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Mindfulness and its relationship with eating disorders symptomatology in women receiving residential treatment

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ABSTRACT

Objective: Mindfulness and its related constructs (e.g., awareness and acceptance) are increasingly being recognized as relevant to understanding eating disorders and improving treatment. The purpose of this study was to (1) examine the relationship between mindfulness and ED symptomatology at baseline and (2) examine how changes in mindfulness relate to change in ED symptomatology.
Method: Measures of mindfulness and ED symptomatology were administered to 88 patients upon admission to residential ED treatment and at discharge.
Results: Baseline ED symptomatology was associated with lower awareness, acceptance, and cognitive defusion, and higher emotional avoidance. Improvements in these variables were related to improvement in ED symptomatology.
Discussion: Interventions targeting mindfulness could be beneficial for patients with EDs.

1. Introduction

There is a growing body of research suggesting that mindfulness (i.e., non-judgmental, present-moment awareness) and its related constructs are relevant to understanding the development and maintenance of eating disorders. Anorexia nervosa and bulimia nervosa are both characterized by experiential avoidance and a strong desire to maintain control over eating-related behaviors, urges, thoughts, and feelings (Corstorphine, Mountford, Tomlinson, Waller, & Meyer, 2007; Merwin & Wilson, 2009; Merwin, Zucker, Lacy, & Elliot, 2010; Orsillo & Batten, 2002). Eating disorder behaviors may be reinforced in part because they allow individuals to temporarily avoid other distressing internal experiences by focusing instead on one's weight or eating behavior (Hayes & Pankey, 2002; Heffner, Sperry, Eifert, & Detweiler, 2002; Paxton & Diggens, 1997; Schmidt & Treasure, 2006). Many individuals with eating disorders also have deficits in emotion recognition and emotional awareness (Harrison, Sullivan, Tchanturia, & Treasure, 2009; Sim & Zeman, 2004). Recognition and awareness of internal experience may be a precondition to cognitive defusion, which is the ability to have distance and perspective from the literal meaning of cognitive activity (Merwin et al., 2010).

A small number of case studies and pilot studies have suggested that mindfulness and acceptance might be effective foci of treatment for eating disorders (Anderson & Simmons, 2008; Baer, Fischer, & Huss, 2005; Juarascio, Forman, & Herbert, 2010; Kristeller, Baer, & QuillianWolever, 2006; Safer, Telch, & Chen, 2009). However, very little data have been collected to determine whether improvements in mindfulness and related constructs (i.e., awareness, acceptance, cognitive defusion) are related to symptom severity and symptom improvement. The purpose of this study was to measure mindfulness in individuals at a residential treatment facility for eating disorders and (1) examine the relationship between mindfulness and eating disorder symptomatology at baseline and (2) examine how changes in mindfulness during the course of treatment related to change in eating disorder symptomatology. It was hypothesized that low levels of awareness, acceptance, and cognitive defusion, and high levels of emotional avoidance would be associated with greater eating disorder symptomatology at admission. It was also hypothesized that improvements in these variables during treatment would be associated with improvement in eating disorder symptomatology.

2. Methods

2.1. Participants

Participants were women admitted to two residential treatment facilities for eating disorders. Study measures were added to the standard battery of measures patients are asked to complete upon admission, and completion rates were consistent with the typical rates of participation at those facilities. Of the 105 patients admitted to

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treatment during the period of recruitment, 88 patients completed the admission assessment (response rate 83.8%), which included a diagnostic interview conducted by a psychiatrist. All patients met DSM-IV (American Psychiatric Association, 1994) criteria at admission for anorexia nervosa ($n = 35$), bulimia nervosa ($n = 29$), or eating disorder not otherwise specified (EDNOS; $n = 24$). Most participants (88.6%) were Caucasian and average age was 25.8 ± 11.2 years. Mean length of stay in the program was 26.5 days (SD = 12.2). Two-thirds of the sample ($n = 59$) also completed a discharge assessment. Most cases of attrition at discharge resulted from a patient being unexpectedly discharged before the research team could contact them to complete the discharge assessment.

2.2. Procedure

The study was conducted according to the ethical principles regarding research with human participants and was approved by an institutional review board. All participants provided informed consent prior to completing the intake assessment. Assessment questionnaires at admission and discharge were administered via computer at the treatment facility on the second day of treatment and within the final 2 days of treatment, respectively. Treatment was based on a comprehensive system designed to normalize eating patterns, stabilize or increase weight, and eliminate compensatory behaviors. Patients received an intensive and comprehensive program of individual, group, and family therapy provided by a multi-disciplinary team. The theoretical orientation at both facilities was eclectic and was largely based on psychodynamic and feminist-based theories.

