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Cigarette Smoking Among Gay and Bisexual Men

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ABSTRACT

Objectives. This study measured the prevalence of cigarette smoking among gay men and identified associations with smoking.

Methods. Household-based (n = 696) and bar-based (n = 1897) sampling procedures yielded 2593 gay male participants from Portland, Ore, and Tucson, Ariz, in the spring of 1992.

Results. Forty-eight percent of the combined sample reported current smoking, a rate far above prevalence estimates for men in Arizona ($z = 14.11$, $P < .001$) or Oregon ($z = 24.24$, $P < .001$). Significant associations with smoking included heavy drinking, frequent gay bar attendance, greater AIDS-related losses, HIV seropositivity, lower health rating than members of same age cohort, lower educational attainment, and lower income.

Conclusions. Rates of cigarette smoking are very high among gay men. Tobacco prevention and cessation campaigns should be designed to reach the gay male community. (*Am J Public Health.* 1999;89:1875–1878)

Data on patterns of tobacco use among gay and bisexual men are limited. Large-scale epidemiologic studies of tobacco use among Americans rarely measure sexual orientation, while large-scale studies of gay men infrequently measure tobacco use. Existing evidence suggests that gay men are more likely to smoke than the general adult male population,[1–6] with prevalence rates of smoking clustering around 40%.

If gay men smoke more than men in general, they may constitute a population for whom American tobacco control efforts have had limited benefit. Furthermore, smoking rates among gay men may increase as major tobacco companies begin marketing campaigns that target gay men.[7–9] The lack of representative household-based data on smoking among gay men has compromised advocacy efforts for prevention and treatment programs aimed specifically at gay men. Finally, the ability to design effective prevention and treatment programs would be enhanced by a greater understanding of the psychosocial correlates of smoking among gay men.

This report describes the prevalence and associations of smoking among 2 large-scale samples of gay men, using both household-based and gay bar sampling strategies. Prevalence estimates of smoking among gay men are directly compared with those of general-population samples of adult men, and the independent psychosocial associations of smoking among gay men are identified. The report ends with a discussion of the key research questions that must be answered if rates of smoking are to be lowered among American gay men.

Methods

Sampling

Two separate methods were used to sample gay men in Portland, Ore, and Tucson, Ariz, during the spring of 1992. Briefly, the first method used a randomized time period method to recruit male patrons of gay bars (n = 1897). The second method used a random sample of listed telephone numbers for households in Portland and Tucson to screen for resident gay/bisexual men (n = 696). Taken together, the use of the bar and list-frame telephone sampling methods yielded a sample of 2593 self-identified gay or bisexual men from both cities. (For further detail on the sampling design, see reference 10.)

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TABLE 1—Comparison of Smoking Rates by Percentage (95% Confidence Intervals) Among Men in the General Population and Among 2 Samples of Gay Men, Stratified by Education, Age, and Ethnicity

	Men in the General Population	Portland/Tucson Gay Men		
	(National Health Interview Survey, 1994[a]) (n = 8303)	Bar Sample (n = 1897)	Community Sample (n = 696)	Combined (n = 2593)
Education				
9–11 y	45.8 (41.9, 49.7)	69.8 (53.9, 82.8)	66.7 (34.9, 90.1)	69.1 (55.2, 80.9)
High school graduate	33.2 (31.1, 35.3)	61.3 (56.5, 65.9)	56.5 (45.8, 66.8)	60.5 (56.1, 64.7)
Some college	28.4 (25.9, 30.9)	52.1 (48.4, 55.7)	48.7 (42.1, 55.4)	51.3 (48.1, 54.5)
College graduate	13.8 (12.1, 15.5)	39.2 (35.5, 43.1)	32.3 (27.5, 37.4)	36.8 (33.8, 39. 8)
Age, y				
18–24	29.8 (26.5, 33.1)	49.4 (43.7, 55.0)	50.0 (36.6, 63.4)	49.5 (44.3, 54.6)
25–44	32.3 (30.6, 34.0)	50.8 (48.1, 53.5)	38.9 (34.5, 43.3)	47.6 (45.3, 49.9)
45–64	28.3 (26.2, 30.4)	47.8 (40.9, 54.9)	49.6 (40.4, 58.8)	48.5 (43.0, 54.0)
65+	13.2 (11.3, 15.1)	26.7 (07.8, 55.1)	35.3 (14.2, 61.7)	31.3 (16.1, 50.0)
Race/ethnicity				
White	28.0 (26.8, 29.2)	50.2 (47.7, 52.7)	41.9 (38.0, 45.9)	47.8 (45.7, 49.9)
Black	33.9 (29.9, 37.9)	46.7 (31.7, 62.1)	61.5 (31.6, 86.1)	50.0 (36.6, 63.4)
Hispanic	24.3 (20.2, 28.4)	47.2 (39.3, 55.2)	26.3 (13.4, 43.1)	43.2 (36.2, 50.4)
American Indian/Alaskan Native	53.7 (36.8, 70.6)	56.0 (41.3, 70.0)	50.0 (15.7, 84.3)	55.2 (41.5, 68.3)
Asian/Pacific Islander	20.4 (14.3, 26.5)	35.3 (14.2, 61.7)	16.7 (00.4, 64.1)	30.4 (13.2, 52.9)

