

Short communication

## The role of thought suppression in the relationship between mindfulness meditation and alcohol use

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### Abstract

Previous studies have demonstrated that attempts to suppress thoughts about using substances may actually lead to increases in substance use. Vipassana, a mindfulness meditation practice, emphasizes acceptance, rather than suppression, of unwanted thoughts. A study by Bowen and colleagues examining the effects of a Vipassana course on substance use in an incarcerated population showed significant reductions in substance use among the Vipassana group as compared to a treatment — usual control condition [Bowen S., Witkiewitz K., Dillworth T.M., Chawla N., Simpson T.L., Ostafin B.D., et al. (2006). Mindfulness Meditation and Substance Use in an Incarcerated Population. *Psychology of Addictive Behaviors*.]. The current study further examines the mediating effects of thought suppression in the relationship between participation in the course and subsequent alcohol use. Those who participated in the course reported significant decreases in avoidance of thoughts when compared to controls. The decrease in avoidance partially mediated effects of the course on post-release alcohol use and consequences.

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### 1. Introduction

Several studies suggest that thought suppression often results in an increase, rather than a decrease, in unwanted thoughts (Wegner, 1997; Wegner, Schneider, Carter, & White, 1987). Research in addictive behaviors has found that thought suppression impedes attempts to quit smoking (Haaga & Allison, 1994; Salkovskis & Reynolds, 1994; Toll, Sobell, Wagner, & Sobell, 2001), and that heavy social drinkers given

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instructions to suppress alcohol-related thoughts and urges demonstrated stronger expectancies after alcohol cue exposure when compared to controls (Palfai, Monti, Colby, & Rohsenow, 1997).

Contrary to thought suppression, mindfulness-based strategies emphasize acceptance, non-judgment and non-reaction to thoughts, feelings and sensations. Several studies have incorporated meditation and mindfulness techniques in treatment of substance use, with promising results (e.g., Gifford et al., 2004; Linehan et al., 1999). However, little is known about the mechanisms by which mindfulness leads to changes in substance use.

A study of a 10-day intensive Vipassana mindfulness meditation course held in a minimum security jail in Seattle found that course participants, when compared to a treatment as usual control (TAU) group, showed significant decreases in substance use three months following release from jail. The current study is a secondary data analysis examining thought suppression as a mediator of the relationship between meditation and post-release alcohol use.

## 2. Methods

### 2.1. Participants

The 173 study participants (57 meditation course, 116 TAU) in the current analyses completed both baseline and post-course assessments. Participants ranged in age from 19 to 58 ( $M=37.4$ ,  $SD=8.6$ ) and 79% were male. Sixty one percent identified as Caucasian, 13% African American, 8% Latino/a, 8% American Indian, and 1–2% as either Pacific Islander, Alaskan Native, Asian American or other. A full description of the sample can be found in Bowen et al. (2006).

### 2.2. Procedure

Participants practiced sitting meditation for approximately 8 to 10 hours daily throughout the 10-day course. Meditation instructions focused on observation of breath and body sensations, and acceptance, rather than reaction or avoidance, of internal experiences. Throughout the course, participants refrained from reading, writing or speaking, aside from asking questions to the instructor.

### 2.3. Measures

All participants were given a baseline battery of self-report questionnaires prior to the start of the course, a post-course assessment immediately following the course, and follow-up assessments three and six months after release from jail. Thought Suppression was measured using the White Bear Suppression Inventory (WBSI, Wegner & Zanakos, 1994). Quantity and frequency of peak weeks of alcohol use was assessed with the Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985). Alcohol-related negative consequences were measured using the Short Inventory of Problems (SIP; Miller, Tonigan, & Longabaugh, 1995). Means and standard deviations for all measures are listed in Table 1.

## 3. Results

Similar to previous findings (Rassin, 2003), a Principal Components Analysis of the WBSI provided support for a two-factor model from which two subscales were created: Thought Avoidance

Table 1  
Means and standard deviations of main study variables

	TAU		VP	
	Baseline	Follow-up	Baseline	Follow-up
WBSI: Thought Avoidance	3.28 (.99)	3.20 (1.03)	3.54 (.91)	3.07 (.87)
WBSI: Intrusive Thoughts	3.24 (1.12)	3.17 (1.07)	3.31 (1.03)	3.14 (.96)
Drinks <sup>a</sup>	43.98 (55.61)	27.77 (46.37)	64.83 (73.01)	8.38 (13.37)
SIP <sup>b</sup>	17.95 (15.50)	13.94 (15.33)	20.98 (14.86)	8.46 (12.25)

<sup>a</sup> Total number of drinks per peak week.

