# A Pilot Smoking Cessation Intervention Among Sheltered Homeless Adults

*Shelley D, Cantrell J, Wong S, Warn D. Smoking cessation among sheltered homeless: a pilot. Am J Health Behav 2010;34:544–52.*

## Study Overview

Objective. To test the feasibility of enrolling and retaining homeless adults in a 12-week smoking cessation intervention.

Design. Single-arm pilot intervention.

Setting and participants. The study was conducted in New York City (NYC) at 2 sites: a homeless shelter with an on-site substance abuse treatment program and a transitional residential program for homeless adults. More than 50% of homeless adults living at the study sites had substance use disorders and/or mental illness. Adult male and female participants who received services from 1 of the study sites, smoked at least 1 cigarette per day, and were not currently receiving nicotine replacement therapy (NRT) were eligible. Participants were recruited via flyers, staff referrals, and through a tobacco education program presented at the study sites. The single-arm intervention consisted of a 12-week counseling program using motivational interviewing (MI) and cognitive behavioral therapy (CBT) as well as pharmacotherapy. Trained masters-level social workers led twelve 50-minute weekly group therapy sessions for participants at both study sites. The first 3 weeks of the intervention were spent in exploring motivation, confidence, and barriers to smoking cessation using MI techniques. The fourth session was set as the quit date where an overview of pharmacotherapy was provided. During this session, participants who were ready to quit were offered an 8-week treatment course with NRT (patch, gum, lozenge or inhaler), bupropion, or varenicline. These medications were provided free of charge by the New York State Medicaid program and were administered at the study sites. Subsequent sessions employed CBT to provide specific strategies on addressing stress related to quitting, other addictions, boredom, and a lack of structure characteristic of homelessness that might affect successful quitting. These sessions also explored alternative interests in lieu of smoking, feasible for this low-income population. Visual and experiential learning activities were specifically targeted to participants with low literacy levels and cognitive impairment. Participants who expressed ambivalence at quitting were exposed to more MI techniques while receiving information from other sessions. Although the intervention lacked a control group, the authors conducted a baseline and 12-week survey among 50 shelter residents ('the concurrent group") who were aware of the program but did not participate.

Main outcome measures. Feasibility was measured using adherence to prescribed pharmacotherapy, mean number of sessions attended, and rates of survey completion at 12 and 24 weeks. The baseline and follow-up surveys measured demographics, smoking and quitting history, and other psychosocial variables. The surveys also measured participants' willingness (scale of 1 to 10, with 1 being not ready to quit and 10 being has already quit) and confidence (scale of 1 to 5, with 1 being very confident and 5 being not confident) to quit smoking in the next 30 days. Nicotine dependence was measured using Fagerstrom Test for Nicotine Dependence. The primary cessation outcomes were 12- and 24-week seven-day point-prevalence abstinence confirmed by a carbon monoxide (CO) measure of 10 or less. Other outcome measures included a report of any quit attempt during the 12-week intervention period and changes in the number of

cigarettes per day. The authors employed an intent-to-treat analysis and included all participants who completed a baseline assessment and attended at least 1 counseling session during the 12 weeks.

Main results. There were 75 participants who were screened for the study, of whom 60 were eligible and 58 were enrolled. The mean age of participants was 47 years, and the majority were male (89.7%). Many had co-occurring mental illness including a history of schizophrenia (28.3%), depression (50.9%), and anxiety (30.4%). At baseline, participants smoked an average of 12.4 cigarettes/day and had a mean Fagerstrom score of 3.7, suggestive of low dependence. The majority (70.0%) had attempted to quit smoking at least once in their lifetime. The mean score for willingness to quit smoking in the next 30 days was 6.9 for the intervention group. There were minimal differences between the intervention and concurrent groups in demographics and psychosocial variables, but the concurrent group reported less confidence and willingness to quit smoking. Among the intervention group, 75% (n = 44) completed all 12 sessions and of these, 88% (n = 39) completed the 24-week assessment. The mean number of sessions attended was 7.2. Those participants who were lost to follow-up were at baseline less likely to have ever quit smoking and reported lower confidence in their ability to quit smoking compared to those who completed the intervention. Most participants (66%) used some form of pharmacotherapy: 69% used 1 medication, 21% used 2, and 10% used 3. Adherence to bupropion and varenicline were higher than that for NRT: participants took burpropion or varenicline for an average of 5 to 6 weeks versus 2 to 3 weeks for NRT. The CO-confirmed 7-day abstinence rate at 12 weeks was 15.5% in the intervention sample vs. none in the concurrent group. At 24 weeks, 13.6% were abstinent. Among the intervention group, 62.1% attempted to quit during the 12-week intervention period vs. 12.0% in the concurrent group. The number of participants who made quit attempts increased with the number of sessions attended ($P < 0.02$). As expected, number of cigarettes smoked daily did not decline significantly among participants who did not quit smoking.

