Demographic, Healthcare, and Contextual Factors Associated with Smoking Status Among Sexual Minority Women

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Abstract

Purpose: The study purpose was to examine demographic, healthcare, and contextual correlates of smoking among sexual minority women (SMW).

Methods: Data were from the Chicago Health and Life Experiences of Women study (2010–2012, $N = 726$).

Results: The rate of current smoking was 29.6%, with 29.5% and 40.9% former or nonsmokers, respectively. A history of ever smoking was associated with lower educational levels, having a partner who smokes, heavy drinking, illicit drug use, and a bisexual identity. Statistically significant correlates of former versus current smoker included higher education, having a nonsmoking partner, being from the newest recruited cohort, and less illicit drug use. A past-year quit attempt among current smokers was associated with higher levels of illicit drug use, longer time until first cigarette, and being from the original cohort.

Conclusion: The study results highlight key correlates of smoking behaviors among SMW and make an important contribution to the literature on smoking disparities. Additional research is needed to inform smoking cessation prevention and control efforts to reduce known and persistent smoking disparities among SMW.

Keywords: contextual factors, correlates of smoking, demographic factors, healthcare factors, sexual minority women, smoking

Introduction

SMOKING PREVALENCE AMONG women in the United States is at a 50-year low, with ∼15 of every 100 adult women (14.8%) reporting current smoking.[1] Despite a decline in smoking among women overall, smoking remains high among sexual minority women (SMW; women who identify as lesbian, bisexual, or non-heterosexual).[2] National data specific to sexual orientation were collected for the first time in 2013 by the National Health Interview Survey (NHIS)[3] in response to recommendations from the Institute of Medicine report on LGBT health research[4] and advocacy among researchers and policy makers.[5] The results confirmed earlier reports, with smoking rates among lesbians significantly higher compared with heterosexual women.[3] Prior studies have shown that sexual orientation-related tobacco disparities emerge early in adolescence[6–8] and continue across the lifespan,[9] placing SMW at elevated risk for smoking-related health conditions.[10]

In response to persistent disparities in current cigarette smoking among women based on sexual orientation, additional research is needed to identify correlates of smoking and cessation behaviors in this population. Among women in general, a myriad of factors is strongly associated with current smoking and a reduced likelihood of smoking cessation. These factors include demographic characteristics such as age, race, and socioeconomic status,[11] healthcare access (having insurance and recent receipt of healthcare),[12] and contextual factors such as partner smoking status,[13] drug,[14] and heavy alcohol use.[15] Whether these same factors also predict smoking behaviors among SMW is unknown.

The goal of this study was to examine the demographic, healthcare, and contextual correlates of smoking and smoking cessation efforts among SMW. In addition, we examined sexual minority-specific factors such as sexual orientation and gender identity, as these variables have been linked to smoking among SMW.[9,16]

Methods

Study design

This is a cross-sectional descriptive study of $N = 726$ SMW residing in the greater Chicago Metropolitan area.

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Data were from a larger longitudinal study of SMW, the Chicago Health and Life Experiences of Women (CHLEW) conducted between 2001 and 2012 (Hughes et al.[17]). Cross-sectional data reported here were from the most recent wave of data collection (2010–2012).

Participants

CHLEW study participants were recruited through newspapers, LISTSERV, flyers, and community organizations. Eligibility included age 18 or older, English speaking, self-identification as lesbian or bisexual, and residence in Chicago or surrounding suburbs. From 2010 to 2012, a third wave of data collection took place. As part of this third wave of data collection, 353 of the original 447 women (79%) recruited in 2000–2001 were reinterviewed. To increase the diversity of our sample for wave 3 of the study, we recruited and interviewed an additional 373 women. Eligibility criteria for these additional sexual minority participants in the longitudinal CHLEW study included lesbians who were between the ages of 18 and 24, lesbians of any age who belonged to a racial or ethnic minority group and, bisexually identified women of any age group or racial or ethnic background.[18] This additional sample was recruited using an adaptation of respondent-driven sampling.[19]

As the new cohort recruitment was specifically designed to oversample Black, Latina, and younger lesbians (ages 18–24), as well as women who identified as bisexual, participants in the third wave of data collection differed from the earlier cohorts on these factors (younger, more racial and ethnic minority SMW, and more bisexual women, analyses not shown). This third wave of participants will be included in future longitudinal follow-ups and analyses. As the groups differed demographically, a dichotomous indicator distinguished the original cohort interviewed in 2000–2001 (0) from the new cohort interviewed in 2010–2012 (1) in our multivariate analyses.

