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Estimates of Alcohol Use and Clinical Treatment Needs Among Homosexually Active Men and Women in the U.S. Population

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Abstract

Concerns about dysfunctional alcohol use among lesbians and gay men are longstanding. The authors examined alcohol use patterns and treatment utilization among adults interviewed in the 1996 National Household Survey on Drug Abuse. Sexually active respondents were classified into 2 groups: those with at least 1 same-gender sexual partner (n = 194) in the year prior to interview and those with only opposite-gender sexual partners (n = 9,714). The authors compared these 2 groups separately by gender. For men, normative alcohol use patterns or morbidity did not differ significantly between the 2 groups. However, homosexually active women reported using alcohol more frequently and in greater amounts and experienced greater alcohol-related morbidity than exclusively heterosexually active women. Findings suggest higher risk for alcohol-related problems among lesbians as compared with other women, perhaps because of a more common pattern of moderate alcohol consumption.

Alcohol abuse and related morbidity are continuing health concerns in the United States (Harwood, Fountain, & Fountain, 1998). Although moderate drinking may confer some protective health benefits, there is no doubt that heavier or dysfunctional patterns of alcohol consumption have adverse health effects (Poikolainen, 1996). Among those individuals thought to be at higher risk for problematic alcohol use are lesbians and gay men (Bux, 1996; Hughes & Wilsnack, 1994; Paul, Stall, & Bloomfield, 1991). This concern emanates from beliefs that social stigma encourages higher rates of problematic alcohol use, that the traditionally safe environment of gay bars fosters excessive drinking in the population, and that there are fewer normative pressures against alcohol consumption in the gay community that act as inhibitors of alcohol abuse (Bux, 1996; Hughes & Wilsnack, 1997; McKirnan & Peterson, 1989; Paul et al., 1991).

In support of these perspectives, early convenience-based surveys of the gay and lesbian population found high-prevalence rates of alcoholism (up to 30%; Fiefield, 1975; Lohrenz, Connely, Coyne, & Spare, 1978). However, samples were commonly small and participants were often recruited from bars frequented by the lesbian and gay community. In later

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alcohol-related studies, recruitment of lesbians and gay men relied on more sophisticated strategies, drawing large convenience-based samples from multiple sources not exclusively dependent on bar-related proximity but, nonetheless, relying heavily on visible gay-community involvement. These researchers, as might be expected, found lower prevalence of alcoholism but also, especially for women, indications of rates exceeding population estimates (Bradford, Ryan, & Rothblum, 1994; Cochran, Bybee, Gage, & Mays, 1996; Knowlton, McCusker, Stoddard, Zapka, & Mayer, 1994; Martin, 1990; McKirnan & Peterson, 1989; Seage et al., 1998).

Across studies, a picture emerged that lesbians and gay men may be more likely than other Americans to consume alcohol regularly and in moderate amounts and may not show normative age-related declines in alcohol consumption (Hughes & Wilsnack, 1994; McKirnan & Peterson, 1989; Skinner, 1994). Despite a lack of findings demonstrating consistently greater than expected rates of heavy alcohol use, most studies did find evidence of greater vulnerability among gay men and lesbians to alcohol-related problems (Bux, 1996; McKirnan & Peterson, 1989; Paul et al., 1991).

Unfortunately, methodological limitations, primarily reliance on convenience-based sampling, may have profoundly distorted findings because of the selection bias inherent in the highly motivated volunteer samples (Cochran & Mays, 2000a, 2000b; Rothman & Greenland, 1998). Population-based studies, which use samples drawn with known selection probability, could provide better estimates, but direct sampling of the lesbian and gay male population is generally precluded by the cost of developing an efficient sampling frame for a hidden, stigmatized group (Herek, Kimmel, Amaro, & Melton, 1991) that is currently estimated as only 2–4% of the U.S. population (Laumann, Gagnon, Michael, & Michaels, 1994). A separate barrier is that large, existing, population-based surveys assessing alcohol-related factors in the general population have not identified respondents' sexual orientation (Kessler et al., 1994; Regier et al., 1993). Indeed, population-based surveys that identify individuals who may differ in sexual orientation are extremely rare. To our knowledge, only two population-based studies of alcohol use in the adult gay community have been reported in the research literature. One study (Stall & Wiley, 1988), of unmarried men aged 25 to 54 years, living in San Francisco census tracts with high AIDS prevalence, found that gay men were no more likely than single heterosexual men to engage in heavy drinking, except gay men aged 45 years and older. No attempt was made in this survey to assess prevalence of alcohol-related morbidity, such as alcohol dependency. A second study (Bloomfield, 1993), of women aged 18 to 50 years, who were recruited by researchers using a randomly selected sample of commercially listed households in San Francisco, found no significant differences between lesbian or bisexual women and heterosexual women in rates of alcohol consumption or in self-labeling as a problem drinker or recovering alcoholic.

These two studies suggest that concerns about excess alcohol-related morbidity among lesbians and gay men may be exaggerated. However, both surveys suffered from relatively low participation rates (59% and 23%, respectively). Currently, it remains unclear whether lesbians and gay men do experience greater alcohol-related morbidity than other Americans.

