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Distress tolerance and pre-smoking treatment attrition: Examination of moderating relationships ☆

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ABSTRACT

This study focused on the understudied group of smokers who commit to a smoking research study and then subsequently drop out before completing even one session of treatment (pre-inclusion attrition). This is an important group typically not examined in their own right, leaving little knowledge about the characteristics that differentiate them from those who complete treatment. As an initial investigation, the current study examined affective risk factors for attrition in a sample of 53 adults (79% African-American; median income = $30,000–$39,999) enrolled in a smoking cessation study. Twenty-one (40%) participants never attended a session of treatment. Results indicated that lower psychological distress tolerance was related to pre-inclusion attrition, but only among women. Additionally, lower physical distress tolerance corresponded to pre-inclusion attrition, but only among men. These effects remained after including other important affective factors such as anxiety sensitivity and current depressive symptoms. No other predictors examined corresponded with pre-inclusion attrition in the present sample. Results indicate the need for more research attention to this at-risk group of smokers who do not continue on to cessation intervention.

1. Introduction

Ample research has focused on identifying factors (e.g., depressive symptoms, withdrawal dynamics) related to relapse for those who receive smoking cessation treatment (e.g., Berlin & Covey, 2006; Piasecki, Jorenby, Smith, Fiore & Baker, 2002). However, studies typically pay less attention to individuals who engage in "pre-inclusion attrition" defined as completing an initial screening or intake assessment but then failing to participate in any aspect of the intervention (Howard, Cox & Saunders, 1990; Namenek, Brouwer, & Pomerleau, 2000). Of the limited research conducted on pre-inclusion attrition in smoking cessation, a handful of studies have considered individual difference factors that may limit initial treatment engagement.

Factors that may be associated with pre-inclusion attrition include self-reported cessation motivation and quit intentions (Ahluwalia et al., 2002; Schnoll et al., 2004), younger age and lower education (Ahluwalia et al., 2002; Woods et al., 2002), weight concerns (Copeland, Marin, Geiselman, Rash & Kendzor, 2006), and history of psychotropic medication use (Curtin, Brown & Sales, 2000). Moving beyond these variables, affective vulnerabilities (e.g., depressive symptoms) have been shown to relate to poorer treatment outcome in smokers (e.g., Kassel & Hankin, 2006), and may also be useful for consideration specific to pre-inclusion attrition. Despite the extensive body of literature linking depression status or symptoms to poor cessation outcomes, these affective vulnerabilities have been unrelated to pre-inclusion attrition (El-Khorazaty et al., 2007), as well as indices of readiness to

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change smoking behavior and smoking treatment acceptance (Haug et al., 2005; Prochaska et al., 2004). Some evidence suggests that anxiety sensitivity (AS), a dispositional trait-like characteristic reflecting the fear of anxiety-related experiences, is related to factors associated with pre-treatment attrition including motivation to quit smoking (Zvolensky et al., 2004, 2007), barriers to quitting smoking (Zvolensky et al., 2006) and early smoking lapse (e.g., Brown, Kahler, Zvolensky, Lejuez & Ramsey, 2001). However, a direct link from anxiety sensitivity to pre-treatment attrition has yet to be established.

There may also be other relevant vulnerabilities that have yet to be examined in relation to pre-inclusion attrition including distress tolerance which is defined as an individual's behavioral persistence towards a goal in the presence of affective and/or physical distress (Daughters, Lejuez, Kahler, Strong & Brown, 2005a; Brown, Lejuez, Kahler, Strong & Zvolensky, 2005). Low distress tolerance has been associated with greater substance use (Quinn, Brandon & Copeland, 1996), shorter length of smoking cessation and drug use abstinence (Brandon et al., 2003; Brown, Lejuez, Kahler & Strong, 2002; Daughters et al., 2005a), and early substance use treatment drop out (Daughters et al., 2005b). A limitation of this literature is that studies were retrospective (Daughters et al., 2005a; Brown et al., 2002) or limited to participants who completed treatment or engaged in some treatment but failed to achieve abstinence (Brandon et al., 2003; Daughters et al., 2005b). Thus, the current literature does not highlight the potential role of distress tolerance in relation to pre-inclusion attrition in a smoking intervention.

