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Drinking Patterns, Problems, and Motivations Among Collegiate Bisexual Women

Dr Wendy B. Bostwick, PhD, MPH,
Director of community engagement at the Adler School of Professional Psychology, Chicago, IL

Dr Sean Esteban McCabe, PhD, MSW,
Research associate professor with the Substance Abuse Research Center, University of Michigan, Ann Arbor, MI

Dr Stacey Horn, PhD,
College of Education at the University of Illinois at Chicago (UIC)

Dr Tonda Hughes, PhD, RN, FAAN,
College of Nursing at UIC

Dr Timothy Johnson, PhD, and
Survey Research Laboratory at UIC

Dr Jesus Ramirez Valles, PhD, MPH
School of Public Health at UIC

Abstract

Objective and Participants—The authors compared the drinking behaviors, motivations, and problems of collegiate bisexual women with those of heterosexual women (N = 2,788; n = 86 bisexual women).

Methods—Data came from the 2003 Student Life Survey, a random population-based survey at a large midwestern university. The authors explored the hypothesis that bisexual women would be more likely than heterosexual women to report drinking motivations related to stress and coping as a result of sexual identity stigma.

Results—They found that bisexual women drank significantly less than did heterosexual women. There were few differences between the 2 groups in drinking motivations and problems. Bisexual women reported a comparable number of problems related to their drinking but were significantly more likely to report contemplating suicide after drinking than were heterosexual women.

Conclusions—More research is needed to understand the finding that despite lower levels of alcohol consumption, bisexual women reported a comparable number of drinking problems. College health educators and health care providers need to be aware of findings related to heightened suicidal risk among bisexual women.

Keywords

bisexual women; college health; drinking motivations; drinking problems

For comments and further information, address correspondence to Dr Wendy Bostwick, Director of Community Engagement, Adler School of Professional Psychology, 65 East Wacker Place, Suite 2100, Chicago, IL 60601, USA (wbostwick@adler.edu).

The public health and personal costs associated with substance abuse among college students are well documented.[1,2] Although epidemiologic information is necessary and important to confronting the problem of collegiate substance abuse, so too is knowledge about the motivating forces that contribute to use and abuse. In particular, understanding the reasons why college students consume alcohol—their drinking motivations—can assist in the design of effective prevention and intervention strategies on college campuses.

Drinking motivations, according to Baer,[3] are indicators of "the need or psychological function that alcohol consumption fulfills."(p45) Such motives include, for example, coping, conformity, social factors, and mood enhancement.[4,5] Researchers studying college students have found that motivations related to stress reduction and coping appear to be associated with greater alcohol consumption and alcohol-related problems.[6,7] Although numerous investigators have explored college students' drinking motives, few have examined differences in motivations on the basis of sexual orientation.

The exploration of drinking motives among lesbian, gay, and bisexual (LGB) students is important in light of findings suggesting that heavy drinking and drinking-related problems vary on the basis of sexual orientation.[8–10] Furthermore, stress- and coping-related drinking motivations may be particularly salient among sexual minority groups because they may drink to cope with the stigma and stress that accompanies their sexual identity.[11–13] Sexual identity stigma, either independently or in combination with other factors, may act as a stressor. In turn, this stress may result in a variety of health problems and lead to health disparities in LGB populations, particularly disparities related to substance use and mental health behaviors and outcomes.[14–19]

Although research related to substance use among LGB college students is still relatively uncommon, study findings to date suggest that sexual minority college students are more likely than heterosexual peers to drink or drink heavily[8–10] or to experience more negative outcomes associated with alcohol use.[20,21] This pattern is particularly evident among sexual minority women. For example, using a behavioral definition of sexual orientation (ie, one based on the gender of sexual partners), Eisenberg and Wechsler[10] found that bisexual college women were more likely than were heterosexual college women to report heavy episodic drinking. In contrast, they found no difference between heterosexual women and women who reported sexual activity only with other women.

These findings are similar to those of McCabe et al,[9] who found that behaviorally bisexual college women were significantly more likely than were their heterosexual counterparts to report past 2-week heavy episodic drinking. However, in analyses based on sexual identity (ie, how respondents self-labeled their sexual identity), the researchers found no significant differences between either lesbian or bisexual college women and their heterosexual peers.