Data collection

Data were collected through face-to-face 90-minute structured interviews. The study was approved by the Institutional Review Board of the University of Illinois at Chicago.

Measures

Smoking behaviors.   Smoking status was determined by the question, "Do you currently smoke cigarettes? (yes/no)." Additional questions included number of daily cigarettes, whether they smoke a mentholated type of cigarette, used other forms of tobacco, and made a past 12-month quit attempt. A measure of addiction included time (in minutes) to first cigarette in the morning.[20] Current smokers were asked whether they considered themselves addicted to cigarettes. Noncurrent smokers were asked if they had ever smoked.

Demographics.   Demographics included sexual identity (lesbian, mostly lesbian, bisexual, and other), race/ethnicity, age, education, adequacy of income to meet needs, employment, and relationship status.

Masculinity/femininity.   Masculine and feminine identity was measured by three questions developed for this study that asked: (1) how masculine they perceived their personal-ity to be; (2) how masculine they appear to others; and (3) in general, how masculine they believe themselves to be (three identical questions were next asked with the adjective feminine in place of masculine). Response options ranged from "1 = not at all" to 7 = "extremely." Feminine items were reversed coded and the six items were averaged into a score that ranged from 1 to 7 with higher scores indicating more masculinity/less femininity. We used continuous measures of masculinity and femininity, which are preferable to gender identity, such as butch/femme dichotomies as many SMW avoid and resist such labels.[21,22]

Health and healthcare access.   Health insurance was determined by a yes/no question. Perceived physical health was assessed on a 6-point scale. Responses were dichotomized as "excellent/good" and "fair/very poor." Participants were asked whether they had sought healthcare in the past 12 months (yes/no).

Contextual factors.   Participants were asked whether their partner smokes (yes/no). Those without partners were coded "no." Frequency of drinking in a bar in the previous 12 months was measured. Past-year illicit drug use included any of the following: marijuana, stimulants, cocaine, heroin, hallucinogens, or club drugs (range 0–6, higher scores = more types of illicit drug use). Thirty-day heavy drinking was measured based on quantity, frequency, and ethanol content (abstainers/light drinkers <0.22 ounces, moderate drinkers 0.22–0.99 ounces, heavy drinkers ≥1 or more ounces per day).

Statistical analyses

The analytic sample included the entire CHLEW study sample (N = 726). Bivariate analyses (t-tests, analysis of variance, Chi-squared statistics) were used to assess associations of the demographic, healthcare, and contextual characteristics with three smoking outcomes: Ever smoked (current and former) versus never, current smoker versus former, and past 12-month quit attempt. Separate multivariate models were conducted regressing the three smoking outcomes on variables with significant bivariate associations using logistic regression. Analyses were conducted using SAS 9.3 (SAS Institute, Inc., Cary, NC).

Results

Sample

Table 1 summarizes the demographic, healthcare, and contextual characteristics of the sample by smoking status. Rates of current smoking were 29.6%, with 29.5% and 40.9% former or nonsmokers, respectively. Bivariate correlates of being a current or former smoker compared with a never smoker included lower education, lower income, being unemployed, a bisexual sexual identity, being part of the new study cohort, being uninsured, reporting poorer health status, seeking healthcare in the past year, having a partner who smoked, being a heavy drinker, and reporting use of illicit drugs. Those variables that were statistically significant in the bivariate analyses were then tested in a multivariate logistic regression model of ever smoked (current/former) versus never smoked that controlled for age and race.

