Published in final edited form as:
J Subst Use. 2013 February 1; 19(1-2): 194–198. doi:10.3109/14659891.2013.770570.

Mindfulness deficits in a sample of substance abuse treatment seeking adults: a descriptive investigation

Ryan C. Shorey[1], **Hope Brasfield**[1], **Scott Anderson**[2], and **Gregory L. Stuart**[1]

[1]Department of Psychology, University of Tennessee, Knoxville, TN, USA

[2]Cornerstone of Recovery, Louisville, TN, USA

Abstract

Mindfulness is increasingly being recognized as an important correlate of mental health, and is inversely corelated with substance use. To date, preliminary research suggests that mindfulness-based interventions may be effective for the treatment of substance use disorders. However, there is a notable lack of research on deficits in mindfulness among individuals who seek residential substance abuse treatment, including whether they report lower levels of mindfulness relative to healthy controls. Thus, the current study examined differences in mindfulness between a sample of adult substance abusers who sought residential treatment (N = 107) and normative data on mindfulness from healthy adults. Results demonstrated that the substance abusers reported less mindfulness relative to the normative data, including lower levels of mindful curiosity and decentering, with effect sizes differences between groups falling into the large range. No differences were evident in mindfulness between men and women patients or between individuals with an alcohol or drug diagnosis. These results provide evidence that substance abusers seeking treatment may have lower levels of mindfulness relative to healthy adults, supporting the use of mindfulness-based interventions with this population.

Keywords

Mindfulness; substance abuse; treatment

Substance use is a serious problem. It is estimated that each year approximately 8.5% of the population will meet diagnostic criteria for an alcohol use disorder and 2% for a drug use disorder (Grant et al., 2004). Moreover, lifetime prevalence rates for an alcohol use (18%) or drug use (11%) disorder are even higher (Kessler et al., 2005). Recently research has begun to examine mindfulness as a component of substance abuse treatment (Bowen et al., 2009); however, there is limited research on the mindfulness deficits of individuals who seek substance abuse treatment (Dakwar et al., 2011). Therefore, the current study examined whether men and women seeking substance abuse treatment reported lower levels of mindfulness relative to individuals in the community reported in the broader mindfulness literature.

Correspondence: Ryan C. Shorey, Department of Psychology, University of Tennessee, 1404 Circle Dr. Austin Peay Building, 311 Knoxville, TN 37996, USA. Tel: +865 974 3288. Fax: +865 974 3330. rshorey@utk.edu.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Mindfulness

Mindfulness is conceptualized as a "way of being;" a way that is focused on the present moment in a non-judgmental, non-reactive, compassionate manner (Baer, 2003; Kabat-Zinn, 1990). All experiences that enter awareness, whether emotions, thoughts, or physical sensations, when viewed through mindfulness, are not evaluated as good or bad, or right or wrong (Baer, 2003). Rather, all experiences are viewed as fleeting phenomena that naturally arise and fall, not experiences to be avoided or clung to (Kabat-Zinn, 1990). It is assumed that mindfulness is a way of being or a skill that, with appropriate training and practice, can be enhanced (Kabat-Zinn, 2003), and the existing literature supports this notion (Keng et al., 2011). Mindfulness-based interventions, which have largely been adapted from the Mindfulness Based Stress Reduction program (MBSR; Kabat-Zinn, 1990), seek to increase awareness of all aspects of life, including the self, body and mind, and to be aware of these aspects of life in a moment-to-moment, non-judgmental fashion (Kabat-Zinn, 1990). These goals are achieved through mindfulness meditation that is, ideally, practiced daily and woven into daily life as a way of being with the world (Cullen, 2011). To date, research on mindfulness-based interventions demonstrates robust improvements across a number of mental and physical health conditions, in addition to enhancements in mindfulness itself (Keng et al., 2011).