In another study, McCabe et al[21] found that although drinking behaviors were not significantly different, bisexual-identified college women were more likely than were heterosexual women to report both primary and secondary substance-use consequences in the previous year. For example, bisexual women were more likely to report negative consequences, such as driving while intoxicated, being afraid they were alcoholic, or contemplating suicide after drinking.

In one of the few longitudinal studies of LGB college students, DeBord et al[8] explored substance use and psychological status. Using an attraction-based definition of sexual orientation (ie, to whom the respondent was attracted) they found that sexual minority participants were not more psychologically distressed; however, for some years of analysis, the relationship between distress and alcohol dependence was stronger for sexual minority

students. The authors suggested that "GLB students may consider alcohol a more acceptable way to mitigate the effects of distress than do heterosexual students."[8(p166)]

In the present study, we examined drinking patterns, motivations, and problems among women who identify as bisexual. We tested whether bisexual women (1) drank more than did heterosexual women, (2) were more likely to report drinking motivations related to stress and coping, and (3) had more problems related to their drinking. We hypothesized that the stress of sexual identity stigma would result in heightened drinking-to-cope behaviors and, in turn, more drinking-related problems among bisexual women.

The focus on bisexual women is necessitated by the dearth of information about this sexual minority group. This focus takes on particular relevance in the face of growing evidence that more women are identifying as bisexual[22] and that, as a group, bisexual women may have more severe outcomes related to substance use.[21,23–25]

METHODS

Data Collection

Data for this study are from the 2003 Student Life Survey (SLS). We developed the SLS to assess the substance use behaviors and attitudes of undergraduate students at a large midwestern university. We drew substance use measures mainly from 3 sources: the Monitoring the Future Study,[26] CORE Survey,[27] and the College Alcohol Study.[28] All measures have been widely tested and validated among college populations.

We conducted this Web-based study between March and April 2003. Using a list of full-time undergraduates obtained from the registrar's office, we sent 21,294 students (10,775 women) an e-mail describing the purpose of the study and inviting them to participate. We assured students that all responses were confidential and that none of the information they provided would be shared with university staff or officials, other than those directly involved in the study. The institutional review board at the host university approved the study protocol, and we obtained consent from all participants. The final response rate for women was 53%, a rate comparable to other studies of collegiate substance use.[28]

Study Measures

We assessed sexual identity on the basis of responses to the following question: "How do you define your sexual identity? Would you say that you are (1) only homosexual/lesbian/gay, (2) mostly homosexual/lesbian/gay, (3) bisexual, (4) mostly heterosexual, (5) only heterosexual, (6) Other (specify)." Women who answered "bisexual" comprised the main group under investigation.

To better isolate the potential effects of having a stigmatized identity and to control for threats to validity,[29] we included 2 comparison groups. We selected both of these groups on the basis of an "only heterosexual" identity; however, 1 group included heterosexually identified women who reported any lifetime same-sex sexual behavior, whereas the other included women who reported only opposite-sex sexual behavior (referred to henceforth simply as *heterosexual*). We assessed lifetime sexual behavior from responses to the following question: "With whom have you had sex in your lifetime?" (1 = *not sexually active*, 2 = *opposite sex*, 3 = *same sex*, 4 = *both sexes*, 5 = *refused*).

We assessed frequency and quantity of alcohol use as well as frequency of heavy episodic drinking. Only women who reported drinking in past 12 months answered these questions. We determined frequency of consumption in the past year from the following question: "On how many occasions (if any) have you had alcohol to drink—more than just a few sips…in

the past year?" Response options included (1) *never had alcohol*, (2) *1–2 occasions*, (3) *3–5 occasions*, (4) *6–9 occasions*, (5) *10–19 occasions*, (6) *20–39 occasions*, (7) *40+ occasions*, and (8) *refused*.

The following question assessed average quantity of alcohol consumption: "What is the average number of drinks you consume a week?" This was an open-ended question, and respondents entered the number of drinks in a text box. We calculated *z* scores to identify potential outliers. Replacing outliers with the highest nonoutlying value did not significantly change the sample mean, so we did not drop any outlying values.