<sup>b</sup> Scores from 19 to 22 are considered mid-level severity.

(e.g., “I always try to put problems out of mind,”  $\alpha=.83$ ) and Intrusive Thoughts (e.g., “I have thoughts that I cannot stop,”  $\alpha=.90$ ). Change scores were calculated such that a positive score on the difference between pre- and post-course indicated decreased (improved) thought suppression, and a negative score indicated increased (worse) thought suppression.

Multiple regression analyses of complete case data from the three-month follow-up ( $n=81$ ) tested whether changes in the thought suppression subscales following the Vipassana course vs. TAU mediated the relationship between pre-treatment drinking and drinking at three-month follow-up. Multiple regression analyses were conducted (Baron & Kenny, 1986) for each of the drinking outcome variables (total drinks per peak week and average SIP scores). First, post-treatment drinking was regressed on baseline drinking and treatment condition. Second, change in WBSI subscale scores was regressed on treatment condition. Third, post-treatment drinking was regressed on baseline drinking, change in WBSI subscale scores, and treatment condition.

For the Avoidance subscale, partial mediation was supported. As shown in Table 2, Baron and Kenny’s (1986) criteria for partial mediation were supported, and the product of coefficients method outlined by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) provided further evidence of mediation (Drinks:  $z'=1.94$ ,  $p<.05$ ; SIP:  $z'=1.74$ ,  $p<.05$ ). For the Intrusion subscale, the first two analyses, both necessary for mediation, resulted in non-significant regression weights [WBSI-Intrusion on treatment condition ( $\beta=-.10$ ,  $p=.38$ ) and drinking outcomes on WBSI-Intrusion (drinks:  $\beta=.20$ ,  $p=.07$ ; SIP:  $\beta=.17$ ,  $p=.07$ )].

Table 2  
Results from multiple regression analyses

Model	<i>B</i>	$\sigma_B$	$\beta$	<i>p</i>
(a) Change in WBSI-avoidance regressed on treatment condition	.66	.24	-.287	.007
(b) 3-month drinking regressed on change in WBSI	10.69	3.92	.29	.008
(c) 3-month drinking regressed on treatment condition			-.26	.02
(c') 3-month drinking regressed on change in WBSI (mediator) and treatment condition			.20	.07
(a) Change in WBSI-avoidance regressed on treatment condition	.66	.24	-.287	.007
(b) 3-month SIP regressed on change in WBSI	.19	.09	.20	.03
(c) 3-month SIP regressed on treatment condition			-.21	.02
(c') 3-month SIP regressed on change in WBSI (mediator) and treatment condition			-.16	.08

#### 4. Discussion

Individuals who participated in the 10-day Vipassana meditation course reported greater decreases in their attempts to avoid unwanted thoughts than individuals who did not take the course. Change in levels of avoidance partially mediated the relationship between Vipassana course participation and alcohol use and consequences three months following release from jail.

These results provide support for the hypothesis that avoidance of unwanted thoughts may be an important component in the relationship between meditation and alcohol use (Witkiewitz, Marlatt, & Walker, 2005). Vipassana course participants did not report a significant decrease in intrusive thoughts; thus frequency of unwanted thoughts may not be as important as the manner in which an individual copes with those thoughts. Future studies and treatments may benefit from addressing attempts to avoid unwanted negative thoughts, as well as exploring what other factors mediate this relationship.

While this study shows promising results there are several limitations, the primary of which is the absence of random assignment to condition. Although there were no significant differences between course participants and TAU controls at baseline, it is important to replicate these findings in a randomized trial. Additionally, this sample represents a unique and specific population of incarcerated adults who were not necessarily seeking treatment. Future investigations would benefit from assessing mindfulness-based treatments in a treatment-seeking community sample. Moreover, the high attrition rate (approximately 47% at 3 months), although common in this population (Farrington, Petrosino, & Welsh, 2001), limits the power to detect differences. Although there were no significant differences between completers and non-completers greater retention would add strength to the study.

Despite the limitations, the current study provides preliminary findings that might prove useful in furthering our understanding of effects of Vipassana meditation on alcohol use and negative consequences. While future research examining the role of attempts to control unwanted thoughts is clearly warranted, the current findings present a starting place for further attempts to better our understanding of the power and potential of mindfulness techniques.

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