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Situational fears: Association with negative affect-related smoking cognition among treatment seeking smokers

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HIGHLIGHTS

- There is need in isolating therapeutic targets for smoking-anxiety treatment.
- There is need in identifying situational fears related to the smoking processes.
- Specific situational fears may include interoceptive, agoraphobic, and social fears.
- Social fears, relative to interoceptive and agoraphobic fears was significant.

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ABSTRACT

Despite the consistent clinically-significant relation between smoking and anxiety and its disorders, there is limited understanding of how specific fears relate to smoking processes. To isolate therapeutic targets for smoking-anxiety treatment development, there is a need to identify the underlying situational fears most related to smoking processes. Thus, the present study examined the association between interoceptive, agoraphobic, and social fears in terms of clinically significant negative affect-related smoking cognitions including negative affect reduction expectancies, coping motives, and perceived internal barriers to cessation. Participants were 469 treatment seeking smokers (48.2% female, M_{age} = 36.59, SD = 13.58) enrolled in a smoking cessation trial and completed baseline measures of smoking cognitions and situational fears. Results indicated that the there was a significant effect for social fears, relative to interoceptive and agoraphobic fears, for each of the studied clinically relevant smoking variables. Overall, this study offers initial empirical evidence that social fears are significantly and consistently related to several clinically-significant types of smoking cognition.

1. Introduction

Elevated anxiety symptoms and anxiety psychopathology co-occur with smoking at rates that exceed those found in non-psychiatric populations (Leventhal & Zvolensky, 2015). Reported rates of smoking are highest among individuals with panic-related problems and other disorders where panic attacks are particularly common (e.g., social anxiety disorder, posttraumatic stress disorder [PTSD]; Zvolensky & Bernstein, 2005). Moreover, the observed association between smoking and anxiety psychopathology is found after accounting for sociodemographic characteristics, other psychiatric comorbidities, or symptom overlap in diagnostic criteria for anxiety disorders and cigarette dependence (Piper et al., 2010). Further, studies indicate anxiety symptoms and disorders significantly impair cessation success (Tidey & Miller, 2015).

To isolate therapeutic targets for smoking-anxiety treatment development, there is a need to explore the underlying fears most related to smoking. Theory and research in anxiety suggests that specific fears and avoidance behavior are the signature of panic-related psychopathology (Brown, White, & Barlow, 2005). Additionally, fears and avoidance exist on a continuum, ranging from mild to extreme (Harb, Eng, Zaider, & Heimberg, 2003). Although specific fears and avoidance frequently co-occur (Vervliet, Lange, & Milad, 2017), they are not perfectly coupled (Friedman, Stephens, & Thayer, 2014). For example, a person may have a fear of public situations, but may endure social

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situations while feeling anxious (Harb et al., 2003). In contrast, an individual may avoid a social situation to prevent feeling anxious arousal symptoms in that context (Thomas, Daruwala, Goepel, & De Los Reyes, 2012). Moreover, panic-related fears and avoidance are evident among persons with and without a panic attack history (Shin & Liberzon, 2010). Evidenced-based psychosocial therapies for anxiety psychopathology are frequently oriented on targeting specific fears and avoidance behavior (Botella et al., 2007). In fact, assessment of specific fears and avoidance behavior is used as the primary basis for exposure therapeutic activities (Abramowitz, Deacon, & Whiteside, 2012). Research suggests the core dimensions of situational panic-related fear include (a) fears of sensation-producing activities (e.g., activities, such as exercise, that produce anxious arousal symptoms such as running upstairs), (b) agoraphobia (e.g., walking alone in isolated areas, possibility of getting lost, going over a long, low bridge), and (c) fears of social situations leading to panic symptoms (e.g., giving a speech, talking to people, eating in front of others; Rapee, Craske, & Barlow, 1994). These fears are interrelated, but distinct from one another (Rapee et al., 1994).

Given the documented relation between panic-related problems among smokers (Zvolensky & Bernstein, 2005), there is theoretical and clinical utility in better understanding how situational panic-related fear is related to smoking processes. Existing research, albeit highly limited in scope, suggests that among these three fears, fear of social situations has shown the most consistent relation to smoking (Kimbrel, Morissette, Gulliver, Langdon, & Zvolensky, 2014; Morissette, Brown, Kamholz, & Gulliver, 2006). For example, although each of these three panic-related situational fears are associated with higher likelihood of being a smoker among persons with anxiety disorders, only the fear of social situations has shown to differentiate smokers from non-smokers (Morissette et al., 2006). Further, some work has found that among smokers only the fear of social situations is related to urge and craving following nicotine deprivation (Kimbrel et al., 2014). However, no previous investigations have explored any situational fear in terms of smoking-related cognition. This neglect is unfortunate, as smoking cognition, especially that focused on mood management (i.e., negative reinforcement motives and expectancies), is central to models of smoking maintenance and relapse (Brandon, Juliano, & Copeland, 1999; Kassel, Stroud, & Paronis, 2003). Indeed, elucidation of the role of situational fears in terms of smoking cognition is necessary for the development of targeted treatments for smokers with panic-related histories and fears (Zvolensky, Garey, Kauffman, & Manning, 2018). It is possible that smokers with greater situational social fears may perseverate on how they are being evaluated in public settings, increasing their internal distress and possibly their desire to smoke to manage such distress (Buckner, Farris, Schmidt, & Zvolensky, 2014).

