and heavier alcohol use/more alcohol-related problems in lesbian/bisexual women (e.g., Gruskin et al., 2001; Halkitis & Palamar, 2008; Klitzman, Greenberg, Pollack, & Dolezal, 2002; Parks & Hughes, 2005Stall, Paul, Greenwood, Pollack, & Bein, 2001). However, other studies have provided inconsistent evidence. For example, Burgard et al. (2005) found that homosexually-experienced women reported more problematic drinking than exclusively heterosexual women (i.e., drinking more times per month, drinking more heavily per occasion, being more likely to drink each week, and being more likely to binge drink), and that these differences were significant among both younger and older individuals (albeit larger amongst the younger cohort). If LGB individuals were reducing their drinking as they age, we would expect observed differences between LGB and heterosexual individuals to be reduced or eliminated. In fact, one study reported just that - Gruskin et al. (2001) found that younger lesbian/bisexual women reported greater alcohol use and alcohol-related problems than their heterosexual counterparts, but these differences were not significant for older individuals.

However, the fact that sexual orientation-related differences emerged among older individuals in the Burgard et al. (2005) study could suggest that age *is not as robust of a protective factor* against substance abuse for sexual minority women. The discrepancies in findings could be due to differences in how sexual orientation was defined - Burgard et al. used sexual behavior, whereas Gruskin et al. used self-identified sexual orientation. Perhaps there is differential impact of age for those who identify as lesbian/bisexual compared to those who engage in same-sex sexual behavior (regardless of sexual identity). Additionally, Gruskin et al. only included women enrolled in Kaiser Permanente healthcare system, which could have influenced disclosure of substance use patterns and/or sexual orientation. Overall, most comparisons show lower levels of substance abuse in older compared to younger LGB individuals, but some research suggests that the elevated rates of SUD extend to older adults. Further research is needed to clarify the impact of age on substance use in

sexual minorities, but current research suggests that age is generally a protective factor against substance abuse for LGB individuals, although less pronounced than in heterosexual populations.

Gender

In the general population, there are pronounced gender differences in substance use patterns; men typically report heavier and more problematic alcohol and drug use than women (e.g., Kessler et al., 2005). These gender differences appear to be much less dramatic in LGB populations, with some studies showing equivalent rates of alcohol use between lesbian/bisexual women and gay/bisexual men (e.g., Gillespie & Blackwell, 2009). Although there do seem to be gender differences in rates of substance use in LGB populations, the magnitude of these differences is much smaller than between heterosexual men and women (Amadio, Adam, & Buletza, 2008; Amadio & Chung, 2004; McKirnan & Peterson, 1989; Parsons, Halkitis, & Bimbi, 2006; Skinner & Otis, 1996). This may be due to differences in gender roles, such that LGB individuals are more likely to be gender nonconforming than heterosexual individuals, which may afford them greater freedom from behaving in accordance with stereotypically gendered behaviors (e.g., heavy drinking in college men). This notion is supported by findings that gay/bisexual undergraduate men are less likely to endorse binge drinking norms than heterosexuals (Jasinski & Ford, 2008), and these findings are consistent with social learning theory view that perceived norms and expectancies impact substance use patterns. There also is evidence that alcohol use may be more problematic than drug use for lesbian/bisexual women, whereas drug use may be more problematic than alcohol use for gay/bisexual men (e.g., Cochran et al., 2004) – this gender difference is not evident in heterosexual populations and seems to be a unique trend in LGB substance use patterns. Additionally, there is mixed evidence regarding substance-related problems, with some studies finding that lesbians and gay men do not differ (e.g., McKirnan & Peterson, 1989) and others finding that gay/bisexual men report more substance-related problems than lesbian/bisexual women (e.g., Gillespie & Blackwell, 2009). However, the evidence overall suggests that female gender is not a strong protective factor against substance abuse for lesbian/bisexual women.

Bisexuality

Recent research is beginning to go beyond the traditional homosexual/heterosexual divide to examine bisexual identity, attraction, and behaviors as distinct characteristics. An important recent finding is that bisexuality appears to be related to more problematic substance use than exclusive heterosexuality *and* homosexuality. For instance, McCabe, Hughes, Bostwick, and Boyd (2005), which was previously described, found that women who identified as *mostly* heterosexual, bisexual, or who were attracted to or had sex with *both* men and women reported greater substance use than those who reported *only* heterosexual identity and opposite-sex attraction/behavior. This finding suggests additional risk for substance abuse related to bisexual identity and/or behavior. For men, *mostly* heterosexual identity was associated with higher drug use than *only* heterosexual identity, but those who identified as bisexual did not differ from those who identified as only heterosexual. This finding is intriguing in that is suggests the possibility of increased risk for individuals whose identity and behavior are somewhat incongruent. Results based on sexual attraction and behavior were similar for men, such that those who were attracted to or had sex with *both* men and women were more likely to report drug use than those who were attracted to or had sex with *only* women. Several other studies similarly have found that bisexual women and men are more likely to report alcohol and drug use compared to both heterosexual *and* homosexual women and men (e.g., Ford & Jasinski, 2006; Halkitis & Palamar, 2008; Jasinski & Ford, 2008; Tucker, Ellickson, & Klein, 2008; Wilsnack, Hughes, Johnson, Bostwick, Szalacha, et al., 2008). Importantly, this trend remains true even after controlling

