



Social predictors of cessation treatment use among smokers with serious mental illness



Kelly A. Aschbrenner^{a,*}, Joelle C. Ferron^b, Kim T. Mueser^c, Stephen J. Bartels^a, Mary F. Brunette^b

^a Dartmouth Center for Aging Research, 46 Centerra Parkway, Suite 200, Lebanon, NH 03766, United States

^b Dartmouth Psychiatric Research Center, 85 Mechanic Street, Suite B4-1, Lebanon, NH 03766, United States

^c Boston University Center for Psychiatric Rehabilitation, 940 Commonwealth Avenue West, Boston, MA 02215, United States

HIGHLIGHTS

- Social factors predict use of cessation treatment among those with mental illness
- Explicit and implicit social factors play a unique role in influencing treatment
- Future research should explore social networks and smoking in this population

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ABSTRACT

Objective: Social factors play an important role in quitting smoking in the general population, but relatively little is known about social influences on smoking cessation efforts among individuals with serious mental illness who suffer disproportionately high rates of smoking. This study examined social factors as predictors of using smoking cessation treatment among adults with serious mental illness.

Methods: We conducted a secondary analysis of data from a randomized study comparing two versions of a motivational decision support system for smoking cessation treatment including 124 smokers with schizophrenia or severe mood disorders. Hierarchical logistic regression with blocked entry of theoretically linked predictor variables was used to model two types of social influences (explicit and implicit) as predictors of using cessation group therapy or smoking cessation medication.

Results: Approximately 31% of participants initiated smoking cessation treatment during the 2-month follow-up. Hierarchical logistic regression analyses revealed that over and above demographic and personal factors, implicit social influences (others' approval of treatment) significantly predicted use of smoking cessation medication, while explicit social influences (smoking with others) significantly predicted use of cessation group therapy.

Conclusions: For people with serious mental illness, social factors appear to influence use of smoking cessation treatment above and beyond personal factors and may be specific to the type of treatment. These data support the need to further explore the role of social factors as potential leverage points for engagement in smoking cessation treatments in this population.

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1. Introduction

An estimated 50–85% of adults with serious mental illness, such as schizophrenia and serious mood disorders, smoke cigarettes (McClave, McKnight-Eily, Davis, & Dube, 2010), which is at least three times higher than the rate of smoking among the general adult population (CDC, 2014). Smoking is the leading cause of preventable mortality in the United States (CDC, 2014) and implicated in the 25–30-year reduced life expectancy of individuals with serious mental illness (Colton & Manderscheid, 2006). Behavioral treatment combined with nicotine

replacement therapy or other FDA approved cessation medications dramatically improves outcomes for smokers with serious mental illness (Evins et al., 2014; Ferron, Alterman, McHugo, Brunette, & Drake, 2009) and many of these individuals want to quit (Baker et al., 2007; Lucksted, McGuire, Postrado, Kreyenbuhl, & Dixon, 2004), yet the prevalence of quitting in this population is low (McClave et al., 2010). More effective strategies are needed to engage individuals with serious mental illness in evidence based smoking cessation treatment.

Social influences play an important role in quitting smoking among individuals without mental illness (Cohen & Lichtenstein, 1990; Gulliver, Hughes, Solomon, & Dey, 1995; Yang et al., 2013), and some smoking cessation interventions have leveraged social support in the cessation process with promising results (Coley et al., 2013; Hennrikus et al., 2010;

* Corresponding author. Tel.: +1 603 359 0921; fax: +1 603 271 5265.
E-mail address: Kelly.Aschbrenner@Dartmouth.edu (K.A. Aschbrenner).

Stewart et al., 2010). To better understand social influences on smoking cessation and how they may be incorporated into treatment models, prior research in the general population has distinguished between explicit and implicit social influences on smoking cessation (van den Putte, Yzer, & Brunsting, 2005). *Explicit social influences* are direct and include the smoking behaviors of others. An analysis of a large social network in the landmark Framingham Heart Study indicated that interconnected groups of people tend to quit smoking in concert, suggesting a social contagion effect of quitting, whereby explicit social influences lead to behavior change from one person to the next (Christakis & Fowler, 2008). *Implicit social influences* are indirect and include subjective norms about smoking, such as an individual's perceptions about the social acceptability of quitting smoking, as well as perceptions of what others would do in a similar situation (e.g., seek cessation treatment or continue smoking) (van den Putte et al., 2005). When smoking is perceived as socially acceptable by peers and significant others, individuals are generally less motivated to quit (Dohnke, Weiss-Gerlach, & Spies, 2011). Conversely, social norms can be a powerful lever of persuasion to quit smoking (Biener, Hamilton, Siegel, & Sullivan, 2010).

