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Relationship between dispositional mindfulness and substance use: Findings from a clinical sample

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HIGHLIGHTS

- There is scientific debate about how mindfulness and substance use are related.
- We found a negative relationship between these factors in a clinical sample.
- Findings suggest opposite trends in clinical (versus non) samples.
- We found a significant moderating effect of avoidant coping in this relationship.
- Results point to the importance of considering the function of substance use.

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ABSTRACT

There has been rapidly increasing interest over the past decade in the potential of mindfulness-based approaches to psychological and medical treatment, including a recent growth in the area of substance abuse. Thus, the relationship between trait mindfulness and substance use has been explored in several studies. Results, however, have been mixed. While several studies of college student populations have evinced positive correlations between levels of trait mindfulness and substance use, the opposite seems to be true in clinical samples, with multiple studies showing a negative association. The current study reviews research in both non-treatment seeking college students and in clinical samples, and examines the relationship between trait mindfulness and substance dependence in a clinical sample (N = 281). Further, the study assesses the moderating effect of avoidant coping that might explain the disparate findings in the clinical versus nonclinical samples.

1. Introduction

Mindfulness has been described as intentional direction of attention toward experience as it arises in the present moment, characterized by a non-judgmental, open receptivity toward all phenomena (Bishop et al., 2004). Several studies have shown that an individual's level of mindfulness can be increased through mindfulness and meditation training (e.g., Bowen et al., 2009; Carmody & Baer, 2008). However, mindfulness can also be measured as a dispositional, naturally occurring trait, by assessing the extent to which individuals tend towards awareness and sustained attention to what is presently occurring, in the context of their everyday lives (Brown & Ryan, 2003).

Training to enhance mindfulness can be traced back thousands of years to Buddhist traditions, in which mindfulness practices form the foundation for transforming psychological suffering into healthier states of mind (Hanh, 1999). More recently, clinical trials have examined contemporary treatments integrating mindfulness-based approaches and practices for myriad clinical issues including chronic pain (Kabat-Zinn et al., 1992; Rosenzweig et al., 2010), anxiety (Hofmann, Sawyer, Witt, & Oh, 2010; Kabat-Zinn et al., 1992), depression (Hofmann et al., 2010; Segal et al., 2012), and substance use disorders (see reviews by Chiesa & Serretti, 2013 and Zgierska et al., 2009).

Research on mechanisms by which these treatments affect change, however, is still in relatively early stages (Baer, 2003; Carmody & Baer, 2008; Hölzel et al., 2011). Arguably, these mechanisms involve improvements in mindfulness, or the ability to bring nonjudgmental awareness to the present moment, therefore allowing more skillful responding to distressing emotional states or behavioral impulses (Bishop et al., 2004). Indeed, several studies have found increases in measures of mindfulness following such interventions (e.g., Bowen et al., 2009; Carmody & Baer, 2008; Carmody, Reed, Kristeller, & Merriam, 2008), and a subset of these have found mindfulness to be a significant mediating factor between mindfulness training and clinical outcomes (McCracken, Gauntlett-Gilbert, & Vowles, 2007; Zgierska et al., 2009; Carmody, Baer, Lykins, & Olendzki, 2009).

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1.1. Mindfulness and substance use

Within the field of addictive behaviors, a growing number of studies have assessed efficacy of mindfulness-based interventions for problematic substance use (see Chiesa & Serretti, 2013 for review), and studies to date suggest several possible mechanisms. Neurobiological mechanisms in areas associated with craving, negative affect, and substance use relapse may be affected by mindfulness training (Witkiewitz, Lustyk, & Bowen, 2012), altering basic neurobiological processes related to reactive behaviors (Brewer, Elwafi, & Davis, 2012). Data from clinical trials likewise suggest mindfulness training may lead to decreases in self-reported severity of factors related to relapse such as anxiety, depression, and stress (e.g., Zgierska et al., 2009), decreases in both craving (e.g., Bowen et al., 2009; Brewer et al., 2012; Garland, Boettiger, Gaylord, Chanon, & Howard, 2012; Zgierska et al., 2009) and reactivity to craving (e.g., Bowen & Marlatt, 2009), and an improved ability to decouple the drinking impulse from drinking behavior (Ostafin, Bauer, & Myxter, 2012). Similarly, a study by Garland et al. (2010) found mindfulness training significantly reduced stress and thought suppression, and decreased physiological reactivity to alcohol cues and heart rate variability recovery time after cue-exposure, all of which have been linked to alcohol dependence.

1.2. Mixed findings in the relationship between trait mindfulness and substance use

Given the presumed intentions of mindfulness-based treatment for substance use disorders, i.e., increasing levels of mindfulness, and the growing evidence in support of salutary effects (decreased craving, substance use, and relapse), a baseline negative association between trait mindfulness and substance abuse might be expected. However, a handful of cross-sectional studies examining this hypothesis have found otherwise. One study evaluating spirituality, mindfulness, and substance use in a non-treatment seeking college-age sample (Leigh, Bowen, & Marlatt, 2005) found that mindfulness as measured by the Freiburg Mindfulness Inventory (FMI; Buccheld, Grossman, & Walach, 2002) and heavy substance use were positively correlated. A later investigation (Leigh & Neighbors, 2009) in a sample of non-treatment seeking college-age students similarly discovered a positive association between acting with awareness (a subscale of the FMI) and alcohol use.

