Title

Interest in Smoking Cessation Related to a Smoke-Free Policy Among Homeless Adults

Journal

Journal of Community Health, 40(4)

ISSN

0094-5145

Authors

Vijayaraghavan, Maya

Pierce, John P

Publication Date

2015-08-01

DOI

10.1007/s10900-014-9985-9

Peer reviewed

J Community Health
DOI 10.1007/s10900-014-9985-9

ORIGINAL PAPER

Interest in Smoking Cessation Related to a Smoke-Free Policy Among Homeless Adults

Maya Vijayaraghavan · John P. Pierce

Abstract Homeless adults have among the highest rates of cigarette smoking. Few studies have explored the potential of smoke-free policies as facilitators of smoking cessation or harm reduction among sheltered homeless adults. We focused on clients of a homeless shelter in San Diego, California. The facility prohibited smoking indoors and outdoors within five blocks of the building, and permitted smoking during four smoking breaks during the day in designated smoking zones away from the building. Current and former smokers who were residents of the facility were interviewed on smoking behaviors and attitudes toward these policies. Of the 170 ever smokers, 75.3 % were current smokers. The average daily cigarette consumption was 6.6 cigarettes per day (SD 4.3). More than half of the participants (57.8 %) attempted to quit smoking in the past year. Of the current smokers, three-fourths agreed that the facility policies were associated with their reduced consumption, and about half agreed that the policies were associated with either making a quit attempt or getting ready to quit completely. Sixty percent agreed that further restrictions on smoking, beyond the current policies, would be associated with increased interest in quitting smoking completely. Less than 10 % agreed that they were unhappy to stay in the facility because of the policies. Findings suggest that smoke-free policies may not influence occupancy rates in shelters serving clientele with high rates of cigarette smoking. Smoke-free policies in homeless service settings present an important and un-tapped opportunity to reduce smoking behaviors among homeless adults.

Keywords Homeless adults · Smoke-free policies · Tobacco use

Introduction

At 70 % [1], the prevalence of tobacco use among homeless adults is five times that of the national average in the United States (U.S.) [2]. Smoking cessation interventions for homeless adults have focused on behavioral counseling and pharmacotherapy [3]. Although such therapy has been shown to have increased effectiveness when combined with smoke-free policies [4], no interventions have targeted smoke-free policies in homeless service settings.

The presence of smoke-free policies in a community is an indicator of social norms around smoking [5]. Smoke-free homes and workplaces have been shown to reduce secondhand smoke exposure and to motivate cessation [6, 7]. Quit attempts made in the context of a smoke-free environment are associated with successful cessation and lower rates of relapse [8].

Given these benefits, restrictions on smoking in indoor and some outdoor public spaces and the workplace have become normative in many states across the U.S. California was the first state to implement laws restricting smoking in the workplace, and these laws have played a significant role in de-normalizing tobacco use in the general population [9]. Yet little is known about smoke-free policies in settings that serve California's populations that are disproportionately affected by tobacco use, such as homeless shelters.

To date, there have been two studies on smoke-free policies in homeless shelters. In a study of transitional or

M. Vijayaraghavan (✉) · J. P. Pierce
Family Medicine and Public Health, Cancer Prevention and Control Division, Moores UCSD Cancer Center, University of California, San Diego, 3855 Health Sciences Drive, MC 0901, La Jolla, San Diego, CA 92093-0901, USA
e-mail: mvijayaraghavan@ucsd.edu

Published online: 06 January 2015

long-term shelters in Los Angeles (LA) County, 75 % of the facilities had indoor no-smoking restrictions and 78 % had designated smoking zones [10]. However, differences existed by the size of the facilities, with only half of the large (>200 beds) transitional shelters reporting indoor smoke-free policies [10]. In a homeless shelter in Dallas, Texas, a smoke-free indoor policy with an outdoor designated smoking zone was associated with reduced exposure to secondhand smoke, without changes in smoking behaviors among clients [11].