2.3. Measures

The Eating Disorders Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is a 36-item self-report questionnaire that evaluates eating disorder symptoms over the past 28 days. It was adapted from the EDE (Fairburn & Cooper, 1993) semi-structured interview. The Global score, which is the average of the Shape Concern, Weight Concern, Eating Concern, and Restraint subscales, was examined for this study. Fairburn and Beglin (1994) have reported data on the concurrent validity of the EDE-Q in community and clinical populations. Acceptable levels of internal consistency have been observed for the EDE-Global and subscale scores (Cronbach α coefficients above .70; Peterson et al., 2007). Good 2-week test–retest reliability also has been demonstrated (*r*s ranging from .81 to .94; Luce & Crowther, 1999) .

The Eating Disorders Inventory-3rd Edition (EDI-3; Garner, 2004) is a 96-item self-report inventory that measures eating disorder symptoms. The EDI-3 is organized into 12 primary scales; however, the current study included only the Drive for Thinness, Body Dissatisfaction, and Bulimia subscales (Garner, 2004). The scale has adequate psychometric properties (Garner, Olmsted, & Polivy, 1983). The test–retest reliability of these subscales among women diagnosed with eating disorders has been excellent (Cumella, 2006). All EDI items are able to discriminate between eating disorder and non-patient samples (Garner et al., 1983).

The Body Image Acceptance and Awareness Questionnaire (BI-AAQ; Sandoz, 2010) is a 12-item self-report measure designed to assess body image flexibility. The BI-AAQ has shown good psychometric properties including internal consistency (Cronbach's alpha = .93; Sandoz, 2010), as well as concurrent, criterion-related, and incremental validity amongst both clinical and non-clinical samples (Ferreira, Pinto-Gouveia, & Duarte, 2011).

The Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008) is a 20-item self-report measure that assesses two constructs: present-moment awareness and nonjudgmental acceptance. Exploratory and confirmatory factor analyses support the two-factor structure. Good internal consistency and reliability were demonstrated in both clinical and non-clinical samples (Cardaciotto et al., 2008).

The Emotional Avoidance Questionnaire (EAQ; Taylor, Laposa, & Alden, 2004) is a 20-item self-report measure designed to assess the extent to which one behaviorally and cognitively avoids emotion. The EAQ has four subscales: avoidance of positive emotion, negative beliefs about emotions, social concerns about displaying emotions, and avoidance of positive emotion. The EAQ subscales have demonstrated fair to good internal consistency (.66–.83; Taylor et al., 2004).

The Eating Attitudes Thoughts and Defusion Scale (EATDS; Shaw, Butryn, Juarascio, Kerrigan, & Matteucci, Unpublished) is a recently developed 13-item self-report measure of the extent to which a person is able to distance oneself from negative thoughts about food, weight, and body image. Psychometric data from three pooled samples ($n = 367$) have documented adequate internal consistency (Cronbach's alpha = .93) and convergent and divergent validity (Shaw et al., Unpublished).

2.4. Statistical analysis

Correlations were conducted to examine the relationship between mindfulness and eating disorder symptomatology at pre-treatment, and significant relationships were reexamined using linear regression analyses that controlled for comorbidity. A series of independent sample *t*-tests was utilized to compare pre-treatment measures for participants with and without comorbid mood or anxiety disorders. To examine how change in mindfulness was associated with change in symptomatology at post-treatment, post-treatment scores were regressed on baseline scores and standardized residuals of change were created. The residuals of change were then correlated for mindfulness-related measures and eating disorder symptom measures.

3. Results

3.1. Relationship at baseline between mindfulness-related processes and eating disorder symptoms

The first aim of this study was to examine how mindfulness-related processes were related to eating disorder symptoms at admission to treatment (see Table 1). Lower levels of body image acceptance (measured by BI-AAQ) were significantly associated with greater eating disorder symptomatology, as measured by the EDE-Q and EDI. Participants with lower levels of awareness (measured by the PHLMS) also had significantly greater eating disorder symptomatology, as measured by EDI subscale scores. Lower levels of acceptance (also measured by the PHLMS) were associated with more severe symptoms on the EDE-Q, EDI-Drive for Thinness, and EDI-Body Dissatisfaction. Greater emotional avoidance, as measured by EAQ subscales, was significantly associated with greater eating disorder symptoms on all measures. Less cognitive defusion, as measured by the EATDS, was associated with greater severity on the EDE-Q and the EDI-Bulimia and EDI-Body Dissatisfaction measures. When these significant relationships were reexamined controlling for presence or absence of mood disorder and presence or absence of anxiety disorder, all remained significant except for the relationship between cognitive defusion and EDI-Bulimia, for which the *p*-value decreased to .06. In addition, scores on the PHLMS, BI-AAQ, EATDS, and EAQ at pre-treatment were compared in those with and without co-morbid mood or anxiety disorders. No appreciable ($\eta_p^2 =$ .000–.035) or significant (*p*-values = .08–.97) differences were observed between groups, with the exception that participants with anxiety disorders reported significantly greater avoidance on the EAQ-Beliefs subscale ($\eta_p^2 = .07$, $p = .01$).