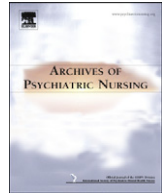




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Smoking Behaviors and Medical Co-Morbidities in Patients With Mental Illnesses

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ABSTRACT

Correlations among smoking behaviors and co-morbid medical illnesses were examined among 982 smokers with mental illnesses enrolled in a smoking cessation program within Mental Health and Addictions Services in Vancouver, Canada. Significant correlates among individuals with psychotic disorders included associations between a history of emphysema/chronic obstructive pulmonary (COPD) disease and cigarettes smoked per day ($r's = .35, p \leq .01$), Confidence in quitting ($r's = -.33, p \leq .01$), and nicotine dependence ($r's = .32, p \leq .01$). Study findings may have implications for the development of integrated medical–psychiatric treatment delivery models that include comprehensive tobacco cessation programs tailored toward people with mental illnesses.

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Much research in the past decade has revealed disparate morbidity and mortality rates among people diagnosed with mental illnesses (MIs) (Manderscheid, 2009; Schoepf, Uppal, Potluri, & Heun, 2014). The life expectancy of people diagnosed with MIs is 25 years shorter, (Capasso, Lineberry, Bostwick, Decker, & St. Sauver, 2008; Maj, 2008; Osborn et al., 2007; Tiihonen et al., 2009) and their overall mortality rate is 2 to 3 times higher, compared to the general population (Henderson, Vincenzi, Andrea, Ulloa, & Copeland, 2015). For example, among people diagnosed with schizophrenia, disparities in mortality rates have been attributed to higher than average rates of endocrine and cardiovascular disorders compared to the general population (De Hert et al., 2011; Schoepf et al., 2014; Ward & Druss, 2015). Similarly, higher than average rates of respiratory, musculoskeletal, integumentary, neurological, and endocrine illnesses have been observed in people diagnosed with bipolar disorder (Kemp et al., 2009).

Disparate trends in morbidity and mortality rates among individuals with MIs have precipitated an increased focus on the connections between a variety of complex factors that contribute to poor health and low rates of involvement in health promoting activities in this population. These factors include enhanced vulnerability to medical illness due to a psychiatric diagnosis, medication side effects, socioeconomic status, low access to screening and treatment for common medical illnesses, and lifestyle factors, such as poor diet, physical activity, and smoking (Bresee, Majumdar, Patten, & Johnson, 2010; De Hert et al., 2011; El-Mallakh, 2007; Kilbourne, Welsh, McCarthy, Post, & Blow,

2008; Maj, 2008; Nasrallah et al., 2006). In particular, smoking is highly prevalent among those diagnosed with MIs, despite being a modifiable risk factor for medical comorbidities (Coogle, Zvolensky, Fitch, & Sachs-Ericsson, 2010; Diaz et al., 2009; Heffner, Strawn, DelBello, Strakowski, & Anthenelli, 2011).

Between 2009 and 2011, smoking prevalence among individuals with MIs was 36.1% as compared to 21.4% among those without any MIs in the general US population (Center for Disease Control and Prevention [CDC], 2013). In the National Comorbidity Survey-Replication, Coogle et al. (2010) observed rates of lifetime daily smoking of 56.9% for social anxiety disorder, 61.7% for panic disorder with or without agoraphobia, 61.6% for generalized anxiety disorder, and 64.5% for post-traumatic stress disorder. In addition, rates of smoking among adults in psychiatric hospitals are higher. Diaz et al. (2009) found higher than average smoking rates among 424 psychiatric inpatients in a south-central state of the US; they observed smoking rates of 74% among those with schizophrenia spectrum disorders, 66% among those with bipolar disorder, and 57% among those with major depression.

Research also suggests that smoking among people with MIs is associated with greater severity of psychiatric symptoms and poorer functioning (Berk et al., 2008; Keltner & Grant, 2006; Saiyad & El-Mallakh, 2012; Waxmonsky et al., 2005). Among people with bipolar disorder, smoking is associated with greater severity of mania symptoms, greater frequency and severity of depressive episodes, and greater anxiety symptoms (Berk et al., 2008; Saiyad & El-Mallakh, 2012; Waxmonsky et al., 2005). Among people with schizophrenia, smoking has been associated with low performance on verbal memory and problem solving tasks, which is associated with poor social functioning (Iasevoli, Balletta, Gilardi, Giordano, & de Bartolomeis, 2013).

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Given the growing body of research documenting the increased risks of co-morbid medical illnesses and smoking among those with MIs, it is important to further understand and describe the relationship between smoking and co-morbid medical illnesses in this population. Understanding the relationship between medical co-morbidities and smoking among individuals with MIs can aid in developing integrated treatment plans and care models within mental health treatment services to adequately address the complex needs of this vulnerable population. Hence, the purpose of this paper is to investigate correlations among smoking behaviors and attitudes (cigarettes smoked per day, nicotine dependence, importance and confidence to quit smoking) and co-morbid medical illnesses among smokers with MIs who were enrolled in a smoking cessation program within Mental Health and Addictions Services in Vancouver, Canada. Specifically, we aim to:

- describe smoking behaviors and characteristics by history of psychiatric disorder;
- describe the type and total number of medical co-morbidities, tobacco use and cessation history of participants in the program by history of psychiatric disorder;
- assess correlates of number of cigarettes smoked per day (CPD), importance and confidence in quitting, and nicotine dependence (ND) among participants by different categories of psychiatric disorders; and
- discuss implications of the findings for nursing research and practice, and the development and implementation of integrated medical-psychiatric treatment delivery systems.