Other studies have attempted to clarify these findings using the Five Factors of Mindfulness Questionnaire (FFMQ), developed through a factor analytic study of previous mindfulness measures (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The FFMQ is a reliable and empirically validated 39-item measure which assesses five proposed facets of mindfulness (describing experience, observing experience, being nonjudgmental of experience, being nonreactive toward experience, and acting with awareness). Hypothesizing that mindfulness may be most accurately measured as a multifaceted construct with potentially interacting factors relating differently to substance use outcomes, studies have assessed effects of interactions between factors on substance use. For example, a recent study (Fernandez, Wood, Stein, & Rossi, 2010) investigated the relationship between mindfulness, alcohol use, and alcohol related consequences in non-treatment seeking college-aged students, and found a significant negative relationship between two awareness-based factors (describing, acting with awareness) and alcohol use. A later study, also in a non-treatment seeking college student population (Eisenlohr-Moul, Walsh, Charnigo, Lynam, & Baer, 2012), tested the hypothesis that particular aspects of mindfulness (as measured by FFMQ subscales) interact with one another to moderate substance use. After controlling for personality, results revealed a significant interaction effect of the observing and nonreactivity to inner experience subscales on substance use, such that when nonreactivity was high, the observing subscale was negatively associated with substance use, but when non-reactivity was low, observing was positively associated with substance use. This suggests that for individuals who observe in a non-reactive manner, observation may relate to lower levels of substance use. Conversely, if observing is coupled with higher levels of reactivity, it may be more positively associated with substance use. Findings highlight the value of investigating the interrelation between subscales within the FFMQ, and the potential for interaction effects to reveal nuances that may be lost when evaluating overall scores or even individual subscales.

The majority of cross-sectional studies examining relationships between trait mindfulness and substance use, as described above, have been conducted in non-treatment-seeking college students with predominantly subclinical levels of use. However, higher levels of substance use dependence may be worthy of consideration in assessing this relationship. Indeed, studies assessing the relationship between trait mindfulness and substance use in clinical samples, in which individuals are likely to be substance dependent, have yielded an inverse relationship between these factors. For example, a recent study (Garland et al., 2012) found a significant inverse relationship between trait mindfulness and substance craving in a clinical sample in early abstinence, mediated by both negative affect and reappraisal, two factors strongly linked to relapse. Similarly, a study evaluating baseline levels of mindfulness in a treatment-seeking population (Dakwar, Mariani, & Levin, 2011) compared the mean level of trait mindfulness in the study sample to the mean in a large national non-treatment-seeking adult sample. Levels in the treatment-seeking population were below the national mean, and were inversely related to substance use.

1.3. Current study

The current study was designed to identify factors that might further clarify the discrepant findings in college student samples, in which alcohol use is considered a normative behavior (Gire, 2002), versus in clinical samples. Motives have consistently been identified as predictive of substance use behaviors (e.g., Mares et al., 2013). Findings from a recent review of the youth substance use and motives literature (Kuntsche, Knibbe, Gmel & Engels, 2005) indicate that substance use in a non-clinical youth population was most strongly related to social and enhancement motives (Schelleman-Offermans, Kuntsche & Knibbe, 2011). As substance use progresses to clinical levels, however, motivates may shift to using substances as a coping method rather than social or enhancement motives (Gonzalez & Skewes, 2013; Moos, Brennan, Fondacaro, & Moos, 1990; WHO, 2004).

Motives for using substances may thus be an important factor in the relationship between mindfulness and substance use. Specifically, avoidance-based coping has been hypothesized to play an important role in the self-medication model, according to which individuals begin with experimental consumption, and learn, through repeated use, to expect relief from affective suffering through avoidance of distressing states (Khantzian, 2003). Indeed, avoidance-based coping has been consistently identified as a moderator of problematic alcohol and other substance use (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Hruska, Fallon, Spoonster, Sledjeski, & Delahanty, 2011). Individuals with problematic substance use may develop a reliance on avoidant coping, and repeated negative reinforcement may provide a conditioned compulsion toward avoidance of distressing experiences through use of substances that may be preconscious, and may be experienced as craving (Baker et al., 2004). Increased mindfulness may attenuate the link between negative affect and craving, indicating that training in mindfulness may enable an individual to respond skillfully rather than reactively to substance craving (Bowen & Marlatt, 2009; Witkiewitz et al., 2010).

The current study examined the function of substance use and its interaction with trait mindfulness in a clinical treatment-seeking adult population with substance use disorders. Avoidant coping was assessed as a moderating factor in the relationship between mindfulness and substance use, with the hypothesis that individuals