for level of openness to others about one's sexual orientation (Thiede et al., 2003). Taken together, recent research suggests that bisexual individuals may be at greatest risk for elevated substance use. In line with the minority stress model, perhaps this increased risk is related to experiences of prejudice and discrimination from *both* heterosexual and lesbian/gay communities (Israel & Mohr, 2004). These findings also could be related to the finding that bisexual individuals report lower social support than both heterosexual and lesbian/gay individuals (Balsam & Mohr, 2007), or the impact of incongruence between sexual identity and sexual behavior. Further research is needed to identify reasons of the impact of bisexual identity/behavior on substance use patterns, and it is possible that this trend would extend beyond SUD to other mental health problem areas.

Affiliation with gay culture

Researchers and clinicians have proposed that affiliation with gay culture is related to elevated substance use in LGB communities. Although Bux (1996) concluded, based on empirical evidence available at that time, that there was little support for the LGB lifestyle contributing to elevated substance use and substance-related problems, more recent research suggests otherwise. Although LGB communities are not as confined to bars and clubs as in the past, gay bars remain one of the main social outlets in LGB communities. Thus, alcohol use in LGB communities may increase the sense of belonging in this bar-oriented sub-culture (Beatty et al., 1999). Not surprisingly, many studies have found that frequent attendance at bars, sex clubs, bathhouses, higher numbers of sexual partners, and unprotected receptive anal sex were associated with elevated substance use (e.g., Halkitis & Parsons, 2002; Kipke et al., 2007; Stall et al., 2001). Many MSM also frequent circuit and house parties, which tend to involve heavy club drug use, and such use in these venues may also increase one's sense of belonging. Research also suggests that MDMA use in MSM is associated with higher levels of gay community participation and affiliation (Klitzman, Greenberg, Pollack, and Doleza, 2002). Interestingly, Stall et al. (2001) found that both low and high affiliation with gay culture was associated with heavy drinking and frequent illicit drug use; MSM who reported moderate levels of gay culture affiliation (measured by gay bar attendance and/or use of gay media sources) reported the lowest levels of heavy drinking and illicit drug use, whereas more frequent attendance at gay bars and less frequent use of gay-oriented media were associated with heavier drinking and more alcohol-related problems. Perhaps LGB individuals who frequently view gay-oriented media are more cognizant of the risks related to substance use (e.g., HIV infection, health problems, overdose) since these issues are included in gay media. Additionally, Greenwood et al. (2001a) found that MSM who reported frequent-heavy alcohol use (5 or more drinks at least once a week) were more likely to attend gay bars frequently.

Trocki, Drabble, and Midanik (2005), using data from the 1999-2001 National Alcohol Survey, evaluated the role of drinking contexts in relation to sexual orientation. They found that gay men spent more time in bars than all other men, and there was a trend for bisexual men to spend more time at house and circuit parties. Exclusively heterosexual women reported spending less time in bars than women who were lesbian, bisexual, or heterosexual with reports of same-sex partners. Heterosexual women with a history of same-sex partners spent more time at house parties than other women. Results from this study suggest that gay men and lesbian/bisexual women spend more time at bars, circuit parties, and house parties than heterosexuals. These results are consistent with the social learning theory view that peer groups impact substance use patterns. Since research has shown that alcohol and drug users mutually influence each other's substance use behaviors (for a review, see McCrady, 2004), it is reasonable to infer that peer substance use in the social networks of those LGB individuals is related to heavier substance use. However, the relationship between social

network substance use and personal substance use has not been studied adequately in LGB populations and a curvilinear relationship is a possibility.