Mindfulness and substance use

To date, only a handful of studies have examined mindfulness as related to substance abuse, namely alcohol and drugs other than nicotine. Further, the majority of these are treatment outcome studies. For instance, Bowen et al. (2009) investigated the efficacy of Mindfulness-Based Relapse Prevention (MBRP), an 8-week outpatient program for substance abuse modeled on MBSR, in a sample of adults who had already received intensive inpatient or outpatient treatment for substance use. Individuals who received MBRP evidenced less substance abuse and cravings, and more acceptance and mindfulness at 4-months post-intervention relative to a treatment as usual (TAU) group. Additional analyses indicated that MBRP might reduce substance use via a reduction in cravings for substances (Witkiewitz & Bowen, 2010). Other researchers have examined adaptations of MBRP or other mindfulness-based interventions for substance abuse (Alterman et al., 2004; Brewer et al., 2009; Garland et al., 2010), finding positive outcomes (i.e. decreased substance use and stress) among intervention participants relative to TAU.

Although the above studies show promise for employing mindfulness as an adjunct treatment for substance abuse, there has been a relative lack of basic research on mindfulness deficits within individuals seeking substance abuse treatment. In a study comparing individuals presenting for substance abuse treatment to national means on mindfulness, Dakwar et al. (2011) found that adults seeking treatment for substance abuse had lower mean scores on a measure of trait mindfulness relative to the national comparison group. This study did not compare differences between men and women on mindfulness. In a similar study, Brooks et al. (2012) compared levels of mindfulness between adults seeking treatment for substance use with a primary alcohol dependence diagnosis to national mean scores. Results demonstrated significantly lower mindfulness among the alcohol dependence group and this effect did not vary across gender.

These studies provide preliminary evidence of mindfulness deficits in substance abuse treatment seeking adults, although there are a number of areas of improvement for future research. First, the two aforementioned studies conceptualized and assessed mindfulness as a single factor. Although there is no agreed upon assessment instrument for mindfulness (Baer et al., 2009), mindfulness has been conceptualized as a multi-factorial construct, including a

two-factor construct (Davis et al., 2009). Thus, an examination of whether substance abusers report lower mindfulness across factors relative to non-substance abusers is needed. In addition, gender differences in mindfulness deficits among substance use treatment seekers should be examined to corroborate the results of previous research that no gender differences exist at entry to substance use treatment. Finally, studies should examine whether mindfulness deficits vary across individuals with an alcohol use diagnosis versus individuals with a drug use diagnosis. Previous research indicates that individuals with a drug use disorder may have more co-morbid mental health problems than individuals with an alcohol use disorder (Grant et al., 2004), and it is possible that this is also true for mindfulness deficits.

Current study

The purpose of the present study was to examine mindfulness as a multi-factor construct using pre-existing patient records in a sample of adult treatment-seeking substance abusers and to determine whether treatment seekers reported greater mindfulness deficits relative to national norms on mindfulness. We also examined whether mindfulness deficits varied across gender and type of substance use diagnosis (alcohol or drug). Based on existing research and theory, we hypothesized that the substance abuse group would evidence greater mindfulness deficits than national norms derived from community samples. We also hypothesized that there would be no gender differences in mindfulness among the substance abusers and that there would be no mindfulness differences based on the type of substance use diagnosis.

Method

Procedure

Patient records from a residential substance use treatment facility, located in the southeastern United States, were reviewed for the current study. All procedures for the current study were approved by the Institutional Review Board of the first author. This treatment facility consists of a 28–30-day residential program (inclusive of medical detoxification) theoretically guided by the traditional 12-step model. The treatment facility admits patients into treatment if they have a primary substance use disorder and are 18 years of age or older. Upon admittance into treatment, patients complete an extensive intake assessment, including both self-report measures and semi-structured interviews. As discussed below, the self-report measures include assessments of mindfulness and substance use. Each self-report measure is completed after medical detoxification, when applicable. The treatment staff, which consists of a licensed psychologist, a psychiatrist, a general physician, and substance abuse counselors, makes substance use diagnoses through consultation with each other and information gathered from the intake assessment. All diagnoses are based on the DSM-IV-TR criteria for mental health disorders (American Psychiatric Association, 2000).

