

Smoking Characteristics of a Homeless Population¹

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When addressing tobacco control and smoking cessation measures, the homeless have been perceived as a difficult to reach population. The purpose of this study was to examine the smoking characteristics of a homeless population. Data were derived from a larger study that examined smoking among inner-city residents. Homeless smokers (n = 107) were compared to nonhomeless smokers (n = 491) on sociodemographics, smoking characteristics, motivation to quit, and smoking cessation experiences. Results showed that homeless smokers were more likely to be white, smoke more cigarettes per day, initiate smoking at a younger age, and have a longer smoking history. Knowledge about the risks of smoking and the benefits of quitting was equally high in both groups. Homeless smokers were less likely to be preparing to quit smoking compared to nonhomeless smokers. These factors place homeless smokers at increased risk of tobacco-related diseases. Programs are needed to design and test effective cessation interventions for homeless smokers.

KEY WORDS: homeless; smoking characteristics; smoking cessation.

INTRODUCTION

It is estimated there are 19 million homeless adults and children in the United States (1, 2), about 5 million of whom smoke cigarettes (1). Recent data suggest a decline in prevalence rates and a narrowing of the difference between ethnic

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groups (3, 4). However, prevalence rates among certain segments of the population (e.g., inner-city residents) remain high, up to 40% among urban poor.

Studies have documented that smokers are at increased risk of developing numerous diseases including cardiovascular disease, (e.g., coronary artery disease, stroke, hypertension, and peripheral vascular disease), cancer (e.g., of the lung, stomach, and bladder), respiratory disease (e.g., chronic bronchitis and chronic obstructive pulmonary disease), and gastric ulcers (5). The homeless are at particular risk of health consequences of smoking because their general health already may be compromised by poor nutrition, poor hygiene, and inadequate access to health care (6). In addition, research suggests that some homeless persons engage in alternative smoking behaviors (e.g., smoking of discarded cigarette butts and used filters) that increase their potential for intake of toxins and infectious agents trapped in filters, which have been associated with cardiovascular disease, cancer, and respiratory disease (1, 6). Furthermore, the homeless focus primarily on meeting basic survival needs, such as eating and finding shelter, and may use smoking as a coping mechanism to deal with the stress of their day-to-day existence and may not be as concerned about the long-term health effects of smoking. In addition to smoking to ease stress, homeless individuals may be smoking for camaraderie or in order to participate in the underground economy of cigarettes (6, 7).

Because the homeless are perceived as a difficult to reach population, tobacco control and smoking cessation measures have not focused on this population (6, 7). Consequently, there is limited research on homeless smokers. Understanding the smoking characteristics of the homeless is an important first step for intervening in this population. The current study examined reasons for smoking, perception of harm from smoking, readiness to quit, and smoking cessation experiences among homeless smokers. Data were derived from a larger study that examined smoking among inner-city residents.

METHODS

Setting and Study Population

This study was conducted at an inner-city health center with approximately 200,000 patient visits yearly through its Adult Medicine, Pediatrics, Women's Health, Eye, Dental, and Outreach clinics. The health center is based in an urban residential neighborhood and mostly serves a predominately low-income, African American population.

Procedure

The study was a convenience sample of 598 smokers recruited through a variety of strategies. Many smokers interested in completing the survey came to the study office at the Outreach clinic of the health center. In addition, study research assistants approached patients in the health center's lobby, clinic waiting areas, and designated smoking areas outside the facility. Trained research assistants conducted

all surveys during the hours of 8:30 a.m. and 5:00 p.m. on weekdays between August and December 2000. Patients interested in the study completed a four-item eligibility survey, which included age ≥ 18 years, smoked at least 100 cigarettes in their lifetime, and smoked a cigarette in the last 30 days. Informed consent was obtained from eligible patients. Participants subsequently completed a survey instrument and were reimbursed \$20 for their time. Because of the possibility of low literacy among our participants (8), research assistants read all items on the survey instrument to participants. The study protocol was approved by the Human Subjects Committee of the University of Kansas Medical Center.

Measures

Sociodemographics

The demographic data collected in the survey included age, gender, education, marital status, income, employment status, and race/ethnicity. The type of housing participants lived in was determined by asking, "What type of place do you live in?" Response categories for this question were (a) public housing development, (b) rent a home or apartment, (c) own a home, (d) a relative's home or apartment, (e) a boarding or halfway house, (f) a detox center, and (g) a shelter or the street. For purposes of this analysis, the homeless were defined as those living in a shelter or on the street.

