Targeting tobacco in a community-based addiction recovery cohort: Results from a computerized, brief, randomized intervention trial

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Alison B. Breland [a,*], Lauren Almond [a,1], Jennifer Kienzle [f], Steven J. Ondersma [b,2], Alton Hart Jr. [c,3], Michael Weaver [d,4], Pamela Dillon [e,5], Dace Svikis [f,6]

[a] Institute for Drug and Alcohol Studies, Virginia Commonwealth University, PO Box 980310, Richmond, VA 23298, United States
[b] Merrill Palmer Skillman Institute, Wayne State University, 71 East Ferry, Detroit, MI 48202, United States
[c] Virginia Department of Health, Crater Health District, 301 Halifax Street, Petersburg, VA 23803, United States
[d] University of Texas Health Science Center at Houston, Department of Psychiatry and Behavioral Sciences, 1941 East Road, Suite 1222, Houston, TX 77054, United States
[e] Center for Clinical and Translational Research, Virginia Commonwealth University, PO Box 980261, 1200 E. Clay Street, Suite 2000, Richmond, VA 23298, United States
[f] Department of Psychology, Virginia Commonwealth University, PO Box 980343, Richmond, VA 23219, United States

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ABSTRACT

Introduction: Nearly 80% of substance dependent individuals also use tobacco, and smoking cessation efforts during treatment for other substance use is associated with similar or even improved outcomes. However, smoking cessation is not routinely addressed during treatment for substance use disorders. The present study tested a computerized brief motivational intervention (C-BMI) for smoking cessation in an understudied population: a cohort recruited from a recovery community organization (RCO) center.
Methods: Following baseline assessment, participants were randomly assigned to either a 30-minute C-BMI plus access to free nicotine replacement therapy (NRT), or an information-only control group plus NRT access.
Results: Reductions in CO were observed for both groups. Quit rates in the C-BMI group (5%–7%, vs. 0% for the control group) approximated those observed elsewhere for physician advice and minimal counseling. Participants in the C-BMI group were also more likely to express a desire to quit.
Conclusions: Computer-delivered smoking cessation interventions within RCOs appear feasible. These organizations treat a wide variety of individuals, and C-BMIs for smoking in this context have the potential to reduce smoking-related morbidity and mortality.

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* Corresponding author at: Institute for Drug and Alcohol Studies, Virginia Commonwealth University, PO Box 980310, Richmond, VA 23298-0310, United States. Tel.: +1 804 628 2300.
E-mail addresses: abbrelan@vcu.edu (A.B. Breland), almondlm@vcu.edu (L. Almond), jnkienzle@gmail.com (J. Kienzle), s.ondersma@wayne.edu (S.J. Ondersma), alton.hart@vdh.virginia.gov (A. Hart), Michael.F.Weaver@uth.tmc.edu (M. Weaver), pmdillon@vcu.edu (P. Dillon), dssvikis@vcu.edu (D. Svikis).
[1] Tel.: +1 804 628 2300.
[2] Tel.: +1 313 664 2504.
[3] Tel.: +1 804 862 8988.
[4] Tel.: +1 713 486 2558.
[5] Tel.: +1 804 827 1519.
[6] Tel.: +1 804 827 1184.

1. Introduction

Each year, over 400,000 people in the US die from cigarette smoking-related illnesses, making cigarette smoking the single most preventable cause of death in the US [2,3,20]. Tobacco use is particularly common among persons with other substance use disorders (SUDs); in those with alcohol dependence, smoking rates may be as high as 80% [14,17]. The high rates of smoking among those with SUDs and mental health problems have been referred to as a "neglected epidemic" [31].

Smoking cessation is rarely addressed in substance abuse treatment programs (e.g., [9,15]). Outside of formal treatment, access to smoking cessation programs may be even more limited, and many individuals accessing non-formal treatment are smokers. For example, in one study of individuals attending Alcoholics Anonymous meetings, 57% smoked cigarettes [30]. Although smoking cessation treatment is limited, many individuals with SUDs are interested in quitting; in one study, 49% of participants with SUDs reported a "strong desire to quit" [27]. In a similar study with persons in recovery, 70% were either contemplating or preparing to quit [22].