Sexual minority stress and outness

As proposed by Meyer (1995, 2003), LGB individuals face a unique set of social pressures due to their minority status, such as being ostracized from their families, peer groups, and religious organizations after they disclose their sexual minority status (Beatty et al., 1999). This separation can lead to limited social support and feelings of isolation, both of which could lead to substance use and/or mental health problems. Additionally, LGB alcoholics/addicts may experience compounded social pressures associated with being both a sexual minority *and* an alcoholic/addict, two groups that are socially stigmatized (Colcher, 1982), and this double-stigmatization may prevent LGB individuals from seeking treatment for substance use problems. Furthermore, lesbian/bisexual women with SUD are members of three minority groups, and this could contribute to the elevated rates of substance use that may extend into older adulthood. Recent research has focused on unique stressors that LGB individuals often experience as a result of their stigmatized minority identities, and one stressor that has received a lot of attention is internalized heterosexism – the internalization of negative societal attitudes about non-heterosexual identity, attraction, and behavior. Brubaker, Garrett, and Dew (2009) recently reviewed the literature on the relationship between internalized heterosexism and substance abuse in LGB populations, and they reported that the majority of studies found at least partial, if not full, support for the hypothesized positive associations between internalized heterosexism and alcohol use, drug use, and alcohol- and drug-related problems. These recent findings are inconsistent with evidence reviewed by Bux (1996), perhaps due to advances in the assessment of minority stress factors.

The term “outness” refers to disclosure of sexual orientation to members of an LGB individual’s social network. With respect to outness, Theide et al. (2001) reported that MSM who were out to more than half of their social network evidenced higher levels of drug use. Similarly, evidence shows that MDMA use in MSM is associated with having more gay/bisexual friends and having disclosed one’s sexual orientation to more people (Klitzman, Greenberg, Pollack, & Doleza, 2002), and disclosure of one’s sexuality to all or most of one’s family members is associated with recent club drug use (Kipke et al., 2007). As previously noted, McCabe et al. (2009) found that the associations between sexual *identity* (which presumes higher levels of outness than only attraction/behavior) and substance use/dependence were larger than the associations between *same-sex attraction or behavior* and substance use/dependence. This provides additional support for the possibility that sexual minority stressors influence substance use in LGB populations. However, it is also possible that those who identify as LGB are at greater risk for substance use as a result of other factors related to minority status (e.g. lower self-esteem, greater depression and anxiety, feelings of isolation/marginalization, peer influence), rather than internalized heterosexism, and it will be important for future studies to attempt to disentangle these related constructs in order to determine the unique effects of each variable on substance use in LGB populations.

HIV status

There appears to be a bidirectional relationship between HIV/AIDS and substance use (for a review, see Stall & Purcell, 2000). Commonly, substance use is considered a risk factor for HIV seroconversion and sexual behaviors that increase risk for HIV exposure, but it also has been suggested that HIV serostatus may influence substance use patterns as well. Greenwood and colleagues (2001a) reported that the strongest correlate of polydrug use in MSM was HIV serostatus. Specifically, MSM who were HIV+ and those who did not know their HIV status were more likely than those who were HIV− to report polydrug use, even

when marijuana was excluded (due to potential medicinal use for HIV). It is reasonable to infer that HIV+ or unknown status is accompanied by emotional experiences (e.g., anxiety, depression) that may be linked to elevated substance use. Similarly, Stall and colleagues (2001) found that MSM who reported moderate numbers of HIV+ peers or family members were more likely to be frequent-heavy drinkers than those who reported either a high or low number of HIV+ individuals in their social network. Perhaps LGB individuals with low numbers of HIV+ peers are not as affected by negative emotional experiences that could be reasons for substance use, whereas those with higher numbers of HIV+ peers have adjusted to the negative emotional experiences and no longer need to use substances in order to cope with them, or are more health conscious because medical vulnerabilities are more salient to them. Finally, Pantalone, Bimbi, Holder, Golub, and Parsons (2010) found that HIV+ sexual minority men were more likely than HIV− sexual minority men to report the use of club drugs, including crystal methamphetamine, cocaine, ecstasy, ketamine, GHB, poppers, and polydrug use. Although they did not assess variables that might have accounted for these findings (e.g., motivations for substance use), their findings are consistent with others in suggesting that HIV serostatus is a correlate of illicit drug use among sexual minority men.

Treatment for Substance Use Disorders in LGB Communities

Increasing our understanding of treatment outcome for LGB substance abusers is especially important since research has demonstrated that LGB clients enter treatment with more severe substance abuse problems than heterosexual clients (Cochran & Cauce, 2006). Additionally, there is evidence that lesbian/bisexual women seek treatment for alcohol use disorders more often then heterosexual women (Cochran et al. 2000; Drabble et al., 2005). Bux (1996) stated that treatment programs were not justified in ignoring the unique needs of lesbian and gay male problem drinkers or alcoholics – that treatment providers needed to be aware of current knowledge about sexuality, sexual orientation, and the unique aspects of lesbian and gay male social and developmental experiences to provide the most effective treatment. In line with this recommendation, clinicians and researchers have a rationale for creating specialized treatment protocols for LGB substance abusers based on the assumption that LGB individuals need specialized treatment protocols because of their unique subculture and life experiences (Beatty & Lewis, 2003; Finnegan & McNally, 2002). However, research on the efficacy and effectiveness of treatment programs for SUD in LGB populations is limited, and all studies have been conducted with samples of gay/bisexual men and have addressed primarily drug use and not alcohol use. This dearth of treatment outcome research that includes women, and the limitations of the extant studies prevent firm conclusions about the effectiveness of treatments tailored for LGB substance abusers. However, the evidence thus far has not shown large benefits to LGB-specific treatment protocols.