We assessed heavy episodic drinking by asking: "Over the past two weeks, how many occasions have you had four or more drinks in a row?"[30] Possible responses included (1) *none*, (2) *once*, (3) *twice*, (4) *3–5 times*, (5) *6–9 times*, (6) *10 or more times*, and (7) *refused*. To minimize the skewness of the distribution, we combined *once* and *twice* responses, and *6–9 times* and *10 or more times*.

Respondents chose from a list of 18 options their most important reasons for drinking. Stress and coping-related motivations included *drinking to relax or relieve tension* and *drinking to get away from problems or troubles*. Examples of other reasons on the checklist were *to have a good time with my friends*, *to get drunk*, *to fit in with a group I like*, *boredom/ nothing else to do*, and *to celebrate at ceremonial occasions*.

We asked participants a series of questions about problems that they had had in the past year as a result of their drinking. We designed the items on the basis of measures from the College Alcohol Study[28] and grouped them according to the following domains: academic, legal, personal, and social problems. We also created a single "problems" measure. We dichotomized items into an "any/none" measure for past-year problems, so that any occasion equaled 1 and no occasions equaled 0. We then summed all responses into a single variable with a response range of 0 to 22.

We also assessed responses to questions on a modified version of the CAGE, a commonly used alcohol-abuse screening tool.[31,32] The CAGE includes 4 questions that ask whether the respondent has felt the need to **C**ut down on their drinking, been **A**nnoyed by people criticizing their drinking, felt **G**uilt or remorse after drinking, or had a drink first thing in the morning as an "**E**ye-opener." A participant's affirmation of at least 2 CAGE items is considered a positive screening for potential alcohol abuse. Response options for all alcohol problems were 1 (*never*), 2 (*1–2 occasions*), 3 (*3–5 occasions*), 4 (*6–9 occasions*), 5 (*10+ occasions*), and 6 (*refused*).

Staff members at the registrar's office provided information about class year and racial/ ethnic identity. In addition to the white, African American, Hispanic, and Asian categories, we collapsed Native Americans, those who chose "other," and those for whom there was no race reported into the "other" category. Students self-reported parental income.

RESULTS

The study sample was predominantly white (73%), and more than one-third were seniors (36%). Almost half of the sample (44%) reported an annual parental income of more than $100,000, although 16% refused to answer the question. Eighty-six (3%) of the women in the sample identified as bisexual. Chi-square tests of association revealed that bisexual women were less likely than were women in the comparison groups to be white. The 3 groups did not differ significantly on parental income or class year.

Table 1 presents information on past-year drinking frequency and past 2-week heavy episodic drinking for the 3 groups. Past-year drinking differed only at the greatest level of consumption: 41% of heterosexual women with same-sex behavior reported drinking alcohol on 40 or more occasions in the past year, compared with 22% of bisexual women and 34% of exclusively heterosexual women $\chi^2(2, N = 2,689) = 6.37$, $p = .04$. Bisexual women were significantly more likely to report no heavy episodic drinking in the past 2 weeks than were exclusively heterosexual women. Nearly 50% of bisexual women, compared with 26% of heterosexual women with same-sex behavior and 37% of exclusively heterosexual women ($\chi^2[2, N = 2,618] = 7.44$ $p = .02$), reported no episodes of drinking 4 or more drinks per occasion.

The average weekly alcohol consumption for bisexual women was 2.2 ($SD = 3.1$) drinks, compared with 3.6 ($SD = 4.0$) and 4.2 ($SD = 5.4$) drinks for heterosexual women with same-sex behavior and heterosexual women, respectively. A Bonferroni post hoc test revealed significantly lower average weekly alcohol consumption for bisexual women compared with heterosexual women ($p = .005$).

Table 2 presents frequencies of drinking motivations for the 3 groups. There were no statistically significant differences across groups on either the “drinking to relax” motivation or the “drinking to get away from problems” motivation. The groups differed significantly on 4 of the 18 motivations. Bisexual women more frequently reported drinking to facilitate sexual opportunities, drinking because they liked the taste, and drinking to make it easier to talk to members of the same sex than did either heterosexual group. In addition, bisexual women also were more likely than either heterosexual group to choose “other” as a reason for drinking; reasons specified included “to learn about wines (ie, wine tasting),” “complements meals,” “loosens me up for dancing,” and “because I like it.” There did not appear to be a unifying theme among the 10 reasons specified by those women who chose “other.”

