Characteristics and Correlates of Tobacco Use in a Community Sample of Sexual Minority Men and Women: Implications for Smoking Cessation Program Development

Conall O'Cleirigh, PhD,^{1,2} Steven A. Elsesser,³ Dana King, ALM,² Peter P. Ehlinger,²
Judith B. Bradford, PhD,^{2,*} Chris Grasso, MPH,² and Kenneth H. Mayer, MD²

Abstract

Purpose: Tobacco use is the single most preventable cause of disease, death, and disability in the United States. Research suggests that sexual minorities have an increased risk for smoking and tobacco use. This study aimed to identify characteristics of patients affected by tobacco use disparities and examined demographic and substance use differences between tobacco users and nonusers in a sample of sexual minorities.

Methods: Patients at an urban community health center (specializing in the needs of sexual and gender minorities) were invited to complete a cross-sectional 25-item questionnaire.

Results: Of the 3068 questionnaire respondents, 1543 identified as gay, lesbian, or bisexual. Of these sexual minority respondents, most identified as White (84.4%), 67.3% identified as male and 32.7% as female, with a mean age of 37.7 (SD=9.44). More than a quarter of sexual minority men (26.7%) and women (28.3%) reported current tobacco use. Among men, younger age (OR=0.97, CI: 0.95–0.98, $P<0.001$), less education (OR=0.58, CI: 0.35–0.96, $P<0.01$), heroin use (OR=3.3, CI: 1.18–9.39, $P<0.05$), and alcohol use (OR=3.0, CI: 1.86–4.80, $P<0.001$) were associated with increased odds of current tobacco use. Among women, younger age (OR=0.97, CI: 0.95–0.99, $P=0.004$), less education (OR=0.45, CI: 0.22–0.91, $P<0.001$), and alcohol use (OR=3.78, CI: 1.87–7.65, $P<0.001$) were associated with current tobacco use.

Conclusion: Cessation programs placed within the context of co-occurring substance and alcohol use for young sexual minority tobacco users from lower socioeconomic backgrounds may be particularly effective.

Keywords: LGB, sexual minorities, tobacco cessation, substance use, tobacco

Introduction

RATES OF TOBACCO use, cigarette smoking, and tobacco-related illnesses are higher among sexual minorities than heterosexuals.^{1–5} Current estimates place sexual minorities at odds of tobacco use that are 1.5–2 times greater than those of their heterosexual peers.⁴ These elevated odds translate into disparities in tobacco-related illnesses experienced by sexual minority individuals including elevated rates of acute respiratory infection,⁶ asthma,^{7,8} and cardiovascular disease.⁹ Many risk factors such as minority stress, including discrimination and victimization, are associated with increased rates of tobacco use,¹⁰ smoking,¹¹ and smoking intensity.^{12,13} Other contributing factors may include elevated levels of alcohol and drug use,¹⁴ depression, and anxiety¹⁵

among sexual minorities, which are associated with increased rates of tobacco use in the general U.S. population.¹⁶ In addition, sexual minorities have been targeted effectively by tobacco companies' marketing campaigns.²

Sexual minority men and women use and abuse substances disproportionately compared to their heterosexual counterparts.¹⁴ Evidence suggests that alcohol use may be more problematic for sexual minority women^{17–19} and illicit drug use more problematic for sexual minority men.¹⁷ Several explanations have been posited to help explain this disproportionate substance use by sexual minorities including minority stress,^{15,20} internalized heterosexism,²¹ and the importance of bars and circuit parties to gay, lesbian, and bisexual culture.^{22,23} This study examined characteristics differentiating tobacco users from nonusers in a sample of sexual minorities

¹Department of Psychiatry, Massachusetts General Hospital/Harvard Medical School, Boston, Massachusetts.

²The Fenway Institute, Fenway Health, Boston, Massachusetts.

³Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, Pennsylvania.

*Deceased.

accessing care at an urban community health center and responding to a brief, cross-sectional 25-item questionnaire that assessed demographics, general health, and substance use.

Methods

Setting and population

Participants were patients receiving care at a large, community-based health clinic in Massachusetts that focuses on serving sexual and gender minorities. Although the clinic patient population includes both sexual minority and heterosexual patients, it was not possible to compare tobacco use for these groups due to other demographic differences (sexual minority respondents were 9 years older on average, more likely to have higher incomes, and less likely to be students

than heterosexual survey respondents). Therefore, all heterosexual identified participants were excluded from analyses. The sociodemographic characteristics of the subsample included are shown in Table 1. The participants ($N=1543$) were predominantly White (85%), although racial/ethnic minority patients were also well represented ($n=235$, 15%) in the sample.

