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Short Communication

Predictors of smoking cessation group treatment engagement among veterans with serious mental illness

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HIGHLIGHTS

- Smoking cessation (SC) services should be encouraged for people with serious mental illness (SMI).
- Veterans with SMI enrolled in an SC treatment study completed baseline measures.
- Forty-one variables were identified as possible predictors of SC group treatment engagement.
- Engagement predictors included single marital status, severe psychiatric symptoms, and prior SC group experience.
- Serious psychiatric symptoms should not keep providers from recommending SC services.

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ABSTRACT

High prevalence rates of tobacco use, particularly cigarettes, pose a serious health threat for individuals with serious mental illness (SMI), and research has demonstrated the effectiveness of pharmacotherapy and psychosocial interventions to reduce tobacco use in this group. However, few studies have considered predictors of tobacco cessation treatment engagement among individuals with SMI. The current study examined predictors of engagement in smoking cessation groups among veterans with SMI engaged in mental health services at three VA medical centers. All veterans were participating in a smoking cessation treatment study. Of 178 veterans who completed baseline assessments, 127 (83.6%) engaged in treatment, defined as attending at least three group sessions. Forty-one ($N = 41$) predictors across five domains (demographics, psychiatric concerns, medical concerns, smoking history, and self-efficacy to quit smoking) were identified based on previous research and clinical expertise. Using backward elimination to determine a final multivariable logistic regression model, three predictors were found to be significantly related to treatment engagement: marital status (never-married individuals more likely to engage); previous engagement in group smoking cessation services; and greater severity of positive symptoms on the Brief Psychiatric Rating Scale. When included in the multivariable logistic regression model, the full model discriminates between engagers and non-engagers reasonably well (c statistic = 0.73). Major considerations based on these findings are: individuals with SMI appear to be interested in smoking cessation services; and serious psychiatric symptomatology should not discourage treatment providers from encouraging engagement in smoking cessation services.

1. Introduction

Smoking cigarettes is a major health problem among individuals with serious mental illness (SMI). Prevalence rates of smoking in SMI range from 55 to 70% (Dickerson, Stallings, Origoni, Schroeder, et al., 2013; Dickerson, Stallings, Origoni, Vaughan, et al., 2013; Dickerson, Yu, Dalcin, Jerome, et al., 2013; Smith, Mazure, & McKee, 2014) compared to about 15% of the general population (Centers for Disease Control and Prevention, 2016). Consequences of smoking for individuals with SMI are serious, including increased cardiovascular disease rates (Carney, Jones, & Woolson, 2006; Dickerson, Stallings, Origoni, Schroeder, et al., 2013; Dickerson, Stallings, Origoni, Vaughan,

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et al., 2013; Dickerson, Yu, Dalcin, Jerome, et al., 2013, Wehring et al., 2012), metabolic syndromes (De Hert et al., 2011; Meyer & Stahl, 2009), and earlier mortality (Brown et al., 2011; Bushe, Taylor, & Haukka, 2010; Dickerson, Stallings, Origoni, Schroeder, et al., 2013; Dickerson, Stallings, Origoni, Vaughan, et al., 2013; Dickerson, Yu, Dalcin, Jerome, et al., 2013).

Given rates and consequences of smoking among individuals with SMI, smoking cessation (SC) services should be an important component of treatment. The 2009 Schizophrenia Patient Outcomes Research Team (PORT) recommendations highlight bupropion and adjunctive group therapy (e.g., education and skills-based interventions) as effective SC treatments for individuals with SMI (Bennett, Wilson, Genderson, & Saperstein, 2013; Bennett et al., 2015; Buchanan et al., 2010). Integrating SC services within mental health treatment programs can help with service access and utilization (Bennett et al., 2015).

Treatment initiation (e.g., attending an introductory session) and engagement (e.g., attending at least 2–4 sessions) is poor for individuals with SMI, especially for substance use treatment (Corrigan, Liberman, & Engel, 1990; Miner, Rosenthal, Hellerstein, & Muenz, 1997; Nosé, Barbui, & Tansella, 2003). Thus, engagement is an important concern when providing SC services to individuals with SMI. While limited work has been done on smoking cessation treatment engagement among individuals with SMI, research has highlighted the role of systemic barriers (e.g., lack of smoking cessation services offered or provider skepticism; Carosella, Ossip-Klein, & Owens, 1999; Himelhoch & Daumit, 2003; Lucksted, Dixon, & Sembly, 2000; Vogt, Hall, & Marteau, 2005), illness-related concerns (e.g., positive and negative symptoms, cognitive impairment, level of nicotine dependence; Bellack & DiClemente, 1999; Esterberg & Compton, 2005; Forchuk et al., 2002; Lucksted et al., 2000; McEvoy & Allen, 2002; Patkar et al., 2002), and person-related factors (e.g., motivation; Addington, el-Guebaly, Addington, & Hodgins, 1997; Carey, 1996; Carosella et al., 1999; Esterberg & Compton, 2005; Osher & Kofoed, 1989; Van Dongen, Kriz, Fox, & Haque, 1999; Ziedonis & Trudeau, 1997).