Only 6 treatment outcome studies of LGB substance abusers have been published recently; none of these studies has included lesbian/bisexual women, most have focused on drug use disorders, and only one of them used a comparison sample that received treatment of similar length and type (Shoptaw et al., 2005). Thus, results must be interpreted with caution and further research clearly is indicated. Paul, Barrett, Crosby, and Stall (1996) examined changes in alcohol and drug use among gay and bisexual men in a gay-identified outpatient treatment program (n = 321). The sample was primarily White (77%), with the majority of the remainder of the sample identifying as Black (8%) or Latino (5%). Results indicated that participants reduced their drinking by half in the first 90 days of treatment and those changes typically were maintained over the first year. This study had no comparison sample of either sexual orientation or intervention. Greenwood, Woods, Guydish, and Bein (2001b) evaluated the effects of sexual orientation on treatment outcome for substance abusers (n = 261) randomly assigned to either day treatment or residential treatment. The sample was

primarily African American (58%), with the remainder of the sample identifying as Caucasian (24%) or other racial/ethnic backgrounds (18%). Interestingly, having same-sex sexual partners in the six months prior to treatment was found to be a protective factor for relapse 18-months after admission. The authors suggested that this could have been the result of LGB community resources in the San Francisco area. This study was limited by comparing two interventions quite different in terms of intensity. A further limitation of this earlier research was the lack of standardized treatment protocols and adequate comparison treatments.

Shoptaw, Reback, Peck, Yang, Rotheram-Fuller, et al. (2005) conducted a randomized controlled trial to evaluate the efficacy of four behavioral drug abuse treatments for methamphetamine-dependent gay and bisexual men (n = 162). The sample was primarily Caucasian (76-85%, depending on the treatment condition), with the remainder identifying as Hispanic (5-18%), African American (2-5%), Asian American (0-5%), or Native American (0-5%). The four treatments compared were: (a) standard cognitive behavioral therapy (CBT); (b) contingency management (CM); (c) combined CBT and CM (CBT/CM); and (d) a culturally tailored gay-specific cognitive behavioral therapy (GS-CBT). The GS-CBT intervention integrated core concepts from the CBT intervention with relevant behavioral and cultural aspects of methamphetamine use by gay/bisexual men (e.g., impact of gay cultural events and environments such as circuit parties and sex clubs, drawing parallels between admitting one's drug problem and coming out as gay/bisexual). It is important to note that GS-CBT was developed to address equally drug abuse and HIV-related sexual risk behaviors. All conditions also showed significant reductions in the drug use and psychiatric subscales of the Addiction Severity Index. Results indicated that individuals assigned to the CM and CBT/CM groups performed better than the CBT group with respect to retention and longest period of consecutive urine samples negative for methamphetamine metabolites during the treatment period – this finding is consistent with larger literature on CM. However, by 6- and 12-month follow-up, there were no differences among treatments in rates of drug use; all treatment conditions produced significant reductions. There was no evidence of differential impact of GS-CBT compared to CBT. These results suggest that tailoring CBT for gay/bisexual-specific issues does not appear to lead to better long-term outcomes than standard CBT, perhaps due to the typical individualization of CBT to address unique personal factors. The authors concluded that it is more important that LGB individuals receive treatment than it is to tailor treatment protocols specifically for their cultural needs.

In a second study, Shoptaw, Reback, Larkins, Wang, Rotheram-Fuller, et al. (2008) evaluated the efficacy of their previously described GS-CBT in community clinics for gay/bisexual men (n = 128) who reported a variety of substance abuse disorders. The sample was primarily White (64-66%, depending on the treatment condition), with the remainder identifying as Latino (22%) or Other (13-14%). Participants were randomly assigned to 16 weeks of GS-CBT or a gay-specific social support therapy (GS-SST), and both treatments consisted of three group therapy sessions per week. GS-CBT integrated relevant cultural aspects of drug use (particularly methamphetamine use) by gay/bisexual men with CBT, including skills training to reduce drug use and sexual risk behaviors, identify relapse triggers, interrupt cravings, and return to abstinence should relapse occur. GS-SST consisted of one weekly HIV health education/risk reduction group, one weekly open-ended social support group, and one weekly supportive individual session with a counselor. Results indicated that both conditions led to significant reductions in frequency of alcohol and drug use; one-year follow-up rates were roughly half that of baseline rates. Additionally, the GS-CBT group showed larger reductions in amphetamine and marijuana use than the GS-SST condition, suggesting potential superiority of cognitive-behavioral approach over social support therapy for gay/bisexual men who abuse those substances. However, this finding