In multivariate analyses, statistically significant correlates of an ever-smoking history included education (more

TABLE 1. DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE BY SMOKING STATUS

Variable	Nonsmoker (n=297, 40.9%)	Former (n=214, 29.5%)	Current (n=215, 29.6%)	All three categories P*	Ever vs. never P*	Current vs. former P*
Demographics						
Age, mean (SD)	40.3 (13.7)	43.2 (14.6)	36.3 (13.0)	<0.001	0.671	<0.001
Race/ethnicity, N (%)				<0.001	0.6937	<0.001
White	110 (40.6)	109 (40.2)	52 (19.2)			
African American	102 (39.2)	52 (20.0)	106 (40.8)			
Hispanic	75 (44.6)	44 (26.2)	49 (29.2)			
Other	10 (37.0)	9 (33.3)	8 (29.6)			
Education, N (%)				<0.001	<0.001	<0.001
HS or less	39 (26.9)	19 (13.1)	87 (60.0)			
Some college	86 (37.9)	56 (24.7)	85 (37.4)			
College degree	71 (45.5)	56 (35.9)	29 (18.6)			
Graduate degree	101 (51.0)	83 (41.9)	14 (7.1)			
Income, N (%)				<0.001	0.0018	<0.001
<20,000	69 (31.2)	46 (20.8)	106 (48.0)			
20,000–40,000	60 (45.5)	38 (28.8)	34 (25.8)			
41,000–75,000	82 (48.2)	50 (29.4)	38 (22.4)			
75,000+	79 (45.9)	72 (41.9)	21 (12.2)			
Perceived income, N (%)				<0.001	<0.001	0.4626
Not enough to meet needs	114 (39.7)	59 (20.6)	114 (39.7)			
Enough to meet needs	119 (43.8)	81 (29.8)	72 (26.5)			
More than enough	62 (38.3)	71 (43.8)	29 (17.9)			
Employment, N (%)				<0.001	<0.001	0.0509
Unemployed	38 (33.9)	15 (13.4)	59 (52.7)			
Retired, disabled	42 (35.0)	36 (30.0)	42 (35.0)			
Employed	217 (44.0)	163 (33.1)	113 (22.9)			
Sexual identity, N (%)				0.0171	0.1489	0.0165
Lesbian/mostly lesbian	224 (43.3)	152 (29.4)	141 (27.3)			
Bisexual	59 (32.2)	54 (29.5)	70 (38.3)			
Other	13 (52.0)	8 (32.0)	4 (16.0)			
Relationship status, N (%)				0.0182	0.0064	0.4625
Living with a partner	114 (40.3)	99 (35.0)	70 (24.7)			
Committed relationship	61 (37.7)	40 (24.7)	61 (37.7)			
Single	121 (43.5)	73 (26.3)	84 (30.2)			
Masculine–feminine identity, M (SD)	3.73 (1.36)	3.73 (1.29)	3.95 (1.47)	0.1408	0.1066	0.2583
Cohort				<0.001	<0.001	0.0185
New	137 (36.7)	89 (23.9)	147 (39.4)			
Old	160 (45.3)	125 (35.4)	68 (19.3)			
Health and healthcare access						
Health insurance				<0.001	<0.001	0.0268
Insured	224 (43.5)	166 (32.2)	125 (24.3)			
Uninsured	73 (34.6)	48 (22.7)	90 (42.7)			
Perceived health				0.032	0.1368	0.0322
Good to excellent	223 (43.4)	152 (29.6)	139 (27.0)			
Very poor to fair	73 (34.8)	61 (29.0)	76 (36.2)			
Sought physical healthcare in past 12 months				0.0032	0.0245	0.0095
Yes	175 (37.4)	157 (33.5)	136 (29.1)			
No	122 (47.3)	57 (22.1)	79 (30.6)			
Contextual factors						
Partner smokes				<0.0001	<0.0001	<0.0001
Yes	24 (19.8)	22 (18.2)	75 (62.0)			
No	273 (45.1)	192 (31.7)	140 (23.1)			
Heavy drinker				<0.0001	<0.0001	<0.0001
Yes	32 (25.6)	27 (21.6)	66 (52.8)			
No	264 (44.1)	186 (31.1)	149 (24.9)			
Drinks in bars (past 12 months)				0.0155	0.0008	0.0117
Never	101 (39.0)	73 (28.2)	85 (32.8)			
1–2 Times	60 (43.8)	48 (35.0)	85 (32.8)			
3–11 Times	56 (45.2)	39 (31.5)	29 (23.4)			
1–3 Times a month	54 (40.9)	38 (28.8)	40 (30.3)			
1–4 Times a week	25 (39.1)	14 (21.9)	25 (39.1)			
Nearly every day	1 (11.1)	1 (11.1)	7 (77.8)			
Past-year illicit drug use, M (SD)	0.35 (0.69)	0.42 (0.71)	1.01 (1.13)	<0.0001	<0.0001	<0.0001

