

Smoking Among Lesbians, Gays, and Bisexuals

A Review of the Literature

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Objectives: To collect estimates of smoking prevalence among lesbian, gay, and bisexual people from the published literature and to compare with general population estimates.

Methods: Databases were searched for all studies published in English on tobacco use among lesbians, gays, and bisexuals. From 1987 through 2000, twelve studies were identified (four youth, eight adult): seven were based on convenience samples; one on a population-based probability sample; one involved random sampling within selected census tracts; one was based on a large multicenter clinical trial; and two were representative school-based samples. Study findings were compared to national survey data from the corresponding time period.

Results: Estimated smoking rates for lesbians, gays, and bisexuals ranged from 38% to 59% among youth and from 11% to 50% among adults. National smoking rates during comparable periods ranged from 28% to 35% for adolescents and were approximately 28% for adults.

Conclusions: While information in the published literature is limited, it appears that smoking rates are higher among adolescent and adult lesbians, gays, and bisexuals than in the general population. Steps should be taken to ensure representation of lesbians, gays, and bisexuals in tobacco-use surveillance and to collect data in order to understand the apparent high smoking rates in these groups. Attempts should be made to target prevention and cessation interventions to lesbians, gays, and bisexuals.

Medical Subject Headings (MeSH): bisexuality; homosexuality, female; homosexuality, male; prevalence; review literature; smoking; tobacco (Am J Prev Med 2001;21(2): 142-149) © 2001 American Journal of Preventive Medicine

Introduction

Numerous factors suggest that lesbians, gays, and bisexuals may be at risk for high smoking prevalence. First, like other economically and socially marginalized communities, lesbians, gays, and bisexuals may face a disproportionate amount of daily stress due to homophobia and discrimination. Smoking has been found to be more prevalent among groups that experience high levels of stress.^{1,2} Second, places where smoking is prevalent, such as bars, have historically been an important social focus for lesbians, gays, and bisexuals possibly because of a history of exclusion or discrimination in other social settings,³ and may continue to play an important role, at least for some segment of this population. Third, behaviors associated

with smoking, such as alcohol and drug use,² may be higher among lesbians, gays, and bisexuals than among their heterosexual counterparts.⁴⁻⁶ Finally, evidence suggests that since the 1980s, the tobacco industry has targeted the gay market through direct advertisement, sponsorship, and promotional events.⁷⁻⁹

The factors that influence smoking among lesbian, gay, and bisexual adolescents may be more complex than the factors influencing adults. Smoking among youth in general is related to the effects of modeling, social desirability, ready access to cigarettes, risk taking and rebelliousness, feelings of being unsupported, low self-esteem, negative mood states, and other mental health factors.¹⁰ Research suggests that lesbian, gay, and bisexual youth are more likely to be depressed or lonely, to attempt suicide, and to be physically and verbally victimized than heterosexual youth,¹¹⁻¹³ factors that likely contribute to increased substance use. Although the role played by other factors has yet to be documented, additional reasons why smoking prevalence may be higher for lesbian, gay, and bisexual youth than youth in general include the possible and unique role that smoking may play during identity

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formation among lesbian, gay, and bisexual adolescents (e.g., assumption of masculinity for males, assertion of independence and power for females); the stresses of "coming out"; the potential lack of support from parents, other family members, and peers; feelings of isolation and loneliness; and anti-gay harassment or victimization.

Several recent studies have collected information on smoking in gays and lesbians, generally as a part of a broader examination of health-related issues and often based on convenience samples. The objective of this report is to critically review and summarize the published literature on smoking among adolescent and adult lesbians, gays, and bisexuals; to describe smoking prevalence among these groups; and to compare these estimates with national survey estimates.

Methods

Searches were carried out for articles published in English pertaining to tobacco use and lesbian, gay, and bisexual people. Databases that were searched included the Office on Smoking and Health database (1960–mid-2000), MEDLINE (1966–mid-2000), PsychInfo (1967–mid-2000), Current Contents/Life Sciences (1999–mid-2000), Current Contents/Social and Behavioral Science (1999–mid-2000), ERIC (1966–mid-2000), and EMBASE (1974–mid-2000). In addition, we reviewed the references of all articles identified and sent an inquiry to the Internet listserve of the Society for Research on Nicotine and Tobacco to solicit additional information. Key words used to search were gay, lesbian, homosexual, bisexual, transgender, and sexual orientation in combination with smokeless, tobacco, cigarette, cigar, smoking, habit, prevalence, epidemiology, and addiction. Of major interest were prevalence studies that provided information on tobacco use in the target groups. Eighteen articles on the relationship between tobacco use and progression of HIV/AIDS and 17 articles on tobacco advertising in the lesbian, gay, and bisexual communities were found but not included in this review.¹ No articles addressing tobacco use by transgender people were found. Thirteen articles published between 1987 and 2000 were found that provided at a minimum a measure of any aspect of tobacco use among lesbians, gays, and bisexuals. Two of these articles^{14,15} were based on the same study and are presented together. Therefore, a total of 12 studies are reviewed here.