Table 3 shows information on the frequencies of drinking problems for each of the 3 groups. Chi-square statistics revealed that the groups differed on only 3 drinking problems. Bisexual women were less likely than were both heterosexual groups to report being hurt or injured after drinking and less frequently cited missing class or work due to drinking. The only drinking-related problem that bisexual women reported more often than did heterosexual comparison groups was seriously considering suicide after drinking. Thirteen percent of bisexual women reported this, compared with 4% of heterosexual women with same-sex behavior and 3% of heterosexual women $\chi^2(2, N = 2,597) = 17.54$, $p < .001$. There was no difference across the groups on the CAGE measure.

The mean number of drinking problems reported by bisexual women was 14.6 ($SD = 5.7$), for heterosexual women with same-sex behavior was 14.6 ($SD = 4.5$), and for heterosexual women was 15.0 ($SD = 4.8$). Analyses of variance (ANOVAs) indicated that the mean number of drinking problems did not differ significantly across the 3 groups, $F(2, 2601) = .97$, $p = .37$.

We conducted additional multivariate analyses to examine drinking motivations and drinking problems found to be statistically significant in the bivariate analyses. We calculated adjusted odds ratios (AORs) controlling for race, class year, and parental income (data not shown). Three of the 4 motivations remained statistically significant when comparing heterosexual women with bisexual women. Heterosexual women were half as likely to report drinking because they liked the taste (AOR = 0.53, 95% confidence interval [CI] = 0.32–0.88) and significantly less likely to report drinking to make it easier to talk to

members of the same sex (AOR = 0.13, 95% CI = 0.06–0.26). Heterosexual women were less likely to report "other" as a drinking motivation (AOR = 0.38, 95% CI = 0.17–0.82).

Of the 3 drinking problems that differed across groups in the bivariate analyses, 2 remained significant in multivariate analyses. Heterosexual women with same-sex behavior had 3 times the odds of reporting being hurt or injured after drinking of bisexual women (AOR = 3.15, 95% CI = 1.12–8.82). The heterosexual group was significantly less likely than was the bisexual group to report suicidal ideation as a result of drinking (AOR = 0.30, 95% CI = 0.12–0.73)

COMMENT

Our findings suggest that although the bisexual women in our sample drank less than did heterosexual women, they generally did not differ in their reported drinking motivations, nor did they differ on the mean number of drinking problems they experienced. In addition, there were no differences in the frequency of positive CAGE scores.

The finding that bisexual women did not differ in their number of drinking problems, despite significantly lower levels of consumption, is notable, particularly given the well-documented positive association between alcohol consumption and problematic outcomes.[5,33,34] Furthermore, the comparable level of overall drinking problems cannot be explained by differences in drinking motivations because motivations generally did not differ across the groups, nor did groups differ on motivations related to stress and coping, which have been linked to heightened problems, irrespective of amount of consumption.[7] Given that researchers have demonstrated a somewhat similar pattern related to lower or comparable drinking levels—yet heightened drinking-related problems[21,35,36]—in both bisexual and lesbian women, it seems unlikely that this is a spurious finding resulting solely from a lack of statistical power caused by small sample sizes.

A possible explanation for this finding may be that it is a product of response or reporting bias. Respondents who are willing to answer questions related to their sexual identity and behavior—topics that are clearly sensitive and potentially stigmatized—may be more willing to endorse or acknowledge behaviors that are socially undesirable. However, there may be a third intervening variable that explains why bisexual women report less drinking than do heterosexual women, yet still report a comparable number of drinking problems. Given the elevated report of suicidal ideation after drinking among bisexual women (they were more than 3 times as likely to report seriously considering suicide after drinking than were heterosexual women), mental health status is an important variable to consider in future investigations of alcohol use among bisexual women.

The high level of suicidal ideation among bisexual women is cause for concern. Literature on LGB adolescents continues to demonstrate higher rates of suicidality among this group than among their heterosexual counterparts,[37] and this finding is similar to that reported using data from the 2001 Student Life Survey.[21] Much more research is needed that explores the relationship between mental health and substance use behaviors and outcomes among sexual minority groups.

Strengths and Limitations

This study has several noteworthy strengths. Although the sample of bisexual women was small, the methods represent an improvement over previous, convenience-based samples of bisexual (and lesbian) women. The population-based sample strengthens the validity of the findings, as does the inclusion of 2 comparison groups. In addition to these methodological strengths, the results from this study provide information about a group of women who are

often overlooked in research yet who may be at risk for serious consequences related to their drinking.