Despite the relative absence of population-based surveys directly questioning sexual orientation, some national health surveys have measured patterns of sexual behavior, such as gender of sexual partners, that can and have been used as a proxy for sexual orientation (Cochran & Mays, 2000a, 2000b; Faulkner & Cranston, 1998; Herrell et al., 1999). In the field of secondary data analysis, the *term proxy variable* refers to an existing variable in a previously collected data set used to index the actual construct of interest when direct measurement of the construct is not available (Eagly & Wood, 1994). The value of a proxy variable depends on its ability to function reliably and validly as a substitute for the missing variable in the data set. In this instance, evidence of same-gender sexual behavior is used as a proxy for identification as being gay or bisexual. Although same-gender sexual behavior is not a perfect indicator of sexual orientation, evidence suggests that common indicators of sexual orientation, (including attraction, behavior, fantasies, self-identification, and emotional, social, and lifestyle preferences) are highly intercorrelated in the population (Laumann, et al., 1994; Weinrich et al., 1993). In a national household survey of sexual behavior among 3,432 adults (Laumann et al., 1994), self-reports of sexual behavior showed excellent screening sensitivity and specificity for sexual orientation. Nearly all (90%) of the homosexually or bisexually self-identified individuals reported positive lifetime histories of same-gender sexual behavior. Further, 97% of those identified as heterosexual reported having no same-gender sexual partners as an adult. These findings suggest that reports of same-gender sexual behavior can reliably screen for sexual orientation in a general population-based survey. However, because of the relatively rare occurrence of homosexuality in the population, the few heterosexuals misclassified by this procedure may outnumber validly classified lesbians and gay men. For example, in Laumann et al.'s study, 42% of those who reported same-gender sexual partners in adulthood also self-identified as gay, homosexual, or bisexual, but nearly 100% of those who indicated no same-gender sexual partners in adulthood self-identified as heterosexual. Thus, the use of same-gender sexual behavior to classify for sexual orientation in a population-based study appears to err only in the direction of overclassifying some individuals as homosexual or bisexual while capturing nearly all those who would consider themselves homosexual or bisexual. The effect of this misclassification bias would most likely be to bias results toward a finding of no differences between homosexually and heterosexually classified individuals, because whatever true differences there might be would be diluted by the incorrectly classified heterosexual individuals (Rothman & Greenland, 1998).

In the present study, we report findings from the 1996 National Household Survey on Drug Abuse (NHSDA; Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1997). This yearly population-based household survey is used by the Substance Abuse and Mental Health Services Administration (SAMHSA) to collect extensive information on alcohol-and drug-use patterns among the American population for health surveillance purposes. The NHSDA is one of several federal health surveys that function as a data-gathering tool to monitor both health-related risk factors and health status of the population to identify emerging public health trends. In 1996 only, the interviewers also gathered information from respondents concerning the genders of their recent sexual partners to estimate at a population level, patterns of Human Immunodeficiency Virus (HIV) risk-related behaviors. We use this information to classify sexually active persons for

probable sexual orientation in order to examine evidence for excess risk for dysfunctional alcohol-use patterns and alcohol-related morbidity among homosexually active individuals compared with exclusively heterosexually active individuals. Given the population-based design of the NHSDA, our findings can be confidently generalized to the U.S. population in 1996 and provide a means of estimating alcohol-related behaviors and treatment utilization among lesbians and gay men in the United States without the bias associated with a convenience-based sampling design.

Method

Sample and Procedures

The NHSDA is a yearly population-based interview survey of the noninstitutionalized, civilian U.S. population conducted by the SAMHSA, which makes the data available for public use (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1996). The main purpose of the NHSDA is to provide national estimates of the use of legal and illegal drugs by the U.S. population. Each year, the NHSDA interviews a complex, multistage sample of individuals, aged 12 years and older that is drawn from households and noninstitutional group quarters, such as college dormitories. Oversampling of ethnic minorities and younger populations is done to enhance the precision of estimates. Approximately 20,000–25,000 individuals are assessed each year in the home through interviews and self-administered questionnaires. Questions assess recent and lifetime use patterns of alcohol, as well as other common or illicit drugs of abuse, and demographic characteristics. In addition, in the 1996 NHSDA all adults aged 18 years and older were asked to specify the genders of their sexual partners in the prior 12 months as part of an assessment of HIV risk-related behaviors (J. E. Anderson, 1996). Reflecting the careful design and execution of the NHSDA, the response rate for selected households was 79% (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1996). For further information on the methodology used in the NHSDA survey, we refer readers to the summary reports (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1997, 1998).

On the basis of responses to the question about genders of sexual partners, we divided the sexually active adult sample into two groups: those indicating only opposite-gender sexual partners (n = 9,714) and those reporting any same-gender sexual partners (n = 194), approximately two thirds of whom indicated only same-gender partners (n = 135) and the balance (n = 59) indicated partners of both genders. The remainder of respondents (n = 2,479) reported having no sexual partners in the previous 12 months and were dropped from further consideration because of our inability to determine respondents' possible sexual orientation.