Conclusion. Results from this study support the feasibility of enrolling and retaining homeless adults in a 12-week smoking cessation intervention. Homeless participants were receptive to an intervention that used a combination of MI, CBT techniques and pharmacotherapy, and were able to achieve abstinence rates of 15.5% and 13.6% at 12 and 24 weeks, respectively. None of the participants in the concurrent group were abstinent at 12 weeks.

## Commentary

Although smoking rates have declined in the general population, rates remain high among underserved populations [1]. Prevalence of smoking among homeless adults exceeds 70% [2,3], and smoking-related diseases are among the leading causes of death in homeless adults [4]. Smoking cessation is challenging for this population, as comorbid mental illness and substance use disorders, social and environmental stressors of poverty, and limited access to care hinder successful quitting. Despite studies showing that homeless adults are interested in quitting smoking [3,5], few have explored smoking cessation interventions in this population. The current study by Shelley et al examined the feasibility of enrolling and retaining homeless adults in a 12-week smoking cessation intervention that used principles of MI, CBT as well as pharmacotherapy.

This study demonstrated that homeless adults were interested in enrolling and participating in a smoking cessation intervention and were receptive to MI and CBT. Among the intervention group, the baseline average readiness score to quit smoking placed them in a contemplative stage. In contrast, participants in the concurrent group were less ready to quit, less confident about quitting, and less likely to endorse the negative effects of smoking. These findings have implications for smoking cessation interventions in underserved populations, in that confidence and self-efficacy in quitting smoking should be optimized prior to enrollment in order to increase abstinence rates. The authors suggest that using behavioral approaches that "start where the client is" prior to enrollment into a smoking cessation trial may be important for populations where a large proportion of adults are not ready to quit smoking.

The authors demonstrated their ability to retain a vulnerable patient population in a 12-week smoking cessation intervention, 4 weeks longer than a prior smoking cessation trial among homeless adults [6]. In addition, the majority of the participants who completed the 12-week assessment also completed the 24-week follow-up interview. By taking advantage of the existing social services present at the study sites, the authors were able to provide this hard-to-reach population additional support while they were undergoing smoking cessation.

Participants who completed the intervention attended on average 7.2 sessions. Although the adherence rate was good for this low-income population, the authors suggest additional strategies to increase participation in these interventions. In a prior smoking cessation intervention, researchers tapped into the large network of formerly or currently homeless individuals to track homeless study participants who were lost to follow-up [6]. The authors also recommended incorporating smoking cessation with other services, including provision of substance abuse treatment or other group treatment programs. Given that multiple factors affect homeless adults' consistent participation in a 12-week intervention, the authors recommend that future interventions should allow participants to enroll on a rolling

basis rather than on a fixed schedule.

Despite showing the feasibility of this intervention in a vulnerable patient population, the study has a few limitations. This was a nonrandomized trial without a control group. Participants belonged to shelter sites that provided social and programmatic support, and therefore the study results may not be generalizable to sheltered or street-based homeless adults without this integral support.

## Applications for Clinical Practice

Smoking is among the leading causes of morbidity and mortality in homeless adults and results in an opportunity cost by diverting money away from basic needs of food and shelter. It may not be possible to achieve declines in national smoking rates without targeting the specific needs of this population. Clinicians taking care of homeless smokers should determine their willingness to quit smoking, refer to smoking cessation counseling, and be prepared to initiate pharmacotherapy for those who are ready to quit. To increase adherence, smoking cessation interventions should be integrated with other services including substance abuse counseling at or near shelter sites. Any efforts at decreasing smoking rates and improving rates of successful quitting will lead to improved health outcomes for this population.

*—Review by Maya Vijayaraghavan, MD*

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