We report on attitudes toward smoke-free policies and interest in cessation among clientele of an emergency and transitional shelter located in San Diego County. The facility prohibited smoking indoors and outdoors within five blocks of the building, and permitted smoking during four daily breaks in designated smoking zones away from the building. Staff were not permitted to smoke with clients. These restrictions on smoking were stronger than those reported in previous studies [10, 11]. We hypothesized that the facility policies would be associated with reduced consumption and interest in smoking cessation among homeless clients.

Methods

We enrolled a large sample of homeless adults from an emergency and transitional housing facility in San Diego County that served single homeless men and women and women with children. The facility had the capacity to offer transitional housing to 260 individuals and emergency housing to 60 individuals. Clients living in transitional housing were permitted to stay in the facility for at least 12 months, whereas those in emergency housing were permitted to stay for at least 1 month. Eligible participants were current or former smokers who were living in the facility, ≥18 years of age, and able to provide informed consent. The facility policy on smoking was implemented in March 2013. Shortly after implementation, between July 2013 and May 2014, trained research staff met with as many participants as possible at the facility and administered a computer-assisted questionnaire on smoking behaviors, attitudes toward smoking, smoking cessation, and the facility's smoke-free policies. Participants received a $5.00 gift card for completing the questionnaire. The University of California, San Diego Institutional Review Board approved all study protocols.

Smoking Behavior

Ever smoking status was assessed with the standard 100-cigarette-in-lifetime question and current smokers were asked if they smoked every day, some days or not at all. Participants reported the number of cigarettes smoked on smoking days. Current smokers reported the time it took to smoke their first cigarette after waking, selecting from one of the following responses: after 60, 31–60, 6–30 min, and within 5 min. We asked about current smokers' intention to quit smoking, and provided the following response options: never expect to quit, may quit in the near 6 months, will quit in the next 6 months, and will quit in the next month. Current smokers reported whether they had made a quit attempt in the past 12 months and, if they did, the duration of the last quit attempt. Current smokers reported whether they had used nicotine replacement therapy or medications (e.g. Bupropion or Varenicline) in a prior quit attempt, as well as their interest in using an electronic cigarette to quit cigarette smoking. Former smokers also reported whether they had used a cessation aid, selecting from the following responses: nicotine aid, pharmaceutical aid, telephone quit line, smoking cessation class, or quit on my own.

Attitudes Toward Smoke-Free Policies

We assessed violation of the policies in the past month by asking current smokers whether they had smoked in an area where they were not supposed to, and provided the following response options: never, rarely, sometimes, and often. We asked former smokers whether they had stopped smoking after entering the current facility, and if they did, whether the facility policies were part or the main reasons for stopping smoking. Using a 5-point Likert scale (strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree), current and former smokers reported their attitudes toward norms around smoking and smoke-free policies in the facility. To explore attitudes toward smoke-free policies, we introduced the following statement, "Because of the restrictions on where I can smoke…" and provided the following response statements: "I smoke less than what I used to", "I tried to stop smoking for a short time", "I am getting ready to quit completely", and "I am not happy to stay in the facility." Participants responded to each of the statements using the above Likert scale.

Sociodemographics

Participants self-reported their age, sex, race/ethnicity (white, African American, Latino, Asian/mixed/other), education (less than high school, high school or GED, some college, college or professional training), and the length of stay in the current facility. We determined history of chronic homelessness (defined as having been continuously homeless in the past year or having four or more episodes of homelessness off and on in the past 3 years [12]) based on self-reports of prior housing.

Statistical Analysis

We reported sociodemographic and smoking characteristics using means (SD) for continuous variables and proportions for categorical variables. We dichotomized responses for attitudes toward smoking, smoking cessation, norms around smoking, and smoke-free policies among current and former smokers as 'agree or strongly agree' versus 'disagree or strongly disagree or neither agree nor disagree'. All analyses were conducted using Stata, version 11.

Results

We obtained interviews with 170 current and former smokers, which was about half of the eligible population in the facility (53.2 %). Except for ten female residents of the facility's emergency shelter (mean length of stay 15 days), all other participants lived in the transitional housing (mean length of stay 3 months) and did not differ significantly from those in emergency housing.