Participants

Patient records from May 2012 to August 2012 were used in the current study, as May 2012 was when the residential treatment center began assessing patients' trait mindfulness with the measures used in the current study. This resulted in a total of 107 patient charts being reviewed for the current study (61.7% male). The majority of the sample had a primary substance use diagnosis of alcohol dependence (57.7%); followed by opioid dependence (24%); polysubstance dependence (8.7%); cannabis dependence (2.9%); cocaine dependence, amphetamine dependence, and alcohol abuse (1.9% each); and sedative/hypnotic/anxiolytic dependence (1%). The mean age of patients was 39.88 (SD = 11.70).

Ethnically, the majority of patients were non-Hispanic Caucasian (92.5%), with the remaining patients being African American (3.7%), Hispanic, Native American, and "Other" (.9% each). At the time of admission to the treatment facility, 53.7% of the patients were married, 17.9% had never been married, 16.8% were divorced, and 11.6% indicated "other" (e.g. widowed, separated). The mean number of years of education completed by patients was 13.91 (SD = 2.43). At the time of admission to the treatment facility, only 33.6% of patients were employed full-time.

Measures

The *Toronto mindfulness scale – trait version* (TMS) (Davis et al., 2009) is a 13-item self-report measure that examines two trait aspects of mindfulness: Decentering (TMS-D) and Curiosity (TMS-C). Decentering (seven items) refers to not personally identifying with thoughts and feelings, in contrast to being overly absorbed in them. Example items of the TMS-D subscale includes "I experience myself as separate from my changing thoughts and feelings" and "I approach each experience by trying to accept it, no matter whether it is pleasant or unpleasant." Curiosity (6-items) refers to the desire to learn more about what one is experiencing (Davis et al., 2009). Example items of the TMS-C subscale include "I am curious about each of my thoughts and feelings as they occur" and "I remain curious about the nature of each experience as it arises." Respondents indicate their level of agreement with each item on a 5-point scale (0 = Not at all; 4 = Very much). Total scores for each subscale are obtained by summing all items, with higher scores reflecting greater mindfulness. The TMS has demonstrated good reliability (α = 0.85–0.91) and validity (Davis et al., 2009).

Results

All analyses were conducted using IBM SPSS Statistics for Windows, Version 20.0 (IBM Corporation, Armonk, NY) The TMS subscales were first examined for skewness and kurtosis, with results demonstrating acceptable skewness (0.91 for TMS-D and 1.22 for TMS-C) and kurtosis (1.25 for TMS-D and 0.40 for TMS-C). Next, we utilized independent samples *t*-tests to examine whether men and women who were seeking treatment for substance abuse differed on the TMS subscales. Consistent with our hypothesis, results demonstrated that men and women did not significantly differ on the TMS-D, t (105) = −0.45, $p > 0.05$ (M = 6.56, SD = 5.95 and M = 7.14, SD = 7.25 for men and women, respectively), or the TMS-C, $t(105) = 0.07$, $p > 0.05$ (M = 5.63, SD = 7.61 and M = 5.51, SD = 8.66 for men and women, respectively). Analyses also demonstrated that individuals with an alcohol diagnosis did not differ from individuals with a drug diagnosis on the TMS-C, $t(105) = -1.78$, $p > 0.05$ (M = 4.83, SD = 7.37 and M = 7.15, SD = 8.49 for alcohol and drug diagnoses, respectively), or the TMS-D, $t(105) = 1.53$, $p > 0.05$ (M = 5.81, SD = 5.54 and M = 7.77, SD = 7.51 for alcohol and drug diagnoses, respectively), consistent with our hypothesis. The TMS-D and TMS-C were significantly correlated with each other (r = 0.51, $p < 0.001$).