needs to be interpreted in light of an artifact of randomization; participants assigned to GS-SST were more likely than those assigned to GS-CBT to be seeking treatment for methamphetamine abuse and report pre-treatment intravenous use of methamphetamine. This study also needs to be considered in light of the focus on HIV risk behaviors in addition to substance use. Although this study compared two interventions of equivalent intensity, both were tailored for gay-specific factors thus preventing evidence of differential impact of LGB-tailored interventions.

Morgenstern, Parsons, Bux, Irwin, Wainberg, et al. (2007) conducted a randomized controlled trial to examine the comparative efficacy of motivational interviewing (MI) and a combined MI and CBT intervention (MI/CBT) for sexually active, HIV-negative MSM with a current DSM-IV diagnosis of alcohol use disorder (AUD). The sample included 188 MSM who identified as Caucasian (36-45%, depending on the treatment condition), African American (21-33%), Latino (22-26%, or Other (6-11%). MI consisted of four sessions delivered over 12 weeks and targeted problem drinking as well as HIV prevention. MI/CBT consisted of 12 weekly sessions and included three components: 1) MI; 2) CBT skills training; and 3) a component that addressed either negative affect, sensation seeking, or internalized homonegativity (the selection of specific targets for intervention was determined based on interviews with participants). More than 90% of participants identified drinking as their more serious problem (relative to HIV risk), so treatment tended to focus more on drinking than on HIV risk. Interestingly, the vast majority of participants (94%) selected a moderated or controlled drinking goal instead of abstinence. Results indicated that both MI and MI/CBT yielded significant decreases in drinks per day during the treatment period and decreases in negative consequences of drinking. Although MI resulted in significantly fewer drinks per day during the treatment period, both groups demonstrated significant decreases in drinks per day and negative consequences at the 12-month follow-up with no significant differences between the groups. This suggests that both MI and MI/CBT interventions that provide personal choice of drinking goal (i.e. abstinence or moderation) have long-term benefits for AUD treatment with gay/bisexual men. It is notable that approximately 46% of the sample was diagnosed with drug dependence secondary to their primary AUD, and both treatments yielded significant decreases in drug use during the treatment period for those with a comorbid drug dependence diagnosis. This study did not deliver LGB-specific protocols, but instead shows evidence of the effectiveness of general MI and CBT for AUD in gay/bisexual men.

Morgenstern, Bux, Parsons, Hagman, Wainberg, and Irwin (2009) conducted a subsequent randomized controlled trial examining the efficacy of four sessions of MI focused on reducing club drug use and HIV risk behaviors, compared to a four session education control condition, for MSM not currently in SUD treatment. The sample included 150 MSM of diverse racial/ethnic backgrounds (36% White, 34% African American, 14% Hispanic, and 16% mixed/other). All sessions in both conditions were one hour long and could take place in as few as 4 or as many as 8 weeks. The education control condition consisted of watching videos that included interviews with current or former gay male drug users regarding their experiences as well as information about the dangers of drug use. Participants were assessed at 3-, 6-, 9-, and 12-months post-treatment. Results indicated that, for participants with lower severity of drug dependence, the MI condition yielded less club drug use during follow-up than control condition. Among those with high drug dependence severity, the MI condition appeared to do better than the 3-month follow-up, but the control condition did better at the other three time points. Thus, MI appears to be a potentially effective treatment for MSM club drug users, but it is more effective for those with low drug dependence severity. This study again was limited by the exclusion of women, but suggests the potential effectiveness of both MI and psychoeducation for gay/bisexual drug using men.

Summary and Clinical Implications

In sum, empirical evidence that has emerged since 1996 supports Bux (1996) conclusions that LGB individuals, particularly women, are at greater risk for alcohol and drug use disorders and related problems. Findings consistently suggest that lesbians/bisexual women are more likely to meet criteria for alcohol use disorders, report alcohol-related problems, and report having been treated for their drinking than heterosexual women. The findings for men continue to be mixed – some studies report that gay men are *more* likely to use alcohol and illicit drugs than heterosexual men, other studies report that gay and heterosexual men do *not* differ in alcohol and illicit drug use, alcohol-related problems, or treatment utilization, and still other studies report that gay men in college are *less* likely to binge drink than their heterosexual counterparts. Current research also has broadened our understanding of these phenomena by suggesting that the elevated rate of SUD is evident across multiple dimensions of sexual orientation, and that bisexual identity and/or behavior further elevates the risk for substance abuse for both men and women.