The mean age of our sample was 43.3 years (SD 11.7), 85.3 % were male, 45.9 % were white, 19.4 % were African American, and 20.0 % were Latino (Table 1). Almost half (47.6 %) had either some college or professional training: 35.9 % had a high school diploma or GED with 16.5 % not completing high school. The average length of stay in the facility was 3.2 months (SD 3.5), and 36.5 % had a history of chronic homelessness.

The majority of these ever smokers (75.3 %) still smoked (Table 2). Average daily cigarette consumption was 6.6 cigarettes per day (SD 4.3). Approximately half (47.7 %) of the current smokers reported smoking within 30 min of waking. The majority of participants who reported smoking currently expressed some intention to quit smoking: 42.9 % expressed an intention to quit in the near 6 months; 17.2 % expressed an intention to quit in the next 2–6 months; and 25.0 % expressed an intention to quit in the next month. Less than one-fourth (14.8 %) of the current smokers never expected quit smoking. Of the current smokers, 57.8 % reported making a quit attempt in the past year, with the average length of the quit attempt being 45 days (SD 68.6). One-third (33.6 %) of the current smokers reported having used nicotine replacement therapy and 12.5 % used medications in a prior quit attempt. About half the participants (53.9 %) expressed interest in using an electronic cigarette to quit cigarette smoking. Of the current smokers, 63.3 % reported never smoking in an area where smoking was prohibited, whereas 15.7 % reported smoking rarely, 14.1 % reported smoking sometimes, and 5.5 % reported smoking often in a no-smoking area.

The majority of the former smokers reported quitting on their own without using a cessation aid. Of the 42 former smokers, 13 (30.9 %) reported quitting after entering the facility. Of these 13 participants, 6 (46.2 %) reported that the facility policies were part or the main reasons for smoking cessation. Two-thirds (66.7 %) of the former smokers agreed that they could help others quit smoking, and the majority (85.7 %) agreed to undergo training to become cessation counselors.

Less than 15 % of current smokers agreed that staff offered them cigarettes or smoked with them during smoking breaks (Fig. 1). Almost all current smokers (88.3 %) and former smokers (97.6 %) agreed that smoke-free policies were important because they offered a clean and safe living environment. Of the current smokers, 75 % agreed that the facility policies were associated with their reduced consumption, and about half agreed that the policies were associated with either making a quit attempt or getting ready to quit completely (Fig. 2). Less than 10 % agreed that they were unhappy to stay in the facility due to the policies. Almost two-thirds (60.9 %) of the current smokers agreed that further restrictions on smoking would bring them closer to quitting smoking completely; however, 26.5 % reported that further restrictions would make them unhappy to stay in the facility.

Table 1 Sample characteristics of current and former smokers (N = 170)

Characteristics	N (%)
Age (mean, SD)	43.3 (11.7)
Male	145 (85.3)
Race/ethnicity	
White	78 (45.9)
African American	33 (19.4)
Latino	34 (20.0)
Asian/other race	25 (14.7)
Education	
Less than high school	28 (16.5)
High school or GED	61 (35.9)
Some college	57 (33.5)
College and/or professional training	24 (14.1)
Length of stay in current facility in months (mean, SD)	3.2 (3.5)
Chronic homelessness[a]	62 (36.5)

[a] Defined as being continuously homeless in the past year or having had four or more episodes of homelessness in the past 3 years

Discussion

In this study, we found that the facility's policies on smoking, which included an indoor and a broad outdoor ban on smoking, were associated with reduced consumption and interest in smoking cessation among homeless

Table 2 Smoking behaviors among current and former smokers (N = 170)