Information from the articles was entered into two separate tables: (1) adolescents and young adults aged 13 to 21 and (2) adults. The tables include author and year, design and sample size, demographics of surveyed population, results regarding tobacco use, and comparison data from general population surveys for the corresponding period. None of these studies focused solely on tobacco use; all addressed multiple health topics.

Results

Adolescents/Young Adults

Four studies^{16–19} examining smoking among lesbian, gay, and bisexual adolescents and young adults aged 13

to 21 were conducted between the early 1980s and 1995 (Table 1). Two of the studies were statewide school-based surveys conducted in Massachusetts,^{18,19} and two recruited adolescents through advertisements or community-based agencies.^{16,17} All included bisexual youth, but none reported separately on them. Two studies^{18,19} used standard definitions of smoking for adolescents (smoked on ≥ 1 day in the 30 days preceding the survey).²⁰

The school-based data were from the Youth Risk Behavior Survey, a two-stage cluster sample design that produces representative samples of students in grades nine to twelve in their jurisdictions; the questionnaire is self-administered, voluntary, and anonymous.^{20,21} Participating states and cities have the ability to add questions of local interest. Massachusetts was the first state to add a question on same-gender sexual behavior in 1993; questions on sexual orientation were added in 1995. The prevalence of current smoking (smoked cigarettes on ≥ 1 of the 30 days preceding the survey) was 38% for students with same-gender sexual experience¹⁸ and 59% for students who self-identified as lesbian, gay, and bisexual youth.¹⁹ When students with same-gender sexual experience were compared with those who reported exclusively heterosexual sexual experience (i.e., sexually inexperienced students were excluded), the prevalence of current tobacco use was approximately the same (38.2% and 41.5%, respectively)¹⁸ and higher than among all students nationally (30.5%).²⁰ When students who self-identified as lesbian, gay, or bisexual were compared with students who self-identified as heterosexual (regardless of whether they were sexually experienced), the prevalence of current smoking was higher among the lesbian, gay, and bisexual students (59.3%) than among the heterosexual students in Massachusetts (35.2%) and students nationally (34.8%).¹⁹ Neither study considered self-identification and sexual behavior together. Garofalo et al.¹⁹ also examined smokeless tobacco use and found that it was higher among lesbian, gay, and bisexual youth (33.7%) compared with students who self-identified as heterosexual (7.7%).

The two remaining studies were based on small convenience samples, the first of which measured current daily smoking¹⁶ and the second measured ever smoking, but not current smoking.¹⁷ In the former, the prevalence of current daily smoking among young gay and bisexual males was higher than daily smoking among males aged 17 to 18 years in the general population during the same time period²²; in the latter, the prevalence of ever smoking was slightly higher for lesbian and bisexual females compared with female students nationally, but not for gay and bisexual males.²⁰ Unlike the school-based studies, neither of these studies had built-in comparison groups.

Table 1. Studies with information on smoking prevalence in lesbian, gay, and bisexual (LGB) adolescents/young adults

