

Tobacco Use among Sexual and Gender Minorities and People Living with HIV in California



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Introduction

Worldwide, tobacco use causes nearly 6 million deaths per year,¹ and in the U.S., more than 16 million Americans are living with a disease caused by smoking, such as cancer, heart disease, stroke, lung disease, diabetes, and chronic obstructive pulmonary disease (COPD).² Recent trends suggest that declines in California's adult tobacco use rates have stalled in the last few years, which has serious implications for reversing the substantial progress made in California to reduce tobacco-related diseases.^{3,4} Lesbian, gay, bisexual, and transgender (LGBT) people, also referred to as sexual and gender minorities (SGM), are more likely to use tobacco compared to their heterosexual and cisgender peers.⁵ Compared to their heterosexual, cisgender peers, SGM adults experience a younger age of smoking initiation, have higher frequency of smoking, score higher on nicotine dependence, and have elevated polysubstance use.^{6,7}

Among people living with HIV (PLWH) in the U.S., as many as 40-70% have been identified as smokers,^{8,9} which is estimated to be 2-3 times higher than the average rate of all adults in the U.S.⁸ Living with HIV and smoking tobacco is not only a dangerous combination, but rather, a deadly one. A 2017 study based on a microsimulation model estimated that smoking could reduce life expectancy by six years for a 40-year-old individual who was otherwise healthy with well-controlled HIV and that about 9% of PLWH (60,000) are expected to die from lung cancer alone if current smoking habits did not change.^{10,11} Even among PLWH who consistently take their HIV medications, the risk of dying from smoking-related conditions was estimated to be 6 to 13 times more likely than from complications due to HIV alone among smokers.¹⁰ Smoking tobacco also significantly puts PLWH at higher risk for a multitude of other serious smoking- and HIV-related comorbidities and premature death, including COPD, atherosclerotic disease, decreased bone marrow density and increased risk for bone fractures, human papillomavirus and related cancers, periodontal disease, and reproductive complications for both men and women.^{8,12-14} Smoking tobacco has also been linked to suboptimal adherence to HIV medications, particularly antiretroviral therapy (ART).^{15,16}

Smoking cessation and relapse among SGM and PLWH who smoke are further complicated by mental health issues, polysubstance abuse, social interactions within their community, and beliefs about their own life expectancy among PLWH.^{9,17-21} Most notably, some PLWH who smoke believe they will die long before suffering from the health risks of smoking or believe that they are at reduced risk for smoking-related illnesses.^{22,23} Additionally, other studies have noted that many PLWH who smoke believe that quitting smoking would have no impact on HIV, are unaware of the relationship between smoking and HIV or feel that their medical professionals offer little support for cessation.²⁴

With this policy brief, we aim to better understand the prevalence of smoking among SGM and PLWH in California and examine correlates of and disparities in smoking by sexual orientation, gender identity and HIV status. Based on our research and review of the literature, we present three policy recommendations for addressing these issues.

Methods

To better understand tobacco use among sexual and gender minorities (SGM) and people living with HIV (PLWH) in California, we retrieved data from the California Health Interview Survey (CHIS) representing all adults ages 18 and over in California. CHIS is a continuous random-dial telephone health survey of California's diverse population and is the first state-wide survey to include gender identity measures as of 2015.^{25,26} Data from the 2007, 2009, 2015 and 2016 cycles were pooled to ensure adequate sample sizes among sexual and gender minority groups. This resulted in a total weighted sample size of 9,512,742 adults ages 18 and over in California.

CHIS Measures

Demographic characteristics include age, sex, race/ethnicity, marital status, education, employment status and poverty level. A single categorical variable was used to measure sexual orientation and gender identity (SOGI) with four mutually exclusive groups: heterosexual/straight cisgender (HC), gay/lesbian/homosexual cisgender (GC), bisexual cisgender (BC) and transgender-identified (T) individuals. Self-reported HIV status was measured as a positive or negative test result in the past year among those who reported getting tested in the past year.