	N (%)
Current smoker	128 (75.3)
Average daily cigarette consumption (mean, SD)	6.6 (4.3)
Time to first cigarette in the morning <30 min	61 (47.7)
Smoked in an area where smoking was prohibited in the past month	
Never	81 (63.3)
Rarely	20 (15.6)
Sometimes	18 (14.1)
Often	7 (5.5)
Intention to quit smoking at baseline	
Never expect to quit	19 (14.8)
May quit in the near 6 months	55 (42.9)
Will quit in the next 6 months	22 (17.2)
Will quit in the next 1 month	32 (25.0)
Previous quit attempt for at least one day in the past year	74 (57.8)
Length of last quit attempt in days (mean, SD)	45 (68.6)
Used a nicotine replacement therapy in a prior quit attempt	43 (33.6)
Used Bupropion or Varenicline in a prior quit attempt	16 (12.5)
Interested in using an electronic cigarette to quit cigarette smoking	69 (53.9)
Former smokers	42 (24.7)
Time since last cigarette in months (mean, SD)	19.2 (66.2)
Aids for smoking cessation	
Used a nicotine aid	3 (7.1)
Used a pharmaceutical aid	0 (0)
Called the telephone quit line	0 (0)
Participated in a stop smoking class	1 (2.4)
Quit on own	36 (85.7)
Other	5 (11.9)
Quit smoking after entering the facility	13 (30.9)
Facility smoking policies were part or the main reason for stopping smoking[a]	6 (46.2)
Interested in helping friends quit smoking	28 (66.7)
Interested in training to be a cessation counselor	36 (85.7)

[a] Among those who quit smoking after entering the facility

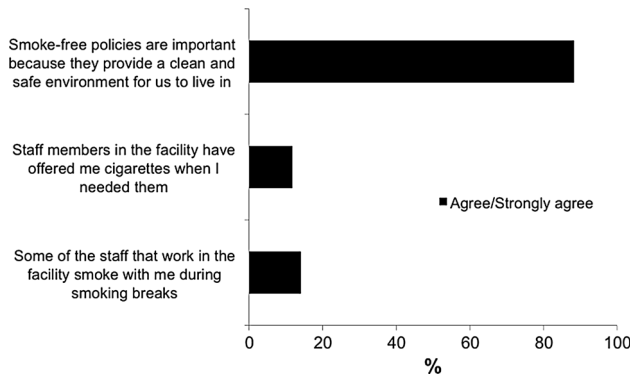

Fig. 1 Perceived norms around smoking among current smokers (N = 128)

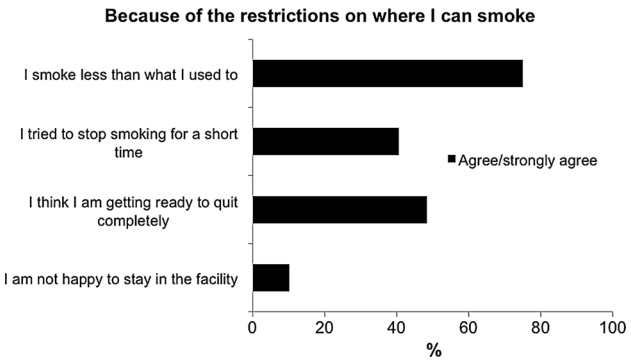

Fig. 2 Attitudes toward smoke-free policies among current smokers (N = 128)

adults. The majority of current and former smokers were supportive of the restrictions on smoking, with almost all participants agreeing that the smoke-free policies promoted a healthy living environment. Consistent with previous studies [13, 14], our findings demonstrate that homeless adults are engaged in smoking cessation behaviors.

Homeless service settings have the reputation of being permissive toward smoking [15]. Concerns about lack of support by clients and the threat of increasing unsheltered homeless may serve as barriers to implementing smoke-free policies in shelters. Staff smoking may further normalize smoking behaviors [16]. In our study a minority of current smokers reported being unhappy to stay in the facility because of the policies, and less than 25 % violated the policies in the past month. Even fewer participants reported smoking or sharing cigarettes with staff in the facility, suggesting that the facility's rules were mainly self-enforcing. Our participants supported a shelter-wide outdoor ban extending to the immediate neighborhood within five blocks of the building, which was a significantly stronger restriction than that in the Texas study [11] and may reflect stronger anti-tobacco norms in California. Studies that examine exposure to smoke-free policies among homeless adults in states that have different norms around smoking are needed.

The majority of current smokers reported reducing consumption because of the policies, with cigarette consumption being at least half that of previous estimates (range 12–20 cigarettes per day) [1, 3, 11]. While the policies triggered interest in cessation for half the participants, additional strategies may be needed for others for whom the policies were insufficient. Establishing a tobacco control program that includes smoke-free policies and resources for cessation may facilitate successful cessation among sheltered homeless adults. Given their strong interest, enlisting former cigarette smokers as peer cessation counselors may also promote smoking cessation among current smokers living in shelters [17].

