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Smoking cessation behaviors among persons with psychiatric diagnoses: Results from a population-level state survey

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ABSTRACT

Background: Persons with psychiatric illnesses are disproportionally affected by tobacco use, smoking at rates at least twice that of other adults. Intentions to quit are known to be high in this population, but population-level cessation behaviors and attitudes by mental health (MH) diagnosis are not well known.
Methods: A population-level survey was conducted in 2008 to examine state-level tobacco attitudes and behaviors in Colorado. Respondents were eligible for the study if they had non-missing values for smoking status ($n = 14{,}118$). Weighted descriptive and multivariate analyses were conducted of smoking prevalence, cessation behaviors, and attitudes toward cessation by MH status and specific diagnosis.
Results: Among respondents with MH diagnoses, smoking was twice as prevalent as among respondents without an MH diagnosis, adjusted for demographic characteristics (adjusted odds ratio 2.2, 95% confidence interval 1.6–3.1). Compared to smokers without an MH diagnosis, those with MH diagnoses were more likely to attempt quitting (58.7% vs. 44.4%, $p < 0.05$), use nicotine replacement therapy more often, and succeed in quitting at similar rates. Smokers with anxiety/PTSD were less likely to quit successfully compared those with other MH diagnoses (0.7% vs. 11.9%, $p = 0.03$).
Conclusions: This population-level analysis found that smokers with mental illness are more likely than those without mental illness to attempt quitting and to use cessation treatment at similar rates, but those with anxiety are less likely to achieve short-term abstinence. Additional approaches are needed for smokers with mental illness in order to reach and sustain long-term abstinence from smoking.

1. Introduction

Persons with psychiatric illnesses are disproportionally affected by tobacco use; they consume more than 30% of the cigarettes sold in the United States, and represent 44.3% of the entire U.S. tobacco market (Grant et al., 2004; Lasser et al., 2000). These individuals die up to 25 years earlier and suffer increased medical comorbidity compared to the general population; much of this excess mortality and morbidity is related to the high prevalence of tobacco use (Brown et al., 2000; Colton and Manderscheid, 2006; Dixon et al., 1999; Hoffman et al., 2006; Joukamaa et al., 2001; Osby et al., 2000). Additionally, this population faces significant neurobiological, psychosocial, financial, and stigma barriers to quitting smoking (Morris et al., 2009, 2011; Ziedonis et al., 2003).

In 2010, smoking prevalence among U.S. adults was 19.3% (Center for Disease Control and Prevention, 2011a), but was at least twice this rate among adult smokers with psychiatric illnesses (Lasser et al., 2000; Morris et al., 2006). While tobacco use prevalence varies according to psychiatric diagnosis, smoking rates can be as high as 90% among persons with psychotic disorders (de Leon and Diaz, 2005; Grant et al., 2004; Lasser et al., 2000; Ziedonis et al., 2008).

Mood disorders are the most prevalent mental disorders in the United States, with lifetime prevalence rates as high as 20% (American Psychiatric Association, 2000). The 2005–06 National Survey on Drug Use and Health found a 33% smoking prevalence among adults with self-reported history of depression, anxiety, anxiety with depression, or major depression, compared to 22.5% among those who did not report depression or anxiety (Trosclair and Dube, 2010). For bipolar disorder, a population-based study found the current and lifetime prevalence of smoking was 60.6%

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and 81.8% respectively (Lasser et al., 2000). Compared to persons without a lifetime history of depression and/or anxiety, persons with depression and/or anxiety are more likely to be current smokers, smoke with higher intensity and frequency, and have more tobacco dependence (Trosclair and Dube, 2010; Payne et al., 2013). Conversely, smokers have been found to be about two and half times more likely to be depressed than those who have never smoked (Wilhelm et al., 2003).

A majority of smokers with mental illness report an intention to quit (Joseph et al., 2004; Prochaska et al., 2004), and attempt to quit at similar rates compared to the general population (McClave et al., 2010). But there have been inconsistent findings regarding the psychiatric population's ability to quit smoking. While some studies have found that smokers with psychiatric disorders are less likely to quit smoking than are other smokers (Covey, 2000; Haas et al., 2004; McClave et al., 2010; Piper et al., 2010; Trosclair and Dube, 2010), other intervention studies have found that quit rates among psychiatric populations are substantial (Evins et al., 2004): smokers with a history of major depression have quit rates as high as 38% (Lasser et al., 2000) and smokers with schizophrenia have quit rates of 10–30% (Addington et al., 1998; Baker et al., 2006).