Alcohol-Related Measures

Alcohol use—Patterns of alcohol use measured included positive histories of ever having drunk alcohol and of having consumed alcohol in the month and year prior to the NHSDA interview. Respondents also indicated at what age they first consumed alcohol.

Specific patterns of alcohol consumption in the past year were indexed according to two variables: the number of days alcohol was consumed and the number of days the respondent got very high or drunk from drinking alcohol. From this, we coded four variables for alcohol use in the past year: (a) drank an average of once or more per week, (b) drank an average of five or more times per week, (c) got very high or drunk at least three or more days in the last year, and (d) got very high or drunk an average of once per week or more in the last year.

Three additional variables addressed the use of alcohol in the past month: number of days the respondent drank one or more drinks, usual number of drinks per alcohol consuming day, and the number of days in which five or more drinks were consumed at the same time or within a couple of hours of each other. From these results, we used three variables to index patterns of alcohol use in the month prior to the NHSDA interview, including number of drinking days, number of drinks per alcohol consuming day, and number of days in which five or more drinks were consumed at the same time or within a couple of hours of each other. We also used NHSDA definitions of *binge* and *heavy drinking.* The NHSDA codes respondents as having a positive 1 month history of binge drinking if they report 1 to 4 days of drinking five or more drinks per drinking occasion (the equivalent of once a week or less) and of heavy drinking if they indicate 5 or more days of such consumption (more than once a week on average).

Indicators of alcohol dependency—According to fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* criteria (American Psychiatric Association, 1994), a positive diagnosis of alcohol dependency requires the presence of three or more of seven core symptoms, six of which were measured in the 1996 NHSDA. Specifically, respondents were asked if in the year prior to interview they had (a) used alcohol more often or in larger amounts than they intended to; (b) experienced a period lasting at least a month during which they spent a great deal of time getting alcohol, using alcohol, and recovering from its effects; (c) built up a tolerance to alcohol so that it had less of an effect on them; (d) wanted or tried to stop or reduce drinking but were unable to; (e) used alcohol in a way that often kept them from social obligations or recreational activities; (f) experienced emotional, psychological, or physical health problems from drinking. The final core symptom, alcohol withdrawal syndrome, was not assessed. From these six items, the NHSDA (Epstein & Gfroerer, 1995), developed a measure of alcohol dependency syndrome that requires the presence of three or more of the symptoms and additional reports of alcohol consumption on a minimum of 25 days in the year prior to interview. Although this measure does not meet strict diagnostic criteria, Epstein and Gfroerer used it successfully to identify alcohol dependency cases in data from the National Comorbidity Survey (1995).

Alcohol-related treatment—Respondents were asked if they had received treatment for alcohol-related problems in the previous year across a variety of treatment domains including inpatient settings, outpatient settings, and self-help groups. We coded respondents as having received alcohol-related treatment if they answered in the affirmative to any treatment setting.

Data Analysis

Data were analyzed using SUDAAN (Shah, Barnwell, & Bieler, 1996), a software program specifically developed to perform analyses of complex weighted sample designs such as that used in the NHSDA. We report prevalences of alcohol use, indicators of problematic use, criteria met for alcohol dependency syndrome, and treatment for alcohol-related problems. Previous studies have repeatedly shown a robust gender-difference in alcohol use—with men much more likely than women to consume alcohol more frequently and in greater amounts and to experience greater prevalence of alcohol-related disorders (Wilsnack & Wilsnack, 1997). Because of this, we examined alcohol use behavior separately for men and women, using logistic and multiple regression methods as warranted. Several other demographic factors such as age, race, and ethnicity, educational attainment, and income are also known to be related to alcohol use (Helzer, Bumam, & McEvoy, 1991) and may be associated with reporting same-gender sexual partners in large, national, household surveys (Cochran & Mays, 2000a). We treated these factors as possible confounders and, where indicated, statistically adjusted for their possible effects by including them as predictor variables in the regression equations. In addition, we considered current health insurance status a potential confounder for respondents receiving alcohol-related treatment and included insurance status into the regression equations predicting treatment utilization. We estimated adjusted odds ratios by logistic regression equations that included the potentially confounding demographic and, where relevant, insurance status variables. Reported βs were also calculated adjusting for the effects of confounders. All confidence intervals are estimated with 95% certainty to indicate sampling variability. Significance tests are based on the criterion of $p < .05$. All ps reported are from analyses controlling for the demographic characteristics described above, taking into account the complex sampling structure of the NHSDA.