Cigarette smoking measures included (1) current smoking habits (i.e., currently smokes, quit smoking, never smoked regularly); (2) smoking frequency (i.e., the number of cigarettes smoked per day in the past 30 days); and (3) attempts to quit or contemplation of quitting among current smokers. Current and former smokers were defined as those who had smoked at least 100 cigarettes in their entire lifetime.

Analyses

Cigarette smoking outcomes were compared by SOGI and HIV status using chi-square tests. Analyses were weighted to the California population, and tests were performed at the 5% significance level.

Results: By Sexual Orientation and Gender Identity

Table 1a presents demographic characteristics by sexual orientation and gender identity (SOGI) among all adults ages 18 and over in California. The population consisted of 94.9% heterosexual/straight cisgender (HC), 2.3% gay/lesbian/homosexual cisgender (GC), 2.6% bisexual cisgender (BC) and 0.1% transgender (T) adults. HC and GC adults had similar demographic characteristics except for sex and marital status, with more than half of GC adults being male (64.5%) compared to 49.1% among HC adults and nearly half of GC adults (46.3%) never married compared to 26.5% among HC adults. Compared to HC adults, BC adults tended to be younger than 30 (46.5%), female (64.7%), and never married (53.2%). Transgender adults tended to be non-Hispanic white (67.1%), never married (51.9%), have less than a high school education (37.7%) and have incomes less than 200% of the federal poverty level (FPL) (64.7%).

Table 1a. Weighted demographic characteristics by sexual orientation and gender identity for all adults ages 18+ in CA (N=9,512,742)

	HC	GC	BC	T	Total	χ ²	p-value
Variable	94.9% (n=9,030,141)	2.3% (n=220,954)	2.6% (n=247,497)	0.1% (n=14,150)	100% (n=9,512,742)		
Age						75.6	<0.0001
18-29	21.6 (1,951,323)	22.5 (49,813)	46.5 (115,006)	35.8 (5,066)	22.3 (2,121,208)		
30-45	28.7 (2,595,735)	29.3 (64,839)	27.7 (68,570)	36.5 (5,170)	28.7 (2,734,314)		
46-64	32.1 (2,897,748)	33.1 (73,224)	17.4 (43,096)	26.4 (3,730)	31.7 (3,017,798)		
65+	17.6 (1,585,335)	15.0 (33,078)	8.4 (20,825)	1.3 (184)	17.2 (1,639,422)		
Self-Reported Sex						26.0	<0.0001
Male	49.1 (4,430,015)	64.5 (142,522)	35.3 (87,381)	50.0 (7,078)	49.1 (4,666,996)		
Female	50.9 (4,600,126)	35.5 (78,431)	64.7 (160,116)	50.0 (7,072)	50.9 (4,845,747)		
Race/Ethnicity						--	--
Hispanic	34.9 (3,147,053)	34.3 (75,759)	32.5 (80,557)	22.1 (3,133)	34.8 (3,306,502)		
Non-Hispanic white	42.0 (3,791,461)	49.0 (108,164)	48.5 (120,072)	67.1 (9,489)	42.4 (4,029,186)		
Non-Hispanic African American / black	5.7 (516,015)	5.3 (11,794)	5.3 (13,112)	0 (0)	5.7 (540,922)		
Non-Hispanic Asian	14.6 (1,320,485)	8.4 (18,566)	8.3 (20,554)	--	--		
Non-Hispanic other or mixed race	2.8 (255,126)	3.0 (6,671)	5.3 (13,202)	--	--		
Marital Status						140.7	<0.0001
Married	49.2 (4,442,386)	22.2 (48,982)	23.5 (58,112)	13.5 (1,908)	47.8 (4,551,388)		
Living with a partner	7.0 (632,612)	17.6 (38,782)	10.8 (26,749)	8.0 (1,131)	7.4 (699,274)		
Widowed, separated or divorced	17.3 (1,558,397)	14.0 (30,997)	12.5 (30,985)	26.7 (3,771)	17.1 (1,624,150)		
Never married	26.5 (2,396,746)	46.3 (102,193)	53.2 (131,652)	51.9 (7,339)	27.7 (2,637,930)		
Education						18.1	0.1130
Some high school or less	15.4 (1,371,061)	10.1 (22,125)	12.6 (30,982)	37.7 (5,333)	15.2 (1,429,502)		
Grade 12 or high school diploma	22.4 (1,996,221)	19.8 (43,243)	21.3 (52,351)	20.9 (2,995)	22.3 (2,094,770)		