More than half the current smokers attempted to quit smoking in the past year, yet only one-third reported using nicotine replacement therapy and even fewer reported using medications in a prior quit attempt. Most of the former smokers reported quitting smoking on their own, without the use of a cessation aid. In the general population, use of FDA-approved cessation medications is associated with better cessation outcomes [18]. However, use of nicotine replacement therapy was not associated with increased quitting when compared to controls in a recent randomized controlled trial with low-income smokers [19]. Many factors may influence the use of cessation aids, including access to medications as well as perceived efficacy of these medications during a quit attempt [16, 19–21]. Our results highlight the need for studies that examine the reasons behind the low rates of use of cessation medications among homeless adults. Our study also provides preliminary evidence to suggest interest in the use of electronic cigarettes as a smoking cessation aid, highlighting a need for studies that examine the initiation and patterns of use of these novel electronic nicotine delivery devices and their association with cigarette smoking cessation among the homeless population.

Our study had limitations. The study was conducted in one shelter, located in a California locale, and may not be generalizable to homeless adults in other parts of the U.S. Our sample was predominantly male, and may not generalizable to women. However, our sample was racially and ethnically similar to that of the overall homeless population in San Diego County [22], with a higher proportion of Latino homeless adults than the U.S. adult homeless population. Further, the prevalence of current smoking in our study was similar to previous estimates [1, 3]. Results were based on self-reports, which could lead to misclassification bias and socially desirable responses. The results need to be corroborated in cohort studies that explore the effects of smoke-free policies on smoking behaviors among homeless adults.

Smoking-related diseases are the leading causes of morbidity and mortality among homeless adults [23, 24], highlighting an urgent need for tobacco control strategies. Our study adds to the growing literature on smoke-free policies in low-income populations by demonstrating that sheltered homeless individuals are supportive of such policies. Our results provide suggestive evidence that smoke-free policies in shelters may be associated with changes in norms around smoking and in smoking behaviors among homeless adults. Thus such polices should be considered as part of a comprehensive program to reduce tobacco use in homeless service settings.

Acknowledgments We thank the leadership and staff at the shelter for their support and work during the study conception and data collection phases of the study. We would also like to thank research staff (Kristin Parrinella B.A., Theresa Wong B.A., Arvin Wali B.A., and Devesh Vashishtha B.A.) for conducting some of the participant interviews. This work was supported by the California Tobacco Related Disease Research Program Grant 22XT-0020.

Conflict of interest None.

References

1. Baggett, T. P., & Rigotti, N. A. (2010). Cigarette smoking and advice to quit in a national sample of homeless adults. *American Journal of Preventive Medicine, 39*, 164–172.
2. Centers for Disease Control and Prevention. (2011). Vital signs: Current cigarette smoking among adults age ≥18 years—United States, 2005–2010. *MMWR Morbidity Mortality Weekly Report, 60*, 1207–1212.
3. Okuyemi, K. S., Goldade, K., Whembolua, G. L., Thomas, J. L., Eischen, S., Guo, H., et al. (2012). Smoking characteristics and comorbidities in the power to quit randomized clinical trial for homeless smokers. *Nicotine & Tobacco Research, 15*, 22–28.
4. Gilpin, E. A., Messer, K., & Pierce, J. P. (2006). Population effectiveness of pharmaceutical aids for smoking cessation: What is associated with increased success? *Nicotine & Tobacco Research, 8*, 661–669.