Studies conducted on general and psychiatric samples identified several psychosocial factors related to engagement. Demographic variables related to engagement include older age (Cupertino et al., 2007; Khara, Okoli, Nagarajan, Aziz, & Hanley, 2015; Richards et al., 2014), more education (Cupertino et al., 2007), unemployment (Lee, Hayes, McQuaid, & Borrelli, 2010), non-chronic homelessness (Richards et al., 2014), healthcare coverage (Cupertino et al., 2007; Richards et al., 2014), and more friends who smoke (Lee et al., 2010). Research on mental health factors is mixed; some studies suggest that higher levels of depression, anxiety, and stress are related to treatment adherence, whereas others report the opposite (Lee et al., 2010; MacPherson, Stipelman, Duplinsky, Brown, & Lejuez, 2008; Richards et al., 2014). No or limited history of problematic alcohol or drug use has been shown to be related to engagement (Richards et al., 2014). People with a greater number of comorbid medical conditions were more likely to engage in treatment (Khara et al., 2015).

Specific to smoking history, earlier age of initiation and greater levels of addiction were related to engagement in SC treatment (Khara et al., 2015; Lee et al., 2010). Greater engagement has been associated with receiving quit advice from providers, using SC services in the past, and reporting increased readiness, motivation or confidence to quit (Cupertino et al., 2007; Khara et al., 2015; Lee et al., 2010).

Work on engagement in SC services has generally excluded people with active psychosis or serious psychiatric conditions, so little is known about factors related to engagement among those with SMI. A study of SC treatment engagement among individuals with SMI found that being around fewer people who smoked and receiving others' approval to quit led to greater engagement (Aschbrenner, Ferron, Meuser, Bartels, & Brunette, 2015). Additionally, a recent review found that using smoking as a coping strategy and a positive smoking culture in mental health settings were barriers to engagement for individuals with SMI (Trainor & Leavey, 2017). The current study sought to expand this area of the literature by examining predictors of engagement in group SC treatment among veterans with SMI.

2. Methods

2.1. The parent study

Data for this study were taken from a randomized controlled trial comparing two psychosocial group interventions to reduce smoking among veterans with SMI (Bennett et al., 2015). In brief, participants were randomly assigned to either behavioral or supportive group interventions (24 biweekly sessions each), both of which were integrated into outpatient mental health treatment programs. Participants were offered, but not required, to use nicotine replacement therapy or SC medications. Baseline and post-treatment assessments were completed. Results showed short-term reduction in number of cigarettes smoked and reports of making at least one quit attempt for both groups (non-significant group differences), with few participants (11%) achieving abstinence.

2.2. The present study

2.2.1. Participants

Participants included 178 veterans with SMI enrolled in outpatient mental health programs at three Veterans Administration Medical Centers and a study evaluating group smoking cessation treatment for individuals with SMI. Participants were predominantly male (89.3%) and Black (70.8%), with an average age range in the mid-50s. On average, participants had some college experience and were currently unemployed (87.6%). Almost half of the participants were widowed, divorced, or separated (47.3%). Participants were nicotine-dependent based on self-reported smoking (minimum 10 cigarettes per day) and the Fagerström Test of Nicotine Dependence (FTND) (Heatherton, Kozlowski, Frecker, & Fagerström, 1991). All participants had a DSM-IV-diagnosed SMI: schizophrenia spectrum disorders (schizophrenia and schizoaffective disorder, 43.3%), bipolar disorder (27.5%), major depression with psychotic features (5.1%), other psychotic disorders (2.2%), or posttraumatic stress disorder (21.9%). Exclusion criteria included current problematic substance use and history of serious neurological disorder, head trauma, or serious intellectual disability. See Table 1 for additional demographic information.

2.2.2. Measures

Based on research and clinical expertise, 41 variables from baseline measures were identified as possible predictors of engagement and were organized into five domains: demographics, psychiatric concerns, medical concerns, smoking history, and self-efficacy for quitting (Table 1). Given limited research on treatment engagement for individuals with SMI, the study researchers pulled from literature on smoking cessation in SMI and were over-inclusive in their initial review of possible predictors.

2.2.2.1. Demographics. Selected demographic variables included: age, race (African American, not-African American), marital status (never married, married/separated/divorced/widowed), education (high school or less, more than high school), and disability variables (Service Connection; other disability benefits).

2.2.2.2. Psychiatric concerns. Mental health symptoms were assessed through the SF-12 Health Survey (Ware, Kosinski, & Keller, 1996), the Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962), and the Quality of Life Interview-Brief Version (BQOL) (Lehman, 1995). The SF-12 is a 12-item questionnaire assessing past month physical and mental health status. A mental health composite score was created, ranging from 0 (lowest level of health) to 100 (highest level of health). The BPRS is a 20-item interview assessing psychopathology severity,

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