Sample size may vary due to missing data.
*P-value is based on bivariate associations of smoking status with each factor using chi-squared statistics for categorical variables and analysis of variance or t-tests for quantitative measures.
SD, standard deviation.

education having lower odds of ever smoked 95% confidence interval [CI]: 0.63–0.91), having a partner who smokes (95% CI:1.41–4.05), and more illicit drug use (95% CI: 1.21–2.02), and marginal odds ratios for sexual identity (bisexual [95% CI: 1.04–2.37] compared with lesbian/mostly lesbian reference group, other [95% CI: 0.30–1.79]), and heavy drinking (95% CI: 1.00–2.64). While race across all categories was not significant, a significant odds ratio was observed for African Americans (95% CI: 0.42–0.98) compared with Whites, with African Americans less likely to report ever smoking, controlling for all other variables in the model.

Next, we examined the factors associated with former versus current smoking status. Bivariate correlates of former smoking included being older, White, better educated, reporting higher income, being employed, living with a partner, being from the original cohort, having health insurance, seeking healthcare in the past 12 months, having a nonsmoking partner, not drinking heavily or using illicit drugs, and less drinking in bars. A multivariate model examining former versus current smokers showed significant odds ratios for higher education (95% CI: 1.65–2.88), being from the new cohort (95% CI: 1.05–3.72), not having a partner who smokes (95% CI: 0.18–0.76), and less illicit drug use (95% CI: 0.44–0.85). While overall race was not significant, the significant odds ratio comparing African American to Whites suggested that Whites were more likely to be former smokers (95% CI: 0.28–0.97).

Attempts to quit in the previous 12 months

Tobacco-use characteristics of current smokers are shown in Table 2. Past-year quit attempts were reported by 46.9% of current smokers. Bivariate correlates of a recent quit attempt included longer time until first cigarette ($p < 0.0001$); marginal

TABLE 2. SMOKING BEHAVIORS AMONG CURRENT SMOKERS (N = 215)

Variable	
Years smoking, mean (SD)	17.3 (13.4)
Time to first cigarette, N (%)	
Within 5 minutes	39 (18.4)
6–30 Minutes	56 (26.4)
31–60 Minutes	31 (14.6)
After 60 minutes	86 (40.5)
Number of cigarettes per day, N (%)	
10 or Less	170 (79.8)
11–20	37 (17.3)
21–30	3 (1.4)
31 or More	3 (1.4)
Smoke a mentholated brand	
Yes	133 (62.4)
No	80 (37.5)
Use any other type of tobacco	
Yes	10 (4.6)
No	205 (95.3)
Past 12 months' attempt to quit	
Yes	99 (46.9)
No	112 (53.0)
Consider self to be addicted to cigarettes	
Yes	148 (69.4)
No	65 (30.5)

Sample size may vary due to missing data.

associations with recent quit attempts included fewer number of years of smoking ($p = 0.0689$), more illicit drug use ($p = 0.0575$), and use of nonmenthol cigarettes ($p = 0.0673$). The final multivariate logistic regression model based on 200 smokers showed only higher use of illicit drugs (95%, CI: 1.05–1.96), longer time before first cigarette (higher addiction score = less time to first cigarette, 95% CI: 0.38–0.71), and being from the original cohort of participants (95% CI: 0.15–0.81) as significant correlates of an attempt to quit (data not shown).