MATERIALS AND METHODS

Design, Setting and Participants

Data for this descriptive correlational study were obtained from a retrospective chart review of the baseline information of 982 participants enrolled in the Tobacco Dependence Clinic (TDC) between September 2007 and March 2012. The TDC is a tobacco treatment program provided within the auspices of the Mental Health and Addictions treatment services of the Vancouver Coastal Health Authority (VCH) in Vancouver, Canada (Khara & Okoli, 2011a, 2011b). The TDC program provides up to 6 months of behavioral and pharmacotherapy support for individuals with a history of a psychiatric disorders and/or substance use who are willing to engage in tobacco cessation treatment. Eligibility for the program included: a) being tobacco dependent, b) 19 years of age or older, c) financially disadvantaged (i.e., on social assistance), and d) being an existing client of mental health and addictions services. The tobacco treatment is provided by certified tobacco treatment specialists and addictions counselors. Treatment phases include an initial 8 weeks of a structured behavioral counseling group, followed by an additional 9 to 18 weeks of a support group. Ethics approval for this study was obtained from the University of British Columbia Clinical Review Ethics Board.

Measures

Demographic Data

These data included sex (female vs. male) and age (in years).

Tobacco Use and Cessation Attempt History

This included the average number of cigarettes smoked per day (CPD) at time of entry into the program, age at smoking initiation (in years), and length of success in previous cessation attempts (never, less than 1 week, 1 week to 1 month, 1 to 6 months, 7 months to 1 year, greater than 1 year).

Nicotine Dependence

Nicotine dependence (ND) was measured by the six item Fagerstrom Test for Nicotine Dependence (FTND) (Heatherton, Kozlowski, Frecker, &

Fagerstrom, 1991). A summary score of this measure is computed with total scores ranging from 0 to 10. Higher scores indicate greater ND. Also, scores may be categorized as 0–2 (very low), 3–4 (low), 5 (medium), 6–7 (high) and 8–10 (very high) (Fagerstrom, Heatherton, & Kozlowski, 1990).

Motivation to Quit Smoking

Motivation to quit smoking was measured with the constructs of importance (scale of 0 to 10) and confidence (scale of 0 to 10) (Burke, Ebbert, & Hays, 2008; Kahler et al., 2007; Miller & Rollnick, 2002). Higher ratings suggest greater importance and confidence in quitting smoking.

Psychiatric Disorder History

Participants' history of psychiatric disorders was obtained from a medical record review. This item was based on self-report validated by medication review. Due to small sample sizes within specific types of psychiatric disorders, participants' psychiatric history was broadly categorized as: none (individuals who had no psychiatric disorder, but had other addictive/substance use disorders such as alcohol use disorder, eating disorder, gambling etc.), mood disorders (including major depressive disorder and bipolar disorder), anxiety disorders (including posttraumatic stress disorder, generalized anxiety disorder, agoraphobia, and social anxiety disorder), and psychotic disorders (i.e., schizophrenia, schizoaffective disorder, psychosis not otherwise specified). Only the primary psychiatric disorder for which the participant was seeking treatment within the Mental Health and Addictions treatment services was considered for the categories, and secondary diagnoses of psychiatric disorders were not examined for this study.

Medical Co-morbidities

Participant medical records also contained information on past and current medical history. These data were mainly based on self-report with a review of current medications and specific dates when medical diagnoses were made. The list of potential history of medical co-morbidities included: hypertension, high cholesterol, diabetes mellitus, heart disease, asthma, chronic bronchitis, emphysema/chronic obstructive pulmonary disease, hepatitis C, HIV/AIDs. A summary score was created for the total number of medical co-morbidities participants reported, which ranged from 0 to 6.

Data Analysis

The characteristics of the sample were described using frequencies for categorical variables and means (M) with standard deviations (SD) for continuous variables. We examined group differences in psychiatric history using chi-square analyses (for categorical and ordered categorical variables). For continuous variables, we employed analysis of variance (ANOVA) with Levine's test for equality of variances. If the variances of continuous variables were unequal, we further employed Kruskal-Wallis nonparametric tests to determine differences between variables. Bonferroni tests were used to assess post hoc differences between continuous variables of interest by category of psychiatric history. In addition, we employed Pearson product moment correlations (for continuous variables) and Spearman rho (for categorical and ordered categorical variables) in assessing the association between history of medical comorbidities and our main outcome variables of interest. These included cigarettes smoked per day (CPD), importance and confidence in quitting, and ND scores. Two-tailed tests with an alpha of .05 were set for significance. We classified the strength of associations between variables according to the following scale: <.10 to .29 as 'weak', .30 to .49 as 'medium', and .50 and greater as 'strong' (Rosenthal, 1996). All analyses were performed using the PASW Statistics 20.0 (SPSS, Inc., 2009, Chicago, IL, USA; www.spss.com).

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