Evidence on LGB substance use patterns largely is consistent with social learning theory perspectives that emphasize the importance of peer use, expectancies about use, and triggers for use. Several social-cultural factors appear to be related to substance use patterns in LGB populations – there is evidence that age, gender, bisexuality, affiliation with gay culture, sexual minority stress, level of outness, and HIV status of individuals and those in their social networks all are related to substance use patterns in LGB populations. Older age and female gender do not appear to be as robust of protective factors against substance use problems for LGB individuals as they are for heterosexual individuals. Gender differences typically evident in heterosexual populations (e.g. men reporting heavier substance use) are less pronounced in LGB populations, and there appears to be a unique pattern to LGB populations in that alcohol use is more dominant for lesbian/bisexual women and drug use is more dominant for gay/bisexual men. Although there is evidence that older LGB individuals have less problematic substance use than younger cohorts, there may still be more significant substance use in LGB older adults as compared to heterosexual individuals – further research is needed. Working from a social learning perspective, these findings suggest that substance-related expectancies and norms are somewhat different in LGB populations, particularly related to gender and age. It is likely that LGB individuals do not conform to the traditional norms of men using alcohol and drugs more heavily than women or of substance use being an activity isolated in young adulthood. Another possibility is that LGB individuals are less impacted by, or transition later in life into, social roles that are incompatible with heavy substance use (e.g. marriage, parenthood). Also consistent with social learning theory and supporting the influence of peer substance use, research has shown that both high and low levels of gay culture affiliation and specific social activities (e.g., attendance at bars, clubs, and circuit parties) are related to higher substance use in LGB populations. However, no research to date has examined explicitly the impact of peer substance use on LGB substance use patterns.

Recent research also supports the *minority stress model*, showing a relationship between some LGB-specific stressors and elevated substance use. Being out (openly identifying as LGB) to higher proportions of one's social network is related to higher substance use. Presumably, those who are out to more people increase the likelihood that they will be confronted with prejudicial treatment related to their sexual orientation. The impact of sexual minority stress is supported further by the growing body of evidence suggesting that bisexual identity and/or behavior adds incremental risk for substance use problems. Bisexual individuals often experience stigma and prejudice from both heterosexuals and lesbians/gay men, and the higher rates of substance use in bisexual populations parallel these higher rates of sexual minority stress. A final finding supportive of the *minority stress model* is that

MSM who are HIV+ or do not know their status report more polydrug use, and those with moderate numbers of HIV+ peers/family members are more likely to drink heavily than those with low numbers of HIV+ social connections. Although HIV impacts the lives of many people regardless of their sexual orientation, this particular stressor is more salient in gay populations and these findings suggest that stress associated with being personally impacted by HIV is related to elevated substance use.

Thus far, treatment research is limited by the fact that all of the studies have used samples of gay/bisexual men, the focus has been largely on drug use disorders, and none have examined LGB-specific protocols to identical protocols that lack the LGB-specific content. Thus it is premature to draw firm conclusions about the differential impact of LGB-specific treatments for SUD. However, extant evidence has *not* shown long-term benefits of LGB-specific interventions compared to general interventions for gay/bisexual men. In fact, findings are generally consistent with treatment outcome research in heterosexual populations - cognitive-behavioral therapy, contingency management, and motivational interviewing each have demonstrated effectiveness for treating SUD in gay/bisexual men. It is unknown if these findings will extend to lesbian/bisexual women. The reviewed recent treatment outcome research with LGB samples is consistent with current views of substance abusers as a heterogeneous population. Though research is only beginning to address LGB-specific treatment issues, available evidence has not shown that LGB substance abusers require specialized treatment protocols; unique aspects of LGB substance use patterns do not necessarily demand specialized treatment protocols since contemporary forms of alcohol/drug treatment recommend individualization based on individual needs. However, it stands to reason that clinicians treating LGB substance abusers need to be educated about LGB culture and LGB-specific patterns of substance use in order to provide culturally-competent care (APA Task Force, 2009).

This review provides useful information with distinct clinical implications for: (a) case identification; (b) selection of treatment goals; (c) potential targets for intervention unique to LGB individuals; and (d) utility of specific treatment modalities. In terms of case identification, clinicians should be aware of the unique sociocultural factors related to SUD in the LGB population. Specifically, there appears to be increased risk for substance use problems in LGB populations – especially for alcohol problems in women and drug problems in men. Within the LGB population, bisexuality and gay culture affiliation are additional risk factors; individuals with bisexual identity and/or bisexual behavior and LGB individuals with very high or low levels of affiliation with the gay culture appear to have additional risk for substance use problems. Additionally, female gender is not necessarily a protective factor for lesbian/bisexual women. Findings on the impact of age on LGB substance use patterns are inconsistent, but suggest that older age is not as robust of a protective factor against substance abuse for LGB individuals as it is in the heterosexual population. Thus clinicians should not presume that older age or female gender decreases the likelihood of substance use problems for LGB individuals.