Vocational school, AA/AS degree or some college	23.9 (2,129,794)	27.7 (60,498)	31.2 (76,689)	19.0 (2,690)	24.2 (2,269,670)		
BA or BS degree	24.1 (2,153,378)	22.0 (47,987)	22.3 (54,868)	8.1 (1,150)	24.0 (2,257,383)		
Some graduate school or more	14.2 (1,268,423)	20.3 (44,284)	12.6 (30,880)	14.3 (2,021)	14.3 (1,345,608)		
Employment Status						3.7	0.2961
Unemployed	35.1 (3,167,559)	29.2 (64,435)	31.9 (78,834)	43.2 (6,109)	34.9 (3,316,936)		
Employed (full- or part-time)	64.9 (5,862,582)	70.8 (156,519)	68.1 (168,664)	56.8 (8,041)	65.1 (6,195,806)		
Poverty Level						13.2	0.1544
0-99% FPL	17.2 (1,550,523)	15.7 (34,592)	22.3 (55,224)	19.0 (2,695)	17.3 (1,643,035)		
100-199% FPL	18.6 (1,683,090)	16.1 (35,665)	19.9 (49,206)	45.7 (6,463)	18.7 (1,774,424)		
200-299% FPL	13.8 (1,241,747)	11.8 (26,142)	15.5 (38,477)	9.4 (1,334)	13.7 (1,307,700)		
300% FPL and above	50.4 (4,554,781)	56.4 (124,555)	42.3 (104,590)	25.8 (3,657)	50.3 (4,787,584)		
Sources: CHIS 2007, 2009, 2015 and 2016							
-- censored due to small sample sizes							

Table 2a compares cigarette smoking outcomes by SOGI. Sexual and gender minority (SGM) groups had the highest rates of smoking compared to HC adults, but these differences were not statistically significant ($p=0.0957$). About 12% (1,105,367) of HC adults were current smokers, while 17.7% (39,024) of GC adults, 17.4% (42,974) of BC adults and 17.8% of transgender adults were current smokers. Although there were no statistically significant differences between these groups ($p=0.1297$), the highest proportions of current and former smokers (i.e., smoked 100 or more cigarettes in entire lifetime) occurred among GC adults (41.7%) and BC adults (37.9%). However, when comparing SGM adults collectively to HC adults, these differences were statistically significant for both current smoking rates ($p=0.0356$) and ever smoking ($p=0.0099$).

Among current smokers, heavier daily smoking (i.e., smoking 11 or more cigarettes per day) was highest among HC adults (24.5%) compared to sexual and gender minority adults (19.7% GC adults, 17.5% BC adults and 7.4% transgender adults) ($p<0.0001$). Among current smokers, nearly three-quarters of HC adults (72.9%), 69.8% of GC adults and 67.8% of BC adults had thought about quitting in the next six months. However, fewer individuals across all groups had attempted to quit smoking in the past year (i.e., 58.4% of HC adults, 64.8% of GC adults and 56.7% of BC adults). Estimates for transgender adults were not available for these outcomes due to small sample sizes.