Nevertheless, some limitations of the study also merit consideration. The Student Life Survey[21] is a cross-sectional study, which prohibits the ability to examine time-ordered effects and causal relationships. In addition, the sample was composed of college women, and, as such, findings reported here are not generalizable to a wider population. Also, given that the majority of the respondents were white, results reported here may not be applicable to women of other races/ethnicities. Last, caution should be exercised when comparing findings from this study with other college samples because our student population likely differs in a number of ways from students at other institutions.

Although this study was composed of one of the larger samples of bisexual identified women (n = 86) available from a population-based probability study, it is nevertheless a small subsample, as is the sample of heterosexual identified women with a history of same-sex sexual behavior (n = 46). Such small sample sizes present challenges for interpretation of the percentages relative to heterosexual women and could compromise the ability to detect differences when they do exist. The small sample sizes might have contributed to some of the statistically nonsignificant findings in our study. In addition, the fact that only 16 women identified as “only lesbian” in the Student Life Survey prevented reliable comparisons with this group.

In the current study, we assessed stress- and coping-related drinking motivations with a single item, respectively. Future research would be strengthened by the inclusion of standardized measures of drinking to cope, such as Carver et al’s measure,[38] or with the inclusion of more items related to coping motivations overall.

As a final point, the reader should bear in mind the manner in which we constructed the analysis groups. We formed the main group of interest, bisexual women, on the basis of how women self-identified; we formed the comparison groups on the basis of their responses on a combined behavioral- and identity-based measure. Although this was a theoretically driven decision, it nevertheless makes comparisons to other studies difficult, given that investigators in most college studies to date have used either a strictly identity-based measure of sexual orientation[20,21] or a behavior-based measure.[10]

Implications for Future Practice

Our results illuminate important areas of focus for health practitioners who work with college students. In particular, practitioners need to be aware of the high level of drinking-related suicidality among bisexual women and offer training on how to provide culturally competent and sensitive care to these women. In addition, screening protocols that assess mental health status, as well as a broad range of substance use behaviors, should be implemented where they do not already exist.

Implications for Future Research

More research is needed to better understand the apparent incongruity among bisexual (and often lesbian) women vis-à-vis their level of alcohol consumption and corresponding drinking problems. Even though there were no significant differences in drinking motivations among the 3 groups examined, additional research related to motivations may help explain elevated drinking problems among bisexual women. In particular, future studies may benefit from exploratory and confirmatory factor analysis to determine whether the factor structure of the drinking motivations measure differs across bisexual, lesbian, and heterosexual women. Qualitative work, such as semistructured interviews, also may provide insight into sexual minority women’s drinking behaviors and motivations.

A more global consideration for future research related to sexual identity (or sexual behavior or sexual attraction) and health is the need for the creation and testing of theoretically based frameworks. Inasmuch as substance use behaviors and outcomes may differ among sexual minority women, it is necessary to better understand why these disparities exist. One of the more frequent explanations for health disparities among sexual minority groups is related to the sexual identity stigma and minority stress that these groups experience. Researchers conducting future studies should test this hypothesis more rigorously through the inclusion of measures related specifically to experiences of sexual identity-related stigma and discrimination, as well as through measures that assess stress and coping processes that may be engaged as a result of stigma and discrimination.

Summary and Conclusions

We explored the drinking behaviors, motivations, and problems of collegiate bisexual women, as related to 2 heterosexual comparison groups. To our knowledge, ours is one of the first attempts to examine the reasons that sexual minority women drink, with a particular focus on stress and coping motivations. It remains unclear whether the mechanisms of association among alcohol consumption, drinking motivations, and drinking problems differ across sexual minority women. Although we found significantly lower levels of alcohol consumption among bisexual women than among their heterosexual counterparts—a finding that suggests a potentially protective effect—this is tempered by the finding that, despite lower levels of consumption, bisexual women exhibited the same number of drinking problems as did women in the comparison groups. Future research is needed to better understand the reasons for drinking behavior among bisexual (and lesbian) women and, in particular, whether their sexual identity confers risk or protective factors.