Results

Demographic Differences

Among Americans who were sexually active in 1996, results from this study indicate approximately 2% (Confidence interval [CI] = 1.2–2.1%) had at least one same-gender sexual partner in the previous year. Overall, women (1%, CI = 0.9–1.8%) appeared just as likely as men (2%, CI = 1.3–2.6%) to be homosexually active during this time period (adjusted odds ratio [OR] = 1.43, CI: 0.96–2.08). In addition, homosexually active men in 1996 did not appear to differ appreciably from exclusively heterosexually active men in age ($p = .07$), level of education ($p = .06$), income ($p = .69$), or ethnic or racial background ($p = .69$; see Table 1). Similarly, we found no evidence that homosexually active women differed significantly from exclusively heterosexually active women in age ($p = .75$), level of education ($p = .28$), income ($p = .26$), or ethnic or racial background ($p = .91$). Estimates derived from the NHSDA for sexually active Americans in this time period further suggest that current health insurance status did not differ significantly between homosexually active and exclusively heterosexually active men or between homosexually active and exclusively heterosexually active women, regardless of whether adjustments were made for possible demographic confounding.

Patterns of Alcohol Use

Among men—We estimate that nearly all American men who were sexually active in 1996 had consumed alcohol at some time in their lives and more than two thirds of these men had imbibed alcohol within the month prior to the study (see Table 2). Homosexually active men did not differ significantly from exclusively heterosexually active men in prevalence of alcohol use, both in terms of amount and frequency of consumption and indicators of problematic use.

Among women—Similar to men, American women who were sexually active in 1996 also appear very likely to have consumed alcohol at some time in their lives (see Table 2). Consistent with other surveys documenting robust gender differences in alcohol use (Helzer et al., 1991), however, estimates from the 1996 NHSDA of alcohol use by sexually active American women show lower rates of prevalent use than those seen in sexually active men. Comparing women's and men's patterns of use, irrespective of behavioral sexual orientation, women were significantly less likely than men to have consumed alcohol in the past month (adjusted OR = 0.56, CI = 0.49–0.64), in the past year (adjusted OR = 0.70, CI = 0.58–0.83), or ever (adjusted OR = 0.50, CI = 0.38–0.62); and they first drank alcohol at an older age ($\beta = 1.74$, $SE = 0.16$). Women who were sexually active in 1996, regardless of behavioral sexual orientation, were also less likely to have drunk "routinely" in the previous 12 months, whether routinely is viewed as drinking once a week or more on average (adjusted OR = 0.38, CI = 0.32–0.45) or nearly every day (adjusted OR = 0.33, CI = 0.25–0.44). They were also less likely to have gotten very high or drunk, whether in terms of occurrence (3 or more times in the prior year; adjusted OR = 0.39, CI = 0.34–0.45) or severity (an average of once a week or more; adjusted OR = 0.27, CI = 0.20–0.37). Finally, American women who were sexually active when compared with sexually active men, appeared to have drunk alcohol on fewer days in the month prior to the survey ($\beta = -2.51$, $SE = 0.24$) and, when they did drink, they consumed fewer drinks on average ($\beta = -1.15$, $SE = 0.07$), they less often consumed five or more drinks within a short period of time ($\beta = -1.41$, $SE = 0.11$), and they were less likely to engage in binge (adjusted OR = 0.31, CI = 0.26–0.38) or heavy drinking (adjusted OR = 0.22, CI = 0.17–0.29).

In contrast to what we observed among men, we estimate that homosexually active women were more likely than exclusively heterosexually active women to consume alcohol, did so more frequently, and in larger amounts (see Table 2). These women also began drinking at a younger age than women who reported opposite-gender sexual partners only in the prior year ($\beta = -1.86$, $SE = 0.66$). Specifically, women who were homosexually active within the prior year were more likely than exclusively heterosexually active women to have consumed alcohol in the past month (adjusted OR = 2.90, CI = 1.18–7.10), in the past year (adjusted OR = 3.53, CI = 1.36–9.21), or ever (adjusted OR = 3.64, CI = 1.20–11.05). They were also more likely to have commonly drunk alcohol in the past year, whether indexed as having done so once a week or more often on average (adjusted OR = 3.06, CI = 1.59–5.89) or nearly every day (adjusted OR = 5.15, CI = 1.87–14.21), and they were more likely to have been very high or drunk, whether considered as three or more times in the prior year (adjusted OR = 2.27, CI = 1.13–4.54) or an average of once or more per week (adjusted OR = 4.00, CI = 1.85–9.09). Similarly, homosexually active women, compared with exclusively

heterosexually active women, appeared to have a higher prevalence of recent alcohol consumption, including drinking on more days in the previous month ($\beta = 3.17$, $SE = 1.18$), consuming more drinks per drinking occasion ($\beta = 0.87$, $SE = 0.33$), drinking large amounts more frequently ($\beta = 1.35$, $SE = 0.61$), and engaging in heavy drinking (adjusted OR = 2.52, CI = 1.18–5.37).

Indicators of Problematic Alcohol Use

Among men—As would be expected from the similar patterns of alcohol use estimated for American men who were sexually active in 1996, regardless of the genders of their sexual partners in the previous year, there were no significant differences observed in estimates of alcohol dependency syndrome for homosexually active men (11%, CI = 2.7–18.5) or for men who were exclusively heterosexually active (8%, CI = 6.3–8.8; adjusted OR = 1.43, CI = 0.59–3.51). We also estimate similar 1-year prevalences of receiving treatment for alcohol-related problems for both homosexually active men (6%, CI = 0.8–10.9) and exclusively heterosexually active men (3%, CI = 2.3–3.6) during this time (adjusted OR = 1.96, CI = 0.83–4.62).