Table 2a. Weighted smoking descriptives by sexual orientation and gender identity for all adults ages 18+ in CA (N=9,512,742)

	Heterosexual / Straight	Gay / Lesbian / Homosexual	Bisexual	Transgender	Total	χ^2	p-value
Variable	94.9% (n=9,030,141)	2.3%	2.6% (n=247,497)	0.1% (n=14,150)	100% (n=9,512,742)		
Current smoking habits						10.8	0.0957
Currently smokes	12.2 (1,105,367)	17.7 (39,024)	17.4 (42,974)	17.8 (2,516)	12.5 (1,189,880)		
Quit smoking	21.7 (1,961,960)	24.1 (53,216)	20.5 (50,749)	13.3 (1,887)	21.7 (2,067,812)		
Never smoked regularly	66.0 (5,962,814)	58.3 (128,715)	62.1 (153,775)	68.9 (9,747)	65.8 (6,255,051)		
Smoked 100+ cigarettes in entire lifetime						5.7	0.1297
Yes	34.0 (3,067,327)	41.7 (92,239)	37.9 (93,723)	31.1 (4,403)	34.2 (3,257,692)		
No	66.0 (5,962,814)	58.3 (128,715)	62.1 (153,775)	68.9 (9,747)	65.8 (6,255,051)		
<i>Among current smokers:</i>							
Number of cigarettes smoked per day in the past 30 days						1528.7	<0.0001
1-10	75.5 (834,538)	80.3 (31,348)	82.5 (35,435)	92.6 (2,330)	75.9 (903,650)		
11+	24.5 (270,829)	19.7 (7,676)	17.5 (7,539)	7.4 (186)	24.1 (286,230)		
Stopped smoking 1d or longer to quit in past year						2.3	0.5035
Yes	58.4 (645,058)	64.8 (25,284)	56.7 (24,363)	--	--		
No	41.6 (460,309)	35.2 (13,740)	43.3 (18,611)	--	--		
Thinking about quitting smoking in next 6 months						1.0	0.7950
Yes	72.9 (806,216)	69.8 (27,224)	67.8 (29,135)	--	--		
No	27.1 (299,151)	30.2 (11,799)	32.2 (13,839)	--	--		
Sources: CHIS 2007, 2009, 2015 and 2016							

Results: By HIV status

Table 1b provides demographic characteristics by self-reported HIV status among adults who had reported getting tested for HIV in the past year. Since HIV test result was only asked among those who had reported getting tested for HIV in the past year, this estimate reflects HIV incidence rather than prevalence.²⁷ About 3.5% reported testing positive in the past year. Compared to those who tested negative, those who had tested positive in the past year tended to be older than 45 (55.1%), male (95.0%), have less than a high school education (32.6%), be unemployed (42.9%), and have incomes less than 100% FPL (39.0%) ($p < 0.05$).

Table 1b. Weighted demographic characteristics by HIV status for all adults ages 18+ in CA who got tested in the past year (N=996,084)					
	Negative	Positive	Total	χ^2	p-value
Variable	96.5% (n=961,653)	3.5% (n=34,431)	100% (n=996,084)		
Age				11.7	0.0084
18-29	35.5 (341,608)	11.3 (3,903)	34.7 (345,511)		
30-45	36.0 (346,074)	33.6 (11,569)	35.9 (357,644)		
46-64	23.0 (221,652)	39.7 (13,661)	23.6 (235,313)		
65+	5.4 (52,319)	15.4 (5,297)	5.8 (57,616)		
Self-Reported Sex				8.4	0.0037
Male	66.1 (635,340)	95.0 (32,722)	67.1 (668,062)		
Female	33.9 (326,313)	5.0 (1,709)	32.9 (328,022)		
Race/Ethnicity				7.0	0.1366
Hispanic	40.7 (391,417)	48.0 (16,537)	41.0 (407,954)		
Non-Hispanic white	34.8 (335,080)	43.2 (14,869)	35.1 (349,949)		
Non-Hispanic African American/black	8.4 (80,610)	4.7 (1,609)	8.3 (82,220)		
Non-Hispanic Asian	5.2 (49,717)	--	--		
Non-Hispanic other or mixed race	10.9 (104,829)	--	--		
Marital Status				1.1	0.7823
Married	17.2 (165,765)	18.8 (6,478)	17.3 (172,242)		