Discussion

Research examining smoking behaviors and the correlates of these behaviors among SMW is limited. As such, this article makes an important contribution to the extant literature describing smoking disparities among SMW. Consistent with prior research, smoking rates in our sample were elevated, with reported rates nearly twice that of women in the general population (29.6% vs. 15.8%).[23] A unique contribution of this article was the description of smoking behaviors among SMW that extend beyond current smoking status. For example, among daily smokers in the general population, the average number of cigarettes smoked per day declined from 16.7 in 2005 to 14.2 in 2013.[23] Results from our sample mirror that trend, with the majority (80%) of smokers reporting 10 or fewer cigarettes per day. A past-year attempt to quit was reported by 46% of current smokers. These rates are lower than those reported by smokers in a national sample of adult workers, wherein 53.8% had made a past-year quit attempt.[24]

Poly-tobacco product use is increasingly common among young adults in the general and sexual minority populations[25]; however, <5% of the sample reported using other tobacco products. Our survey measure did measure other tobacco products such as cigars and cigarillos (little cigars), but not newer types of tobacco products such as electronic cigarettes and hookah. As such, our findings may not be an underestimation of the poly-tobacco use in this population. Prior research suggests that a higher proportion of SMW than heterosexual women smoke a mentholated brand of cigarette (42.9% vs. 32.4%, respectively).[26]

Menthol use in the current sample (62.4%) was higher than that in the published literature (39.6%),[27] likely due to the relatively high percentage of racial/ethnic minorities, who report higher rates of menthol use.[27] Menthol use has been associated with higher levels of nicotine dependency and more difficulty in quitting smoking.[28] Menthol use was marginally associated with smoking cessation attempts in our sample and should be examined further in future research involving SMW smokers.

As hypothesized, demographic, healthcare, and contextual variables were associated with smoking status. Demographic correlates (younger age, racial/ethnic minority status, lower levels of education, and income levels), replicated national trends of smoking behaviors among adults.[11] Sexual identity also played a role in smoking: bisexual women were more likely than those who identified as lesbian or mostly lesbian to be current smokers. These results are consistent with the extant literature supporting elevated risk for smoking among bisexual women.[2] Reasons for elevated rates of smoking among bisexuals is unknown; however, lack of

social support and marginalization are factors that should be considered in future research.[29]

Counter to the literature, indicators of masculine and feminine identity were not associated with smoking behaviors.[30] This lack of association may be due to sample characteristics or measurement issues. Study findings should be replicated using validated measures of masculinity/femininity and gender identity.

In bivariate analyses, healthcare factors associated with smoking status included being uninsured and not having sought healthcare in the past 12 months, replicating prior reports.[31] Insured individuals are more likely to receive advice to quit smoking and provider advice to quit smoking has been linked to smoking cessation outcomes among primary care patients.[32] Receipt of a provider recommendation to quit smoking does not seem to be linked to sexual orientation.[33] As such, increasing access to health insurance through the Affordable Care Act (ACA) may help to eliminate this barrier to smoking cessation among SMW who have been more likely than their heterosexual counterparts to be uninsured.[34]

In addition to advice to quit, best practices for healthcare providers in helping to reduce smoking among their patients include linking patients to available smoking cessation treatments. Changes to policies and procedures at the level of the healthcare system can have a positive impact on assisting providers in offering smoking cessation services by identifying patients who smoke in the electronic medical record, by offering brief smoking cessation counseling training for all providers, by monitoring provider adherence to offering smoking cessation services to all patients, and by partnering with state-run quitlines to offer free services to patients.[35]

Research on effective treatment strategies among LGBT populations is limited.[36] However, a recent systematic review found that group cessation curricula tailored for LGBT populations were feasible to implement and show preliminary evidence of effectiveness.[36] That same review also found that clinical interventions using cognitive-behavioral and other evidence-based approaches show little difference in smoking cessation outcomes between LGBT and heterosexual people. Cultural competency trainings for smoking cessation treatment providers may dramatically increase the availability of appropriate treatment options for LGBT smokers. Furthermore, state quitlines such as BlueCross BlueShield of Minnesota have implemented an LGBT cultural competency training program for quitline coaches that focused on how to screen for LGBT identity and provide tailored coaching to LGBT people.[37]