In considering the link between distress tolerance and pre-inclusion attrition, it may be useful to conceptualize distress tolerance within the framework of negative reinforcement (Brown et al., 2005; Daughters, submitted for publication), in which distress tolerance is considered an assessment of behavioral avoidance of or escape from affective or physical distress. This framework draws upon Baker, Piper, McCarthy, Majeskie and Fiore (2004) negative reinforcement model of addiction in which initially escape and ultimately avoidance of affective distress are considered the prepotent motive of addictive behavior maintenance, and is consistent with other negative reinforcement conceptualizations of smoking motivation (Eissenberg, 2004). Additionally, avoidance behavior is commonly implicated in both a lack of treatment-seeking for health problems (e.g., Moore et al., 2004) and treatment non-adherence (e.g., Waldroup, Gifford, & Kalra, 2006). Thus it is likely that those individuals who have the lowest levels of distress tolerance will also be most likely to exhibit pre-inclusion attrition from a smoking cessation intervention. Specifically, distress tolerance tasks provide an analog assessment of avoidance/escape behavior that is relevant to the behavior exhibited in not following through with treatment after an initial effort is made to attend a baseline session.

1.1. Current study

The aim of the current study was to examine the role of psychological and physical distress tolerance as predictors of pre-inclusion attrition among a sample of adults who met entry criteria and completed a baseline assessment for a randomized control trial of a piloted behavioral activation cessation intervention for smokers with elevated depressive symptoms. Given poor cessation outcomes associated with depression-related vulnerabilities (e.g., Berlin & Covey, 2006), but also the lack of findings connecting depressive symptoms to pre-inclusion attrition (El-Khorazaty et al., 2007), it is important to investigate other possible mechanisms contributing to pre-inclusion attrition in this at-risk group. We also examined the role of gender as a moderator of the relationship between distress tolerance and pre-inclusion attrition given women's smoking behavior may be more directly driven by motivation to cope with negative affect and stress (e.g., al'Absi, 2006; Colamussi, Bovbjerg & Erblich, 2007) while men's smoking may be more driven by physiological or pharmacological effects of nicotine (Perkins, 2001; Perkins et al., 2006). Thus, it was expected that physical distress tolerance would have a stronger relationship with pre-inclusion attrition for men while psychological distress tolerance would have a stronger relationship with this outcome for women.

2. Methods

2.1. Procedure

The study employed screening and baseline data from a sample of 53 adult smokers participating in a randomized trial of a novel behavioral activation treatment for smokers with elevated depressive symptoms. Subjects were recruited through media advertisements, as well as the use of community connections across a period of approximately 12 months. 476 potential participants were initially screened by phone for eligibility. To be deemed eligible, participants were 1) 18 to 65 years of age, 2) a regular smoker for at least 1 year, 3) currently smoking ≥ 10 cigarettes per day, 4) reporting motivation to quit smoking in the next month, and 5) scored 14 or greater on the BDI-II on a phone screen (participants with lower BDI-II scores at baseline were retained in the study). At a baseline session, all potential participants were also screened using the Structured Clinical Interview for DSM-IV. Individuals were excluded from the study for being outside the age range ($n=6$), scoring too low on the BDI-II at phone screen ($n=213$), having low motivation for quitting ($n=2$), meeting criteria for a current DSM-IV disorder ($n=119$), meeting criteria for any psychoactive substance use or dependence (excluding nicotine) in the last 6 months ($n=9$), current use of psychotropic medication or participation in psychotherapy ($n=15$), physical concerns contraindicating use of the nicotine patch ($n=1$), current use of pharmacotherapy to aid in smoking cessation not provided by research staff ($n=3$), smoking too few cigarettes or for too short a period of time ($n=50$), and current use of tobacco products other than cigarettes ($n=5$). Participants were assigned by cohort to one of two treatment conditions. Data were collected through a combination of structured interviews, laboratory tasks, and self-report questionnaires at baseline prior to the intervention. The Institutional Review Board of the University of Maryland, College Park provided approval for this study.