Living with a partner	8.5 (81,827)	9.1 (3,119)	8.5 (84,946)		
Widowed, separated or divorced	21.0 (201,841)	12.9 (4,443)	20.7 (206,284)		
Never married	53.3 (512,220)	59.2 (20,391)	53.5 (532,611)		
Education				18.3	0.0011
Some high school or less	11.8 (112,761)	32.6 (11,032)	12.5 (123,793)		
Grade 12 or high school diploma	23.7 (226,268)	22.9 (7,752)	23.7 (234,019)		
Vocational school, AA/AS degree or some college	28.7 (273,131)	29.0 (9,814)	28.7 (282,945)		
BA or BS degree	23.7 (226,042)	8.8 (2,968)	23.2 (229,010)		
Some graduate school or more	12.1 (115,096)	6.6 (2,244)	11.9 (117,340)		
Employment Status				6.6	0.0100
Unemployed	22.5 (216,098)	42.9 (14,760)	23.2 (230,858)		
Employed (full- or part-time)	77.5 (745,555)	57.1 (19,671)	76.8 (765,226)		
Poverty Level				17.3	0.0006
0-99% FPL	19.1 (184,012)	39.0 (13,441)	19.8 (197,453)		
100-199% FPL	17.9 (172,241)	31.0 (10,668)	18.4 (182,909)		
200-299% FPL	14.8 (142,725)	5.3 (1,824)	14.5 (144,549)		
300% FPL and above	48.1 (462,675)	24.7 (8,498)	47.3 (471,174)		

Sources: CHIS 2015 and 2016

Table 2b compares smoking outcomes by self-reported HIV status. Smoking prevalence was high among both groups, with 22.6% of those who reported testing negative and 23.9% of those who reported testing positive being current smokers. Similarly, nearly half of those who reported testing negative (44.7%) and nearly half of those who reported testing positive (50.6%) reported that they smoked 100 cigarettes or more in their entire lifetime.

Among current smokers, heavier daily smoking was highest among those who reported testing HIV-positive (39.1%) compared to those who reported testing negative (23.3%) ($p < 0.0001$).

While a higher proportion of those who had reported testing negative had thought about quitting smoking in the near future (73.2%) compared to those who reported testing positive (58.7%), similar proportions of both groups had attempted to quit in the past year (i.e., 61.0% of those who reported testing negative and 62.1% of those who reported testing positive). Neither were statistically significant.

Table 2b. Weighted smoking descriptives by HIV status for all adults ages 18+ in CA who got tested in the past year (N=996,084)					
	Negative	Positive	Total	χ^2	p-value
Variable	96.5% (n=961,653)	3.5% (n=34,431)	100% (n=996,084)		
Current smoking habits				0.4	0.8115
Currently smokes	22.6 (217,130)	23.9 (8,229)	22.6 (225,360)		
Quit smoking	22.1 (212,616)	26.7 (9,185)	22.3 (221,802)		
Never smoked regularly	55.3 (531,906)	49.4 (17,016)	55.1 (548,923)		
Smoked 100+ cigarettes in entire lifetime				0.4	0.5439
Yes	44.7 (429,747)	50.6 (17,415)	44.9 (447,161)		
No	55.3 (531,906)	49.4 (17,016)	55.1 (548,923)		
<i>Among current smokers:</i>					
Number of cigarettes smoked per day in the past 30 days				1086.8	<0.0001
1-10	76.7 (166,544)	60.9 (5,013)	76.1 (171,557)		
11+	23.3 (50,586)	39.1 (3,216)	23.9 (53,802)		
Stopped smoking 1d or longer to quit in past year				0.006	0.9373
Yes	61.0 (132,400)	62.1 (5,114)	61.0 (137,513)		
No	39.0 (84,731)	37.9 (3,115)	39.0 (87,846)		
Thinking about quitting smoking in next 6 months				1.1	0.2861
Yes	73.2 (158,871)	58.7 (4,830)	72.6 (163,701)		
No	26.8 (58,259)	41.3 (3,399)	27.4 (61,658)		
Sources: CHIS 2015 and 2016					

