Addictive Behaviors 38 (2013) 1555–1562

Contents lists available at SciVerse ScienceDirect

Addictive Behaviors

Differential roles of thought suppression and dispositional mindfulness in posttraumatic stress symptoms and craving

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ARTICLE INFO

Keywords:
Craving
Comorbidity
Mindfulness
Post-traumatic stress
Thought suppression

ABSTRACT

Exposure to traumatic events often results in severe distress which may elicit self-medication behaviors. Yet, some individuals exposed to trauma do not develop post-traumatic stress symptoms and comorbid addictive impulses. In the wake of traumatic events, psychological processes like thought suppression and mindfulness may modulate post-traumatic stress and craving for substances. We examined the differential roles of mindfulness and suppression in comorbid post-traumatic stress and craving among a sample of 125 persons with extensive trauma histories and psychiatric symptoms in residential treatment for substance dependence. Results indicated that thought suppression, rather than extent of trauma history, significantly predicted post-traumatic stress symptom severity while dispositional mindfulness significantly predicted both post-traumatic stress symptoms and craving. In multiple regression models, mindfulness and thought suppression combined explained nearly half of the variance in post-traumatic stress symptoms and one-quarter of the variance in substance craving. Moreover, multivariate path analysis indicated that prior traumatic experience was associated with greater thought suppression, which in turn was correlated with increased post-traumatic stress symptoms and drug craving, whereas dispositional mindfulness was associated with decreased suppression, post-traumatic stress, and craving. The maladaptive strategy of thought suppression appears to be linked with adverse psychological consequences of traumatic life events. In contrast, dispositional mindfulness appears to be a protective factor that buffers individuals from experiencing more severe post-traumatic stress symptoms and craving.

1. Introduction

Exposure to traumatic life events often results in adverse psychological and behavioral consequences. Yet, not all individuals exposed to severe adversities develop clinical symptoms (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). How is it that people facing similar stressors can have such markedly different outcomes and resiliencies? Transactional models (c.f., Lazarus & Folkman, 1984) propose that the stress reaction is mediated by appraisal and coping processes. According to this theoretical perspective, the emotional response to the stressor is modulated by cognitive responses, which, in turn, modify the stress appraisal and influence subsequent affective and behavioral reactions. Thus, cognitive coping processes may be conceptualized as being situated in a feedback circuit which may attenuate, sustain, or exacerbate the stress reaction and its consequences over time.

Many individuals exposed to traumatic life events cope with trauma through the use of psychoactive substances. Indeed, data from the National Epidemiologic Survey on Alcohol and Related Conditions indicate that approximately 20% of individuals with post-traumatic stress disorder (PTSD) use substances to relieve their symptoms (Leeies, Pagura, Sareen, & Bolton, 2010). Trauma exposure is associated with heightened risk for developing substance use disorders (Jacobsen, Southwick, & Kosten, 2001). Moreover, men and women with post-traumatic stress disorder (PTSD) exhibit more than twice the rate of substance abuse and dependence than persons without PTSD (Breslau, Davis, & Schultz, 2003; Mills, Teesson, Ross, & Peters, 2006). Furthermore, clinical anecdotes point to the likelihood that traumatized individuals use psychoactive substances as means of self-medicating the dysphoric mood, intrusive cognitions, and psychophysiological sequelae of trauma (Khantzian, 1997). Situations that evoke and involve negative emotion are the most commonly cited precipitants of relapse (Lowman, Allen, & Stout, 1996). The temporary relief obtained via the anxiolytic properties of select psychoactive agents may become a powerful negative reinforcer (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004), leading to entrenchment of this coping pattern as an addictive response that may be reactivated by subsequent stressors (Garland, Boettiger, & Howard, 2011).

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doi:10.1016/j.addbeh.2012.02.004

Thus, when persons with histories of using substances to cope with stress and negative affect are confronted with a stressor, this encounter may elicit a powerful conditioned response, subjectively experienced as craving (Ludwig & Wikler, 1974; Poulos, Hinson, & Siegel, 1981; Skinner & Aubin, 2010; Stewart, De Wit, & Eikelboom, 1984). The craving experience is characterized as involving a sense of dysphoria or anxiety coupled with distressing somatic sensations (Bergquist, Fox, & Sinha, 2010), and is marked by intrusive images and thoughts about the desired substance (Merikle, 1999). In response to such intrusions, persons may initiate substance use, or they may attempt to inhibit or ignore the drive to use. Tiffany (1990) posited that when addicts attempt to suppress the automatic, conditioned appetitive response, they experience an upwelling of craving that may become so unpleasant that the individual consumes the substance in an effort to relieve craving-induced distress.

