Evaluation of Smoking Cessation Classes for the Lesbian, Gay, Bisexual, and Transgender Community

N. Eugene Walls
Hope Wisneski

ABSTRACT. This study evaluates the effectiveness of a smoking cessation course tailored to meet the needs of the lesbian, gay, bisexual, and transgender (LGBT) community. Of the 44 individuals who participated, 36 were in attendance in the final class, and 88.9% of those had successfully quit smoking. The study found an increase in importance to having cessation classes in gay-identified contexts, high ratings of the cultural appropriateness of the course content, and decreasing anxiety across the classes. Participants' assessment of their health shifted differentially based on whether they were successful at quitting.

The higher prevalence rates of smoking and tobacco use among the lesbian, gay, bisexual, and transgender (LGBT) community have been documented in both convenience (Harris Interactive, 2003; Ryan, Wortley, Easton, Pederson, & Greenwood, 2001; Stall, Greenwood, Acree, Paul, & Coates, 1999) and representative, population-based samples (Dilley et al., 2005; Gruskin, Greenwood, Matevia, Pollack, & Bye, 2007; Tang et al., 2004). This disparity has been demonstrated for both adult (Dilley et al., 2005; Gruskin et al., 2007; Tang et al., 2004) and youth (DuRant, Krowchuk, & Sinal, 1998; Ryan et al., 2001) samples and appears to hold even when controlling for known correlates of tobacco use such as income, education, and age (Gruskin & Gordon, 2006; Gruskin et al., 2007). Among populations disproportionately affected by to-bacco use, the LGBT community has some of the highest prevalence rates (American Legacy Foundation, n.d.), leading some scholars to suggest that tobacco use is among the most critical issues negatively impacting the LGBT community (Gay and Lesbian Medical Association & Lesbian, Gay, Bisexual, and Transgender Health Experts, 2001; Ryan et al., 2001).

Based on extrapolation of mortality rates from the general population, the American Cancer Society (n.d.) estimates that more than 30,000 LGBT people die each year of tobacco-related diseases. This estimate, however, does not account for some of the unique health risks in the LGBT community that have the potential to further exacerbate the negative health consequences of greater tobacco usage. For example, there is clear evidence that smoking

N. Eugene Walls, MSSW, PhD, is Assistant Professor at the University of Denver, Graduate School of Social Work, Denver, CO.

Hope Wisneski, MSW, LCSW, is Deputy Executive Director of The Gay, Lesbian, Bisexual, and Transgender Community Center of Colorado, Denver, CO.

Address correspondence to: N. Eugene Walls, Graduate School of Social Work, University of Denver, 2148 S. High St., Denver, CO 80208 (E-mail: ewalls2@du.edu).

accelerates the onset and progression of AIDS among HIV-positive people (Conley et al., 1996; Nieman, Fleming, Coker, Harris, & Mitchell, 1993; Page-Shaffer, Delorenze, Satariano, & Winkelstein, 1996) and that HIV exacerbates smoking-induced emphysema (Diaz et al., 2000). Moore and Wisniewski (2003) have argued that transgender women who receive estrogen as part of their feminizing treatment are likely to be at the same increased risk of numerous negative health effects found among women receiving estrogen replacement therapies. These include higher risks of venous thrombosis (blood clots in veins; Renoux, Dell'aniello, & Suissa, 2010), strokes (Sare, Gray, & Bath, 2008), and breast cancer (George, Colman, Goldhaber, & Marder, 2006), all of which are exacerbated by smoking (Anders, Jensen, & Prescott, 2010; Johnson, 2005; O'Donnell et al., 2010; Shinton & Beevers, 1989). Finally, there are a number of risk factors for breast cancer that have a higher incidence in the lesbian community than among heterosexual women, including having never birthed a child (Case et al., 2004; Roberts, Dibble, Scanlon, Paul, & Davids, 1998), obesity (Boehmer, Bowen, & Bauer, 2007; Case et al., 2004), and histories of greater alcohol use problems (Hughes & Eliason, 2002; McCabe, Hughes, Bostwick, West, & Boyd, 2009), making tobacco use potentially even more dangerous for the lesbian community.

Numerous factors associated with increased likelihood of using tobacco have been suggested as contributing to the greater prevalence of tobacco use in the LGBT community. Ryan and colleagues (2001) suggest that one of those contributing factors is the greater prevalence of depression among LGBT people than their heterosexual counterparts (Fabiano, Stark, & Lindsey, 2009; King et al., 2008). Numerous scholars (Elliot, 1997; Goebel, 1994; Lipman, 1992; Smith, Offen, & Malone, 2005; Washington, 2002) document the extensive marketing efforts by tobacco companies, tobacco-positive advertising in media targeting LGBT communities, and the role of this targeted marketing as factors of greater prevalence. The LGBT community additionally has higher rates of behaviors correlated with tobacco use (such as alcohol consumption; Cabaj, 1992; Greenwood et al., 2001;

Stall & Wiley, 1998), and bars have historically been the primary social institution in the community (Santa Barbara Gay and Lesbian Resource Center, 1991; Stall et al., 1999). Together, these factors among others, no doubt, undergird the increased prevalence of tobacco use documented in the LGBT community.

Although numerous health organizations and researchers have emphasized the need for culturally responsive interventions targeting the LGBT community, little research has examined either the importance of culturally responsive treatment to the community or the effectiveness of such targeted interventions (Center for Substance Abuse Treatment, 2001; Doolan & Froelicher, 2006; Gay and Lesbian Medical Association & Lesbian, Gay, Bisexual, and Transgender Health Experts, 2001; National Institutes of Health, 2006). What little research does exist in these areas suggests that LGBT smokers prefer cessation programs that are tailored to the LGBT community (Schwappach, 2008) and suggests that these community-specific interventions, which include culturally specific information about smoking in the LGBT community, are successful in helping LGBT smokers quit (Harding, Bensley, & Corrigan, 2004).