5. Biener, L., Hamilton, W. L., Siegel, M., & Sullivan, E. M. (2010). Individual, social-normative, and policy predictors of smoking cessation: A multilevel longitudinal analysis. *American Journal of Public Health, 100*, 547–554.
6. Mills, A. L., Messer, K., Gilpin, E. A., & Pierce, J. P. (2009). The effect of smoke-free homes on adult smoking behavior: A review. *Nicotine & Tobacco Research, 11*, 1131–1141.
7. Gilpin, E. A., Farkas, A. J., Emery, S. L., Ake, C. F., & Pierce, J. P. (2002). Clean indoor air: Advances in California, 1990–1999. *American Journal of Public Health, 92*, 785–791.
8. Messer, K., Mills, A. L., White, M. M., & Pierce, J. P. (2008). The effect of smoke-free homes on smoking behavior in the US. *American Journal of Preventive Medicine, 35*(3), 210–216.
9. California Department of Public Health. (1998). A model for change: The California experience in tobacco control. http://www.cdph.ca.gov/programs/tobacco/Documents/CTCPmodelforchange1998.pdf
10. Arangua, L., McCarthy, W. J., Moskowitz, R., Gelberg, L., & Kuo, T. (2007). Are homeless transitional shelters receptive to environmental tobacco control interventions? *Tobacco Control, 16*, 143–144.
11. Businelle, M. S., Poonawalla, I. B., Kendzor, D. E., Rios, D. M., Cuate, E. L., Savoy, E. J., et al. (2014). Smoking policy change at a homeless shelter: Attitudes and effects. *Addictive Behaviors, 40C*, 51–56.
12. The McKinney–Vento Homeless Assistance Act. (2009). General definition of homeless individuals. https://www.onecpd.info/resources/documents/homelessassistanceactamendedbyhearth.pdf
13. Okuyemi, K. S., Caldwell, A. R., Thomas, J. L., Born, W., Richter, K. P., Nollen, N., et al. (2006). Homelessness and smoking cessation: Insights from focus groups. *Nicotine & Tobacco Research, 8*, 287–296.
14. Connor, S. E., Cook, R. L., Herbert, M. I., Neal, S. M., & Williams, J. T. (2002). Smoking cessation in a homeless population: There is a will, but is there a way? *Journal of General Internal Medicine, 17*, 369–372.
15. Apollonio, D. E., & Malone, R. E. (2005). Marketing to the marginalised: Tobacco industry targeting of the homeless and mentally ill. *Tobacco Control, 14*, 409–415.
16. Porter, J., Houston, L., Anderson, R. H., & Maryman, K. (2011). Addressing tobacco use in homeless populations: Recommendations of an expert panel. *Health Promotion & Practice, 12*, 144S–151S.
17. Goldade, K., Guo, H., Jarlais, D. D., Connet, J. E., Whembolua, G. L., Owen, G., et al. (2012). Homeless former smokers' interest in helping homeless current smokers quit. *American Journal of Health Promotion, 27*, 90–93.
18. Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel, Liaisons, and Staff. (2008). A clinical practice guideline for treating tobacco use and dependence: 2008 Update. *American Journal of Preventive Medicine, 35*, 158–176.
19. Haas, J. S., Linder, J. A., Park, E. R., Gonzalez, I., Rigotti, N. A., Klinger, E. V., et al. (2014). Proactive tobacco cessation outreach to smokers of low socioeconomic status: A randomized clinical trial. *JAMA Intern Med* [Epub ahead of print].
20. Connor, S. E., Scharf, D. M., Jonkman, L. J., & Herbert, M. I. (2014). Focusing on the five A's: A comparison of homeless and housed patients' access to and use of pharmacist-provided smoking cessation treatment. *Research in Social and Administrative Pharmacy, 10*, 369–377.
21. McQueen, A., Shacham, E., Sumner, W., & Overton, E. T. (2014). Beliefs, experience, and interest in pharmacotherapy among smokers with HIV. *American Journal of Health Behavior, 38*, 284–296.
22. The Regional Taskforce on the Homeless. (2011). 2011 San Diego Point-in-time homeless census & survey. http://www.rtfhsd.org/docs/RTFH-PITC-2011.pdf
23. Hwang, S. W., Wilkins, R., Tjepkema, M., O'Campo, P. J., & Dunn, J. R. (2009). Mortality among residents of shelters, rooming houses, and hotels in Canada: 11 year follow-up study. *British Medical Journal, 339*, b4036.
24. Baggett, T. P., Hwang, S. W., O'Connell, J. J., Porneala, B. C., Stringfellow, E. J., Orav, E. J., et al. (2013). Mortality among homeless adults in Boston: Shifts in causes of death over a 15-year period. *JAMA Internal Medicine, 173*, 189–195.