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Emotional disorders and smoking: Relations to quit attempts and cessation strategies among treatment-seeking smokers

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HIGHLIGHTS

- Cigarette smoking is common among adults with anxiety and depressive psychopathology.
- Smokers with a history of emotional disorders are more likely to try to quit smoking.
- Smokers with emotional disorders employ a greater number of quit strategies.
- These smokers use of both pharmacological and non-pharmacological cessation aids.

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ABSTRACT

The cross-sectional associations between lifetime emotional disorder status (anxiety/depressive disorders) among smokers in relation to historical quit processes were examined. Adult treatment-seeking daily cigarette smokers ($n = 472$) received structured psychiatric interviews and completed a survey that included in-depth questions on cessation history. Having a lifetime emotional disorder was significantly associated with a greater number of prior quit attempts and cessation strategies used, including increased use of both non-pharmacological and pharmacological quit methods. These smokers may still require complimentary specialty care to address their specific affective vulnerabilities given that their use of commonly-applied strategies did not result in lifetime abstinence.

1. Introduction

There is now broad-based recognition employing representative and clinical samples that smokers are more likely to have a psychiatric disorder than non-smokers, and individuals with a psychiatric disorder are significantly more likely to smoke compared to persons without a psychiatric disorder (CDCP, 2013). Additionally, smokers with psychiatric symptoms and conditions consume a disproportionately higher number of cigarettes in the overall population relative to their prevalence (Lasser et al., 2000). Among the various psychiatric disorders implicated in smoking, depressive and anxiety syndromes (i.e., emotional disorders) are particularly important to study because they are highly prevalent in the general population and remarkably comorbid with smoking (Grant, Hasin, Chou, Stinson, & Dawson, 2004; Hughes, 2011). Smoking incidence and maintenance generalizes across various emotional disorders, including major depression (Leventhal et al., 2012), dysthymia and minor depression (Weinberger & McKee, 2012), posttraumatic stress disorder (Zvolensky et al., 2008), and other anxiety disorders including panic disorder, social anxiety disorder, and generalized anxiety disorder (Piper, Cook, Schlam, Jorenby, & Baker, 2011). There is also robust empirical evidence that elevated depressive and anxiety symptoms and emotional disorders increase risk of smoking experimentation (Leventhal, Ray, Rhee, & Unger, 2011), progression to daily smoking (Audrain-McGovern, Rodriguez, Rodgers, & Cuevas, 2011), development of nicotine dependence (McKenzie, Olsson, Jorm, Romaniuk, & Patton, 2010), and contribute to maladaptive cognitive–emotional reactions to tobacco (Brandon, Tiffany, Obremski, & Baker, 1990; Peasley-Miklus, McLeish, Schmidt, & Zvolensky, 2012). Moreover, daily smoking prospectively increases the risk for developing clinically

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significant depressive (Khaled et al., 2012) and anxiety symptoms (Johnson et al., 2000) and can exacerbate the severity of such symptoms (Zvolensky, Lejuez, Kahler, & Brown, 2004).

Although there are well-documented clinically significant bi-directional associations between emotional disorders and smoking, there is presently little known about how smokers with emotional disorders compared to smokers without such disorder *approach* quitting. Given that smokers with emotional disorders generally experience more cessation failure (Hitsman et al., 2013; Piper et al., 2011; Zvolensky et al., 2008) and greater nicotine withdrawal (Leventhal, Ramsey, Brown, LaChance, & Kahler, 2008), these smokers may be more likely to try to quit smoking and use more strategies in such efforts to quit, possibly because they anticipate greater difficulty abstaining from tobacco. For example, they may suffer from greater negative effects of smoking (psychological and physical) because they are more apt to be 'reactive' to aversive internal sensations and experiences (Leventhal & Zvolensky, in press). However, there has been limited systematic investigation of the quitting histories of smokers with emotional disorders. Understanding the number and types of cessation attempts and strategies used among smokers with emotional disorders might provide clinically-useful information that could guide smoking cessation practice for this population. Furthermore, given some evidence that successful sustained abstinence following a quit attempt is associated with lower emotional symptom levels (e.g., Kahler, Spillane, Busch, & Leventhal, 2011), advancing knowledge of cessation among smokers with a history of emotional disorders could down-the-line enhance remission or relapse prevention of such disorders.

With this background, the primary aims of the current study were to examine cross-sectional associations between lifetime emotional disorders among treatment-seeking smokers in relation to (1) number of lifetime quit attempts, (2) number of strategies used to quit, including (3) number of non-pharmacological methods (e.g., behavior modification, gradual reduction, quitting with friends), as well as (4) number of pharmacological methods used (e.g., nicotine replacement strategies, varenicline). It was hypothesized that smokers with a lifetime history of emotional disorder(s) compared to those without such a history would be more apt to have made more quit attempts, and tried more quit strategies, including both more non-pharmacological and pharmacological methods.