This study evaluates a smoking cessation program that was offered by community-based organizations that serve different geographical (Boulder, Denver, and Ft. Collins) and cultural (African American, White, and Latino/a) segments of the LGBT community in Colorado to answer our primary research question: Does a smoking cessation program tailored with culturally appropriate information about the LGBT community result in successful quitting for participants? The program used was designed specifically for use in the LGBT community. Culturally appropriate language was incorporated (e.g., using the term partner instead of husband/wife), an LGBT group facilitator was used, and information about the tobacco industry's use of targeted marketing and sponsorship in the community was incorporated into the materials, as was information about tobacco use's specific impact on the LGBT community and the differential risk factors in the community. In addition to descriptive statistics on the demographics and smoking behavior patterns of

the class participants, we report on pretest and posttest self-assessment of health, anxiety levels leading up to quit day, and the cessation rates of the participants.

METHOD

Sample

The sample consists of all participants who attended at least a single class in one of the five different sections of the smoking cessation course that was offered in the community. In the five cessation courses offered to the community, 44 individuals began the classes, with 69.5% completing at least five of the seven individual classes ($n = 31$) and 9.1% ($n = 4$) attending only one of the seven individual classes. The remaining participants ($n = 9$; 21.4%) attended between two and four classes.

Of the participants, 40.9% ($n = 18$) were male, 52.3% ($n = 23$) were female, 2.3% ($n = 1$) were transgender, and 4.6% ($n = 2$) did not report their gender. The largest percentage at 36.4% ($n = 16$) identified as gay, with 27.3% ($n = 12$) as lesbian, 13.6% ($n = 6$) as bisexual, 6.8% ($n = 3$) as queer, and 11.4% ($n = 5$) as heterosexual; 4.6% ($n = 2$) did not indicate their sexual orientation. With regard to race, 54.6% ($n = 24$) were White, 22.7% ($n = 10$) were Latino/a, 9.1% ($n = 4$) were African American, and 9.1% ($n = 4$) identified as Other races/ethnicities. Two individuals (4.6%) did not provide their race/ethnicity. Ages ranged from 18 to 62 years, with a mean age of 35.5 years ($SD = 12.3$).

Procedure

The cessation curriculum used was The Last Drag smoking cessation program, which was started in the spring of 1991 at Lyon-Martin Women's Health Services (Coalition of Lavender-Americans on Smoking and Health [CLASH], 2007). The Last Drag continues as a program of CLASH through master settlement agreement grants from the San Francisco Tobacco Free Project. The program has been recognized by both the Tobacco Control Section (now Tobacco Control Program) of the California Department of Health Services (now California Department of Public Health) and the National Gay and Lesbian Health Association for its unique and important contribution to the health of LGBT and HIV-affected communities (CLASH, 2007).

Based on the "Freedom from Smoking" program (American Lung Association, n.d.), the curriculum was originally modified for LGBT and HIV-positive smokers in San Francisco, CA. The course is a series of seven 2-hour sessions held during 6 weeks in a location and space identified with LGBT communities. The curriculum emphasizes the need for a culturally competent facilitator who is a member of the LGBT community and who has been certified by the American Lung Association or similar agency (CLASH, 2007).

For this study, smoking cessation classes were offered by five community-based organizations serving different segments (geographical and cultural) of the LGBT community in Colorado. All class facilitators had been trained by CLASH to use The Last Drag smoking cessation curriculum. Participants for the classes were recruited through word of mouth, information posted on organizational Web sites, flyers distributed at LGBT social events, and information distributed through organizational e-mail listservs.

Prior to beginning the series of cessation classes, all participants were asked to complete a pretest that captured information on demographics, self-perception of health, attitudes regarding smoking, and motivations for smoking cessation. After each of the first six cessation classes, all participants completed brief evaluations, which gathered information on levels of anxiety about smoking cessation, ratings of the cultural sensitivity of the course materials, and what the participant found most helpful in that particular class. After the final cessation class (Class 7), a posttest survey was administered that replicated much of the information gathered at the pretest, along with the information collected after each of the first six classes. All participants voluntarily agreed to complete the evaluation materials provided.

Once classes for each organization had been completed, data were forwarded to and entered into a database for reporting use by the lead

organization. Once classes had been completed at all of the organizations and reporting agency requirements had been completed, secondary data analyses were approved by the University of Denver's Institutional Review Board for the Protection of Human Subjects.

Data were analyzed using Stata 9.2 statistical software. Percentages reported are based on the full sample size of 44, unless otherwise noted.

Measures

Pretest/Posttest Questions

To capture self-assessment of health, three questions were asked. First, participants were asked to rate their general health on a Likert scale ranging from *excellent* to *poor*. Next, they were asked, "Think about your physical health, which includes physical illness and injury. During the last 30 days, how many days was your physical health not good?" Participants were asked the same question regarding mental health.

Participants were asked if they typically smoked within 30 minutes of waking and if they smoked even when they were too ill to get out of bed. Both questions had a yes/no response set. They were asked the number of cigarettes they smoked per day and if they usually smoked when they were alone, with other people, or equally when they were alone and with others.

Four questions were asked that captured information regarding the context of the respondents' smoking. The first inquired whether or not their significant other smoked, and the second whether *none*, *a couple*, *many*, *most*, or *all* of their closest friends smoked. Participants were asked whether they lived with others, and if so, whether their housemates were smokers or not. Lastly, respondents were given a response set outlining various smoking rules for their home and were asked which fit best.