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References

1. Hingson R, Heeren T, Winter M, Wechsler H. Magnitude of alcohol-related mortality and morbidity among US college students ages 18–24: changes from 1998 to 2001. Ann Rev Public Health. 2005; 26:259–279. [PubMed: 15760289]
2. National Institute on Alcohol Abuse and Alcoholism. Alcohol and development in youth: a multidisciplinary overview. Alcohol Res Health. 2004/2005; 28:107–176.
3. Baer JS. Student factors: understanding individual variation in college drinking. J Stud Alcohol. 2002; S14:40–53.
4. Cooper ML. Motivations for alcohol use among adolescents: development and validation of a four-factor model. Psychol Assess. 1994; 6:117–128.
5. Ham LS, Hope DA. College students and problematic drinking: a review of the literature. Clin Psychol Rev. 2003; 23:719–759. [PubMed: 12971907]
6. Britton PC. The relation of coping strategies to alcohol consumption and alcohol-related consequences in a college sample. Addict Res Theor. 2004; 12:103–114.
7. Park CL, Levenson MR. Drinking to cope among college students: prevalence, problems and coping processes. J Stud Alcohol. 2002; 63:486–497. [PubMed: 12160108]
8. DeBord KA, Wood PK, Sher KJ, Good GE. The relevance of sexual orientation to substance abuse and psychological distress among college students. J Coll Student Dev. 1998; 39:157–168.
9. McCabe SE, Hughes TL, Bostwick WB, Boyd C. Assessment of difference in dimensions of sexual orientation: implications for substance use research in a college-age population. J Stud Alcohol. 2005; 66:620–629. [PubMed: 16331847]

10. Eisenberg M, Wechsler H. Substance use behaviors among college students with same-sex and opposite-sex experience: results from a national study. Addict Behav. 2003; 28:899–913. [PubMed: 12788264]
11. Brooks, VR. Minority Stress and Lesbian Women. Lexington, MA: Lexington Books, DC Heath and Company; 1981.
12. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol Bull. 2005; 129:674–697. [PubMed: 12956539]
13. DiPlacido, J. Minority stress among lesbians, gay men, and bisexuals. A consequence of heterosexism, homophobia, and stigmatization. In: Herek, GM., editor. Stigma and Sexual Orientation: Psychological Perspectives on Lesbian and Gay Issues. Thousand Oaks, CA: Sage; 1998. p. 138-159.
14. Meyer IH. Minority stress and mental health in gay men. J Health Soc Behav. 1995; 7:9–25.
15. Mays VM, Cochran SD. Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. Am J Public Health. 2001; 91:1869–1876. [PubMed: 11684618]
16. Bradford J, Ryan C, Rothblum ED. National Lesbian Health Care Survey: implications for mental health care. J Consult Clin Psychol. 1994; 62:228–242. [PubMed: 8201059]
17. Lewis RJ, Derlega VJ, Griffin JL, Krowinski AC. Life stress, gay-related stress, stigma consciousness, and depressive symptoms. J Soc Clin Psychol. 2003; 22:716–729.
18. Lewis RJ, Derlega VJ, Berndt A, Morris L, Rose S. An empirical analysis of stressors for gay men and lesbians. J Homosex. 2002; 42:63–88. [PubMed: 11991567]
19. Waldo CR. Working in a majority context: a structural model of heterosexism as minority stress in the workplace. J Couns Psychol. 1999; 46:218–232.
20. McCabe SE, Boyd C, Hughes TL, d'Arcy H. Sexual identity and substance use among undergraduate students. Subst Abuse. 2003; 24:77–91.
21. McCabe SE, Hughes TL, Boyd CJ. Substance use and misuse: are bisexual women at greater risk? J Psychoactive Drugs. 2004; 36:217–225. [PubMed: 15369203]
22. Mosher, WD.; Chandra, A.; Jones, J. Advance data from vital and health statistics. Vol. 362. Hyattsville, MD: National Center for Health Statistics; 2005. Sexual behavior and selected health measures: men and women 15–44 years of age, United States, 2002.
23. Drabble L, Midanik LT, Trocki K. Reports of alcohol consumption and alcohol-related problems among homosexual, bisexual and heterosexual respondents: results from the 2000 National Alcohol Study. J Stud Alcohol. 2005; 66:111–120. [PubMed: 15830911]
24. Koh AS, Gomez CA, Shade S, Rowley E. Sexual risk factors among self-identified lesbians, bisexual women, and heterosexual women accessing primary care settings. Sex Transm Dis. 2005; 32:563–569. [PubMed: 16118605]
25. Scheer S, Parks CA, McFarland W, et al. Self-reported sexual identity, sexual behaviors and health risks: examples from a population-based survey of young women. J Lesbian Stud. 2003; 7:69–84.
26. Johnston, LD.; O'Malley, PM.; Bachman, JG. Monitoring the Future National Survey Results on Drug Use, 1975–2000. Volume II: College Students and Adults Ages 19–40. Bethesda, MD: US Dept of Health and Human Services; 2001.
27. Presley, CA.; Meilman, PW.; Cashin, JR. Alcohol and Drugs on American College Campuses: Use, Consequences, and Perceptions of the Campus Environment. Vol. IV. Carbondale, IL: Core Institute, Southern Illinois University; 1996. 1992–94
28. Wechsler H, Lee JE, Kuo M, Seibring M, Nelson TF, Lee H. Trends in college binge drinking during a period of increased prevention efforts. Findings from 4 Harvard School of Public Health College Alcohol Study surveys: 1993–2001. J Am Coll Health. 2002; 50:203–217. [PubMed: 11990979]
29. Cook, TD.; Campbell, DT. Quasi-experimentation: Design & Analysis Issues for Field Settings. Boston, MA: Houghton Mifflin; 1979.
30. Wechsler H, Dowdall GW, Davenport A, Rimm EB. A gender-specific measure of binge drinking among college students. Am J Public Health. 1995; 85:982–985. [PubMed: 7604925]
31. Ewing JA. Detecting alcoholism. The CAGE questionnaire. JAMA. 1984; 252:1905–1907. [PubMed: 6471323]