Recovery community organizations (RCOs) offer peer-based recovery support services as well as education and advocacy; there are nearly 200 RCOs in the US (www.facesandvoicesofrecovery.org). The services offered are often separate from formal inpatient or outpatient treatment, and we are not aware of any studies have evaluating smoking cessation interventions in the context of recovery community organizations. This supportive context, outside of the traditional treatment system, may provide an ideal opportunity to address smoking cessation.

Brief interventions such as physician advice to quit smoking have been shown to increase quit rates [8,34]. The most commonly used approach in studies of brief intervention for smoking cessation is the evidence-based 5As brief intervention model (Ask, Advise, Assess, Assist, and Arrange) for smoking cessation, as outlined by Fiore [8]. Smoking cessation interventions using Motivational Interviewing approaches can also increase quit rates [12,13,19]. Because they can be delivered in a single, relatively brief session, brief interventions are ideally suited for use in many settings. Computer-delivered brief smoking interventions may prove even easier to disseminate, and have been supported in a number of trials, and in a recent review and meta-analysis [4,32]. However, none of these studies have focused on technology-delivered brief interventions for persons receiving services for other SUDs.

The objectives of this study were to: 1) examine interest in quitting smoking among individuals with SUDs attending a local recovery center, and 2) conduct a pilot randomized controlled trial to test the effectiveness of a computerized brief motivational intervention for smoking cessation (C-BMI) vs. an information-only control condition in this population.

2. Methods

2.1. Participants

Participants were recruited from an urban RCO center in Virginia. This RCO provides services such as 12-step meetings, referral to resources, and weekly events for individuals in recovery. Most clients are referred by treatment agencies for support while waiting for formal treatment, for continuing care after formal treatment has ended, or they are addressing their recovery on their own. This RCO serves approximately 500 clients annually. To participate, participants had to be 18 years of age or older, in recovery from addiction to alcohol and/or drugs (self-defined), state that they had smoked at least 100 cigarettes (lifetime), report smoking at least one cigarette per day for the past seven days or at least 10 cigarettes total during the past week, have an expired air carbon monoxide (CO) level of ≥ 6 ppm (to verify current smoking; this level was chosen to ensure that even very light smokers could enroll), and be cognitively able to understand proposed research design (10-minute screening followed by random assignment to the experimental group or control group). This study was approved by Virginia Commonwealth University's Institutional Review Board.

2.2. Measures

2.2.1. Questionnaires

At the first visit, participants completed questionnaires on demographics, substance abuse history, and dependence level (Fagerstrom Test of Nicotine Dependence or FTND [scores range from 0 to 10]; [11]). At all visits, participants completed a series of paper and/or computerized questionnaires on tobacco use (in terms of cigarettes per day; CPD), use of nicotine replacement therapy (NRT), number of quit attempts in the last year (defined as at least 24 h of abstinence), and stage of change [6].

2.2.2. Expired air carbon monoxide

At Visits 1 and 2, breath samples were collected for measurement of expired air CO using a calibrated CO monitor (Vitalograph, Lenexa KS).

2.3. Procedure

Potential participants were recruited via flyers aimed at smokers, which were placed at the recovery center and at various sites in the community. The study consisted of two visits and a follow-up phone call, as described below.

2.3.1. Visit 1

All participants provided written consent, and then completed a series of paper and computerized questionnaires, as described above. Breath samples were collected for measurement of expired air CO.

Urn randomization (via computer, based on gender and cigarettes per day) was used to assign study participants to one of two groups: the intervention group (C-BMI) or a control group that received resource information. An intervention authoring tool called the Computerized Intervention Authoring System, developed for previous work (e.g., [24,25]), was used to develop the intervention in this study. The software uses a laptop or tablet PC, and presents all information aurally and visually. One of a number of three-dimensional animated narrators provides explanations, reads questions (as well as answers, when clicked) and interprets feedback. This narrator also "reflects" back information provided by the participant, thus providing significant synchronous interaction. For the current study, the participants interacted with the computer