Respondents were asked the number of times they had attempted to quit and the timing of their more recent attempt. To assess intention to quit, they were asked to choose from six options that best described their current smoking status: *No, I am not thinking about quitting*; *yes, I am thinking about quitting*; *yes, I want to quit within the next 6 months*; *yes, I want to quit within the next 30*

days; *I quit within the past 30 days*; and *I quit more than 30 days ago*. Finally, they were asked to give the No. 1 reason why they wanted to quit smoking.

The final group of questions sought to understand respondents' attitudes about smoking cessation programs. They were asked, "How important do you think it is for The Last Drag classes to be held in a gay-identified or gay-friendly space?" with a Likert response set ranging from *very important* to *not at all important*. Two open-ended questions were asked—one that sought to find out where they had heard of the cessation classes, and the other if they had any suggestions about what would be important in a smoking cessation class for LGBT-identified individuals.

Individual Session Evaluations

After each individual cessation class session, participants were asked, "On a scale of 1 to 10, with 1 being the least and 10 being the most, how anxious are you feeling about quitting smoking?" with a 10-point scale ranging from 1 = "No anxiety" to 10 = "A lot of anxiety." On a similar 10-point scale, participants were asked to rate how supported they felt in making the decision to stop smoking in the session they had just completed. Two questions were asked about the content of the cessation classes. One inquired if the content of the session was helpful in their journey to quit smoking, and the other if the materials used in the class were appropriate for use in the LGBT community. Both used a 5-point Likert scale ranging from *strongly agree* to *strongly disagree.*

FINDINGS

Descriptive Statistics

Educationally, 9.1% ($n = 4$) of participants had less than a high school education, 13.6% ($n = 6$) were high school graduates, 31.8% ($n = 14$) had some college education, 27.3% ($n = 12$) had completed a college degree, 11.4% ($n = 5$) had completed a trade or vocational school, and 6.8% ($n = 3$) did not report their education. Slightly more than 70.0% (72.7%, $n = 32$) were employed or

self-employed, 6.8% ($n = 3$) were unemployed, 4.6% ($n = 2$) were students, 4.6% ($n = 2$) were unable to work, 2.3% ($n = 1$) were retired, and the remainder ($n = 4$; 9.1%) failed to indicate their work status.

Slightly more than 13% (13.6%, $n = 6$) reported an annual income of $15,000 or less, 20.5% ($n = 9$) between $15,001 and $25,000, 11.4% ($n = 5$) between $25,001 and $35,000, 13.6% ($n = 6$) between $35,001 and $50,000, and 15.9% ($n = 7$) more than $50,000. Eleven participants (25.0%) did not report their income. Table 1 summarizes the demographic characteristics of the sample.

Self-Assessment of Health

Most participants in the class (40.9%, $n = 18$) perceived their general health as being good, with 36.4% ($n = 16$) perceiving it as being very good, 9.1% ($n = 4$) as excellent, and 6.8% ($n = 3$) as fair, and 6.8% ($n = 3$) failed to answer the question. No class participants rated their general health as poor. In the report of the number of days in the previous month they had experienced their physical health as being *not good*, responses ranged from 0 to 30 days, with a mean of 4.5 days ($SD = 7.0$). For the same question regarding mental health not being good in the previous month, responses ranged from 0 to 25 days, with a mean of 4.8 days ($SD = 6.7$).

Smoking Variables

Smoking-related characteristics of the sample are listed in Table 2. The average number of cigarettes smoked per day by respondents ranged from 4 to 90, with a mean of 17.8 ($SD = 14.3$) cigarettes smoked per day. The largest group of respondents (43.2%, $n = 19$) reported that they had their first cigarette within 30 minutes of waking up, and 34.1% ($n = 15$) reported that they smoked even if they were too ill to get out of bed. The largest percentage of respondents (45.5%, $n = 20$) reported that they smoked equally when they were with other people and when they were alone, with 25.0% ($n = 11$) reporting that they usually smoked when they were with other people and the remaining 22.7% ($n = 10$) reporting that they usually smoked when they were alone. Three participants (6.8%) failed to reply to this question.

The majority of respondents (56.4%, $n = 22$) reported that they currently did not have a significant other. Of those who reported that they did have a significant other, almost equal numbers reported that their significant other smoked (47.1%, $n = 8$) and that their significant other did not smoke (41.2%, $n = 7$). Of the partnered respondents, 11.8% ($n = 2$) were not sure if their significant other did or did not smoke.

TABLE 1. Demographic Characteristics of the Smoking Cessation Class Attendees ($n = 44$)

	Male	Female	Trans	Missing		
Gender	18 (40.9%)	23 (52.3%)	1 (2.3%)	2 (4.6%)		
	Gay	Lesbian	Bisexual	Queer	Heterosexual	Missing
Sexual orientation	16 (36.4%)	12 (27.3%)	6 (13.6%)	3 (6.8%)	5 (11.4%)	2 (4.6%)
	White	Latino/a	African American	Other races	Missing	
Race/ethnicity	24 (54.6%)	10 (22.7%)	4 (9.1%)	4 (9.1%)	2 (4.6%)	
	Less than high school	High school graduate	Some college	College graduate	Vocational or technical	Missing
Education	4 (9.1%)	6 (13.6%)	14 (31.8%)	12 (27.3%)	5 (11.4%)	3 (6.8%)
	Employed	Unemployed	Student	Unable to work	Retired	Missing
Work status	32 (72.7%)	3 (6.8%)	2 (4.6%)	2 (4.6%)	1 (2.3%)	4 (9.1%)
	<$15K	$15K–$25K	$25K–$35K	$35K–$50K	>$50K	Missing
Income	6 (13.6%)	9 (20.5%)	5 (11.4%)	6 (13.6%)	7 (15.9%)	11 (25.0%)

TABLE 2. Smoking-Related Characteristics of the Smoking Cessation Class Attendees (*n* = 44, unless otherwise specified)