32. Mayfield D, McLeod G, Hall P. The CAGE questionnaire: validation of a new alcoholism screening instrument. Am J Psychiatry. 1974; 131:1121–1123. [PubMed: 4416585]

33. Clements R. Prevalence of alcohol-use disorders and alcohol-related problems in a college student sample. J Am Coll Health. 1999; 48:111–118. [PubMed: 10584445]

34. Weitzman ER, Nelson TF. College student binge drinking and the “prevention paradox”: implications for prevention harm reduction. J Drug Educ. 2004; 34:247–266. [PubMed: 15648886]

35. Hughes TL. Alcohol use and alcohol-related problems among lesbians and gay men. Annu Rev Nurs Res. 2005; 23:283–325. [PubMed: 16353369]

36. Hughes TL, Eliason M. Substance use and abuse in lesbian, gay, bisexual and transgender populations. J Prim Prev. 2002; 22:263–298.

37. Garofalo R, Wolf C, Wissow LS, Woods ER, Goodman E. Sexual orientation and risk of suicide attempts among a representative sample of youth. Arch Pediatr Adolesc Med. 1999; 153:487–493. [PubMed: 10323629]

38. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. J Pers Soc Psychol. 1989; 56:267–283. [PubMed: 2926629]

TABLE 1

Frequency and Quantity of Alcohol Consumption Among Past-Year Drinkers

	Bisexual (*n* = 79)		HSSB (*n* = 46)		HHB (*n* = 2,560)	
Drinking variable	**%**	***n***	**%**	***n***	**%**	***n***
Past-year drinking frequency *						
Never	5.1	4	0	0	2.6	66
1–2 occasions	11.5	9	8.7	4	5.7	147
3–5 occasions	11.5	9	8.7	4	8.9	228
6–9 occasions	10.3	8	10.9	5	9.1	233
10–19 occasions	25.6	20	15.2	7	16.3	418
20–39 occasions	14.1	11	15.2	7	23.0	588
40+ occasions	21.8	17	41.3	19	34.4	880
Past 2-week heavy episodic drinking *						
Never	49.3	37	26.1	12	36.5	911
1–2 occasions	32.0	24	47.8	22	32.6	814
3–5 occasions	12.0	9	21.7	10	23.3	582
6 or more occasions	6.7	5	4.3	2	7.6	190

Note. Because of rounding, some percentages may not total 100. HSSB = heterosexual identity with same-sex behavior; HHB = heterosexual identity with heterosexual behavior.