Among women—Consistent with their higher alcohol use patterns, homosexually active women also appeared to experience greater 1-year morbidity from alcohol use than other sexually active women (see Table 3). Specifically, we estimate homosexually active women were significantly more likely than exclusively heterosexually active women to evidence each of six individual symptoms of alcohol dependency and were more likely to meet criteria for alcohol dependency syndrome, after we adjusted for demographic factors. Approximately 4% of women meeting criteria for alcohol dependency syndrome (CI = 1.1–7.1%) were homosexually active. Overall, homosexually active women were more likely than heterosexually active women to have received treatment in the previous year for alcohol-related problems, after we adjusted for demographic characteristics and health insurance status. We estimate that in the year prior to the survey, nearly 5% (CI = 1.3–8.0%) of all American women who received treatment for alcohol-related problems were also homosexually active.

Discussion

Worries that the prevalence of alcohol abuse and dependency is greater within the gay and lesbian communities than it is among Americans in general have been fueled by two somewhat separate concerns. On the one hand, it has long been thought that several social factors may encourage dysfunctional alcohol consumption among lesbians and gay men (Bux, 1996; Hughes & Wilsnack, 21994; McKiman & Peterson, 1989; Paul et al., 1991). These include speculations about differential norms surrounding alcohol use in the lesbian and gay male community and the psychological toll arising from the social stigma surrounding homosexuality. When early surveys (Fiefield, 1975; Lohrenz et al., 1978) found high rates of alcoholism among lesbian and gay male communities, it was seen as support for these expectations. Over the years, researchers have repeatedly revisited the question of how widely prevalent dysfunctional alcohol use is in the gay community with increasing methodological sophistication but less definitive results (Bloomfield, 1993; McKiman &

Peterson, 1989; Skinner, 1994; Stall & Wiley, 1988). More recently, a second concern related to alcohol use has emerged from studies establishing that HIV-related sexual risk taking among gay men is more likely when excessive alcohol consumption co-occurs with sexual activity (Knowlton et al., 1994; Seage et al., 1998; Stall, McKusick, Wiley, Coates, & Ostrow, 1986). In this context, if a widespread dysfunctional pattern of alcohol consumption is common among gay men it represents a significant public health threat not only from direct alcohol-related morbidity but also collaterally through higher HIV infection rates.

One of the persistent difficulties in this body of research is that nearly all samples have been drawn from individuals who participate in some way in gay community activities. No matter how large the sample, the effect of this recruitment approach is to attract respondents who tend to be male, highly educated, and White, unless specific strategies target other groups (Cochran et al., 1996; Rankow & Tessaro, 1998; Solarz, 1999). For example, McKiman and Peterson (1989) surveyed 3,400 lesbians and gay men in the Chicago area, who were recruited by several well-designed, convenience-based approaches, creating a sample that was nonetheless 78% male, averaging 34 years of age, with over 60% possessing a college degree, and 88% of White ethnic or racial background. These demographic characteristics are all known correlates of more frequent alcohol use (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1997). Because there is no equivalent set of strategies for recruiting heterosexual controls, studies typically have few means of comparison with nongay samples. Some researchers (Cochran et al., 1996; McKiman & Peterson, 1989; Skinner, 1994) have included contrasting study findings to population-based estimates, but statistical control for demographic differences has been marginally done at best. The effect of inadequate control for the demographic bias introduced by convenience-based sampling may lead to overestimation of the extent of alcohol abuse and dependency among lesbians and gay men.

In this regard, it is interesting to note that in the 1996 NHSDA, unlike in many convenience-based samples, homosexually active men and women differed little in their demographic characteristics from exclusively heterosexually active men and women. The lack of strong personal demographic correlates with homosexuality is similar to findings from Laumann et al. (1994). In that population-based survey, the prevalence of homosexuality only among women, but not men, seemed clustered among respondents under 40 years of age, and homosexuality was increasingly more common among women reporting higher levels of education. However, no differences were reported in income or racial and ethnic backgrounds. Although the failure in the present study to observe statistically significant sex differences in prevalence of recent homosexually identifiable behavior is at odds with some other population-based surveys (Laumann et al., 1994; Sell, Wells, & Wypij, 1995), sex differences in homosexuality prevalence are not invariably observed in population-based surveys (Cochran & Mays, in press), and women in the 1996 NHSDA still tended ($p = .06$) to be less likely to report same-gender sexual partners than men. What does seem to be true about studies of homosexuality in the context of population-based sampling designs, particularly when the survey topic is not sexuality or HIV-related issues that might affect respondent participation rates, is the diminution of the demographic skewing seen commonly in convenience-based samples.