[a]Centers for Disease Control and Prevention. Cigarette smoking among adults—United States, 1994. *MMWR Morb Mortal Wkly Rep.* 1996; 45:588–590.

Definitions of Variables

Respondents were asked whether they had smoked cigarettes during the past 30 days and, if so, how many per day. Education was coded 1 (not college graduate) or 2 (college graduate); income was coded on an 11-point scale, with each unit representing $10000; and HIV status was coded 1 (positive) or 2 (negative or unknown). Self-ratings were dichotomized as follows: overall health, 1 (poor to good) or 2 (excellent); vitamin use, 1 (not every day) or 2 (every day); eating a healthy breakfast, 1 (not most days) or 2 (most days or more); and exercise, 1 (never) or 2 (sometimes). Whether respondents asked health care providers about their medical condition on every visit was coded 1 (not every time) or 2 (every time); whether health care providers knew the subjects had sex with men was coded 1 (yes) or 2 (no). Frequency of gay bar attendance in the past 30 days was coded 1 (a few days at most) or 2 (more than a few days); drinking was coded as 1 (never) or 2 (sometimes). Having had unprotected anal intercourse with a nonprimary partner in the past 30 days, and having engaged in anal sex so that HIV transmission was possible, were both coded 0 (no) or 1 (yes). AIDS-related loss was the mean of 6 items rated along a 5-point scale, and depression was measured as the mean of 6 items from the Brief Symptom Inventory.[11]

Results

Prevalence Rates of Cigarette Smoking

In the combined sample, 47.8% of gay men reported current smoking. About half (50.1%) of the individuals in the bar sample (n = 1897) and 41.5% of the individuals in the community sample (n = 696, $P<.001$) smoked cigarettes. Modal consumption was about 1 pack of cigarettes per day in both samples (approximately 43% of both samples), with approximately two thirds of the men in both samples smoking 1 pack per day or more.

The prevalence rate for smoking among men in the United States is 28.6%,[12] far below the 47.8% estimate for the combined samples ($z = 21.61$, $P<.0001$). Similarly, significant differences in smoking prevalence rates[13,14] were found by comparing the gay men from Arizona in our sample (46.3%) with a general population-based sample of Arizona men (26.8%; $z = 14.11$, $P<.001$) and the gay men from Oregon in our sample (48.7%) with a general population-based sample of men from Oregon (22.9%; $z = 24.24$, $P<.001$).

Rates of smoking across distinct demographic subsets were also examined. There was a strong negative association between educational attainment and smoking among both gay men and men in general (Table 1). Rates of smoking among gay men from the combined sample were significantly higher than those among men in general at each educational level ($P<.0001$ for all comparisons). Thus, gay male college graduates smoke at rates approximating those of high school graduates in the general adult male population.

Smoking rates were lower among the oldest men in both studies. Note, however, that at all age levels, smoking prevalence rates from a random national sample of men were far below those of gay men in both the combined and separate samples ($P<.001$ for all comparisons).

White, African American, and Hispanic gay men were more likely to smoke than random samples of their general population counterparts ($P<.05$ for all comparisons), while smoking rates were indistinguishable between the gay and general population samples of American Indian/Alaskan Natives and Asian/Pacific Islanders. However, sample sizes for gay men of color were generally small (African Americans, n = 58; Hispanics, n = 201; Asian/Pacific Islanders, n = 23; Native Americans, n = 58), limiting the statistical power to detect differences.