Characteristic	Yes	No	Missing			
Smoke within 30 minutes of waking	19 (43.2%)	14 (31.8%)	11 (25.0%)			
Smoke even if ill and confined to bed	15 (34.1%)	20 (45.5%)	9 (20.5%)			
Social context	With other people 20 (45.5%)	Equally 11 (25.0%)	Alone 10 (22.7%)	Missing 3 (6.8%)		
Significant other smoking[1] (*n* = 17)	Yes 8 (47.1%)	No 7 (41.2%)	Don't know 2 (11.8%)	Missing		
Friendship network	None 2 (4.6%)	A couple 14 (31.8%)	Many 11 (25.0%)	Most 8 (18.2%)	All 1 (2.3%)	Missing 8 (18.2%)
Roommates[2] (*n* = 32)	Nonsmokers 17 (53.1%)	Smokers 14 (43.8%)	Not sure 1 (3.1%)	Missing		
Smoking rules in the home	Everywhere 14 (31.8%)	Certain times or people 6 (13.6%)	Certain places in home 2 (4.6%)	Only outside 15 (34.1%)	Not allowed anywhere 2 (4.6%)	Missing 5 (11.4%)
Most recent quitting attempt	More than 1 year ago 13 (29.6%)	More than 6 months, less than 1 year 7 (15.9%)	More than 30 days, less than 6 months 10 (22.7%)	In last 30 days 8 (18.2%)	Missing 6 (13.6%)	
Readiness to quit	Ready to quit 11 (25.0%)	Ready to quit in next 6 months 3 (6.8%)	Ready to quit in next 30 days 21 (47.7%)	Just quit (last 30 days) 3 (6.8%)	Missing 6 (13.6%)	
No. 1 reason to quit	Health 21 (47.7%)	Feel better about self 6 (13.6%)	Reduce risk of disease 2 (4.6%)	Save money 2 (4.6%)	Missing 13 (29.6%)	
Referral source	Agency personnel 18 (40.9%)	Flyer, e-mail, Web page 12 (27.3%)	Friends 6 (13.6%)	Missing 8 (18.2%)		
Gay space	Very important 23 (52.3%)	Somewhat important 7 (15.9%)	Slightly important 0 (0.0%)	Not very important 1 (2.3%)	Not at all important 3 (6.8%)	Missing 10 (22.7%)

[1] Of those who reported having significant others.
[2] Of those who reported residing with at least one other person.

With regard to smoking patterns among the respondents' friendship networks, only 4.6% ($n = 2$) reported that *none* of their closest friends smoked. The largest percentage (31.8%, $n = 14$) reported that *a couple* of their closest friends smoked, 25.0% ($n = 11$) reported that *many* of them smoked, 18.2% ($n = 8$) reported that *most* of them smoked, 2.3% ($n = 1$) reported that *all* of their closest friends smoked, and 18.2% ($n = 8$) did not report on the prevalence of smoking in their friendship network.

Looking at the smoking patterns of the people with whom the respondents' lived, 22.0% ($n = 9$) lived alone. Of those who lived with others, most (53.1%, $n = 17$) lived with nonsmokers, while 43.8% ($n = 14$) lived with smokers, and 3.1% ($n = 1$) were not sure if the people with whom they lived smoked or not.

Almost equal numbers of respondents reported that smoking was allowed only outside of their home on their property (34.1%, $n = 15$) and that smoking was allowed everywhere in their home and on their property (31.8%, $n = 14$). Restrictions on smoking inside the home were reported such that smoking was allowed only at certain times or only for certain people inside the home for 13.6% ($n = 6$) or only in certain places inside the home for 4.6% ($n = 2$). Only 4.6% ($n = 2$) reported that smoking was not allowed in their home or outside their home on their property, and 11.4% ($n = 5$) did not respond to this question.

The number of quitting attempts respondents reported ranged from never having attempted to quit to up to 20 or more times. The mean number of times was 6.0 (*SD* = 6.4). The most commonly reported timing of the most recent attempt at quitting among those who reported that they had attempted to quit at least once was more than a year ago (29.6%, $n = 13$). Approximately half that number of respondents (15.9%, $n = 7$) reported that their last attempt at quitting had occurred between 6 months and 1 year ago, with 22.7% ($n = 10$) reporting that they had attempted more than 1 month ago but less than 6 months ago, and 18.2% ($n = 8$) reporting that they had attempted in the last month. Six participants (18.2%) did not report on their most recent quitting attempt.

Twenty-five percent ($n = 11$) of respondents reported that they were ready to quit smoking without indicating a time frame. Almost 7% (6.8%, $n = 3$) reported they wanted to quit in the next 6 months, 47.7% ($n = 21$) reported they wanted to quit in the next 30 days, and 6.8% ($n = 3$) reported that they had quit smoking in the last 30 days. Six (13.6%) did not indicate their readiness to quit. Almost half (47.7%, $n = 21$) indicated that they wanted to quit for health reasons, 13.6% ($n = 6$) wanted to quit so that they could feel better about themselves, 4.6% ($n = 2$) wanted to reduce the risk of disease, and 4.6% ($n = 2$) wanted to save money. Thirteen (29.6%) did not indicate a primary reason for quitting.

Respondents reported numerous avenues by which they came to learn of the smoking cessation classes. The most frequently reported referral mechanism was from the agencies holding the classes (40.9%, $n = 18$). The second most common was through some type of flyer, e-mail notice, Web page, or outreach activity (27.3%, $n = 12$). Finally, 13.6% ($n = 6$) reported they found out about the classes through friends, and 18.2% ($n = 8$) did not report on how they learned of the classes.