It is also notable that the two previously reported population-based studies of adults that examined the association between sexual orientation and alcohol use (Bloomfield, 1993; Stall & Wiley, 1988) failed to find substantial differences between homosexual and heterosexual men and women in alcohol use patterns or self-reports of problematic drinking. Further, a recent prospective cohort study (Fergusson, Horwood, & Beautrais, 1999) of individuals in New Zealand, assessed from age 14 to 21, found that those who could be classified as lesbian, gay, or bisexual at the age of 21 (when they were first asked questions about their sexual behavior) showed only a trend ($p = .09$) toward greater prevalence of a history of drug and alcohol abuse compared with their heterosexual peers. All three studies avoided common sampling problems that permeate research in this area. Our results, too, suggest that patterns of alcohol use, both normative and problematic, among homosexually active men may not differ appreciably from those of other sexually active men. However, we did not observe the same patterns for women. Instead, our findings consistently indicate that homosexually active women are more likely than exclusively heterosexually active women to consume alcohol, to do so in larger amounts, and to experience greater prevalence of alcohol-related morbidity. Although our results differ from those of a researcher's random sample of women in the San Francisco area in which no statistical differences were observed between heterosexual women and lesbians (Bloomfield, 1993), the extremely low response rate in the earlier survey may have biased the findings in unknown ways. Given the methodological strengths of the NHSDA survey, we are confident that the differences we observed are consistent with alcohol-use patterns among sexually active women in the United States in 1996.

As in previous studies (Bux, 1996; McKiman & Peterson, 1989), we found patterns of alcohol use among homosexually active women similar to those of men. Similar to men, homosexually active women appear to experience higher rates of alcohol dependency and of treatment for alcohol problems than other women experience. The reasons for the greater morbidity may be related to social factors that have been previously identified, such as chronic stress from discrimination (Bux, 1996; Cochran & Mays, 1994; Hughes & Wilsnack, 1994; Paul et al., 1991). From another perspective, continuity models of alcohol consumption emphasize that populations with higher mean intake of alcohol will experience greater prevalence of alcohol-related morbidity, because more individuals are placed at risk for developing disorders (Kreitman, 1986; Rose, 1989). Therefore, lesbians may be at greater risk for alcohol-related disorders simply because they are more likely than other women to consume alcohol routinely and in moderation.

We estimate from the 1996 NHSDA that 5% of American women who entered treatment for alcohol problems in 1996 were lesbian or bisexual women. Their overrepresentation among women in treatment has important implications for delivery of care. Prior research suggests that lesbians entering treatment for alcohol abuse bring with them somewhat different treatment needs than heterosexual women, specifically in relation to confidentiality issues, differential life stressors, and alternative family structures (S. C. Anderson, 1996; Cabaj, 1996; Mays, Beckman, Oranchak, & Harper, 1994). This is paired with obstacles to receiving competent care, including bias against homosexual clients from both providers and other individuals in treatment (Cabaj, 1996; Mays et al., 1994). Indeed, it has been observed

that many lesbians do not disclose their sexual orientation within the treatment environment, although issues related to living one's life as a lesbian are often salient (Cabaj, 1996; Cochran & Mays, 1988; Finnegan & Cook, 1984; MacEwan, 1994). To what extent this is detrimental to outcomes is unknown empirically, but our estimates suggest that the problem may be fairly common in alcohol-treatment settings.

In interpreting our findings, several issues are relevant and reflect the current state-of-the-art of research in the area. First, because of the small number of individuals in the NHSDA reporting same-gender sexual partners, there is relatively low power to detect statistically significant differences. It is possible, therefore, that with a larger sample we might have detected differences between homosexually active and heterosexually active men, for example.

Second, one of the shortcomings of the present study is that sexual orientation was not measured directly. Rather, we relied on a behavioral proxy, the genders of NHSDA respondents' sexual partners in the prior year, to identify those who are presumably lesbians and gay men, as others have done in conducting similar research (Faulkner & Cranston, 1998; Herrell et al., 1999). Although sexual behavior is not a perfect correlate of sexual orientation, prior population-based research (Laumann et al., 1994), found that about two thirds of individuals who reported having same-gender sexual partners in the previous year also identified themselves as lesbian, gay, or bisexual, and nearly all individuals who reported having no recent same-gender sexual partners identified themselves as heterosexual. On the basis of this, we expect that the majority of individuals in the NHSDA who indicated having same-gender sexual partners also would identify their sexual orientation as gay or bisexual. Misclassification bias of a small number of heterosexual respondents as lesbian or gay would tend to bias our results toward finding no differences between the two unless alcohol-use patterns were confounded with the reason for misclassification. To our knowledge, the question of whether heterosexually identified individuals who engage in same-gender sexual behavior differ in their patterns of alcohol consumption from other heterosexuals has not been noted in the extensive research literature on HIV risk. This allays concerns that we have missed a serious problem in differential misclassification (Rothman & Greenland, 1998). Alternatively, we could have considered reports of having a recent same-gender sexual partner as measurement of only one of the multiple dimensions of homosexuality, as opposed to being a proxy or marker for sexual orientation. In the present study, we chose not to do so for two reasons. First, the research literature suggesting that alcohol-related morbidity is more prevalent in the gay community considers sexual orientation, and not the occurrence of sex with a same-gender partner, as the predisposing risk factor (Abbott, 1998; Bux, 1996; Cabaj, 1996; Hughes & Wilsnack, 1997; Roberts & Sorensen, 1999; Skinner & Otis, 1996). Second, despite the diversity of patterns of sexual attraction, desire, behavior, and the extent of self-identification as lesbian or gay within the gay community (Gonsiorek, Sell, & Weinrich, 1995; Laumann et al., 1994; Morris & Rothblum, 1999; Sell, 1997), when viewed from a population-based perspective, the great majority of Americans report an extremely high degree of consistency among the various dimensions of sexual orientation. For example, in Laumann, Gagnon, Michael, and Michaels's (1992) original survey, 96% of respondents, chosen to be representative of the U.S. adult population, reported consistent patterns of same-sex attraction, identity, and