The suppression of unwanted thoughts and feelings is a cognitive strategy that may also be used to cope with trauma. Exposure to traumatic events may trigger post-traumatic stress disorder (PTSD), characterized by recurrent, distressing symptoms, including intrusive cognitions, images, memories, and emotions associated with the original trauma (Dunmore, Clark, & Ehlers, 2001; Ehlers et al., 2002; Greenberg, 1995; Holmes, Grey, & Young, 2005). In an attempt to cope with such intrusions, individuals may engage in attempts to suppress the unwanted thoughts or feelings. Ironically, suppression may foster the intrusive trauma-related cognitions that are the hallmark of PTSD (Tull, Gratz, Salters, & Roemer, 2004) by interfering with the emotional processing of the traumatic memory and preventing its successful integration into long-term memory (Elzinga & Bremner, 2002; Foa & Kozak, 1986), as well as by mediating the influence of negative moods on PTSD symptoms (Rosenthal, Cheavens, Lynch, & Follette, 2006). In this respect, thought suppression significantly predicts the occurrence of PTSD one and even three years after a motor vehicle accident (Ehlers, Mayou, & Bryant, 1998; Mayou, Ehlers, & Bryant, 2002). Deliberate thought suppression in laboratory settings has also been shown to exacerbate intrusive thoughts related to the original trauma; for instance, experimental induction of suppression of thoughts related to a motor vehicle accident resulted in a transient decrease in thoughts about the trauma, followed by a resurgence of twice as many thoughts related to the accident than the pre-suppression level (Beck, Gudmundsdottir, Palyo, Miller, & Grant, 2006).

Thus, suppression inadvertently results in a "rebound effect," i.e., an increased rate of the thoughts and emotions it is directed against (Wegner, Schneider, Carter, & White, 1987; Wenzlaff & Wegner, 2000). This effect may be explained by Wegner's ironic process theory (Wegner, 1994), which asserts that suppression involves two processes: a) a conscious search for cognitive contents consistent with the desired mental state, and b) an implicit monitoring process that searches continually for cognitions that are inconsistent with the desired state. When attention is automatically deployed in search of undesirable mental content to be replaced, the ensuing positive feedback loop leads to hyperaccessibility of unwanted cognitions (Wegner & Erber, 1992), amplifying their frequency and intensity under conditions of stress (Nixon, Cain, Nehmy, & Seymour, 2009). As a result, the intrusive and distressing nature of the target thoughts is magnified by the very process employed to avoid them (Abramowitz, Tolin, & Street, 2001).

When sustained over time, suppression may exhaust the capacity for self-regulation, which Baumeister and colleagues have characterized as a limited resource that is depleted through repeated acts of self-control (Baumeister, 2003; Muraven & Baumeister, 2000). Thus prolonged suppression of unwanted trauma-related thoughts may undermine subsequent cognitive control efforts (Pu, Schmeichel, & Demaree, 2010). Insofar as trauma and stress may trigger appetitive impulses, post-suppression rebound of trauma-related thoughts may reactivate the drive to use psychoactive substances while exhausting the resources to regulate it, resulting in impaired regulation of urges manifested in increased subjective craving.

In contrast, the adaptive psychological tendency of dispositional mindfulness, a mindset characterized by nonreactive awareness and acceptance (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Garland, Fredrickson, Kring, Johnson, Meyer, & Penn, 2010), may serve as a protective factor and mitigate the pathogenic cycle underpinning the co-occurrence of trauma and addiction. Indeed, in a recent study of undergraduates who had been exposed to traumatic events, Thompson and Waltz (2010) found that mindfulness was significantly inversely associated with post-traumatic stress avoidance symptoms. Other research has identified a robust negative correlation between dispositional mindfulness and thought suppression (Baer et al., 2006). Thus, rather than attempting to avoid or deny experience by suppressing unwanted cognitions or feelings, dispositionally mindful individuals tend to cope with stressful life events by adopting an attitude of nonjudgment, openness, and self-compassion towards their own thoughts and emotions. By coping with stress in this manner, dispositionally mindful persons are better able to extricate themselves from cognitive perseveration (Evans & Segerstrom, 2010), to regulate negative affective states (Coffey & Hartman, 2008), and to disengage attention from addictive cues (Garland, Boettiger, Gaylord, West Channon, & Howard, 2012). Conversely, persons with low levels of mindfulness (i.e., mindlessness) may tend to engage in habitual and counterproductive reactions (Langer, 1992) such as self-medicating traumatic intrusions with alcohol and drugs. Although of potentially considerable clinical importance, associations between dispositional mindfulness, thought suppression, post-traumatic stress symptoms, and craving remain understudied.

Given evidence for the roles of thought suppression and dispositional mindfulness in the cognitive mediation of traumatic stress and appetitive responses, we hypothesized that among substance dependent individuals with extensive trauma histories a) thought suppression will be associated with elevated symptoms of post-traumatic stress and craving whereas b) dispositional mindfulness will be associated with lower levels of post-traumatic stress symptoms and craving. Furthermore, we hypothesized that c) thought suppression and dispositional mindfulness would statistically mediate the relationship between trauma history, post-traumatic stress symptoms, and craving. We expected that persons with extensive trauma histories would tend toward thought suppression which would partially account for their comparatively more severe post-traumatic stress symptoms and craving. In contrast, we expected individuals with higher levels of dispositional mindfulness to engage in less thought suppression which would partially account for their comparatively lower post-traumatic stress symptoms and craving. The present study provides an empirical test of these hypotheses by examining the proposed associations among a sample of persons with extensive trauma histories in residential treatment for substance dependence.

2. Materials and methods

2.1. Procedure

Participants were recruited from a residential treatment facility in the Southeastern U.S. serving persons with co-occurring substance dependence and psychiatric disorders. Prior to participating in the research assessment, participants had resided in a therapeutic milieu for six weeks, during which time they were offered vocational training, given peer support, and provided with psychoeducation on biopsychosocial factors in addiction. No other interventions were administered at this time. The research team met with potential participants to explain the purpose of the study, and to assure them that confidentiality would be maintained throughout the research process. Participation in the study was completely voluntary, and participants gave informed consent prior to engaging in research. After consenting, participants