We next compared the sample of substance abusers to scores on the TMS that have been reported previously in the literature (i.e. Davis et al., 2009). This comparison group consisted of a combined sample of community adults (n = 135) and college students (n = 92) who did not have any previous meditation experience. The mean scores for the comparison group were 13.72 (SD = 5.23) for the TMS-C and 11.93 (SD = 4.65) for the TMS-D. The mean scores for the substance abuse group were 5.58 (SD = 7.99) for the TMS-C and 6.78 (SD = 6.45) for the TMS-D. Effect size differences (Cohen, 1988) demonstrated that the substance abuse group reported less mindful Curiosity (d = 1.20) and less Decentering (d = 0.91) than the comparison group, with both effects representing large effect size differences

(Cohen, 1988). Although there are no agreed upon sample sizes for calculating effect size differences between groups, having over 100 participants in each group represents a common sample size for effect size calculations (Slavin & Smith, 2008).

Discussion

The current study examined whether treatment-seeking substance abusers scored lower on mindfulness than healthy non-meditating adults, with results supporting our hypothesis that the substance abuse group would evidence greater deficits in mindfulness. In addition, effect size differences between groups were large, suggesting that the deficits were quite robust and potentially clinically meaningful. Importantly, this is the first known study to demonstrate that treatment-seeking substance abusers reported greater deficits in two unique factors of mindfulness: curiosity and decentering. The mindfulness factor of curiosity reflects an inquisitive awareness of experiences in the present moment, while decentering reflects awareness of experience without becoming over-identified with, or carried away by, the experience (e.g. emotion; Davis et al., 2009). It is possible that the substance abuse group employed alcohol/drugs as a way to cope with, or to distance themselves from, distressing emotions and thoughts that they were over-identified with; in essence, substance use may be a form of coping with these distressing experiences (Simpson, 2003). Further, individuals with a substance abuse diagnosis may be less curious about their experiences due to low tolerance for experiences that are distressing.

Mindfulness-based interventions aim to teach participants that all experiences (e.g. emotions, thoughts) naturally arise and fall, that they can be non-judgmental of these experiences, and that they are capable of being present with distressing experiences without becoming overwhelmed or identified with them (Segal et al., 2002). This key characteristic of mindfulness-based interventions is targeting the decentering factor of mindfulness, which the current study indicates may be an important component of substance abuse interventions. In addition, mindfulness-based interventions teach participants to be curious about their experiences, bringing a “beginners mind” to each moment (Kabat-Zinn, 1990; Segal et al., 2002). This enhanced curiosity may lessen the avoidance of painful emotions or thoughts, as each experience can be viewed within the realm of awareness and openness, as something to be explored and understood, rather than something to be removed or pushed away. These findings suggest that mindfulness training may be an important addition to residential substance abuse treatment programs, as mindfulness-based interventions have demonstrated success with outpatient treatment for substance abuse (e.g. Bowen et al., 2009) and a range of other mental health issues (Keng et al., 2011).

Our findings are consistent with previous research, which demonstrated that mindfulness did not vary across gender (Brooks et al., 2012), and also extended this literature to two distinct factors of mindfulness. There is some quasi-experimental research and case studies that suggest that women may be more drawn to mindfulness-based interventions (Katz & Toner, in press); however, the one randomized controlled trial of MBRP (Bowen et al., 2009) did not find any gender effects of mindfulness across intervention participants. Thus, the inclusion of mindfulness-based interventions could be universally applied to men and women who seek residential substance abuse treatment, although studies should consider gender when assessing outcomes to determine if results replicate Bowen and colleagues. Our results also demonstrated no differences between patients with an alcohol or drug diagnosis on the two mindfulness factors, further supporting the use of mindfulness-based interventions universally with substance abuse treatment seekers. Indeed, research suggests that mindfulness-based interventions may be indicated for a variety of mental health issues, though special caution may be required when using these interventions in individuals with psychosis, active suicidality, or mania (Lustyk et al., 2009). That is, mindfulness-based