Associations With Cigarette Smoking

Additional significant bivariate associations of smoking are presented in Table 2. In the multivariate analysis, when other variables (including city and sampling method) were taken into account, gay men who were more likely to drink heavily (odds ratio [OR] = 2.11; 95% confidence interval [CI] = 1.76, 2.52), to attend gay bars more fre-

TABLE 2—Bivariate Associations of Smoking Among Gay and Bisexual Men (n = 2593): Odds Ratios and 95% Confidence Intervals

	Bar (n = 1897)	Community (n = 696)	Combined (n = 2593)
Demographics			
College graduate	0.51 (0.42, 0.62)***	0.45 (0.33, 0.61)***	0.48 (0.40, 0.56)***
1991 income	0.86 (0.81, 0.91)***	0.85 (0.77, 0.94)**	0.86 (0.82, 0.90)***
Health			
Took vitamins in past 30 days	0.83 (0.67, 1.03)	0.68 (0.48, 0.94)*	0.77 (0.64, 0.92)**
Ate healthy breakfast in past 30 days	0.45 (0.37, 0.55)***	0.52 (0.38, 0.70)***	0.46 (0.39, 0.54)***
Exercised in past 30 days	0.44 (0.34, 0.57)***	0.38 (0.25, 0.58)***	0.43 (0.34, 0.53)***
Excellent health	0.50 (0.42, 0.61)***	0.60 (0.44, 0.82)**	0.53 (0.45, 0.62)***
Asks health care provider questions	1.52 (1.2, 1.9)***	1.72 (1.1, 2.6)***	1.53 (1.3, 1.9)***
Health care provider knows subject has sex with men	0.78 (0.62, 0.99)*	0.79 (0.54, 1.17)	0.77 (0.63, 0.95)*
Substance use			
Gay bar attendance in past 30 days	2.13 (1.7, 2.7)***	2.38 (1.4, 4.1)**	2.26 (1.8, 2.8)***
Any drinking in past 30 days	2.32 (1.9, 2.8)***	2.76 (2.0, 3.8)***	2.48 (2.1, 2.9)***
Sexual risk			
HIV negative or unknown	0.54 (0.42, 0.69)***	0.75 (0.48, 1.16)	0.57 (0.46, 0.71)***
Transmission risk in past 30 days	1.92 (1.4, 2.7)***	1.13 (0.52, 2.5)	1.83 (1.4, 2.5)***
UAI in past 30 days	1.51 (1.1, 2.0)**	0.87 (.47, 1.59)	1.40 (1.1, 1.8)**
Psychosocial			
AIDS-related loss	1.31 (1.2, 1.4)***	1.13 (0.97, 1.32)	1.27 (1.18, 1.38)***
Depression	1.19 (1.1, 1.3)**	1.24 (1.02, 1.51)*	1.22 (1.1, 1.3)***

Note. UAI = unprotected anal intercourse.
*$P<.05$; **$P<.01$, ***$P<.001$ for z test of difference between smokers and nonsmokers.

quently (OR = 1.61; 95% CI = 1.27, 2.03), and to report AIDS-related losses (OR = 1.24; 95% CI = 1.14,1.36) were more likely to smoke. Gay men who were not known to be HIV positive (OR = 0.68; 95% CI = 0.53, 0.87) and who had better health (OR = 0.70; 95% CI = 0.58, 0.84), had graduated from college (OR = 0.67; 95% CI = 0.55, 0.81), had higher income (OR = 0.92; 95% CI = 0.87, 0.98), followed an exercise regimen (OR = 0.57; 95% CI = 0.45, 0.72), and regularly ate a healthy breakfast (OR = 0.63; 95% CI = 0.52, 0.75) were less likely to smoke.

Discussion

Empirical evidence from this study adds to the existing literature that suggests that gay and bisexual men may be more likely to smoke cigarettes than men in general. This held true even when prevalence estimates were stratified by age and education. Half of the youngest cohort of gay men (aged 18–24 years) were current smokers, suggesting that smoking will be a danger to gay men's health for many years to come. One possible interpretation of these data would be that tobacco control measures designed for the general American public are failing gay men.

The associations with smoking among gay men suggest a general tendency to be less health conscious, to be influenced by class, to be influenced by gay socialization patterns, and to be affected by the AIDS epidemic. If distinct psychosocial correlates of smoking exist for gay men, then interventions need to address these variables if they are to be effective.