2. Material and methods

2.1. Participants

Participants ($n = 472$) were adult treatment-seeking daily cigarette smokers ($M_{age} = 36.6$, $SD = 13.60$; 48.3% female). Participants primarily identified as White (85.6%), while fewer identified as African-American (8.3%), Hispanic (2.5%), Asian (1.1%), and other (2.5%). Participants were generally well-educated (73.9% indicated completing at least part of college) and the majority of the sample reported their relationship status as never married (44.1%) or married/cohabitating (33.3%). The current study is based on secondary analyses of baseline (pre-treatment) data for a clinical trial examining the efficacy of standard smoking cessation care versus an integrated treatment for smoking and anxiety (clinicaltrials.gov # NCT01753141). Inclusion criteria for the parent study included daily cigarette use (average ≥ 8 cigarettes per day for at least one year), between ages 18 and 65, and motivation to quit smoking of at least 5 on a 10-point scale. Exclusion criteria included: inability to give informed consent, current use of smoking cessation products or treatment, past-month suicidality, and history of psychotic-spectrum disorders.

The average daily smoking rate of this sample was 16.7 ($SD = 9.95$), and on average, participants reported daily smoking for 18.4 years ($SD = 13.37$) and a moderate level of nicotine dependence. Regarding emotional disorders, 51.9% met the criteria for a lifetime anxiety and/or depressive disorder, and 73.7% of the sample met the criteria for any Axis I disorder. Please see Table 1 for complete descriptive details of the full sample and by lifetime emotional disorder status.

2.2. Measures

The *Structured Clinical Interview — Non-Patient Version for DSM-IV* (*SCID-I/NP*; First, Spitzer, Gibbon, & Williams, 2007) is a diagnostic assessment used to assess current (12 months) and past Axis I psychopathology. The SCID-I/NP was administered by trained research assistants or doctoral-level staff. A random selection of interviews was checked for accuracy; no cases of diagnostic disagreement were noted. A dichotomous variable was created to reflect those who met the criteria for a lifetime history (current [past 12 months] or past [successfully treated/remitted]) of any depressive or/or anxiety disorder (1 = lifetime emotional disorder). All other participants were coded as the reference group (0 = no history of emotional disorder); this variable was the predictor in all analyses.

The *Smoking History Questionnaire* (*SHQ*; Brown, Lejuez, Kahler, & Strong, 2002) is a self-report questionnaire used to assess smoking and cessation history. The SHQ was used to create three criterion variables. First, number of lifetime quit attempts were coded using a single item on the SHQ ("How many times in your life have you made a serious attempt to quit smoking?"; observed range: 0–15). Second, the number of quit strategies used was computed from the question "In your attempts to quit smoking, what methods have you used?"; a list of 12 quit smoking strategies (e.g., cold turkey, smoke-enders, behavior modification, American Cancer Society/Lung Association Program, hypnosis, acupuncture, quitting with friends/relatives, gradual reduction, telephone counseling, substitute other tobacco product, nicotine patch, nicotine gum), plus an "other" option in which participants could write in additional quit strategies used (e.g., electronic cigarette, wellbutrin, varenicline). This text was coded based on responses. The observed range of quit strategies used was 0–12. Third, the type of quit strategies were further coded into pharmacological and non-pharmacological quit methods, thus creating two additional continuous variables.

Study covariates were assessed as follows: The *Fagerström Test for Nicotine Dependence* (FTND; Heatherton, Kozlowski, Frecker, & Fagerström, 1991) is a 6-item scale that assesses gradations in tobacco dependence; internal consistency was found to be acceptable (Cronbach's $\alpha = .65$). The *Alcohol Use Disorders Identification Test* (*AUDIT*; Babor, de la Fuente, Saunders, & Grant, 1992) is a 10-item self-report measure developed to identify individuals with current alcohol problems; internal consistency was good (Cronbach's $\alpha = .84$). The *Marijuana Smoking History Questionnaire* (*MSHQ*; Bonn-Miller & Zvolensky, 2009) is a 40-item measure that was used to assess cannabis use. One item ("Please rate your cannabis use in the past 30 days") was used to create a dichotomously coded variable (1 = past 30-day use) or no use (0 = No use). *A Medical History Checklist* was used to compute an index of tobacco-related disease (heart problems, hypertension respiratory disease and asthma; all coded 0 = no, 1 = yes). These items were summed and a total score was created. An item from the *Smoking History Questionnaire* was used to covary for duration of smoking: "For how many years, altogether, have you been a regular daily smoker?".

2.3. Procedure

Adult daily smokers were recruited from the community (via flyers, newspaper ads, radio announcements) to participate in a randomized controlled dual-site clinical trial examining the efficacy of two smoking cessation interventions. After providing written informed consent, participants were interviewed using the SCID-I/NP and completed a battery of computerized self-report assessments. The study protocol was approved by the Institutional Review Board at each study site. Cases were included in the current analyses on the basis of having all available data on study variables.