In contrast to what is known about social influences on smoking cessation in the general population, relatively little is known about how social factors influence smoking among individuals with serious mental illness. Prior research suggests that social influences may play a role in smoking cessation in this population. Social support from family and friends has been endorsed as a key strategy to smoking cessation among individuals with serious mental illness who made successful quit attempts (Dickerson et al., 2013). However, cigarette smoking also plays a role in the formation of peer groups and social exchange among individuals with serious mental illness (Lucksted, Dixon, & Semblly, 2000), and social norms favoring smoking are reported barriers to smoking cessation (Davis, Brunette, Vorhies, Ferron, & Whitley, 2010; Esterberg & Compton, 2005). Many individuals with serious mental illness spend time in settings where smoking is acceptable and thus they may experience less social pressure to quit than adults in the general population (Bayer & Stuber, 2006). Given the paucity of research in this area, the aim of this exploratory study was to prospectively examine the influence of social factors on use of smoking cessation treatment among individuals with serious mental illness. Specifically, this study compared the relative contributions of explicit and implicit social influences in predicting use of two types of smoking cessation treatment, medication and group therapy.

2. Methods

2.1. Participants and procedure

This study involved secondary analysis of data from a randomized controlled trial evaluating the effectiveness of two versions of an electronic (web-based) motivational decision support system (EDSS) designed to increase interest in and use of smoking cessation treatment in people with serious mental illness (Brunette et al., 2011). Administered in a one-time 60–90-minute session, the EDSS provided information and exercises that aimed to increase awareness of the pros and cons of smoking, as well as decision support for cessation treatments. Participants were randomized to receive the EDSS with a carbon monoxide monitor and health checklist or to receive the EDSS with health checklist only (no carbon monoxide monitor). The parent study employed a prospective follow-up design in which research interviewers, blinded to condition, assessed participants for all outcomes 2 months and 6 months after they used the EDSS. The current study focused on two waves of data collection from the parent study (baseline data and 2-month follow-up). We chose the initial 2-month follow-up period after using the EDSS because this is the amount of time during which people with serious mental illnesses are typically able to access a physician visit and counseling in real world treatment settings. Because lack of health insurance and cost can impede the use of cessation treatments, the study and a local foundation paid for smoking cessation medication and smoking cessation

group counseling for participants who wanted treatment but lacked insurance coverage.

Study participants were recruited through Thresholds, a large community mental health organization in Chicago. Eligibility criteria were: adult age 18–70, English speaking, daily smoker, in treatment for serious mental illness (defined as diagnosis of schizophrenia, schizoaffective disorder, major depression, or bipolar disorder and at least moderate impairment in functioning) and without current other substance dependence. Potentially eligible participants were told that they did not have to want to quit smoking to participate in the study. Individuals who had used smoking cessation treatment in the prior month were considered ineligible to participate. Of 279 referred participants, 142 were eligible and gave written informed consent to participate, 135 were assessed at baseline, 11 dropped out before randomization, and 124 entered the study. The institutional review boards of the State of New Hampshire, Dartmouth College, and Thresholds in Chicago approved and monitored all the procedures for the protection of human subjects.

2.2. Measures

Trained research interviewers used structured interviews to collect information about demographics (age, gender, race, ethnicity, level of education, marital status, living arrangements), smoking history, personal factors related to smoking, explicit and implicit social influences on smoking cessation, and use of smoking cessation treatment (medication and group therapy).

2.2.1. Smoking cessation treatment use

The dependent variables were use of two types of smoking cessation treatment: (1) medications and (2) group therapy. Information on treatment use was gathered as part of the 2-month follow-up assessment. Treatment use included starting any evidence based medication (nicotine replacement therapies, bupropion, varenicline) and/or group cessation counseling within the past 2 months. Trained research interviewers confirmed participants' self-report through clinician and chart verification.

2.2.2. Personal factors

Personal factors related to smoking included amount of daily smoking, stage of readiness to quit smoking, and beliefs about the effectiveness of each of the two types of smoking cessation treatment: (1) medication and (2) group therapy. To assess daily amount of smoking, participants were asked to report the average number of cigarettes they smoked per day. A single question assessed participant's stage of readiness to quit smoking at baseline (1 = want to quit and trying to quit right now; 2 = want to quit in the next month; 3 = want to quit but not within the next month; and 4 = do not want to quit) (Donovan, Jones, Holman, & Corti, 1998). In addition, participants were asked to rate on a 7-point Likert scale (1 = completely disagree to 7 = completely agree) the extent to which they agreed that taking a quit smoking medication and going to a quit smoking class, respectively, would help them quit smoking.

2.2.3. Explicit social influences

Explicit social influences were operationalized as the behaviors of others that directly influence smoking, and included smoking with others, time spent with non-smokers, and knowing someone who recently quit smoking. Respondents reported the number of people they had smoked with in the past week as well as the number of non-smokers they spent time with in the past week. Respondents also indicated whether they knew someone who had attempted to quit smoking in the two months prior to the baseline interview (1, yes; 0, no).

2.2.4. Implicit social influences

Respondents rated on a 7-point Likert scale (1 = completely disagree to 7 = completely agree) the extent to which they perceived that each of

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