sexual partner gender in the year prior to being interviewed (all three dimensions were present or all three were absent), although only 67% of the 61 individuals who reported a same-gender sexual partner in the year prior to interview also identified themselves as lesbian, gay, or bisexual (unpublished data from the National Health and Social Life Survey; Laumann et al., 1992). Thus, despite any imprecision engendered by researchers using same-gender sexual behavior as a marker for sexual orientation among the subpopulation of lesbians and gay men, overall this measure has a high degree of reliability and validity, the characteristics essential for proxy variables (Eagly & Wood, 1994).

Third, our estimates of alcohol use among homosexually active men and women are probably biased upward to some extent, because in the 1996 NHSDA individuals who reported having no sexual partners in the year prior to interview were also the least likely to report alcohol use (Office of Applied Studies, Substance Abuse and Mental Health Services Administration, 1998), and we dropped these respondents from the study. It may be that the prevalence of alcohol-related behaviors when both sexually active and sexually inactive lesbians and gay men are considered is lower than we report here. However, this estimation concern does not affect our comparisons between homosexually and heterosexually active individuals, because the association between alcohol and sexual activity is presumably the same for these two groups.

Finally, given the lack of prior population-based research on questions related to homosexuality, the sources and effects of bias in this area are not well understood (Cochran & Mays, 2000a). For example, willingness to disclose socially stigmatized sexual behavior may or may not be correlated with similar willingness to disclose socially stigmatized alcohol-related behaviors. All of these concerns arise from the current limitations of health-related population-based studies routinely conducted in the United States. Questions assessing sexual orientation are not asked in these surveys (Solarz, 1999), nor are attempts made to oversample lesbians and gay men in greater numbers to improve power.

At the same time, the results of the present study, as well as of others (Bloomfield, 1993; Fergusson et al., 1999; Stall & Wiley, 1988), challenge the notion that the prevalence of alcohol abuse and dependency is universally higher in the lesbian and gay male community. To a great extent, social and clinical science research on gay men in the 1990s has been characterized by a focus on psychopathology, with less interest in understanding how these men, despite widely prevalent social stigma associated with sexual orientation and the threat of HIV disease, exhibit a resiliency that helps them cope positively with life circumstances. Further, although lesbians may face more challenges than other women when it comes to difficulties with alcohol use, the prevalence of morbidity indicators we observed is still far lower than in previous reports (Bux, 1996; Hughes & Wilsnack, 1997; McKiman & Peterson, 1989; Skinner, 1994). In the last two decades, much of the research on lesbian and gay mental health has been driven by (a) the fight to prove, on one hand, that stereotypes of high rates of psychopathology among homosexuals were wrong or (b) to argue, on the other hand, that widespread mental health needs in the lesbian and gay male community are being overlooked by psychologists. Both of these perspectives may fail to capture the true mental health needs in this population and underscore the inherent difficulties in research in this arena (Bailey, 1999). Nevertheless, our findings and those reported elsewhere (Cochran &

Mays, 2000a, 2000b; Faulkner & Cranston, 1998; Herrell et al., 1999) increasingly indicate that patterns of psychopathology and treatment utilization among lesbians and gay men probably do differ in some important ways from those of other women and men. This has serious implications for the provision of adequate clinical treatment services to this population that is free of bias and culturally appropriate to the needs of lesbians and gay men seeking care.