Slightly more than half (52.3%; $n = 23$) of the respondents reported that it was *very important* that the cessation classes were held in contexts that were gay or gay friendly, followed by 15.9% ($n = 7$) stating that it was somewhat important. Of those who gave less importance to the classes being held in a gay-identified context, 6.8% ($n = 3$) reported that it was not at all important, and 2.3% ($n = 1$) reported that it was not very important. The remainder ($n = 10$; 22.7%) did not indicate the perception of the importance. Only a few respondents answered the question with suggestions for cessation classes targeting the LGBT population, but those who did most frequently identified the importance of a supportive network (e.g., "contact phone list," "healthy support, nonjudgment!").

Individual Class Findings

After each class session, participants were asked about their level of anxiety about quitting smoking. Results indicate a pattern whereby

FIGURE 1. Mean Level of Anxiety after the Completion of Each Class
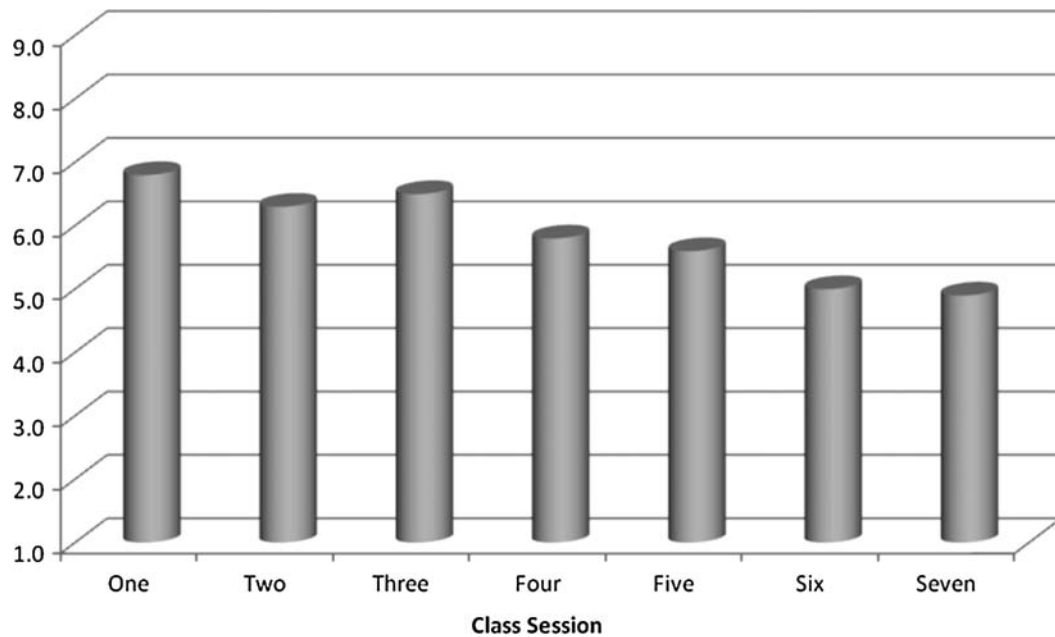
levels of anxiety fell as the sessions proceed. Figure 1 illustrates the pattern that emerged.

In terms of how supported they felt in making the decision to quit smoking, the means for the scale varied from a low 8.1 in the fifth session to a high of 9.0 in the first session, suggesting a fairly consistent and high level of participants feeling supported in the decision to quit smoking throughout the classes. Similarly, the individual classes received high and consistent marks as to whether the content of the individual session was helpful in their journey to quit smoking and whether the material covered in the session was appropriate for the LGBT community.

Posttest Findings

After the completion of all seven smoking cessation class sessions, participants were asked to complete a posttest survey that revisited a few of the questions asked on the pretest. At the end of Class 7, 88.9% ($n = 32$) of the participants reported that they were no longer smoking cigarettes, while 11.1% ($n = 4$) reported that they had not quit. Comparison of quit rates across studies using different interventions is difficult for a number of reasons. First, the time at

which the quit rate is calculated varies widely from shortly after intervention up to months or years later. Second, many smokers who are attempting to quit use multiple interventions (e.g., cessation classes, online quit aids, medication, social support), and parsing out the impact on the success of quitting across those interventions is difficult. Finally, some interventions such as cessation classes can mean widely different types of interventions (e.g., social support, psychoeducational, cognitive-behavioral therapy). In their population-based analysis of different cessation methods, Zhu, Melcer, Sun, Rosbrook, and Pierce (2000) found no significant differences in quit rates (<24 hours) at the time of their survey among smokers who sought assistance to quit. Of those who used self-help approaches, 20.0% had quit, compared with 21.5% who used some sort of counseling approach, 30.3% who used nicotine replacement therapy (NRT), and 23.7% who used a combination of counseling and NRT. However, they did find that smokers who sought some type of assistance were significantly more likely to quit than smokers who did not seek any type of assistance (26.7% vs. 16.3%, $p < .001$). Using survival time analysis, they also found that the probability of relapse

for those who used some type of assistance was significantly lower than for those who had not used assistance. Given these findings, the high success rate of the cessation classes examined in this study is very promising.

Rather than the rating of *good* being the most commonly given answer on their general health as it was in the pretest, the most commonly given response in the posttest was *very good* (41.7%, $n = 15$). *Good* was the second most frequently given answer (36.1%, $n = 13$), followed by *excellent* (16.7%, $n = 6$), and *fair* (5.6%, $n = 2$). A comparison of the posttest and pretest indicates that 38.2% ($n = 13$) of the respondents rated their health after the seventh week of the classes lower than they did in the pretest, while 38.2% ($n = 13$) rated their health the same, and 23.5% ($n = 8$) rated their health as better.