Procedures

All clinic patients who attended visits during a 12-month period were offered an opportunity at intake to complete a 25-item survey at registration. A total of 3068 participants completed the survey. Comparison of these participants with the clinic's electronic medical record system demonstrated that this volunteer sample was representative of all

TABLE 1. DEMOGRAPHIC, BEHAVIORAL, AND CLINICAL CHARACTERISTICS OF THE SEXUAL MINORITY SUBSAMPLE

Variable	Women (N=505)	Men (N=1038)	Total (N=1543)
Age, mean (SD)	36.8 (9.42)	38.0 (9.32)	37.7 (9.44)
Race/Ethnicity, <i>n</i> (%)			
White (non-Hispanic)	426 (84.4)	877 (84.5)	1303 (84.4)
Asian/Pacific Islander	16 (3.2)	23 (2.2)	39 (2.5)
Black (non-Hispanic)	23 (4.6)	59 (5.7)	82 (5.3)
Hispanic/Latina(o)	27 (5.3)	54 (5.2)	81 (5.2)
Multiracial	2 (0.4)	4 (0.4)	6 (0.4)
Native American	1 (0.2)	6 (0.6)	7 (0.5)
Other	9 (1.8)	11 (1.1)	20 (1.3)
Declined to answer	1 (0.2)	4 (0.4)	5 (0.3)
Sexual orientation, <i>n</i> (%)			
Homosexual (Gay/Lesbian)	437 (86.5)	946 (91.1)	1383 (89.6)
Bisexual	68 (13.5)	92 (8.9)	160 (10.4)
Highest level of education, <i>n</i> (%)			
Some high school	7 (1.4)	5 (0.5)	12 (0.8)
High school/GED	48 (9.5)	85 (8.2)	133 (8.6)
Some college	100 (19.8)	262 (25.2)	362 (23.5)
College graduate	209 (41.4)	399 (38.4)	608 (39.4)
Postgraduate	140 (27.7)	285 (27.5)	425 (27.5)
Declined to answer	1 (0.2)	2 (0.2)	3 (0.2)
Employment status, <i>n</i> (%)			
Full-time	331 (65.5)	698 (67.2)	1029 (66.7)
Part-time	46 (9.1)	73 (7.0)	119 (7.7)
Unemployed	48 (9.5)	126 (12.1)	174 (11.3)
Retired	5 (1.0)	6 (0.6)	11 (0.7)
Student	48 (9.5)	74 (7.1)	122 (7.9)
Homemaker	1 (0.2)	3 (0.3)	4 (0.3)
Other	25 (5.0)	51 (4.9)	76 (4.9)
Declined to answer	1 (0.2)	7 (0.7)	8 (0.5)
Family income, <i>n</i> (%)			
Less than \$20,000	82 (16.2)	195 (18.8)	277 (18.0)
\$20,000–\$34,999	101 (20.0)	218 (21.0)	319 (20.7)
\$35,000–\$49,999	97 (19.2)	212 (20.4)	309 (20.0)
\$50,000 or more	211 (41.8)	380 (36.6)	591 (38.3)
Declined to answer	14 (2.8)	33 (3.2)	47 (3.0)
Alcohol and substance use, <i>n</i> (%)			
Cocaine use (past 6 months)	9 (1.8)	72 (6.9)	81 (5.2)
Heroin use (past 6 months)	6 (1.2)	16 (1.5)	22 (1.4)
Alcohol use (past 6 months)	415 (82.2)	845 (81.4)	1260 (81.7)
Other recreational/party drugs (past 6 months)	63 (12.5)	101 (9.7)	164 (10.6)
HIV infection	64 (12.7)	197 (19)	261 (16.9)

These data include the nonmissing responses.

clinic patients seen during the same time period based on a wide range of demographic variables. The study protocol was reviewed by the health center's Institutional Review Board (IRB) and exempted from IRB oversight, as the analysis was restricted to secondary data analysis in a de-identified data set that contained the most recent set of survey responses for each participant. Participants gave written consent for research at the time of the survey, when they registered at the health center.

Measures

Participants were asked to report gender (male, female, transgender), sexual orientation (heterosexual/straight, homosexual/gay/lesbian, bisexual, not sure/undecided, prefer not to say), and HIV status (HIV-negative, HIV-positive, unknown/never tested, prefer not to say). All respondents who identified as homosexual/gay/lesbian or bisexual were considered sexual minorities for the purposes of the study. A small minority of participants identified as transgender; however, the survey did not prompt them to specify gender or sex at birth. As such, those identifying as transgender were excluded from this analysis.