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Table 1

Demographic Characteristics of Sexually Active Americans, Aged 18 Years and Older

	Men		Women	
Characteristic	**Any male sex partner**	**Female sex partners only**	**Any female sex partner**	**Male sex partners only**
Age (%)				
18 to 25 years	21.7	17.1	20.6	17.4
26 to 34 years	38.9	25.5	28.4	25.7
35 or older	39.4	57.5	51.0	56.9
Level of education (%)				
Less than 12 years	7.7	15.6	25.3	15.2
High school degree	22.4	32.6	29.0	34.3
Some college	28.2	23.7	16.8	25.4
College degree	41.8	28.1	28.8	25.1
Annual personal income (%)				
Less than $20,000	34.5	33.7	64.5	67.7
$20,000 or more	65.5	66.3	35.5	32.3
Ethnic or racial background (%)				
White, not Hispanic	73.3	74.3	69.2	76.2
Black, not Hispanic	10.4	10.9	12.1	10.8
Hispanic	6.9	11.0	14.5	9.4
Other	9.4	3.7	4.2	3.6
Health insurance (%)				
Has coverage	80.8	80.3	77.8	83.6
No coverage	19.2	19.7	22.2	16.4

Note. Weighted percentages estimated from the 1996 National Household Survey on Drag Abuse (NHSDA) separately by gender and genders of recent sex partners. Percentages sum to 100% except for rounding error. Actual sample size in the 1996 NHSDA included 98 men reporting at least 1 male sex partner in the prior year, 3,922 men reporting only female sex partners, 96 homosexually active women, and 5,792 exclusively heterosexually active women.

Table 2

Patterns of Alcohol Use Among Sexually Active Americans

	Men						Women					
	Any male sex partners			Female sex partners only			Any female sex partners			Male sex partners only		
Alcohol use patterns	***M***	**%**	***SE***	***M***	**%**	***SE***	***M***	**%**	***SE***	***M***	**%**	***SE***
Has used alcohol (%)												
Ever		96.2	2.8		94.7	0.6		96.1*	2.0		89.0	0.8
In past year		81.2	6.7		81.3	1.1		89.1*	3.9		72.8	1.1
In past month		68.2	8.6		69.7	1.2		74.6*	7.2		53.6	1.3
Mean age first drank alcohol	16.5		0.8	16.1		0.1	16.1*		0.5	17.8		0.1
Alcohol use in past year (%)												
Drinks once or more per week		26.7	5.8		25.4	1.1		22.0*	5.6		12.8	0.8
Drinks average of 5–7 days/week		18.4	6.5		11.5	0.8		14.3*	6.0		3.9	0.6
Very high or drunk 3 or more days		43.3	8.0		33.3	1.3		30.3*	6.8		16.6	0.9
Very high or drunk average of once per week or more		10.4	4.3		7.5	0.6		8.4*	3.0		2.3	0.4
Alcohol use in past month												
Mean no. of drinking days	7.3		1.4	5.6		0.2	5.9*		1.3	2.8		0.1
Mean no. of drinks per drinking day	2.2		0.5	2.4		0.1	2.1*		0.4	1.2		0.0
Mean no. of days drank 5+ drinks in short time frame	1.9		0.6	1.9		0.1	1.9*		0.6	0.4		0.0
Binge drinking (%)		32.9	7.3		30.6	1.2		19.4	4.9		11.7	0.7
Heavy drinking (%)		12.1	4.6		11.5	0.7		7.0*	2.4		2.7	0.3

Note. Means, weighted percentages, and standard errors estimated from the 1996 National Household Survey on Drug Abuse separately by gender and reported gender of sex partners in the prior year. Unweighted sample size = 98 men and 96 women reporting any same-gender sex partner in prior year, and 3,922 men and 5,792 women reporting only opposite-gender sex partners. Statistical significance evaluated separately by gender, adjusting for age, race or ethnicity, education level, and income.

* $P < .05$.

Table 3

One-Year Prevalence of Alcohol Dependency Syndrome and Alcohol-Related Treatment Among Sexually Active American Women

	1 year prevalence					
	Any female sex partners		Male sex partners only		Adjusted logistic regression odds ratio[a]	
Alcohol factors	**%**	***SE***	**%**	***SE***	**OR**	**95% CI**
Dependency symptoms						
Used alcohol more often or in larger amounts than intended	14.7	4.8	6.5	0.6	2.37	1.04–5.40*
Spent month or more using or recovering from alcohol use a great deal of the time	15.8	4.4	5.5	0.5	3.19	1.62–6.29*
Tolerance developed	9.7	2.6	4.2	0.4	2.34	1.23–4.46*
Desired to cut down, could not	9.1	3.2	3.0	0.3	3.12	1.40–6.97*
Use impaired important activities	6.1	2.4	1.5	0.2	4.04	1.64–9.92*
Alcohol use caused:						
Emotional problems	7.5	2.4	2.1	0.2	3.57	1.66–7.69*
Health problems	2.0	1.4	1.0	0.1	1.82	0.39–8.47
Alcohol dependency syndrome	7.0	2.6	2.2	0.2	3.16	1.32–7.57*
Received alcohol-related treatment	4.3	2.0	1.2	0.3	3.74	1.41–9.95*

Note. Weighted percentages and standard errors estimated from the 1996 National Household Survey on Drug Abuse (NHSDA) by reported gender of sex partners in the prior year. Unweighted sample size in the 1996 NHSDA included 96 homosexually active women and 5,792 exclusively heterosexually active women. OR = odds ratios; CI = confidence interval.

[a]Referent category is reporting male sex partners only. Odds ratios adjusted for age, race or ethnicity, level of education, and personal income. For treatment use only, odds ratios were also adjusted for current health insurance status.

*$p < .05$.