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Changes in facets of mindfulness and posttraumatic stress disorder treatment outcome

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ABSTRACT

Though there has been a recent surge of interest in the relations between facets of mindfulness and Posttraumatic Stress Disorder (PTSD), there has been a dearth of empirical studies investigating the impact of changes in facets of mindfulness on PTSD treatment outcomes. The present study tested the prospective associations between pre- to post-treatment changes in facets of mindfulness and PTSD and depression severity at treatment discharge, among 48 military Veterans in residential PTSD treatment adhering to a cognitive-behavioral framework. Together, changes in facets of mindfulness significantly explained post-treatment PTSD and depression severity (19–24% of variance). Changes in acting with awareness explained unique variance in post-treatment PTSD severity and changes in nonjudgmental acceptance explained unique variance in post-treatment depression severity. These results remained significant after adjusting for shared variance with length of treatment stay.

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1. Introduction

There has been a recent surge of interest in the relation between facets of mindfulness and Posttraumatic Stress Disorder (PTSD) outcomes (Vujanovic et al., 2011). This interest is in part driven by the fact that mindfulness-based interventions are effective in treating a wide range of psychological disorders (Hofmann et al., 2010) and may offer a promising adjunct to evidence-based psychosocial treatments for PTSD (e.g., cognitive processing therapy, prolonged exposure) that are associated with high rates of dropout and non-response (e.g., Resick et al., 2002). However, a dearth of empirical research has examined whether changes in self-reported in facets of mindfulness are associated with improved PTSD outcomes prospectively over the course of an established evidence-based psychosocial treatment for PTSD.

Although the conceptual and operational definition(s) of mindfulness is a topic contemporary debate and study, one central conceptual model includes attention to and awareness of the present moment, and nonjudgmental acceptance of thoughts, sensations, and/or emotional states (Baer et al., 2006; Bishop et al., 2004). Moreover, facets of mindfulness are likely functionally related (Tanay et al., in press). For example, awareness of one's experience in the present moment may be necessary for the development of the ability to accept those thoughts, emotions and physical sensations without judgment (Kumar et al., 2008; Mitmansgruber et al., 2009).

Mindfulness has been theoretically linked to reductions in PTSD symptoms (Vujanovic et al., 2011). However, few studies have tested their relations, most of which have been cross-sectional and among non-clinical samples (Bernstein et al., 2011; Thompson and Waltz, 2010; Vujanovic et al., 2009). Among a sample composed of trauma-exposed adults, Vujanovic et al. (2009) found that severity of total posttraumatic stress symptoms, and PTSD Re-experiencing, Avoidance/Numbing and Hyperarousal symptom clusters, were inversely associated with nonjudgmental acceptance; PTSD Re-experiencing symptoms were also inversely associated with acting with awareness. Among a college student sample, Thompson and Waltz (2010) found an inverse association between nonjudgmental acceptance and posttraumatic stress avoidance symptoms, above and beyond measures of experiential avoidance (i.e., the general tendency to be unwilling to experience unwanted private events coupled with actions taken to avoid them; Thompson and Waltz, 2010). Among

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a sample of trauma-exposed adults, Bernstein et al. (2011) found levels of acting with awareness to be associated with total posttraumatic stress symptom severity and anhedonic depression, above and beyond lifetime trauma exposure severity.

Two studies have examined mindfulness among individuals receiving treatment for PTSD (Kimbrough et al., 2010; Owens et al., 2012). In a study among survivors of childhood sexual abuse it was found that PTSD and depressive symptoms were reduced during an 8-week course of mindfulness meditation-based stress reduction with daily practice of mindfulness skills (Kimbrough et al., 2010). In the only study to examine mindfulness and psychopathology in a sample receiving an empirically supported residential treatment for PTSD, Owens et al. (2012) found that: (a) facets of mindfulness increased, albeit to a non-significant degree, over the course of treatment that included Cognitive Processing Therapy (Resick et al., 2007) and specific groups devoted to mindfulness training; and (b) changes in facets of mindfulness, and especially, acting with awareness, were negatively associated with clinician-rated measures of PTSD and depression. Together these studies provide evidence for an inverse relation between mindfulness (particularly acting with awareness and nonjudgmental acceptance) and severity of posttraumatic stress and related (depression) symptoms.

The goal of the present investigation was to extend the results of Owens et al. (2012) by prospectively investigating the associations between changes in self-reported facets of mindfulness and PTSD and depression severity, in a Veterans Affairs (VA) PTSD residential rehabilitation program that did not specifically target mindfulness. The primary treatment modality was cognitive-behavioral group therapy, and included group Cognitive Processing Therapy (Resick et al., 2007). Although not designed to target mindfulness per se, cognitive behavioral therapies for PTSD require active effort to purposely direct one's attention to memories and cognition and to tolerate associated unpleasant emotions and physical sensations as one develops new, more adaptive cognitive appraisals (Zayfert and Becker, 2008). Thus, it is hypothesized that cognitive-behavior therapy for PTSD indirectly targets facets of mindfulness, such as acting with awareness and nonjudgmental acceptance, and through this, in-part achieves its therapeutic effect. Following, this study had the potential to extend the results of Owens et al. (2012) to a standard VA PTSD residential rehabilitation program that does not specifically target mindfulness, and thus investigate the robustness of related findings. In addition to PTSD severity, as a test of specificity, we included depression severity as an outcome based on theory and research demonstrating that depressive symptoms are common associated features of PTSD (Elhai et al., 2011) which may potentially be reduced through PTSD treatment (e.g., Bryant et al., 1998) and the use of mindfulness (Bernstein et al., 2011). We hypothesized that: (1) facets of mindfulness would increase to a small but measurable extent from pre- to post-treatment; (2) increases in facets of mindfulness would together predict lower overall PTSD and depression severity at treatment discharge, after controlling for PTSD and depression symptom severity, respectively, at treatment intake; and (3) these results (hypothesis 2) would remain significant after accounting for shared variance with length of treatment stay.