interventions may be contraindicated for only a few individuals with the most severe/acute mental health symptoms. Research is needed to determine whether there are specific co-morbid mental health or personality factors that may make residential substance abuse mindfulness-based interventions less effective or iatrogenic. Moreover, research should examine whether there are differences in trait mindfulness among patients who receive medical detoxification (compared to patients who do not), whether this varies by severity of withdrawal symptoms, length of detoxification, and type of substance.

Limitations

The present study has several limitations that should be addressed in future research. We did not have an active comparison group of demographically matched non-substance abusers, and future research should employ such a comparison group. Our sample of treatment-seeking substance abusers consisted primarily of non-Hispanic Caucasian in ethnicity, limiting the generalizability of findings to more diverse substance abuse populations. The cross-sectional chart review design of the current study precludes the determination of causality among study variables. Longitudinal research is needed to determine whether mindfulness deficits were evident prior to the development of problematic substance use, whether substance use results in decreased mindfulness, or whether there is a reciprocal relationship among mindfulness and substance use. Structured diagnostic interviews were not conducted for diagnostic purposes at the substance use facility where charts were reviewed, limiting our ability to further verify the accuracy of patient diagnoses. Future research should use structured diagnostic interviews for assessing substance use disorders and examine whether there is a relation between severity of substance misuse and mindfulness. Finally, a larger, more diverse sample would allow for a comparison to find out whether mindfulness deficits vary across a range of substance use disorders.

Conclusions

Results of the current study provide evidence that mindfulness deficits are present among adults seeking residential substance abuse treatment. This is the first study to demonstrate deficits in two domains of mindfulness, with deficits being quite large, suggesting clinical relevance. Moreover, results suggest that these differences are apparent for men and women, as well as individuals with a drug or alcohol diagnosis. Existing mindfulness-based treatments for substance abuse have largely focused on outpatient populations (Bowen et al., 2009), as residential populations may require more specialized mindfulness-based interventions (see Vallejo & Amaro, 2009 for a detailed discussion). For instance, recently detoxified patients may be highly agitated and have a more difficult time sitting or lying still, partially due to shorter attention spans, which is often required during mindfulness meditation exercises (Vallejo & Amaro, 2009). Thus, shorter meditation exercises may be needed with this population during the early stages of treatment. In addition, issues of trauma or other mental health disorders (e.g. depression) may also be present and in need of specialized attention, which may further complicate the delivery of mindfulness interventions. Still, this study suggests that residential programs may benefit from including mindfulness-based interventions in their treatment, and research is needed to examine how mindfulness interventions can be successfully adapted to residential substance abuse treatment.

Acknowledgments

This work was supported, in part, by grants F31AA020131 and K24AA019707 from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) awarded to the first and last authors, respectively.

References

Alterman AI, Koppenhaver JM, Mulholland E, Ladden LJ, Baime MJ. Pilot trial of effectiveness of mindfulness meditation for substance abuse patients. Journal of Substance Use. 2004; 9:259–268.

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 2000. text rev

Baer RA. Mindfulness training as a clinical intervention: a conceptual and empirical review. Clinical Psychology, Science and Practice. 2003; 10:125–143.

Baer, RA.; Walsh, E.; Lykins, ELB. Assessment of mindfulness. In: Didonna, F., editor. Clinical Handbook of Mindfulness. New York: Springer; 2009. p. 153-171.