A comparison of the direction of change (or lack of change) was examined using a χ^2 test based on smoking status. Of the individuals who quit smoking during the classes, 56.7% reported no change or a positive change in perceived health status, while 43.3% reported a negative change in perceived health status. This contrasts with the pattern that emerged among the individuals who did not succeed in quitting during the class, where 100% reported either no change or a positive change in their perceived health status and no one reported a negative change in perceived health status. The test for significance is marginally significant ($\chi^2 = 2.81$, $p = .094$).

We turn our attention now to the number of days in the last 30 days where physical and mental health was rated as *not good*. We found responses ranging from 0 to 29 days with a mean of 3.5 days ($SD = 6.7$) for physical health and responses ranging from 0 to 28 days with a mean of 3.4 days ($SD = 5.6$) for mental health. Both of these represent a decrease in number of days where health was viewed as *not good* from 7 weeks earlier at the pretest, but t-tests do not indicate that the change has reached a level of significance, nor does a χ^2 test indicate a significant difference in the pattern for quitters versus nonquitters.

One question that was asked both in the pretest and in the posttest surveys captured how important the respondents believed it to be that smoking cessation classes for LGBT individu-als be held "in a gay-identified or gay-friendly space." At the posttest administration, 83.3% ($n = 30$) reported that it was *very important*, 8.3% ($n = 3$) that it was *somewhat important*, 2.8% ($n = 1$) that it was *slightly important*, and 5.6% ($n = 2$) that it was *not very important*. No one reported that it was *not at all important* in the posttest.

Comparing the importance of having smoking cessation classes in a gay-identified or gay-friendly context after the completion of the cessation classes in such spaces finds an increase in the assessment by the participants on its importance. Using the Wilcoxon matched-pairs signed-ranks test, we find that the distributions of responses are not the same ($Z = 2.37$, $p = .018$), suggesting that there has been a significant shift in opinion.

DISCUSSION AND IMPLICATIONS

Although the numbers of participants in the smoking cessation classes were not large overall, those who did participate rated the classes as being helpful in their journey to quit smoking. They reported that the classes were offered in a manner that was culturally appropriate for the LGBT community, and almost 90% of those who attended the final session reported that they had quit smoking by the end of the cessation classes. There was also a clear trend of decreased anxiety about quitting as the classes proceeded and the quit day approached.

On average, prior to beginning the cessation classes, the participants smoked almost a package of cigarettes per day and reported six prior attempts at quitting. The vast majority reported that their last attempt to quit occurred more than 6 months prior to beginning the classes, with 40% reporting that it had been a year or longer. Most indicated that health reasons were their primary motivation for quitting and that they were ready to quit in the next 30 days.

After experiencing the cessation classes in a gay-identified context, there was a significant increase in the percentage of participants who indicated that they believe holding smoking cessation classes in a gay-identified or gay-friendly context was important.

Participants' self-rated assessment of their own health also saw a shift, with those who successfully quit by the end of the classes being more likely to rate their health in a more negative way at posttest than at pretest compared with the small group of participants who had not quit by the end of classes. A number of factors could be undergirding this difference in shifts, although it is impossible to determine from the existing data. It could be that after being exposed to the course content about smoking, smokers had a more realistic perspective of the impact smoking was having on their health, which might explain the decrease in health assessment. If this were the case, we might anticipate that those who actually quit smoking would assess their health more negatively as more realistic assessment could motivate behavioral change, while unrealistically positive assessment of health (i.e., ignoring or denying the impact of smoking on health) might be more strongly associated with failing to quit. The pattern whereby successful quitters had a more negative (and realistic) assessment of their health while nonquitters did not is what emerged in the data.

Another interesting point about the sample we are examining is that while The Last Drag curriculum has been designed to be culturally responsive to the LGBT community and while the courses studied within this study were offered in LGBT organizations, slightly more than 11.0% of our sample identified as heterosexual individuals. It is unclear how the experiences of these individuals may have influenced our findings, but given that the classes were advertised almost solely within LGBT community contexts, one would suspect that these participants were at least loosely connected in some way to the LGBT community. This may have been as volunteers for LGBT organizations, attending pride or other LGBT social events, or as friends of LGBT smokers who participated in the class. Regardless, the quit rate for heterosexual participants did not significantly differ from the quit rate for LGBT participants.

Limitations

There are a number of limitations in this study. As a small pilot study, the numbers of subjects

in the study limits the statistical power. Given that all the participants self-selected to participate in the cessation classes, the sample is likely to be more motivated to quit than the general LGBT smoking population (although as the findings indicate, there were participants who were at differing levels of intention to quit in the classes). Similarly, because the sample was not a representative sample of the LGBT smoking population in Colorado, the behavioral patterns identified should not be construed as representative of this population. The final data collection points were immediately following the last class, and information regarding longer-term cessation success could add important information to the findings. Finally, because no control group was available to be examined across the same time period, we are unable to determine the likely number of smokers who would have quit with no intervention.

CONCLUSION

Even with the limitations outlined above, the high rates of cessation, combined with the overall assessment of the support received and the cultural appropriateness of the content, suggest that smoking cessation classes specifically targeting the LGBT community are one possible effective intervention to begin to address the documented disparities in smoking prevalence in the LGBT community. Research by Zhu and colleagues (2000) suggests that an increasing number of smokers are approaching the cessation process by reaching out for assistance. In their study, almost one in five (19.9%) used some type of assistance, while data from a decade earlier (Fiore, Smith, Jorenby, & Baker, 1994) found that only 7.9% of smokers had done so. Assuming this increased willingness to seek assistance in quitting cigarette smoking holds true for the LGBT community as well, providing an array of different types of assistance, including cessation classes and social support, seems critical.