Together, the purpose of the present investigation was to extend the limited existing work on situational fears by examining the role of interoceptive, agoraphobic, and social fears (Brown et al., 2005; Rapee et al., 1994) in terms of clinically significant negative affect-related smoking cognitions (negative affect reduction expectancies, coping motives, and perceived internal barriers to cessation; Buckner, Zvolensky, Jeffries, & Schmidt, 2014; Gregor, Zvolensky, McLeish, Bernstein, & Morissette, 2008). Based on the previously observed role of fear of social situations in predicting smoking characteristics and behavior (Kimbrel et al., 2014; Morissette et al., 2006), it was hypothesized that fear of social situations, relative to other situational fears, would be most strongly related to negative affect reduction expectancies (Brandon, 1994), coping motives (Ikard, Green, & Horn, 1969), and perceived internal barriers to cessation (Macnee & Talsma, 1995).

2. Method

2.1. Participants

Participants (N = 469) were adult treatment-seeking daily smokers (48.2% female, M_{age} = 36.59, SD = 13.58) enrolled in a clinical trial for smoking cessation (Schmidt, Raines, Allan, & Zvolensky, 2016). Regarding race and ethnicity, 85.3% of participants identified as White, 8.4% as Black, 3.3% as Hispanic, 1.1% as Asian, and 2.5% as "other." Participants smoked an average of 16.6 (SD = 9.96) cigarettes in the week prior to beginning the study, reported an average lifetime use of 16.9 (SD = 9.04) cigarettes per day, and reported a moderate level of cigarette dependence (Fagerström Test for Cigarette Dependence: M = 5.15, SD = 2.29). Additionally, participants reported an average age of starting smoking of 14.9 (SD = 3.44), becoming a regular daily smoker at age 17.4 (SD = 3.76), and reported 18.3 (SD = 13.36) years of being a daily smoker. In terms of other substances of abuse, 32.4% of the participants endorsed problematic alcohol use according to the World Health Organization criteria (Alcohol Use Disorders Identification Test score of 8 and above; Saunders, Aasland, Babor, De la Fuente, & Grant, 1993) and 46.6% reported past-month cannabis use. Additionally, 44% of participants met criteria for at least one Axis 1 psychological disorder, as assessed by the Structured Clinical Interview-Non-Patient Version for DSM-IV (SCID-I/NP; First, Spitzer, Gibbon, & Williams, 2007). See Table 1.

3. Measures

3.1. Sample characteristics

Participants completed a demographic form assessing gender (coded: 1 = female and 0 = male), age, race/ethnicity.

3.2. Smoking history questionnaire (SHQ; Brown, Lejuez, Kahler, & Strong, 2002)

The SHQ is a self-report questionnaire used to assess smoking history (e.g., onset of regular daily smoking) and pattern (e.g., number of cigarettes consumed per day).

3.3. Structured clinical interview-non-patient version for DSM-IV (SCID-N/P; First et al., 2007)

Diagnostic exclusions and prevalence/incidence of current (past month) Axis I diagnoses were assessed via the SCID-NP (First & Westen, 2007). The interviews were administered by trained staff and

Table 1
Psychopathology among the individuals with Axis I diagnosis.

Axis I diagnosis	N	%
Social phobia	48	23.1%
Generalized anxiety disorder	23	11.1%
MDD	21	10.1%
Alcohol abuse/dependence	21	10.1%
Specific Phobia	19	0.1%
Posttraumatic Stress Disorder	14	6.7%
Cannabis abuse/dependence	14	6.7%
Anxiety disorder not otherwise specified	13	6.2%
Panic disorder with/without agoraphobia	10	4.8%
Dysthymic Disorder	9	4.4%
Obsessive-compulsive disorder	5	2.4%
Depressive Disorder Not Otherwise Specified	2	1%
Cocaine dependence	2	1%
Bipolar I/II	2	1%
Non- alcohol substance dependence/poly dependence	2	1%
Agoraphobia without history of panic disorder	1	0.5%
anorexia nervosa binge eating/purging type	1	0.5%