2. Method

2.1. Participants

A total of 48 military Veterans with a primary diagnosis of PTSD (98% male; $M_{age}=46.0$ years, S.D.$=14.9$), admitted to a VA residential rehabilitation program for PTSD between 2008 and 2010, participated in this study. PTSD diagnosis was determined through chart review and/or clinical interview conducted by VA staff. The majority of the sample identified as Caucasian (55.3%), followed by Hispanic/Latino/a (21.3%), African American (12.8%), Pacific Islander (4.3%), Native American/Alaskan Native (4.3%), and "Other" (3.4%). Almost all participants (90.5%) were exposed to some form of combat, with the remaining reporting the experience of non-combat related traumatic events. The majority of participants reported combat experiences in Vietnam (41.7%), followed by Iraq/Afghanistan (39.6%) and the Persian Gulf (10.4%). Participants were included in this study if they completed measures of mindfulness and PTSD and depression symptom severity at both treatment intake and discharge. Participants who were included in this study did not differ from non-participating patients ($N=62$) who completed the residential program in terms of age (t (104)$=-0.5$, $p=0.63$), length of stay (t (101)$=-0.0$, $p=0.99$), baseline PTSD symptom severity (t (102)$=1.0$, $p=0.32$), or depressive symptoms (t (93)$=1.6$, $p=0.12$).

2.2. Measures

2.2.1. Facets of mindfulness

Facets of mindfulness were measured using the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004). The KIMS is a 39-item questionnaire on which respondents indicate, using a 5-point scale (1=Never or very rarely true to 5=Very often or always true), the general tendency to be mindful in daily life (Baer et al., 2004). Item content for the KIMS was initially guided by theory and based on facets of mindfulness identified by Dialectical Behavior Therapy (Dimidjian and Linehan, 2003) in particular. Items were evaluated through exploratory and confirmatory factor analysis, which revealed that the measure has four factors: Observing (i.e., observing a variety of internal and external stimuli, including bodily sensations, cognitions, emotions, signs, and sounds), Describing (i.e., describing observed phenomena by covertly applying labels), Awareness (i.e., engaging in activity with undivided attention), and Acceptance (i.e., allowing or being nonjudgmental or nonevaluative about present-moment experience). Subscale means were used in our analyses. The KIMS has excellent psychometric properties (Baer et al., 2004) and demonstrated good internal consistency at treatment intake and discharge (see Table 1).

2.2.2. PTSD severity

PTSD severity was measures using the PTSD Checklist—Military Version (PCL-M; Weathers et al., 1993). The PCL-M is a 17-item measure used to assess the severity of PTSD symptoms in total, and the severity of the three symptom clusters corresponding to the DSM-IV diagnostic criteria for PTSD (Re-experiencing, Avoidance/Numbing, and Hyperarousal; American Psychiatric Association, 2000). Participants indicate the severity of individual symptoms using a 5-point scale (1=Not at all bothered to 5=Extremely bothered). We used the sum of items in our analyses. The PCL-M has excellent psychometric properties (Weathers et al., 1993) and demonstrated good internal consistency at treatment intake and discharge (see Table 1).

2.2.3. Depression severity

Depression severity was measures using the 21-item Beck Depression Inventory (BDI: see Beck et al., 1988). Respondents were asked to indicate the degree to which they experienced various depressive symptoms (e.g., feeling sad, sleep problems) during the previous week using a 4-point scale (0=I do not feel sad; 3=I am so sad or unhappy that I can't stand it). We used the sum of items in our analyses. Higher scores represented higher levels of psychological distress. The BDI has excellent psychometric properties (Beck et al., 1988) and demonstrated good internal consistency at treatment intake and discharge (see Table 1).

Table 1
Descriptive statistics and internal reliabilities (Cronbach's α) for all scales.

	Mean (S.D.)	Range	Cronbach's α
Intake			
1. Observing	3.1 (0.7)	1.5–4.8	0.87
2. Describing	2.7 (0.7)	1.1–4.8	0.84
3. Awareness	2.7 (0.7)	1.0–4.2	0.87
4. Acceptance	2.6 (0.8)	1.2–4.9	0.88
5. PTSD Severity	62.0 (13.1)	37.0–85.0	0.94
6. Depression Severity	29.1 (11.1)	5.0–56.0	0.92
Discharge			
7. Observing	3.1 (0.6)	2.0–4.5	0.82
8. Describing	2.9* (0.8)	1.4–5.0	0.91
9. Awareness	2.8 (0.7)	1.3–4.0	0.84
10. Acceptance	2.8* (0.7)	1.4–4.8	0.86
11. PTSD Severity	47.4* (17.2)	17.0–84.0	0.96
12. Depression Severity	18.2 (10.9)	0.0–48.0	0.92

* Discharge and Intake values of scale significantly differ (all p's <0.05)

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