The inclusion of cultural references and specific information about tobacco's impact on the LGBT community has the potential to make the psychoeducational content of cessation classes much more salient and meaningful to LGBT

smokers. Similarly, holding the classes in LGBT-identified spaces and using LGBT facilitators further strengthen the cultural responsiveness of the intervention. The increased level of importance of having the course in LGBT-identified spaces endorsed at the end of the cessation classes underscores the importance of modifying curricula for the culturally specific contexts of the LGBT community.

As others have suggested, multilevel interventions are needed to address the complex factors that play a role in the higher prevalence of smoking and tobacco use in the LGBT community. In addition to cessation classes, access to online and telephone quit aids and medical treatment that is culturally responsive to the LGBT community may be important individual-level supports. At an organizational level, adopting policies such as those that refuse to accept tobacco-related funding for support and endorsement of community-based events as well as continued lobbying for legislation to prohibit indoor smoking at bars and restaurants are other interventions that might prove beneficial. Given the centrality of bars to social life within the LGBT community, smoke-free legislation would appear to have a disproportionate positive impact on the community. Finally, interventions that specifically target young people and seek to prevent tobacco use, no doubt, are important tools to reduce the number of youth and young adults who begin smoking (Remafedi & Carol, 2005) so that the need for cessation classes is reduced in the future as well.

ACKNOWLEDGMENTS

REFERENCES

American Cancer Society. (n.d.). *Tobacco and the GLBT community*. Oklahoma City, OK: Author.

American Legacy Foundation. (n.d.). *Research and publications: Factsheets.* Washington, DC: Author. Retrieved from http://www.americanlegacy.org

American Lung Association. (n.d.). *Freedom from smoking.* Washington, DC: Author. Retrieved from http://www.lungusa.org/assets/documents/program-pdfs/freedom-from-smoking.pdf

Anders, G. H., Jensen, G., & Prescott, E. (2010). Risk factors for venous thromboembolism: Results from the Copenhagen City Heart Study. *Circulation, 121*, 1896–1903.

Boehmer, U., Bowen, D. J., & Bauer, G. R. (2007). Overweight and obesity in sexual-minority women: Evidence from population-based data. *American Journal of Public Health, 97*, 1134–1140. doi:10.2105/AJPH.2006.088419

Cabaj, R. P. (1992). Substance use in the gay and lesbian community. In J. H. Lewinson, P. Ruiz, & R. Millman (Eds.), *Substance use: A comprehensive textbook* (pp. 852–860). Baltimore, MD: Williams and Wilkins.

Case, P., Bryn, A. S., Hunter, D. J., Manson, J. E., Malspeis, S., Willett, W. C., & Spiegelman, D. (2004). Sexual orientation, health risk factors, and physical functioning in the Nurses' Health Study II. *Journal of Women's Health, 13*, 1033–1047.

Center for Substance Abuse Treatment. (2001). *A provider's introduction to substance abuse treatment for lesbian, gay, bisexual, and transgender individuals.* Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

Coalition of Lavender-Americans on Smoking and Health. (2007). *The last drag facilitators guide.* San Francisco, CA: Author.

Conley, L. J., Bush, T. J., Buchbinder, S. P., Penley, K. A., Judson, F. N., & Holmberg, S. D. (1996). The association between cigarette smoking and selected HIV-related medical conditions. *AIDS, 10*, 1121–1126.

Diaz, P. T., King, E. R., Wewers, M. D., Gadek, J. E., Neal, D., Drake, J., & Clanton, T. L. (2000). HIV infection increases susceptibility to smoking-induced emphysema. *Chest, 117*, 285S.

Dilley, J. A., Maher, J. E., Boysun, M. J., Pizacani, B. A., Mosbaek, C. H., Rohde, K., . . . Pickle, K. E. (2005). Response letter to: Tang, H., Greenwood, G. L., Cowling, D. W., Lloyd, J. C., Roeseler, A. G., & Bal, D. G. Cigarette smoking among lesbians, gays, and bisexuals: How serious a problem? *Cancer Causes & Control, 16*, 1133–1134.

Doolan, D. M., & Froelicher, E. S. (2006). Efficacy of smoking cessation intervention among special populations: Review of the literature from 2000 to 2005. *Nursing Research, 55*, S29–S37.

DuRant, R. H., Krowchuk, D. P., & Sinal, S. H. (1998). Victimization, use of violence, and drug use at school among male adolescents who engage in same-sex behavior. *Journal of Pediatrics, 133*, 113–118.

Elliot, S. (1997, June 4). A campaign urges gay men and lesbians to resist tobacco ads. *New York Times.* Retrieved from http://www.nytimes.com/1997/06/04/business/a-campaign-urges-gay-men-and-lesbians-to-resist-tobacco-ads.htm

Fabiano, P., Stark, C., & Lindsey, B. J. (2009). The prevalence and correlates of depression among college students. *College Student Journal, 43*, 999–1014.

Fiore, M. C., Smith, S. S., Jorenby, D. E., & Baker, T. B. (1994). The effectiveness of the nicotine patch for smoking cessation: A meta-analysis. *Journal of the American Medical Association, 271*, 1940–1947.

Gay and Lesbian Medical Association & Lesbian, Gay, Bisexual, and Transgender Health Experts. (2001). *Healthy People 2010 companion document for lesbian, gay, bisexual, and transgender (LGBT) health.* San Francisco, CA: Gay and Lesbian Medical Association.

George, J. L., Colman, R. W., Goldhaber, S. Z., & Marder, V. J. (2006). *Hemostasis and thrombosis: Basic principles and clinical practice.* Hagerstown, MD: Lippincott Williams & Wilkins.

Goebel, K. (1994). Lesbians and gays face tobacco targeting. *Tobacco Control, 3*, 65–67.

Greenwood, G. L., White, E. W., Page-Shafer, K., Bein, E., Osmond, D. H., Paul, J., & Stall, R. (2001). Correlates of heavy substance use among young gay and bisexual men: The San Francisco Young Men's Health Study. *Drug & Alcohol Dependence, 61*, 105–112.