Author	Study design	Sample demographics	Findings	National comparison
Remafedi ¹⁶	Interview study; recruitment through study advertisements in the early 1980s (year not specified) N=29 self-identified young gay and bisexual men (79% gay, 21% bisexual); response rate not provided	Age: 15–19 yr, “white, middle class,” Twin Cities, MN	Current smokers (not defined): 48% All smoked daily	1980 Monitoring the Future ²² Male students aged 17–18 yr Current smokers ^a : 26.8% Daily smokers: 19%
Rosario et al. ¹⁷	Interview study; recruitment from two college-based LGB student groups and from three community-based agencies that serve LGB youth, 1993–1994 N=154 self-identified LGB youth (76 female, 78 male, 31% bisexual, 66% lesbian and gay); response rate not provided	Age: 16–21 yr Black: 35% Hispanic: 36% White: 22% Other: 7% New York City	Ever smoked: females: 82% males: 71% Age at initiation: females: 13.1 yr males: 13.4 yr Frequent use of cigarettes ^b : females: 57% males: 49%	1993 Youth Risk Behavior Survey ²⁰ Ever smokers: females: 68.5% males: 70.1%
Faulkner et al. ¹⁸	Cross-sectional, randomized public school-based survey (1993 Massachusetts Youth Risk Behavior Survey) of students in grades 9–12, 1993 105 students who reported same-sex contact (45% female, 55% male); 1563 with exclusive heterosexual contact; response rate 70% ²⁰ Sexually inexperienced students excluded from analysis	Mean age: 16.3 yr White: 62%; Black: 11.6% Hispanic: 8.7% Asian/Pacific Islander: 4.1% American Indian/other: 13.3% Massachusetts	Current smokers ^a : 38.2% ± 12.3 of students with same sex contact; 41.5% ± 3.5 of students with exclusive heterosexual contact Regular smoker: currently ^c : 22.9% ± 9.7 of students with same sex contact; 17.6% ± 2.6 of students with exclusive heterosexual contact	1993 Youth Risk Behavior Survey ²⁰ Current smokers ^a : 30.5% Regular smokers ^c : 24.7%
Garofalo et al. ¹⁹	Cross-sectional, randomized public school-based survey (1995 Massachusetts Youth Risk Behavior Survey) of students in grades 9–12, 1995 104 self-identified LGB students (32.3% female, 66.7% male, 22.1% lesbian of gay, 77.9% bisexual) and 4055 self-identified heterosexual students; response rate 72% (21)	75% aged 15–17 yr White: 71.9% Black: 8.4% Hispanic, 8.7% Asian, 4.9% American Indian, 0.9% Massachusetts	Initiation of smoking before age 13: 47.9% of LGB students; 23.4% of heterosexual students Current smokers ^a : 59.3% of LGB students; 35.2% of heterosexual students (<i>p</i> <.0001) Current smokeless tobacco use ^d : 33.7% of LGB students; 7.7% of heterosexual students	1995 Youth Risk Behavior Survey ²¹ Current smokers ^c 34.8% Current use of smokeless tobacco ^e 11.2%

^a Smoked on ≥1 day in the 30 days preceding the survey.^b More than six times ever.^c Daily in the past 30 days^d Used on ≥1 day in the 30 days preceding the survey.^e Smoked/used on ≥1 day in the 30 days preceding the survey.

Adults

Eight studies^{15,23-29} based on surveys conducted between 1984 and 1998 examined smoking among adults: two among gay men, five among lesbians, and one in both groups (Table 2). Study respondents were classified as gay or lesbian on the basis of self-identification in seven of the eight studies and on the basis of reported behavior in one study.²⁷ Although the majority of studies included bisexual people, only two studies presented results separately for this group.^{27,28} Current smoking was not defined in four of the eight studies,^{23-25,28} and three of the remaining four^{15,26,29} used definitions different from the standard definition for adults.³⁰ Five of the eight studies were based on convenience samples.^{15,23-25,29} Overall, the respondents surveyed tended to be white, in their 30s, and college educated. In most cases, the demographic characteristics of the samples surveyed were markedly different from those of the general population and even of built-in comparison groups when available, especially with respect to educational attainment (a strong predictor of smoking).³⁰ The prevalence of smoking ranged from 25% to 50% in gay and bisexual men, and from 11% to 50% in lesbian and bisexual women. The rates were higher than those seen in the general adult population during the same time period³⁰⁻³⁴ in all but one study, which involved a survey of lesbians attending a health conference and responding to a community newsletter survey.²⁵

Diamant et al.²⁸ analyzed data from a population-based sample obtained using random-digit-dialing techniques in Los Angeles County. The purpose of the study was to examine key indicators of health and included a question about sexual orientation. Of the 4697 women included in the analysis, 51 (1%) self-identified as lesbian and 36 (0.8%) as bisexual. Women who self-identified as lesbian (37%) or bisexual (50%) smoked at higher rates than the heterosexual women (14%) in the survey and women in the general population (22%). Stall et al.²⁶ utilized a modified population-based approach, conducting a phone survey of 696 randomly selected gay and bisexual men residing in predetermined census tracts in Portland and Tucson. This study presented smoking rates within racial/ethnic groups and education categories. Smoking in gay and bisexual men decreased as educational attainment increased, as it does in the general population,³⁴ but gay and bisexual men smoked at significantly higher rates across all education categories; college graduates smoked at levels comparable to those of high school graduates in the general population (36.8% and 33.5%, respectively).