Sociodemographics. Sociodemographic variables included age, race/ethnicity (Asian/Pacific Islander, Black (non-Hispanic), Hispanic/Latina(o), Native American, White (non-Hispanic), multiracial, other), education level (some high school or less, high school/GED, some college, college graduate, postgraduate/professional degree), employment status (full-time, part-time, unemployed, retired, student, homemaker, other), and income (<\$20,000, \$20,000 to \$34,999, \$35,000 to \$49,999, ≥\$50,000).

Tobacco use. Participants were presented with the question, "In your lifetime and in the past 6 months, have you used tobacco?" and two checkboxes in labeled columns, which indicated lifetime use and/or use in the past 6 months. Three classification variables were created from participant responses: current tobacco users, lifetime tobacco users, and ever tobacco users. Current tobacco users were participants who indicated tobacco use within the past 6 months. Lifetime tobacco users were participants who indicated only lifetime use and excluded participants who endorsed tobacco use within the past 6 months. (For our study purposes, we characterized these participants as those who quit.) Those who reported either current or lifetime tobacco use were categorized as ever tobacco users.

Alcohol and substance use. Participants were presented with the question, "In your lifetime and in the past 6 months, have you used any of the following substances?" and two checkboxes in labeled columns, which indicated lifetime use and/or use in the past 6 months. Substances assessed included alcohol, cocaine/crack, heroin/other opiates, and other recreational/party drugs. For the purposes of this study, participants who indicated use of one of these substances in the past 6 months were considered "current users" and lifetime use was not analyzed.

Statistical analyses

SPSS version 21.0 (IBM Corporation, Armonk, NY) was used to analyze the data with frequency and percentage counts, chi-square analyses, and logistic regressions. All analyses were evaluated for significance at an alpha level of 0.05. All models were unadjusted as separate analyses were conducted examining the relationships of background and demographic variables on tobacco use outcomes separately for gay and bisexual men and lesbian and bisexual women.

Results

Prevalence of tobacco use among sexual minorities

The demographic, behavioral, and clinical characteristics of the sample are presented in Table 1. The frequencies and proportions of tobacco use across the sexual minority groups are presented in Table 2.

The proportion of sexual minority men who self-reported ever using tobacco was 51.8%, which was equivalent among those identifying as gay (51.6%) and those identifying as bisexual (54.3%). Similarly, sexual minority men who reported current tobacco use (during the past 6 months) did not differ significantly by those who identified as gay (27.2%) or as bisexual (21.7%). There was a trend for bisexual men (60%) to be more likely to have quit using tobacco than gay men (47.3%), ($\chi^2(1)=2.91, P=0.08$).

The proportion of sexual minority women who self-reported ever using tobacco (50.3%) was equivalent among those who identified as lesbian (49.7%) and those identifying as bisexual (54.4%). Among those who reported currently using tobacco there was a trend to differ significantly by those who identified as lesbian (27.0%) compared to those

TABLE 2. THE FREQUENCIES AND PROPORTIONS OF SEXUAL MINORITY MEN AND WOMEN WHO EVER USED TOBACCO, CURRENTLY USE TOBACCO, OR HAVE QUIT USING TOBACCO

<i>Sexual Minorities</i>	<i>Ever Used Tobacco^a n (%)</i>	<i>Currently Use Tobacco^b n (%)</i>	<i>Quit Using Tobacco^c n (%)</i>
Sexual minority men	538 (51.8)	277 (26.7)	261 (48.5)
Gay men	488 (51.6)	257 (27.2)	231 (47.3)
Bisexual men	50 (54.3)	20 (21.7)	30 (60.0)
Sexual minority women	254 (50.3)	143 (28.3)	111 (43.7)
Lesbian women	217 (49.7)	118 (27.0)	99 (45.6)
Bisexual women	37 (54.4)	25 (36.8)	12 (32.4)

^aEver Used Tobacco is reported as a percentage of sexual minority men and women in the sample who reported ever using tobacco (current or lifetime use).

^bCurrently Use Tobacco is reported as a percentage of sexual minority men and women in the sample who reported tobacco use in the past 6 months.

^cQuit Using Tobacco is reported as a percentage of the sample who reported ever using tobacco.

who identified as bisexual (36.8%), $\chi^2(1)=2.76$, $P=0.09$. Lesbian women (45.6%) were not significantly more likely to have quit using tobacco than bisexual women (32.4%).