Smoking Characteristics

These were assessed using questions from previously published NIH-funded studies, the Centers for Disease Control and Prevention (CDC), and other national studies (3). Participants were asked about their current smoking rate, age of first cigarette, and age of regular smoking. Participants were also asked if they had used other forms of tobacco (pipes, cigars, chewing tobacco, snuff) or nicotine replacement therapy (NRT—gum, patch, spray, and inhaler) in the past 30 days, and about their experiences with smoking cessation.

The survey instrument assessed the participant's readiness to quit, based on the stages of change (9). Only three stages, precontemplation, contemplation, and preparation, were represented in the sample because all participants had to be smokers to be in the study. Participants who were not thinking about quitting in the next 6 months were classified as precontemplators. Participants who were thinking about quitting within the next 6 months were classified as contemplators. In the preparation stage were smokers who were thinking about quitting in the next 30 days and who have made at least one serious quit attempt lasting 24 h or more in the past year. Motivation and confidence to reduce or quit smoking were assessed using a 10-point Likert Scale.

Nicotine Dependence

This was assessed using the Fagerstrom Test for Nicotine Dependence (FTND). This six-item instrument is summed to yield an overall dependence score that ranges from 0 to 10 (10).

Perceived Harm

Questions about perceived harm from smoking were adopted from the Monitoring the Future Survey (11). Using a scale of no risk, slight risk, moderate risk, and great risk, participants were asked to rate how much they thought they risked harming themselves physically or otherwise by smoking cigarettes at different rates (half a pack or less, more than half a pack but less than a full pack, or one full pack or more).

Depression

This was assessed using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D), which has established validity and reliability. The possible range of scores is 0–30, with scores of 10 or higher indicative of the likelihood of clinical depression (12, 13).

Biological Measure

Exhaled breath carbon monoxide level was measured using a tabletop portable Carbon Monoxide (CO) monitor (Bedfont Micro Smokelyzer, Kent, England).

Data Analysis

Of the 598 smokers surveyed in the original study, 107 identified themselves as homeless. Data were double entered into a Microsoft Access® database and statistical analyses were performed using SAS © software version 8.0 (SAS Institute Inc., Cary, NC, 1999). We compared homeless and nonhomeless smokers on socio-demographics, smoking characteristics, nicotine dependence, perceived harm from smoking, depression, and exhaled CO levels. Categorical variables were summarized with percentages and continuous variables were summarized by means. Chi-square test and fishers exact tests were used to make comparisons of categorical variables between groups. *T* Test and Wilcoxon Rank Sum Test were used to make global comparisons of the means across the two groups. Two-sided *p* values less than 0.05 were considered statistically significant.

RESULTS

The survey was completed by 107 homeless smokers and 491 nonhomeless smokers. There were no differences in the mean ages of smokers in the two groups. Compared to the nonhomeless, homeless smokers smoked more cigarettes per day, had a higher maximum number of cigarettes smoked per day, initiated smoking at a younger age, and had been smoking for longer periods of time (Table I). The homeless were less likely to smoke menthol cigarettes. The mean CO level did not differ significantly between the two groups. The mean score on the FTND was slightly higher for homeless smokers as was the use of recreational drugs. In addition, the homeless smokers had higher scores on the CES-D.

Table I. Sociodemographics and Smoking Characteristics

	Homeless smokers (<i>n</i> = 107)	Nonhomeless smokers (<i>n</i> = 491)	<i>p</i> value ^a
Age in years, mean	40.8	40.6	0.864
Gender, % male	65.4	59.8	0.280
Race/ethnicity, %			<0.0001
African American	59.4	85.7	
White, non-Hispanic	35.9	12.1	
Hispanic/Latino	1.89	0.61	
Other	2.83	1.02	
Education, %			0.322
<High school	25.5	30.2	
≥High school	74.5	69.8	
Income, %			<0.0001
<\$1200/month	88.2	55.7	
≥\$1200/month	11.8	44.3	
Noninsured, %	59.1	41.9	0.005
Has regular source of healthcare, %	43.9	63.8	0.001
Self-perceived health status, %			0.852
Excellent/good	59.4	60.4	
Fair/poor	40.6	39.6	
Cigarettes smoked per day, mean	16.4	13.6	0.022
Maximum number of cigarettes smoked per day in past 30 days, mean	45.2	22.8	<0.0001
Years of smoking, mean	14.0	11.7	0.019
Smoke more cigarettes in the past, %	56.1	45.3	0.043
Age of first cigarette, mean	14.2	15.5	0.021
Smoke menthol cigarettes, %	65.1	77.8	0.006
Smoke filtered cigarettes, %	94.4	95.7	0.554
Carbon monoxide (CO) level in ppm, mean	15.2	15.0	0.142
Fagerstrom score for nicotine dependence, mean	4.35	3.92	0.094
CES-D ^b score, mean	10.7	7.7	<0.0001
Possible depression, ^c % Yes	66.4	44.9	<0.0001
Use marijuana or hashish in past 30 days, % Yes	19.6	19.7	0.991
Use other recreational drugs in past 30 days, % Yes	29.9	18.1	0.006

^aFor group differences.^bCES-D = Center for Epidemiologic Studies—Depression Scale.^cCES-D score of ≥10 was an indicator of possible depression.