Among the studies based on convenience samples,^{15,23-25,29} respondents included readership of gay and lesbian magazines and newsletters,^{25,29} people on mailing lists of gay and lesbian organizations,^{15,23} users of an Internet bulletin board,²⁴ men attending gay

bars,²⁶ and women attending a lesbian healthcare conference.²⁵ The number of people surveyed ranged from 204 to 6935. None of these studies presented rates for demographic subgroups; however, reported smoking prevalence was generally close to general population smoking rates for high school graduates even though the samples disproportionately included college graduates.

Finally, participants in the Women's Health Initiative, a large multicenter study of postmenopausal women (>90,000 participants), were asked about the gender of their sexual partners in the questionnaire administered prior to enrollment into the clinical trials or the observational cohort.²⁷ A total of 573 (0.6%) were classified lesbian, and 740 (0.8%) as bisexual. The prevalence of smoking was higher among lesbians (10% to 14.4%) than among the heterosexual women (7.2%) in the study and in the general population (6.5%), even though almost two thirds of the study sample were college graduates.

Discussion

The amount of information available in the published literature on smoking among gays, lesbians, and bisexuals is limited. The definitions used to determine sexual orientation and tobacco use vary among studies. In addition, trend information is not available and information on transgender people is absent. Because the studies reviewed here were typically designed to collect information across a broad range of health and social issues, information on smoking was generally limited to prevalence and did not address some of the standard issues, such as initiation, smoking patterns, and quitting behaviors. Moreover, seven of twelve were based solely on convenience samples; of the remainder, only three represent population-based samples. Considered together, however, these studies strongly suggest that the prevalence of smoking may be higher among adolescent and adult lesbians and gay males than in the general population. Prevalence was consistently higher than in the general population comparison data, even though samples surveyed tended to have a higher educational attainment, a strong predictor of low smoking rates in the general population.

Sexual orientation has not been defined in a consistent manner across studies and is sometimes used interchangeably with sexual behavior, limiting comparability across studies. The discrepant results observed between the two school-based Massachusetts surveys may be attributed in part to differences between students who self-identify as lesbian, gay, or bisexual and those who report same-gender sexual activity. In addition, they may be attributed to differences between students who are sexually experienced and those who are not (the latter were included in Garofalo et al.'s¹⁹

Table 2. Studies with information on smoking prevalence in lesbian, gay, and bisexual (LGB) adults

Author	Study design	Sample demographics	Findings	National comparison
Bradford et al. ²³	Self-administered mail survey, recruitment by mail and through personal, social, and organizational contacts, 1984–1985 N=1925 self-identified lesbian and bisexual women; response rate 42%	80% aged 25–44 yr 88% white 69% ≥college In or near metropolitan areas across the United States (not specified)	Current smokers (not defined): 41% Daily smokers: 30% Occasional smokers: 11%	1985 National Health Interview Survey (CDC, unpublished data) Women who were current smokers: 33.5% By educational level: <High school: 39.6% High school: 37.5%; Some college: 34.6%; ≥College: 20.8%
Nieto ²⁴	Internet-based survey of users of a computerized gay bulletin board system, 1993 N=209 self-identified gay and bisexual men; response rate 49%	Majority 31–40 yr “Overwhelmingly white” 73% ≥college New York City	Current smokers (not defined): 25% 69% reported “light” frequency of use (not defined)	1993 National Health Interview Survey ³⁰ Men who were current smokers: 27.7% By educational level: <High school: 42.1%; High school: 32.0%; Some college: 28.4%; ≥College: 14.8%
Skinner and Otis ¹⁵	Self-administered mail survey, recruitment from mailing lists of lesbian and gay organizations, late 1980s (year not specified) N=1067 self-identified lesbians and gay men (47% lesbian and 53% gay men); response rate 53%	Mean age: 34.4 yr 93% white Mean education: 15.2 yr 80% urban or suburban	Ever smoked: 77.4% of lesbians and 66.8% of gay men Smoked in the past year: lesbians: 47.8%; gay men: 39.7%	1988 National Health Interview Survey ³¹ Current smoking by gender and education: Men (%) Women (%) <High school 39.9 28.9 High school 35.4 29.4 Some college 27.5 23.5 ≥College 16.9 14.6 Total 30.8 25.7
(Analysis of subsample in Skinner) ¹⁴		The two largest cities located in a southern state (not specified)	Smoked in the past month: lesbians: 41.4%; gay men: 33.6%	
White and Dull ²⁵	Self-administered survey of people attending lesbian health care conference and mail survey of readership of lesbian Community Project newsletter, 1994 N=324 self-identified lesbian and bisexual women; response rate 50% for conference participants, 27% for mail-survey respondents	Mean age: 41 yr 85% White 77% ≥college Oregon	Current smokers (not defined): 11% 17% of current smokers tried to quit in past year 47% smoked 10–20 cigarettes/day	1994 National Health Interview Survey ³² Women who were current smokers: 28.2% By education: 9–11 years: 32.1% high school: 27.3% Some College: 23.3% ≥College, 10.4%
Stall et al. ²⁶	Self administered survey, recruitment at gay bars, and telephone survey of random sample of gay and bisexual men, in census tracts with concentration of resident gay/bisexual men, 1992 N=2593 self-identified gay and bisexual men (897 bar sample and	Mean age: 32–37 yr ^a White: 75–93% Black: 1–3% Hispanic: 2–17% Asian: 1% American Indian: 1%–3% 74%–87% at least some college	Current smokers ^b : Household sample: 41.5% Bar sample: 50.1% Two thirds (both samples) smoked >1 pack per day Current smokers by education (combined samples): 9–11 years: 69.1% High School: 60.5%	1992 National Health Interview survey ³² Men who were current smokers 28.0% By education: 9–11 years: 40.3% High School: 33.5% Some college: 26.4% ≥College: 17.1%