Background and demographic correlates of tobacco use

Among sexual minority men, age (OR=0.97, CI: 0.95–0.98, $P<0.001$) and education level (OR=0.58, CI: 0.35–0.96, $P<0.01$) were significantly related to current tobacco use such that men who were younger or reported lower educational attainment were more likely to report current tobacco use. Older age (OR=1.04, CI: 1.02–1.07, $P<0.001$) was significantly associated with a higher likelihood of quitting (i.e., identifying as a former tobacco user). Educational attainment was not associated with greater odds of quitting tobacco.

A similar pattern of results emerged for sexual minority women, such that the odds of current tobacco use were inversely related to age and educational attainment. Specifically, younger women (OR=0.97, CI: 0.95–0.99, $P=0.004$) with lower educational attainment (OR=0.45, CI: 0.22–0.91, $P<0.001$) were more likely to report current tobacco use. Among sexual minority women, older age (OR=1.42, CI: 1.01–1.07, $P<0.001$), but not educational attainment, was significantly associated with a higher likelihood of quitting.

Age was included in the models as a continuous variable, so an increase of each year of age was associated with increased odds of quitting. Participants' ages ranged from 20 through 72 with a mean age of 37.66. Sixty-seven percent of participants 37 or younger had quit, compared to 77% of those 38 or older.

Alcohol and substance use correlates of tobacco use outcomes

Sexual minority men. Among sexual minority men, current alcohol use was significantly associated with greater likelihood of self-reporting as a current tobacco user (OR=3.0, CI: 1.86–4.80, $P<0.001$) such that men who used alcohol were 3 times more likely to use tobacco. There was a trend for men who reported current cocaine use to be more likely to report current tobacco use (OR=1.65, CI: 0.98–2.79, $P=0.06$). Men who reported current heroin use were more than three times more likely to report using tobacco (OR=3.3, CI: 1.18–9.39, $P<0.05$) than those who did not. Current use of other substances was not significantly associated with status as a current tobacco user (OR=1.33, CI: 0.95–1.86, $P>0.05$).

Among sexual minority men, current alcohol use was significantly associated with a decreased likelihood of quitting tobacco (OR=0.15, CI: 0.09–0.26, $P<0.001$), as was current cocaine use (OR=0.40, CI: 0.18–0.87, $P<0.05$) and current heroin use (OR=0.12, CI: 0.02–0.99, $P<0.05$). Current use of other substances was not significantly associated with quitting.

Sexual minority women. Women who reported current alcohol use were nearly 4 times more likely to report current tobacco use (OR=3.78, CI: 1.87–7.65, $P<0.001$) and nearly 12 times less likely to quit (OR=0.08, CI: 0.04–0.19, $P<0.001$). Cocaine, heroin, and other substance use were not significantly related to either tobacco outcome for sexual minority women. However, as the frequency of sexual minority women who reported current substance use was very low across the substance use categories, a composite measure of "any substance use" in the past 6 months was cre-

ated. Any substance use was not significantly related to either tobacco outcome for sexual minority women.

As the magnitude of the difference in the odds ratio for current alcohol use and likelihood of quitting tobacco between sexually minority men and women was large, a test of the gender moderated effect of alcohol on quitting tobacco was conducted. The gender moderated effect was not significant (OR_{alcohol x gender}=1.56, CI: 0.64–3.82, $P>0.05$).

Discussion

The rates of ever using tobacco among sexual minority men (51.8%) and women (50.3%) in our sample were high and comparable to sexual minority tobacco use and smoking estimates in existing literature (11%–50%^{5,24–26}). Both sexual minority men (26.7%) and sexual minority women (28.3%) in our sample used tobacco at nearly twice the rate estimated among the general population in the same urban area (14.4%²⁷). As the overwhelming proportion of tobacco use is accounted for by cigarette smoking²⁸ these findings support previous reports that sexual minorities should be considered a priority population for smoking cessation efforts.⁴

Younger age and lower educational attainment were associated with current tobacco use among sexual minority men and women, which is also consistent with previous findings among sexual minorities and the general population.^{3,5} Older participants were more likely to have quit using tobacco. However, in contrast to previous reports, higher educational attainment was not significantly associated with quitting tobacco for either sexual minority men or women. Previous studies found associations between education level and smoking status.^{5,29} The fact that our participants, who were patients accessing care at a community health center, reported high levels of educational attainment (i.e., less than 1% of the sample reported not graduating high school) may have restricted the range in the education variable and reduced our ability to detect a relationship with tobacco use.