Table II highlights the reasons for cigarette smoking. The two emotional reasons for smoking were ranked higher than the three food-related reasons among both groups. However, using smoking for calming and relaxing was ranked highest by the homeless. Since the homeless often focus on sustenance goals, food, shelter, and warmth, the usual appetite suppressant effects of nicotine appear to be a poor fit with this group. Addressing some of these sustenance issues faced by the homeless, such as skills training and job placement, might reduce these needs that cause the homeless to smoke. Table III highlights readiness to quit, interest in smoking cessation programs, and methods used to quit in each group. Readiness to quit was lower among homeless smokers. Both groups equally expressed modest interest in participating in a smoking

Table II. Reasons for Cigarette Smoking

	Homeless smokers (<i>n</i> = 107)	Nonhomeless smokers (<i>n</i> = 491)	<i>p</i> value ^a
Emotional reasons for smoking: (i.e., calms me down when I feel nervous; relaxes me when I feel irritable) ^{b,c}	7.31	6.88	0.120
Food-related reasons for smoking: (i.e., helps me control my weight; keeps me from eating more than I should; gives me energy when I am bored and tired) ^{b,c}	4.04	3.89	0.600

^aFor group differences.^bMean.^cScale of 1–10.

cessation program. Homeless smokers were less likely to have used prayer/spirituality in past quit attempts. Otherwise both groups were similar in methods used in previous quit attempts.

DISCUSSION

This study documents a wide range of smoking characteristics among a sample of homeless smokers. The homeless smokers began smoking earlier in life, smoked more cigarettes per day, and have been smoking for a longer duration of time than nonhomeless smokers. These findings are consistent with research conducted with a convenience sample of 59 homeless persons who attended an inner-city health center, located within a homeless shelter. The mean number of cigarettes smoked per day (cpd) by the homeless in that study was 14 and the mean age of starting smoking was 13 years (6).

Table III. Stages of Change, Interest in Smoking Cessation, and Methods Used to Quit

	Homeless smokers (<i>n</i> = 107)	Nonhomeless smokers (<i>n</i> = 491)	<i>p</i> value ^a
Stage, %			
Precontemplation	35.5	29.0	0.186
Contemplation	56.1	66.1	0.051
Preparation	16.8	25.9	0.046
Quit attempts in past year ^b	3.63	3.45	0.165
Interest in a smoking cessation program ^{b,c}	7.40	7.85	0.103
Methods used to quit smoking, %			
Pharmacotherapy	27.1	25.4	0.708
Will power/on my own	68.2	70.6	0.634
Prayer/God/spirituality	49.5	60.3	0.040
Gradual reduction	64.5	69.3	0.329
Abrupt stop/cold turkey	63.6	63.4	0.976

^aFor group differences.^bMean.^cScale of 1–10.

Fewer homeless smokers in this study smoked menthol cigarettes compared to the nonhomeless smokers. There are several possible explanations for this finding: (a) Higher cost of menthol cigarettes. Because of limited financial resources homeless persons would be less likely to purchase menthol cigarettes. (b) "Bumming" or asking for cigarettes from other homeless persons who also have limited resources. (c) The borrowing or sharing of cigarettes. It is more likely that homeless persons would borrow cigarettes from or share cigarettes with other homeless persons either on the streets, in shelters, or in single room occupancy hotels (SROs).

The homeless smokers from the current study also seemed to be more nicotine dependent. However, their higher number of cigarettes smoked per day may drive their higher FTND score. The FTND is heavily weighted toward number of cigarettes smoked. Another important finding was that homeless smokers were less likely to be in advanced (preparation) stages of readiness to quit smoking compared to nonhomeless. This may be due to other competing life problems (e.g., eating and finding shelter) and the lack of tobacco control programs that are available to them. However, despite their generally lower state of readiness to quit smoking, homeless smokers seemed interested in smoking cessation. Their level of interest in participating in a formal program for cessation, number of lifetime quit attempts, and methods used to quit smoking were similar to those of nonhomeless smokers. Programs to increase motivation for cessation could therefore be particularly beneficial to the homeless.