Bowen S, Chawla N, Collins SE, Witkiewitz K, Hsu S, Grow J, Marlatt GA. Mindfulness-based relapse prevention form substance-use disorders: a pilot efficacy trial. Substance Abuse. 2009; 30:295–305. [PubMed: 19904665]

Brewer JA, Sinha R, Chen JA, Michalsen RN, Babuscio TA, Nich C, Rounsaville BJ. Mindfulness training and stress reactivity in substance abuse: results from a randomized, controlled Stage I pilot study. Substance Abuse. 2009; 30:306–317. [PubMed: 19904666]

Brooks M, Kay-Lambkin F, Bowman J, Childs S. Self-compassion amongst clients with problematic alcohol use. Mindfulness. 2012; 3(4):308–317.

Cohen, J. Statistical power analysis for the behavioral sciences. 2. Hillsdale, NJ: Erlbaum; 1988.

Cullen M. Mindfulness-based interventions: an emerging phenomenon. Mindfulness. 2011; 2:186–193.

Dakwar E, Mariani JP, Levin FR. Mindfulness impairments in individuals seeking treatment for substance use disorders. The American Journal of Drug and Alcohol Abuse. 2011; 37:165–169. [PubMed: 21410417]

Davis KM, Lau MA, Cairns DR. Development and preliminary validation of a trait version of the Toronto mindfulness scale. Journal of Cognitive Psychotherapy: An International Quarterly. 2009; 23:185–197.

Garland EL, Gaylord SA, Boettiger CA, Howard MO. Mindfulness training modifies cognitive, affective, and physiological mechanisms implicated in alcohol dependence: results from a randomized controlled pilot trial. Journal of Psychoactive Drugs. 2010; 42:177–192. [PubMed: 20648913]

Grant BF, Stinson FS, Dawson DA, Chou SP, Ruan WJ, Pickering RP. Co-occurrence of 12-month alcohol and drug use disorders and personality disorders in the united states. Archives of general psychiatry. 2004; 61:361–368. [PubMed: 15066894]

Kabat-Zinn, J. Full catastrophe living: using the wisdom of your mind to face stress, pain and illness. New York: Dell Publishing; 1990.

Kabat-Zinn J. Mindfulness-based interventions in context: past, present, and future. Clinical Psychology: Science & Practice. 2003; 10:144–156.

Katz D, Toner B. A systematic review of gender differences in the effectiveness of mindfulness-based treatments for substance use disorders. Mindfulness. (in press).

Keng S, Smoski MJ, Robins CJ. Effects of mindfulness on psychological health: a review of empirical studies. Clinical Psychology Review. 2011; 31:1041–1056. [PubMed: 21802619]

Kessler RC, Berglund P, Demler O, Jin R, Walters EE. Lifetime prevalence and age-of-onset distributions of *DSM-IV* disorders in the National Comorbidity Survey Replication. Archives of general psychiatry. 2005; 62:593–602. [PubMed: 15939837]

Lustyk M, Chawla N, Nolan R, Marlatt G. Mindfulness meditation research: issues of participant screening, safety procedures, and researcher training. Advances in Mind-Body Medicine. 2009; 24:20–30. [PubMed: 20671334]

Segal, ZV.; Williams, JMG.; Teasdale, JD. Mindfulness-based cognitive therapy for depression: a new approach to preventing relapse. New York: Guilford Press; 2002.

Simpson TL. Childhood sexual abuse, PTSD and the functional roles of alcohol use among women drinkers. Substance Use and Misuse. 2003; 38:249–270. [PubMed: 12625430]

Slavin, RE.; Smith, D. Effects of sample size on effect size in systematic reviews in education. Paper presented at the annual meetings of the Society for Research on Effective Education; 3–4 March; Crystal City, Virginia. 2008.

Vallejo Z, Amaro H. Adaptation of mindfulness-based relapse stress reduction program for addiction relapse prevention. The Humanist Psychologist. 2009; 37:192–206.

Witkiewitz K, Bowen S. Depression, craving and substance use following a randomized trial of mindfulness-based relapse prevention. Journal of Consulting and Clinical Psychology. 2010; 78:362–374. [PubMed: 20515211]