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Table 2. Studies with information on smoking prevalence in lesbian, gay, and bisexual (LGB) adults (continued)

Author	Study design	Sample demographics	Findings	National comparison
Valanis et al. ²⁷	696 household sample)	Tucson AZ, Portland OR	Some college: 51.3% College: 36.8%	
	“Cooperation rate” estimated at 59%–75%			
	Survey of postmenopausal women participating in the observational cohort and clinical trials of the Women’s Health Initiative in clinical centers throughout the U.S., enrolled 1993–1998	L B H	Ever smokers ^c	1995 National Health Interview Survey (CDC unpublished data)
	N=264 lifetime lesbians (sex only with women ever), 309 adult lesbians (sex only with women after age 45), 740 bisexual women (sex with both men and women), and 90,578 heterosexual women (sex only with men)	Mean age 58 60 62	Lifetime lesbian: 63.5%	Ever smokers:
		White 87% 85% 85%	Adult lesbian: 70.0%	
		≥College 65% 61% 41%	Bisexual: 68.0%	
Diamant et al. ²⁸	Telephone survey of population based sample obtained using random digit dialing of women in Los Angeles County, CA; 1997	(L, lesbian; B, bisexual; H, heterosexual)	Heterosexual: 50%	
			Current smokers ^d	Women 45–64: 47.8%
			Lifetime lesbian: 10.0%	Women >65: 38.4%
			Adult lesbian: 14.4%	Current smokers:
			Bisexual: 12.0%	Women 45–64: 6.5%
			Heterosexual: 7.2%	Women >65: 2.1%
Diamant et al. ²⁹	N=51 self-identified lesbian, 36 bisexual, and 4610 heterosexual women: response rate not provided	L B H	Current smokers (not defined):	1997 National Health Interview Survey ³³
	Respondents to questionnaire printed in national lesbian, gay, bisexual magazine, 1995	Mean age 39 33 42	Lesbian: 37%	Women who were current smokers: 22.1%
	N=6935 self-identified lesbians (bisexual women excluded)	White 66% 53% 42%	Bisexual: 50%	
		Hispanic 26% 36% 38%	Heterosexual: 14%	
		Black 6% 6% 11%		
		<HS 14% 11% 22%		By education:
	HS 55% 61% 49%		≤8 years: 15.1%	
	≥College 32% 28% 29%		9–11 years: 30.5%	
			High school: 25.7%	
			Some college: 23.1%	
			≥College: 10.1%	
Diamant et al. ²⁹	Respondents to questionnaire printed in national lesbian, gay, bisexual magazine, 1995	Age: 88% to 25–49	Current smoker ^e : 27%	1995 National Health Interview Survey ³⁴
	N=6935 self-identified lesbians (bisexual women excluded)	White: 88%		Women who were current smokers: 22.6%
		≥College: 63%		By education:
			≤8 yr: 17.8%	
			9–11 yr: 33.7%	
			High school: 26.2%	
			Some college: 22.5%	
			≥College: 13.7%	

^a Demographics obtained from Stall et al. 1996.⁴¹^b Any smoking in the past 30 days.^c Ever smoked 100 cigarettes.^d If yes to ever, do they currently smoke.^e Persons answering two or more times daily to “How often do you use the following substances?”