Policy Recommendations

CHIS data and prior studies focused on tobacco use among SGM and PLWH indicates a greater need to focus on comorbidities arising from such use. Policy recommendations from these data indicate the following:

1. Conduct better surveillance of smoking among Californians living with HIV

Currently, CHIS is unable to identify all individuals that are diagnosed living with HIV. While trends in health disparities related to smoking among SGM have been well documented, a limited segment of PLWH are represented in the CHIS data as the survey currently does not ask all participants regarding their serostatus.²⁸ Due to this gap in data, it is difficult to determine the extent to which tobacco use impacts Californians living with HIV. More robust data collection regarding HIV status, preferably an inquiry asked of all survey participants, will provide a more comprehensive understanding of smoking among Californians living with HIV. Additionally, CHIS does not have measures regarding use of alternative tobacco products such as e-cigarettes, smokeless tobacco or cannabis use. Adding measures for these health outcomes should be considered for future iterations of the CHIS survey.

2. Increase efforts to prevent and treat tobacco use among sexual and gender minorities and HIV impacted communities

Given that SGM experience disparities related to smoking, screening for smoking in clinical and community settings remains crucial. These data demonstrate the importance of tailored tobacco prevention and tobacco cessation efforts among sexual and gender minorities. Clinicians should consistently screen for tobacco use with SGM patients. This is only possible, however, when providers seek sexual orientation and gender identity information from their patients. While more providers are prompted, sometimes from electronic health records systems, to ask their patients about how they might identify, there remain settings where collecting these measures have not yet been standardized.²⁹ Furthermore, SGM patients may be reluctant to disclose due to histories of stigma and discrimination in medical settings.^{30,31} Thus, continued efforts to support clinicians to ask patients how they identify should continue.

With increased awareness that smoking prevalence is high among PLWH, clinicians, social service providers, and advocates seeking to end tobacco use should seek to target their prevention and treatment messaging accordingly as these data support a substantial need for targeting tobacco cessation programs to HIV impacted communities. Actively incorporating smoking cessation in the delivery of comprehensive and preventative healthcare including HIV care must be considered a high priority.

3. Expand research opportunities focused on smoking among SGM Californians and Californians living with HIV

Due to the voter-approved Tobacco Tax Increase Initiative, codified under Health and Safety Code Sections 104500-104545, there is increased funding for research examining tobacco-related diseases in California. The Tobacco-Related Disease Research Program (TRDRP), support-

ed by these funds, permits researchers to study not only disease but also social and behavioral research focused on prevention and treatment for tobacco use and tobacco control policy research. Currently, TRDRP has funded research and policy initiatives focused on tobacco use among SGM in California. Historically, the National Institutes of Health have supported this work.³²

Given what is already understood about the significant health risks caused by smoking among PLWH, further research efforts must begin to look at the acceptability and efficacy of efforts to address smoking prevention and cessation among PLWH as well as SGM people. Because PLWH are continuously subjected to messages regarding HIV medication adherence, strategies for reaching PLWH who smoke must consider how other public health campaigns may or may not help facilitate messaging around smoking prevention and treatment. Additionally, more research and necessary funding is needed to address tobacco use among SGM and PLWH. Further studies could help to determine whether prevention and treatment programs already developed for the general population continue to be appropriate in effectively addressing smoking among SGM and PLWH.

Even with the limited CHIS data, particularly with regard to data on PLWH who smoke in California, these policy recommendations are supported by the weight of evidence provided by countless studies documenting the degree to which tobacco use is a key driver in worsening health outcomes for SGM and individuals impacted by HIV/AIDS.

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