Recent research findings also have implications for treatment efforts. With respect to treatment goals, there is evidence that abstinence is not the goal of choice for many gay/bisexual men who seek treatment for alcohol problems, and other research suggests that this may extend to lesbian/bisexual women. For instance, Green (2011) reported that in a sample of LGB respondents who screened positive for likely alcohol use disorders ($n = 93$), 53% reported a moderate/controlled drinking goal compared to only 9% who reported a goal of abstinence from alcohol. Since research has demonstrated that treatments permitting personal goal choice are effective at reducing problematic substance use (e.g. Morgenstern et al., 2007; Sobell & Sobell, 2005), clinicians should take that into consideration when discussing treatment goals with LGB individuals. Some research findings can inform the

selection of potential targets for intervention that are unique to the LGB population. For example, there seem to be unique social aspects to substance use in LGB populations - LGB individuals with very high or low levels of affiliation with the gay culture are at elevated risk for SUD, social roles related to gender and age may impact substance use differently for LGB individuals, and there may be unique expectancies and perceived norms about alcohol and drug use within LGB populations. Since lesbian/bisexual women are at elevated risk for alcohol problems and gay/bisexual men are at elevated risk for drug problems, it could be useful to examine their perceptions of social norms, personal social roles, and expectancies about substance use as part of treatment. Additionally, substance use in LGB individuals may be related to bisexual identity and/or behavior, incongruence between sexual identity and sexual behavior, level of outness, and HIV status – perhaps these findings are related to emotion regulation deficits or specific feelings of anxiety, shame, depression, or isolation that could be addressed in treatment.

Although greatly limited, recent research provides some useful information about treatment outcome of specific treatment modalities for SUD in the LGB population. Specifically, cognitive-behavioral therapy, motivational interviewing, contingency management, social support therapy, and combinations of these have demonstrated effectiveness for gay/bisexual men with SUD. Additionally, there may be an advantage to cognitive-behavioral approaches over social skills training in terms of long-term outcomes. Interestingly, research has not shown LGB-specific interventions to be superior to those that are not tailored specifically for LGB individuals. Perhaps this is due to LGB-specific factors also being addressed in broad-based interventions due to individualization of treatment efforts or because no identical comparison treatment (without LGB-specific content) has been evaluated thus far. Since contemporary treatment protocols prescribe individualization for client-specific circumstances, interventions developed and researched for heterosexual individuals and opposite-sex couples could easily be individualized to accommodate LGB clients and same-sex couples. For example, working from a social learning theory perspective, clinicians would address antecedents/triggers of substance use, negative consequences of use, the impact of social relationships on use, and expectancies that guide decisions to use or abstain (e.g. Longabaugh et al., 2005; McCrady, 2001) – none of these domains is unique to LGB individuals, but evidence does suggest that there are some LGB-specific patterns within these domains. However, there is a dearth of evidence on the efficacy of available treatments in LGB populations (especially for alcohol use disorders, women, and couples).

It is important to note, however, that despite the lack of evidence supporting better treatment outcomes for LGB-specific treatment protocols, it is critically important for clinicians to practice culturally-competent care. Clinical recommendations state that knowledge of LGB-specific experiences and an LGB-affirming therapeutic style are considered beneficial or essential regardless of reasons for seeking treatment (APA Task Force, 2009; Burckell & Goldfried, 2005), and clinicians should seek consultation and training in these areas when providing services to LGB individuals.

Future Directions

There are several questions about substance use in the LGB community that remain unanswered by the available research. As done in some of the most recent research (e.g., McCabe, Hughes, Bostwick, & Boyd, 2005), alcohol and drug use patterns should be examined further in relation to multiple dimensions of sexual orientation (i.e., sexual identity, attraction, and behavior). It is clear from extant literature that bisexual identity and/or behavior are associated with additional risk for problematic substance use, and research should begin to examine social and emotional explanations for this pattern. An additional limitation of available research is that very few researchers include both women and men in

the same study sample, and studies that do examine both women and men typically have used sexual behavior as a proxy for sexual orientation. This limits the direct comparisons that can be made between lesbian/bisexual women and gay/bisexual men. Since gender differences do not appear to be as evident in LGB populations, research should begin to evaluate LGB women and men in the same studies and with the same measures in order to examine differential drinking and drug use patterns.