These findings must be interpreted in light of the limitations of these data. First, and perhaps most important, this study compared samples of gay men from Portland and Tucson with general population samples of men from their respective states and the nation at large. In addition, the use of gay bar sampling methods probably oversampled gay male smokers. Second, this study used a very limited assessment of tobacco use, albeit one that is generally comparable to the measures used in large national surveys. In addition, given the rather small sample sizes of gay men of color, our ability to conduct analyses across ethnic groups was severely limited. Finally, since this sample was defined in the early 1990s, follow-up data on smoking among gay men may indicate that declines in the prevalence of tobacco use have occurred over time.

There are several scientific tasks to be accomplished before we can move to the stage of designing and testing public health interventions to lower rates of smoking among gay men. First, we need large-scale household-based data in order to carefully measure the extent of smoking among gay men in the United States. Analysis of such data sets should be conducted to identify the independent correlates of smoking, not only to replicate the findings reported here but also to identify the effects of other possible variables (e.g., sensation seeking[15]). Second, we need to expand the measures of tobacco use to include other types of smoking as well as nonsmoking forms of tobacco use. Furthermore, life history measures of smoking should be included in future research—to permit estimates of the rate at which gay and bisexual men quit smoking and to inform the development of the most effective methods for tobacco cessation. Addressing each of these scientific aims will provide a firm empirical basis for the design of effective tobacco control measures for gay and bisexual men. □

Contributors

R. D. Stall and T. J. Coates designed the study, conducted the analysis, and wrote the paper. G. L. Greenwood, M. Acree, and J. Paul participated in the analysis of the data and contributed to the writing of the paper.

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The Effect of Health Education on the Rate of Ophthalmic Examinations Among African Americans With Diabetes Mellitus

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ABSTRACT

Objectives. This study evaluated a multicomponent educational intervention to increase ophthalmic examination rates among African Americans with diabetes.

Methods. A randomized trial was conducted with 280 African Americans with diabetes, enrolled from outpatient departments of 5 medical centers in the New York City metropolitan area, who had not had a dilated retinal examination within 14 months of randomization (65.7% female, mean age = 54.7 years [SD = 12.8 years]).

Results. After site differences were controlled, the odds ratio for receiving a retinal examination associated with the intervention was 4.3 (95% confidence interval = 2.4, 7.8). The examination rate pooled across sites was 54.7% in the intervention group and 27.3% in the control group.

Conclusions. The intervention was associated with a rate of ophthalmic examination double the rate achieved with routine medical care. (*Am J Public Health*. 1999;89:1878–1882)

Diabetes-related eye disease is the leading cause of new cases of blindness among adults in the United States,[1] resulting in loss of vision for an estimated 12 000 to 24 000 people[2] and generating almost $500 million in health care and associated costs annually.[3] From 1980 to 1994, race-specific, age-adjusted prevalence rates for diabetes mellitus were higher for African Americans than for Whites, and the percentage increase in age-adjusted prevalence was greater for African Americans than for Whites.[4] African Americans may have a lower quality of diabetes care[5] and suffer increased morbidity and mortality associated with diabetes compared with Whites,[6,7] including a 40% higher frequency of severe visual impairment[8] and twice the rate of blindness caused by diabetic retinopathy.[8] Most diabetes-related vision loss is due to diabetic retinopathy, a microvascular disorder of the retina[9] that to some degree eventually affects almost all people with diabetes.[10] Initial damage to the retina occurs during an asymptomatic stage,[8,11,12] but timely laser photocoagulation can prevent the extensive neovascularization, hemorrhage, and traction and detachment of the retina by adhesions that lead to loss of vision.[13–17]

Currently, the American Diabetes Association (ADA), the Centers for Disease Control and Prevention (CDC), Health Plan Employer Data and Information Set, and the US Public Health Service all support annual dilated retinal examinations for persons with diabetes. In particular, current ADA standards of diabetic eye care stipulate that all persons with type 2 (non–insulin-dependent) diabetes mellitus have an annual dilated retinal examination, beginning at diagnosis, and that individuals with type 1 (insulin-dependent) diabetes who are 10 years or older should begin to receive annual ophthalmic examinations within 3 to 5 years of diagnosis.[18]

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