Findings among sexual minority men

Among sexual minority men in our sample, both alcohol and heroin use were each associated with increased odds of currently using tobacco. These results find support in the previous research that relate current substance use to an increased likelihood of smoking and other tobacco use.^{16,29} Meyer's minority stress model suggests that unique stressors relating to being a sexual minority man could contribute to elevated substance use, including tobacco.^{15,20,30}

Among sexual minority men in our sample, alcohol, cocaine, and heroin use were each associated with a decreased likelihood of quitting tobacco. Alcohol use and frequent bar attendance have previously been identified as high risk situations for relapse among gay male smokers.³¹ The identification of concurrent substance use as a significant barrier to tobacco cessation is well established in the research literature.^{16,29} The disproportionate rates of tobacco use among gay and bisexual men intersect with the disproportionately high rates of tobacco use and smoking among people living with HIV.^{14,32} The intersection of these two health disparities represents a critical public health concern for sexual minority men also managing HIV, particularly as tobacco use has been associated repeatedly with worse HIV disease and treatment outcomes for sexual minority men who smoke or

use other tobacco products.^{32,33} Nearly 17% of our study participants indicated that they were living with HIV, and although our aims did not include looking at this intersection, it would merit further study.

Findings among sexual minority women

Among sexual minority women in our sample, current alcohol use was associated with an increased likelihood of currently using tobacco and a decreased likelihood of having quit. As smoking is relatively common in the sexual minority women community, those who are well engaged in their minority communities may be more likely to adopt sexual minority social norms concerning tobacco use, which may hinder attempts to quit (i.e., relaxed perspectives on the health risks).³⁴

Findings among bisexual respondents

Bisexual men and women are routinely cited as experiencing higher levels of substance use than heterosexual and homosexual men and women.¹⁴ There was a trend for bisexual men in our sample to be more likely to have quit using tobacco than gay men, which is not corroborated by existing literature.²⁶ Due to the low number of individuals who identified as bisexual in our sample, inferences made about this population using our data should be made with caution.

Limitations

There are several study limitations to consider. First, the survey did not include questions to measure what type of tobacco the participants used, how much tobacco they used, or for how long they used tobacco. Therefore, associations that differ between heavier or lighter smokers, by the type of tobacco used, or by duration of use, could not be examined. However, the type of tobacco is unlikely to have skewed the generalizability of the results because tobacco use other than smoking constituted such a small percentage of overall tobacco use at the time (approximately 4.5%²⁸). Second, the survey asked participants about alcohol use but not about abuse, which may be a more important factor in continued tobacco use. Third, the survey included only one measure each for current cocaine, heroin, and alcohol use, so the reliability of these responses could not be established. Because the survey used only one question to assess gender identity, some transgender participants may be among the male and female-identified participants. It is possible that peers and family could have an impact on tobacco use in participants. Finally, the data were cross-sectional, which limited the analyses and conclusions about the direction of associations between substance/alcohol use and tobacco use.

Conclusion

Our findings support previous claims that sexual minorities should be considered a priority population for tobacco cessation efforts while illuminating some potential targets for cessation interventions tailored to sexual minorities. In this sample of sexual minorities attending a community health center, rates of tobacco use were almost twice that reported in the general population, providing additional support for a sizable disparity for sexual minorities. This sets the stage of ongoing sexual minority tobacco-related health disparities and correctly focuses our attention on the importance of developing and extending

the reach of efficacious tobacco cessation programs specifically tailored to the needs of sexual minorities.

Prior research has noted a preference for LGBT-specific tobacco cessation services among sexual minority populations.³¹ Such programs may be better equipped to address unique barriers experienced by sexual minorities accessing cessation programs.³⁵ The limited data available on the few interventions that exist suggest that group smoking cessation interventions tailored for specific patient groups³⁶ or toward sexual minority smokers are both feasible and efficacious.³⁷ Our results suggest that higher rates of tobacco use and lower rates of quitting are associated with concurrent alcohol use for both sexual minority men and women, and with substance use for sexual minority men. Based on these findings, tobacco cessation programs placed within the context of co-occurring substance and alcohol use and designed to meet the needs of younger sexual minorities from lower socioeconomic backgrounds may be particularly effective.

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Disclaimer

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Author Disclosure Statement

No competing financial interests exist.

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Address correspondence to:
 Conall O'Cleirigh, PhD
 Department of Psychiatry
 Massachusetts General Hospital/Harvard Medical School
 One Bowdoin Square, 7th Floor
 Boston, MA 02114

E-mail: cocleirigh@mgh.harvard.edu