Despite high prevalence of smoking and interest in quitting among smokers with psychiatric illness, little is known about cessation behaviors in this population. Whether these smokers need more intensive or tailored services (e.g., higher dosages of nicotine replacement therapy for longer periods of time, or more frequent counseling sessions) is unclear (Fiore and Jaen, 2008). Also, there is some indication that persons with internalizing disorders (anxiety and mood disorders) are at highest risk for relapse during quit attempts and thus may require additional supportive therapy and resources (Hall et al., 2006; Piper et al., 2010).

The current study used Colorado population-level data to explore smoking cessation behaviors, treatment use, and attitudes toward quitting among persons self-reporting depression, anxiety/post-traumatic stress disorder, and other psychiatric illnesses. The objective was to extend knowledge about smoking cessation among those with psychiatric illnesses, in order to improve tobacco prevention and cessation interventions for these populations.

2. Methods

De-identified data were obtained from the 2008 adult Colorado Tobacco Attitudes and Behaviors Survey (TABS), a periodic population-level survey funded by state tobacco tax revenues. TABS data include general demographic characteristics, smoking and cessation history, and cessation attitudes and behaviors. Further details of TABS methods are available elsewhere (Levinson et al., 2004). The current study received approval from the Colorado Multiple Institutional Review Board (COMIRB).

Respondents came from a stratified sample of Colorado adults (aged 18+) whose phone numbers were randomly selected from landline and cell phone sampling frames. Cell phones were included to represent an estimated 17–18% of U.S. households in 2008 that no longer had landline telephones (Blumberg et al., 2011). Several groups were oversampled to ensure adequate numbers for subgroup analysis, including smokers and former smokers, African Americans, and adults in certain geographical regions of the state. Respondents were interviewed in English or Spanish according to their preference. The overall response rate was 32.7% for cell phone respondents and 46.7% for landline respondents; data were weighted in analyses to represent the overall population of Colorado. Weighting corrected for three factors in order to make the sample as representative as possible: (1) unequal probabilities of selection due to the sample design; (2) differential non-response among subgroups of the population, and (3) differences in demographic characteristics of the sample compared to the population of Colorado.

Table 1
Survey items.

Smoking behaviors	• Have you smoked at least 100 cigarettes during your entire life? • Do you now smoke cigarettes every day, some days, or not at all? • (Asked of current daily smokers) How many cigarettes on average do you smoke per day? • (Asked of current non-daily smokers) During the past 30 days, on the days that you did smoke, about how many cigarettes a day did you usually smoke?
Quit attempts/attitudes	• During the past 12 months, have you quit smoking for one day or longer? • For this most recent attempt to quit smoking, did you use a nicotine substitute such as a nicotine patch? Nicotine gum? A nicotine inhaler or spray? Nicotine lozenges? • How sure are you that you could stop smoking and stay off cigarettes for at least one month? • In the last 12 months did a doctor or other healthcare provider advise you to stop smoking?
Mental health status	• Has a doctor or healthcare provider ever told you that you have a mental health problem or mental illness? • Please tell me what the problem or illness is called. • Are you limited in any way in any activities because of mental or emotional problems?

2.1. Study population

A total of 14,156 interviews (12,623 landline and 1,533 cell phone) were completed in 2008. For the current study, respondents were eligible if they had non-missing values for smoking status (eligible *n*: 14,156 – 38 = 14,118).

2.2. Measures

The 2008 TABS survey included self-reported items regarding smoking behaviors, recent quit attempts, healthcare provider advice, nicotine replacement therapy (NRT) employed, MH diagnosis, limitations due to a MH diagnosis, and cessation attitudes (Table 1). MH diagnoses were grouped by diagnostic categories as referenced in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association [DSM-IV-TR], 2000) and included depression, bipolar disorder, and anxiety disorders (including post-traumatic stress disorder; PTSD). Due to small respondent numbers, all other MH diagnoses were combined (e.g., schizophrenia and other psychotic disorders). Because there is some evidence that a self-prognosis question may hold utility in predicting cessation rates for persons with current mental illnesses (McAfee et al., 2009), an item was added to assess expectations regarding being able to quit for at least one month. Both the MH diagnosis and inclusion of expectations and limitations items where, in part, developed by the Behavioral Health Advisory Forum (2010) and have also been endorsed by the North American Quitline Consortium as a component of the Minimal Data Set.

2.3. Analyses

Descriptive analyses were conducted of smoking prevalence, daily smoking, and cigarettes per day by MH category and by demographic factors (age, gender, race/ethnicity, poverty, education status) within MH status (diagnosis vs. no diagnosis). Multivariate logistic regression was used to examine the effects of covariates, including gender, age, race/ethnicity, socio-economic status, high