Critical gaps in the literature are that no treatment studies to date have examined treatment outcomes for alcohol use disorders or in samples of lesbian/bisexual women, and these areas deserves attention since evidence suggests that they are more likely than heterosexual women to seek treatment for alcohol problems. Additionally, treatment outcome studies should compare LGB-specific protocols to identical protocols that lack the LGB-specific content in order to gain better understanding of the impact of LGB-specific content. Other areas of the LGB experience not evaluated adequately in substance use research are perceptions of social support (both in general and specific to sobriety), the impact of social network substance use on LGB substance use patterns, and protective factors against problematic substance use.

A final problem in the field is the lack of attention to sexual orientation across treatment outcome studies. LGB individuals and same-sex couples frequently are excluded from clinical research (for details see Egleston, Dunbrack, & Hall, 2010), and most studies fail to assess and/or report on the sexual orientation of their samples, thus leaving readers to presume a heterosexual sample. Assessment of sexual orientation should be included in all large-scale treatment studies in order to expand knowledge about treatment outcome for LGB individuals.

Despite these remaining limitations in the field, researchers have improved methodologies in ways that provide a more comprehensive picture of substance use patterns in the LGB community. As researchers and clinicians continue to progress towards practices that are more inclusive of the LGB population, additional evidence will continue to emerge that elucidates factors related to LGB substance use and relative effectiveness of treatments for LGB individuals with SUD.

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Table 1

Summary of Recent Research on Substance Use Patterns in LGB Populations

Study	Sample	Definition of sexual orientation	Alcohol Use		Drug Use	
			Male	Female	Male	Female
Cochran et al. (2000)	n = 9,908 2% LGB men and women	Past year sexual behavior	No differences	LB > H for use, diagnosis, and treatment seeking	-----	-----
Cochran et al. (2004)	n = 9,908 2% LGB men and women	Past year sexual behavior	-----	-----	GB > H for use and symptoms	LB > H for use, symptoms, and diagnosis
Gruskin et al. (2001)	n = 8,113 1.5% LB women	Self-reported identity	-----	LB > H for use (only for those aged 20 – 34)	-----	-----
Burgard et al. (2005)	n = 11,204 3% LB women	Lifetime and past year sexual behavior	-----	LB > H for use	-----	-----
Drabble et al. (2005)	n = 7,248 1% L/G 1% B 2% H with same-sex behavior	Sexual behavior and self-reported identity	G > H for use	LB > H for use, problems, and treatment seeking	-----	-----
McCabe et al. (2005)	n = 8,337 1% only homosexual 1% mostly homosexual 1.5% bisexual 7.5% mostly heterosexual	Sexual identity, attraction, and behavior	H > G for use	-----	G > H for marijuana use; B > H for drug use	-----
Ford & Jasinski 2006)	n = 9,389 2% LG 4% B	Lifetime sexual behavior	-----	-----	B > GH for other illicit drug use	B > LH for marijuana use
Jasinski & Ford (2008)	n = 7,659 4% LG 4% B	Lifetime sexual behavior	H > GB for use	No differences	-----	-----
Cochran et al. (2007)	n = 4,498 5% LGB	Self-reported identity and past year sexual behavior	No differences	No differences	No differences	LB > H for drug use disorders
Wilsnack et al. (2008)	n = 953 42% L	Self-reported identity	-----	LB > H for use, problems, and diagnosis	-----	-----

Study	Sample	Definition of sexual orientation	Alcohol Use		Drug Use	
			Male	Female	Male	Female
McCabe et al. (2009)	n = 34,653 2% LGB 6% same-sex attraction 4% same-sex behavior	Sexual identity, attraction, and behavior	GB > H for use and diagnosis	LB > H for use and diagnosis	G > H for marijuana use and other drug use and dependence; B > H for other drug use and dependence	L > H for marijuana and other drug use and dependence; B > H for marijuana dependence and other drug use
Parsons, Kelly, & Wells (2006)	n = 1,104 46% LB	Self-reported identity	-----	-----	-----	LB > H for club drug use
Parsons, Halkitis, & Bimbi (2006)	n = 566 51% LGB	Self-reported identity	-----	-----	H > GB for LSD use	LB > H for cocaine use H > LB for LSD use
Parsons, Kelly, & Wells (2006)	n = 1,101	Self-reported identity	-----	-----	-----	LB > H for club drug use

Note. H = heterosexuals, G = gay men, L = lesbians, B = bisexuals; Use = substance use frequency or intensity; Symptoms = symptoms of alcohol/drug abuse or dependence; Problems = alcohol or drug-related problems; Diagnosis = alcohol or drug use disorder diagnosis; Treatment Seeking = likelihood of seeking treatment for alcohol or drug use problems