In our sample, current smokers were more likely than former smokers to report poorer perceived health. Smoking is consistently linked with poor health outcomes in the general population and unless smoking behaviors are substantially reduced, we may expect to see high rates of smoking-related illnesses among SMW in the future. For example, risk for lung cancer is high among smokers. In addition to advice to quit smoking, healthcare providers should evaluate high-risk patients for appropriateness for lung cancer screening.[38]

Lung cancer screening has been identified as an effective way to detect lung cancer at earlier more treatable stages, thus decreasing lung cancer mortality rates.[39] The National Lung Screening Trial (NLST), which was the first, large-scale, randomly controlled trial of lung cancer early detection screening in the United States, demonstrated that low-dose helical computed tomography (LDCT) lung cancer screening (LDCT screening) in older smokers reduced lung cancer-specific mortality by 20% due to the early detection of treatable lesions.[40] Currently, private health insurance and the Centers for Medicare and Medicaid Services (CMS) provide coverage of LDCT screening to eligible high-risk older adults who meet all the eligibility criteria (age 55–80 years, no diagnosis of lung cancer, either former or current smokers, and a smoking history of at least 30 pack-years).[41] Increasing awareness among older LGBT smokers and among healthcare providers caring for the needs of LGBT patient populations about the availability of effective lung cancer screening tests is an important first step in reducing smoking-related health problems.

Contextual factors also played a role in smoking behaviors. Former/current (ever) smokers compared with never smokers were more likely to have a partner who smoked, to drink heavily, and to use illicit drugs. Comparison of current and former smokers showed that women from the older cohort, with higher levels of education, those not living with a partner who smokes, and not using illicit drugs during the past year were more likely to have quit smoking. Furthermore, White women were more likely to be former smokers than were African American women. These results have important implications for targeting subpopulations of SMW with outreach and cessation messages.

Finally, we examined factors associated with a past 12-month quit attempt. After controlling for demographic factors associated with smoking, only higher use of illicit drugs, less nicotine addiction, and being from the original (older) cohort were significantly associated with a past 12-month quit attempt. The association between use of illicit drugs and smoking cessation efforts was unexpected. Although further research is needed to better understand this relationship, one possibility may relate to the fact that smoking cessation has recently been included in the goals of alcohol and other substance use treatment programs.

Limitations

Study limitations include the use of a nonprobability sample which may limit generalizability and a cross-sectional study design which precludes analysis of cause and effect. Although we relied on self-reported smoking status, self-report has been established as a fairly reliable indicator of smoking status.[42] Data were collected as part of a larger study not specifically focused on smoking. Therefore, the study did not include rigorous measures of smoking status or the assessment of other variables such as self-efficacy for quitting. The study sample included participants from a longitudinal study of SMW. Cohort differences in smoking behaviors were consistently observed with participants from the most recent third wave of data collection at increased risk for smoking compared with participants recruited as a part of the two earlier cohorts.

As noted in the Methods section, participants in the third wave of data collection differed from the earlier cohorts (younger age, more racially/ethnically diverse, more likely to be bisexual). Controlling for these variables in multivariate logistic regression models did not always eliminate the cohort effect on smoking behaviors. Given that more than a decade has separated the recruitment of the original sample

from the new participants in wave 3, unmeasured social norms or other factors may account for the increased risk of smoking in this group. Alternatively, rates of stress or other risk factors for tobacco use may be experienced by women in this sample who are more likely to belong to multiple marginalized social identities (e.g., racial minority and bisexual). Additional research will be needed to clarify changes in smoking norms and behaviors among younger and more diverse samples of SMW.

Conclusions

Our study results highlight key correlates of smoking behaviors among SMW and make an important contribution to the literature on smoking disparities. Additional research is needed to inform smoking cessation prevention and control efforts to reduce known and persistent smoking disparities among SMW.

Acknowledgments

Author Disclosure Statement

No competing financial interests exist.

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