Gruskin, E. P., & Gordon, N. (2006). Gay/lesbian sexual orientation increases risk for cigarette smoking and heavy drinking among members of a large Northern California health plan. *BMC Public Health, 6*, 241–247.

Gruskin, E. P., Greenwood, G. L., Matevia, M., Pollack, L. M., & Bye, L. L. (2007). Disparities in smoking between the lesbian, gay, and bisexual population and the general population in California. *American Journal of Public Health, 97*, 1496–1502.

Harding, R., Bensley, J., & Corrigan, N. (2004). Targeting smoking cessation to high-prevalence communities: Outcomes from a pilot intervention for gay men. *BMC Public Health, 4*, 43.

Harris Interactive. (2003). *Six out of ten adults surveyed prefer smoke-free bars and clubs.* Retrieved from http://www.witeckcombs.com/news/releases/20030113_smokefree.pdf

Hughes, T. L., & Eliason, M. (2002). Substance use and abuse in lesbian, gay, bisexual, and transgender populations. *Journal of Primary Prevention, 22*, 263–298.

Johnson, K. C. (2005). Accumulating evidence on passive and active smoking and breast cancer. *International Journal of Cancer, 117*, 619–628.

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self-harm in lesbian, gay, and bisexual people. *BMC Psychiatry, 8*, 70–88.

Lipman, J. (1992, August 13). Philip Morris to push brand in gay media. *Wall Street Journal*, p. B1.

McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors, and substance dependence in the United States. *Addiction, 104*, 1333–1345.

Moore, E., & Wisniewski, A. (2003). Endocrine treatment of transsexual people: A review of treatment regimens, outcomes, and adverse effects. *Journal of Clinical Endocrinology and Metabolism, 88*, 3467–3473.

National Institutes of Health. (2006). National Institutes of Health State-of-the-Science Conference statement: Tobacco use: Prevention, cessation, and control. *Annals of Internal Medicine, 145*, 839–844.

Nieman, R. B., Fleming, J., Coker, R. J., Harris, J. R., & Mitchell, D. M. (1993). The effect of cigarette smoking on the development of AIDS in HIV-1-seropositive individuals. *AIDS, 7*, 705–710.

O'Donnell, M. J., Xavier, D., Liu, L., Zhang, H., Chin, S. L., Rao-Melacini, P., . . . Yusuf, S. (2010). Risk factors of ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): A case-control study. *Lancet, 376*, 112–123.

Page-Shaffer, K., Delorenze, G. N., Satariano, W. A., & Winkelstein, W., Jr. (1996). Comorbidity and survival in HIV-infected men in the San Francisco Men's Health Survey. *Annals of Epidemiology, 6*, 420–430.

Remafedi, G., & Carol, H. (2005). Preventing tobacco use among lesbian, gay, bisexual, and transgender youths. *Nicotine & Tobacco Research, 7*, 249–256.

Renoux, C., Dell'aniello, S., & Suissa, S. (2010). Hormone replacement therapy and the risk of venous thromboembolism: A population-based study. *Journal of Thrombosis and Haemostasis, 8*, 979–986.

Roberts, S., Dibble, S., Scanlon, J., Paul, S., & Davids, H. (1998). Differences in risk factors for breast cancer: Lesbian & heterosexual women. *Journal of Gay and Lesbian Medical Association, 2*, 93–101.

Ryan, H., Wortley, P. M., Easton, A., Pederson, L., & Greenwood, G. (2001). Smoking among lesbians, gays, and

bisexuals: A review of the literature. *American Journal of Preventive Medicine, 21*, 142–149.

Santa Barbara Gay and Lesbian Resource Center. (1991). *Gay and lesbian smoking and health survey.* Santa Barbara, CA: Author.

Sare, G. M., Gray, L. J., & Bath, P. M. W. (2008). Association between hormone replacement therapy and subsequent arterial and venous vascular events: A meta-analysis. *European Heart Journal, 29*, 2031–2041.

Schwappach, D. L. B. (2008). Smoking behavior, intention to quit, and preferences toward cessation programs among gay men in Zurich, Switzerland. *Nicotine & Tobacco Research, 10*, 1783–1787.

Shinton, R., & Beevers, G. (1989). Meta-analysis of relation between cigarette smoking and stroke. *British Medical Journal, 298*, 789–794.

Smith, E. A., Offen, N., & Malone, R. E. (2005). What makes an ad a cigarette ad? Commercial tobacco imagery in lesbian, gay, and bisexual press. *Journal of Epidemiology and Community Health, 59*, 1086–1091.

Stall, R. D., Greenwood, G. L., Acree, M., Paul, J., & Coates, T. J. (1999). Cigarette smoking among gay and bisexual men. *American Journal of Public Health, 89*, 1875–1878.

Stall, R. D., & Wiley, J. A. (1998). A comparison of alcohol and drug use patterns of homosexual and heterosexual men: The San Francisco Men's Health Study. *Drug and Alcohol Dependence, 22*, 63–73.

Tang, H., Greenwood, G. L., Cowling, D. W., Lloyd, J. C., Roesler, A. G., & Bal, D. G. (2004). Cigarette smoking among lesbians, gays, and bisexuals: How serious a problem? (United States). *Cancer Causes & Control, 15*, 797–803.

Washington, H. A. (2002). Burning love: Big tobacco takes aim at LGBT youths. *American Journal of Public Health, 92*, 1086–1095.

Zhu, S.-H., Melcer, T., Sun, J., Rosbrook, B., & Pierce, J. P. (2000). Smoking cessation with and without assistance: A population-based analysis. *American Journal of Preventive Health, 18*, 305–311.