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Smoking expectancies and intention to quit in smokers with schizophrenia, schizoaffective disorder and non-psychiatric controls

Jennifer W. Tidey [a,*], Damaris J. Rohsenow [a,b]

[a] Center for Alcohol and Addiction Studies, Brown University, Providence, RI, USA
[b] Providence Veterans Affairs Medical Center, Providence, RI, USA

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ABSTRACT

Cigarette smoking expectancies are systematically related to intention to quit smoking in adult smokers without psychiatric illness, but little is known about these relationships in smokers with serious mental illness. In this study, we compared positive and negative smoking expectancies, and examined relationships between expectancies and intention to quit smoking, in smokers with schizophrenia ($n=46$), smokers with schizoaffective disorder ($n=35$), and smokers without psychiatric illness ($n=71$). In all three groups, reduction of negative affect was rated as the most important smoking expectancy and intention to quit smoking was systematically related to concerns about the health effects and social consequences of smoking. Compared to the other groups of smokers, those with schizoaffective disorder were more concerned with social expectancies and with the immediate negative physical effects of smoking. Results of this study suggest that challenging positive smoking expectancies and providing more tailored information about the negative consequences of smoking might increase motivation to quit smoking in smokers with schizophrenia and schizoaffective disorder, as has been found with non-psychiatric smokers.

1. Introduction

Smoking outcome expectancies refer to beliefs about the consequences of cigarette smoking, such as beliefs that smoking reduces negative mood, increases stimulation, facilitates some social interactions and curbs appetite (i.e., positive smoking expectancies or "pros" of smoking) and that smoking induces harmful physical effects and social disapproval (negative smoking expectancies or "cons" of smoking). Smoking expectancies have been described in numerous populations, including adolescents (Lewis-Esquerre et al., 2005), college students (Brandon and Baker, 1991) and older adults (Rohsenow et al., 2003; Wetter et al., 1994), including adults with psychiatric disorders (Buckley et al., 2005).

Smoking expectancies are relevant to the treatment of smoking because such expectancies are associated with intention to quit and predict smoking cessation success. Those who intend to quit smoking rate the importance of negative smoking consequences higher than those who do not intend to quit (Brandon et al., 1999; Prochaska and Velicer, 1997). Furthermore, expectancies of harmful health consequences from smoking predicted greater cessation success in the first week of a quit attempt, whereas expectancies that smoking reverses negative mood predicted less cessation success, over and above other predictors such as biological and subjective measures of tobacco dependence, negative affect and perceived stress (Wetter et al., 1994). However, in smokers with serious mental illness, which is associated with low rates of smoking cessation (de Leon and Diaz, 2005; Lasser et al., 2000), less is known about relationships between smoking expectancies and intention to quit smoking.

A number of studies have described smoking outcome expectancies in smokers with schizophrenia, with most finding that reduction of negative affect was rated the most important positive expectancy (Buckley et al., 2005; Esterberg and Compton, 2005; Forchuk et al., 2002; Solty et al.,

* Corresponding author. Center for Alcohol and Addiction Studies, Brown University, Box G-S121-5, Providence, RI 02912, USA. Tel.: +1 401 863 6418; fax: +1 401 863 6697.
E-mail address: Jennifer_Tidey@brown.edu (J.W. Tidey).

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2009; but see Carosella et al., 1999) and negative health consequences the most important negative expectancy (Buckley et al., 2005; Carosella et al., 1999; Esterberg and Compton, 2005; Lucksted et al., 2004; Solty et al., 2009). However, the few studies that have directly compared smoking expectancies of smokers with schizophrenia with those of a concurrent sample of smokers without psychiatric illness have reported inconsistent findings. Using modified versions of the Reasons for Smoking Scale (Russell et al., 1974), Gurpegui et al. (2007) reported that smokers with schizophrenia were more likely than controls to report that reduction of negative affect was their main reason for smoking; whereas Barr et al. (2008) reported that smokers with schizophrenia or schizoaffective disorder rated the importance of negative affect reduction, pleasure/relaxation, addiction and habit similarly to controls, but endorsed higher importance scores on the sensorimotor manipulation and stimulation scales and lower scores for sociability. Neither study measured negative smoking expectancies, and neither examined whether intention to quit was associated with increases in negative expectancies.