* $p < .05$, on the basis of chi-square tests.

TABLE 2

Frequency of Drinking Motivations

	Bisexual (*n* = 79)		HSSB (*n* = 46)		HHB (*n* = 2,560)	
Drinking variable	**%**	***n***	**%**	***n***	**%**	***n***
To relax or relieve tension	53.2	42	45.7	21	52.8	1,364
To have a good time with my friends	74.7	59	87.0	40	79.4	2,051
To get drunk	29.1	23	37.0	17	31.9	824
To fit in with a group I like	6.3	5	4.3	2	4.5	115
To get away from my problems or troubles	19.0	15	15.2	7	13.6	351
Because of boredom, nothing else to do	16.5	13	15.2	7	13.3	343
To feel good	43.0	34	34.8	16	35.0	903
To break the ice	21.5	17	21.7	10	14.6	376
To get to sleep	2.5	2	4.3	2	3.2	82
To facilitate sexual opportunities*	8.9	7	6.5	3	3.7	96
Because it's the thing to do	7.6	6	6.5	3	6.5	169
To celebrate at ceremonial occasions	34.2	27	39.1	18	34.2	883
I'm more fun when I drink	16.5	13	28.3	13	20.3	525
Because I like the taste*	55.7	44	47.8	22	41.5	1,072
To give me more confidence	16.5	13	6.5	3	11.5	296
To make it easier to talk to members of the opposite sex	15.2	12	17.4	8	11.8	304
To make it easier to talk to members of the same sex***	19.0	15	6.5	3	3.3	84
Other reason**	12.7	10	6.5	3	4.4	114

Note. HSSB = heterosexual identity with same-sex behavior; HHB = heterosexual identity with heterosexual behavior.

On the basis of chi-square tests:

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3

Frequency of Drinking Problems

	Bisexual (*n* = 79)		HSSB (*n* = 46)		HHB (*n* = 2,560)	
Drinking variable	**%**	***n***	**%**	***n***	**%**	***n***
Academic						
Performed poorly on a test or important project	15.3	11	18.2	8	13.1	320
Missed a class or work because of drinking *	25.0	18	43.2	19	39.7	972
Legal						
Been in trouble with police/university authorities	2.8	2	9.1	4	6.1	150
Damaged property, pulled a fire alarm, etc	2.8	2	6.8	3	4.3	106
Took advantage of another sexually	4.2	3	4.3	2	3.5	87
Drove while intoxicated	7.8	6	17.4	8	14.1	360
Personal						
Had a hangover	72.2	52	81.8	36	78.3	1,917
Got nauseated or vomited	69.4	50	75.0	33	71.1	1,737
Been hurt or injured after drinking *	12.5	9	36.4	16	24.9	587
Had memory loss after drinking	41.7	30	45.5	20	48.6	1,189
Seriously thought about suicide ***	12.3	9	4.3	2	3.3	81
Were afraid you might be alcoholic	11.1	8	6.5	3	5.8	145
Had unplanned sex	24.7	18	32.6	15	26.4	655
Been taken advantage of sexually	16.4	12	17.4	8	15.4	383
Social						
Got into a heated argument or fight	26.4	19	37.2	16	31.3	765
Been embarrassed/disturbed by something you did	59.7	43	61.4	27	59.1	1,446
Someone you know said you should cut down	13.7	10	17.4	8	11.3	281
Friend or significant other threatened to leave	2.7	2	4.3	2	5.6	138
CAGE questionnaire item						
Felt that you should cut down your drinking	33.3	24	37.0	17	30.7	763
Been annoyed by people criticizing your drinking	11.0	8	19.6	9	13.6	337
Felt guilt or remorse after drinking	34.2	25	47.8	22	37.2	921
Drank first thing in the morning as an “eye opener”	5.5	4	6.5	3	4.0	100

	Bisexual (*n* = 79)		HSSB (*n* = 46)		HHB (*n* = 2,560)	
Drinking variable	**%**	***n***	**%**	***n***	**%**	***n***
CAGE 2+	21.5	17	32.6	15	24.5	634

Note. HSSB = heterosexual identity with same-sex behavior; HHB = heterosexual identity with heterosexual behavior.

On the basis of chi-square tests:

* $p < .05$.

*** $p < .001$.