We also found that a substantial proportion (about 60%) of homeless smokers had no form of health insurance. However, 44% reported they had a regular source of healthcare. This is consistent with results from three studies conducted in different clinical settings (i.e., hospital, mobile medical van, and a rescue mission) with a different population of homeless persons (6, 14). Surprisingly, there was no difference in self-perceived health status between the homeless and nonhomeless in this study. Despite all factors that increase health risk (e.g., exposure to inclement weather, alcohol and drug abuse, and infectious conditions) among the homeless, their perception of health status may be due to denial or lack of insight of the dangers these factors pose to their health.

Screening for symptoms of depressed mood was an integral part of the assessment of health status in our study. A considerable percentage (66%) of homeless smokers reported they were depressed compared to 45% of nonhomeless smokers. This finding is consistent with studies that report the prevalence of depression in the homeless population (45–80%) to be between two and four times the rate in the U.S. general population (15–17). The elevated level of depressive symptoms in the homeless smokers of this study is not an unexpected result, given the profound physical deprivations and social isolation associated with the homeless condition and the high incidence of psychiatric disorders among members of this population.

There was a higher rate of illicit drug use among the homeless smokers. Previous research (17) has found that most users of illicit drugs also smoke cigarettes even after entering a drug treatment program. Thus, illicit drug use may make it more difficult for them to quit. Interventions would need to take this into consideration.

Our study has some limitations. First, it was not a population-based sample of homeless smokers. The method for finding and approaching all study participants over a small time period, however, was thought to be the best alternative in a situation

where random sampling was not employed. The survey was not primarily for the homeless but to understand the smoking characteristics of smokers who receive their health care at the health center. The gender and ethnic distribution in the study sample resemble that of the clientele served by the health center. Second, our definition of homeless may be limited by our exclusion of persons living in a relative's home/apartment and living in a boarding/halfway house. These respondents technically may be considered by some to be homeless. However, further analysis to include those living in a relative's home and boarding house yielded 42 people in this category. This did not change our findings. Third, we had a predominance of African American adult males in the study. As more women and children are being added to the national homeless count at alarming rates (1), their risk factors for tobacco-related illness may differ from those of the general population and need to be assessed. Fourth, even though there was no difference in the health status, quit attempts, and interest in smoking cessation between both groups of smokers, these findings maybe somewhat inflated in the homeless smokers of this study compared to the general homeless population. Fifth, a concern about research conducted with homeless persons is their reading level, which may affect their understanding of survey items. In our study, there was no difference in the educational levels of both groups. The high school graduation rate of our homeless smokers is remarkably high and bears close resemblance to the rate reported in the general population and other research conducted among homeless adults (18, 19).

A number of questions that we could not answer with this study need to be examined in future studies. For example, what role do community-based smoking cessation interventions play in the ability of homeless smokers to quit smoking and remain smoke free? What impact does history and duration of homelessness and the number of homeless episodes has on rate of smoking cigarettes? Also, what is the relationship between incarceration, smoking, and homelessness? Among the homeless population are those individuals who have recently been released from prison. In some states prisons are smoke free and therefore the individual leaves having abstained from tobacco. Upon their release from prison, lack of programs to support smoking cessation for the homeless may facilitate their relapsing back to smoking. Research that examines these issues will lead to more effective smoking cessation interventions and extend the body of knowledge concerning the smoking characteristics of homeless persons. In addition, it might be better to include a random sample of homeless individuals who are both smokers and nonsmokers in future research. The rates of smoking among this population could then be estimated. The generalizations derived from a truly random sample about a homeless population therefore become more convincing.

Among the goals of Healthy People 2010 (20) are to reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke. More specifically, the objective is to reduce smoking prevalence among adults aged 18 years and older from the current rate of 24% to 12% by 2010. If we are to reach this goal, it is imperative that we reach the underserved and populations with a high prevalence of smoking. A number of factors found in this study could be barriers when addressing homeless smokers. Their early initiation of smoking, higher consumption of cigarettes, and higher use of other drugs in this population are challenges that need to be addressed

by intervention programs. The lack of a regular source of health care and health insurance in this population may mean that traditional clinic-based smoking cessation programs may not be effective in this population. Therefore, innovative public health programs are needed to design and test effective smoking cessation interventions for the homeless. Programs to help this most vulnerable population of smokers are necessary for reducing health disparities between the homeless and the general population.

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