In this study, we used the Smoking Effects Questionnaire (SEQ; Rohsenow et al., 2003) to compare positive and negative smoking outcome expectancies in smokers with schizophrenia, schizoaffective disorder, and equally-nicotine-dependent smokers without psychiatric illness, and to examine relationships between expectancies and intention to quit smoking. Because this measure was validated in a group of general adult smokers (Rohsenow et al., 2003), we also examined the internal consistency reliabilities of the SEQ scales in these study groups. Based on previous research (reviewed in Brandon et al., 1999), we hypothesized that greater intention to quit would be associated with higher importance scores on the negative smoking expectancies scales. A secondary aim was to compare expectancies in smokers with schizophrenia with those of smokers with schizoaffective disorder. Although studies often combine data from people with these diagnoses into one group, mood disturbance is more prominent in schizoaffective disorder (American Psychiatric Association, 1994). Considering previous research on relationships between depression symptom severity and smoking expectancies (Friedman-Wheeler et al., 2007), we hypothesized that smokers with schizoaffective disorder would rate the importance of negative affect reduction higher than the other groups. There were no other specific hypotheses concerning intention to quit and expectancies, but these relationships were explored.

2. Methods

2.1. Participants

Participants were heavy smokers with schizophrenia (SCZ; $n=46$), schizoaffective disorder (SCZAFF; $n=35$), or no current psychiatric illness (CON; $n=71$) who had enrolled in one of four laboratory studies of smoking behavior. Participants in these studies could not be seeking immediate treatment for smoking, but there were no other inclusion or exclusion criteria related to motivation to quit smoking. Participants were at least 18 years of age, smoked at least 20 cigarettes per day and had scores of at least 6 on the Fagerström Test for Nicotine Dependence (FTND), a widely-used measure of nicotine dependence (Heatherton et al., 1991). One question on the FTND queries time to first cigarette after awakening. As responses to this question could be affected by environmental constraints on smoking (Steinberg et al., 2005), participants were asked whether they were allowed to smoke in their residences, and those whose smoking was constrained were asked to respond to this question by estimating how soon they would smoke after awakening if they were permitted to do so. The Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID-I; First et al., 1994) was used to confirm diagnoses in SCZ and SCZAFF participants and to rule out psychiatric disorders in CON participants. The Brief Psychiatric Rating Scale (BPRS; Overall and Gorham, 1962) was administered to exclude those with very high psychiatric symptom severity, (i.e., ratings of 6 or higher for uncooperativeness, excitement, conceptual disorganization, tension, posturing, disorientation or emotional withdrawal), as this could interfere with the completion of study procedures, but no potential participants were excluded for this reason. All participants provided written informed consent to participate in research and passed a quiz on their understanding of the critical elements of consent.

2.2. Measures

The following assessments were included in a larger battery administered at study enrollment, prior to any experimental procedures. Breath CO levels were measured using a Smokerlyzer ED50 CO monitor (Bedfont Instruments). Cotinine levels from a subset of participants ($n=79$) were measured by a commercial laboratory (Salimetrics, LLC, State College, PA). Samples from the remaining participants were analyzed using a different laboratory and method and are not included in analyses. Psychiatric symptoms in participants with schizophrenia or schizoaffective disorder were assessed by clinically-trained research staff using the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987). The Scale for Assessment of Negative Symptoms (SANS; Andreasen, 1983) was also administered as it measures negative schizophrenia symptoms in more detail than does the PANSS. The Hamilton Depression Sale (HAM-D; Hamilton, 1960) was used to measure current depression symptom severity in a subsample of participants ($n=62$). Intention to quit smoking was assessed according to the Stages of Change algorithm, with Precontemplation defined as not intending to quit within 6 months, Contemplation defined as intending to quit within 6 months but (1) either not intending to quit within 30 days or (2) intending to quit within 30 days but not having made a 24-h quit attempt in the past year, and Preparation defined as intending to quit within 30 days and having made at least one 24-h quit attempt in the past year (DiClemente et al., 1991).

Positive and negative smoking outcome expectancies were assessed with the SEQ (Rohsenow et al., 2003). The 33 SEQ items load on seven scales with two higher-order factors (positive and negative). The three negative expectancies scales are Negative Physical Effects (e.g., “Smoking makes me short of breath”), Negative Psychosocial Effects (e.g., “Smoking makes my family or friends respect me less”) and Future