CDC, Centers for Disease Control and Prevention.

analysis, but excluded in Faulkner¹⁸). These results suggest that sexually experienced students (regardless of partner’s gender) may share some risk-taking characteristics and that students who self-identify as lesbian, gay, or bisexual are to some extent a different subgroup, with the highest rate of smoking. Further anal-

ysis of these data, including both sexual orientation and sexual behavior, might allow us to better tease out the characteristics of these different groups of youth. Similarly, studies among adults should collect information on both behavior and self-identification, as such information is important for identifying those groups with

the highest rates of smoking and may be important for the targeting of messages and interventions.

One of the main challenges to conducting research on lesbians, gays, and bisexuals is the difficulty in obtaining a population-based sample to survey. Only three^{18,19,28} of the twelve studies were based on population samples; in these studies, the number of respondents reporting same-gender sexual activity or self-identifying as lesbian, gay, or bisexual was too small for in-depth analysis. Most studies were based on convenience samples, such as people recruited from lesbian and gay community groups or gay or lesbian magazine readership. Although these findings may be generalizable to lesbians, gays, and bisexuals who attend community events or subscribe to gay newspapers or magazines, they may not be generalizable to the entire population of lesbians, gays, and bisexuals. The random survey of households in census tracts with high proportions of gay and bisexual men provides a stronger methodology than convenience samples, although the degree to which findings can be generalized beyond gay men who live in areas with a dense population of gay men is unknown.²⁶ Importantly, this approach yields with less effort, larger numbers of participants than population-based surveys. Such a methodology may be less useful to study lesbians, however, as they tend to be more geographically dispersed than gay men.³⁵

Obtaining reliable and valid information on smoking and other health indicators in this population and on the interrelationships among health behaviors is an important goal for future studies. The identification of lesbians, gays, and bisexuals as one of six populations experiencing health disparities in *Healthy People 2010*³⁶ and the inclusion of several objectives specific to sexual orientation are acknowledgments that such data are needed. Several steps can be taken to begin addressing these data needs. First, adding questions on sexual orientation to large, national health-related surveys already in use would provide information on a population-based sample, particularly in surveys that assure anonymity. Given the low percentage of people who are gay, lesbian, or bisexual, and the fact that some may not disclose their sexual orientation, large-scale surveys are needed to obtain samples with meaningful numbers of lesbian, gay, and bisexual respondents. Including such questions in the National Health Interview Survey, for example, would yield a relatively large number of people self-identifying as lesbian, gay, or bisexual, especially over the course of a few years (an estimated 650 per year if 2% of respondents self-identify as lesbian, gay, or bisexual). Questions about gender of sexual partner (but not sexual orientation) have already been included in at least one national population-based survey: the 1996 National Household Survey on Drug Abuse.³⁷ In addition, several states and cities have recently added questions on sexual orientation or

sexual behavior to the Youth Risk Behavior Survey or the Behavioral Risk Factor Surveillance System (including Maine, Philadelphia, San Francisco, and Vermont). Second, these questions need to be standardized to ensure comparability of data across surveys and should address both self-identity and sexual behavior to capture people who may not identify themselves as lesbian, gay, or bisexual. Third, because even large-scale national surveys may not yield sufficient numbers of lesbian, gay, and bisexual respondents for detailed analysis, alternative survey methods need to be developed and implemented that allow the collection of valid and reliable information from the largest number of lesbian, gay, and bisexual people as possible. Assessing the feasibility of oversampling through screening and understanding how populations surveyed through geographically targeted studies are different from population-based samples are some important areas for further investigation.

Although targeted advertisement to the gay market and tobacco sponsorship of community events is ongoing,^{10–12,38} only limited funding for smoking prevention and treatment efforts is directed toward the lesbian, gay, and bisexual community, and virtually no research has focused specifically on prevention or treatment for this population. Research is needed to better understand the factors that contribute to these rates and on how these can be intervened. As with interventions directed at other minority populations,^{39,40} programs that are culturally appropriate for lesbian, gay, and bisexual people must be designed, implemented, and evaluated and the information disseminated. Similarly, antismoking campaigns specifically targeting this population are necessary. Finally, finding ways to accurately monitor tobacco use in lesbians, gays, and bisexuals in an ongoing manner, to collect the in-depth information needed to understand patterns of tobacco use, and to evaluate the impact of prevention and treatment efforts is critical.

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