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Mindfulness meditation as an intervention for binge eating, emotional eating, and weight loss: A systematic review

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ABSTRACT

Mindfulness-based approaches are growing in popularity as interventions for disordered eating and weight loss. Initial research suggests that mindfulness meditation may be an effective intervention for binge eating; however, no systematic review has examined interventions where mindfulness meditation was the primary intervention and no review has examined its effect on subclinical disordered eating or weight. Using the PRISMA method for systematic reviews, we reviewed 14 studies that investigated mindfulness meditation as the primary intervention and assessed binge eating, emotional eating, and/or weight change. Results suggest that mindfulness meditation effectively decreases binge eating and emotional eating in populations engaging in this behavior; evidence for its effect on weight is mixed. Additional research is warranted to determine comparative effectiveness and long-term effects of mindfulness training.

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1. Introduction

Mindfulness-based interventions are intensive skills-based programs aimed at reducing distress and improving well-being through the cultivation and practice of mindfulness (Kabat-Zinn, 1990). Mindfulness is often defined as a state of nonjudgmental attention to the immediate experience and an acceptance of moment-to-moment experience (Bishop et al., 2004). Awareness and acceptance of transitory moments allow one to replace automatic thoughts and automatic reactivity to events with conscious and healthier responses (Sears & Kraus, 2009).

Mindfulness-based interventions are being increasingly used to address eating-related issues ranging from anorexia nervosa (Heffner, Sperry, Eifert, & Detweiler, 2002) to weight management (Dalen et al., 2010). The conceptual rationale for using mindfulness in the treatment

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of eating disorders has been reviewed by other authors and includes the importance of cultivating awareness of internal experiences (e.g., emotions, physical sensations), facilitating self-acceptance, cognitive flexibility, compassion, and forgiveness, and generally improving one's ability to cope adaptively with emotions (Baer, Fischer, & Huss, 2005; Kristeller, Baer, & Quillian-Wolever, 2006; Kristeller & Wolever, 2011; Wolever & Best, 2009). As the body's biological stress response has been associated with increased feelings of hunger, preference for high fat and high sugar foods, and abdominal fat deposition (Dallman, 2010), mindfulness meditation has also been proposed as a potentially useful intervention for individuals attempting to lose weight.

Prior reviews have focused on the use of mindfulness treatments for individuals with eating disorders, including anorexia nervosa, bulimia nervosa, and binge eating disorder (BED; Baer et al., 2005; Wanden-Berghe, Sanz-Valero, & Wanden-Berghe, 2011). Results suggest that interventions with a mindfulness training component hold promise as a treatment for eating disorders; however, these studies were limited by small sample sizes and await replication to determine the comparative and long-term effectiveness of the interventions. To our knowledge, no review has examined the effects of mindfulness interventions on individuals who struggle with their eating and/or weight, but do not meet criteria for an eating disorder diagnosis (e.g., overweight or obese individuals with no emotional and/or binge eating; or individuals who struggle with emotional eating but do not meet full criteria for an eating disorder). Given that mindfulness-based interventions are increasingly being proposed as potentially effective treatments for overeating and obesity (Daubenmier et al., 2011; Ludwig & Kabat-Zinn, 2008), and a growing number of studies have examined weight as an outcome measure in mindfulness intervention studies (Alberts, Mulkens, Smeets, & Thewissen, 2010; Kearney, McDermott, Malte, Martinez, & Simpson, 2012; Timmerman & Brown, 2012), it is important to evaluate how mindfulness meditation may impact weight or eating behavior in individuals with subclinical eating pathology.

The dose of mindfulness training is an important parameter to consider when examining the impact of mindfulness interventions. While some programs heavily emphasize mindfulness training (e.g., Mindfulness-Based Stress Reduction; MBSR; Kabat-Zinn, 1990), others include it as one of many treatment components (e.g., Dialectical Behavior Therapy, DBT; Linehan, 1993). For example, in DBT for BED, mindfulness is taught for four sessions and the remaining 16 sessions focus on teaching other skills such as emotion regulation and distress tolerance (Telch, Agras, & Linehan, 2001), whereas interventions such as Mindfulness-Based Eating Awareness Training (MB-EAT; Kristeller & Hallett, 1999), Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990), and Mindfulness-Based Cognitive Therapy (MBCT; Teasdale et al., 2000) focus on mindfulness training in each session. Past reviews have included a range of mindfulness-based interventions including Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) and DBT (Linehan, 1993). Thus, prior reviews provide information on how interventions that include some mindfulness training impact patients with clinical eating disorders, but the extent to which the mindfulness training itself (versus other treatment components) accounted for the observed treatment effects is less clear.

Given these points, and the fact that since the last review (Wanden-Berghe et al., 2011) several larger studies have been published examining the impact of primarily mindfulness-based interventions on eating behavior (e.g., Alberts, Thewissen, & Raes, 2012; Kristeller et al., in press), an updated review evaluating the impact of primarily mindfulness interventions on eating-related behaviors and clinical outcomes such as weight is warranted. The aim of this review paper is to systematically review the impact of mindfulness meditation on overeating behaviors (i.e., binge eating, emotional eating) and weight change. To achieve this goal, we examined studies of interventions for which mindfulness was the primary treatment modality and where binge eating, emotional eating, or weight was a measured outcome.

2. Method

2.1. Literature search

We conducted our review based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009) and registered our review online under the international prospective register of systematic reviews.[1] Literature searches were conducted from the earliest date available through May 2013 in the following online bibliographical databases: PsycINFO, PubMed, MEDLINE, and Google Scholar. Terms related to mindfulness were entered in conjunction with terms related to eating behavior or weight using Boolean operators (e.g., "mindfulness" and "eating"). Terms for mindfulness included mindfulness, meditation, and mindful. Terms for eating behavior included eating, obesity, and weight. Searches were limited to articles written in English. Additionally, we reviewed reference sections of all the articles included in the review to identify additional articles that met the criteria for this review. The flow of the review process is shown in Fig. 1.

2.2. Study selection

Inclusion criteria were: a) original articles published in peer-reviewed journals, b) intervention studies with at least pre–post data, c) studies in which the intervention included mindfulness training in some portion of each session (e.g., MBSR and MBCT were included given that these treatments include mindfulness training in each session, DBT and ACT were excluded given that mindfulness is used in only a subset of sessions in these treatments), and d) studies with at least one of the following outcome measures: binge eating, emotional eating, or weight. Exclusion criteria were a) populations including individuals with anorexia nervosa or bulimia nervosa, b) populations with participants currently undergoing chemotherapy (due to its possible effect on weight and eating behaviors), and c) case studies or studies with a sample size of less than five. We did not exclude studies according to patient age, gender, weight range, or diagnosis other than described above. The decision to include or exclude studies was initially made on the basis of the article title, then its abstract, and finally the full-text article.

2.3. Data extraction

The first two authors of this review (SK and BK) independently evaluated each of the selected studies and extracted the following data from each of the original articles: authors and year of publication, design, sample size (i.e., sample size for the mindfulness intervention condition and total sample size), population, intervention length, the primary outcome(s)/variable(s), the intervention aimed to reduce (e.g., weight, binge eating, cravings, stress), the secondary outcomes relevant to our review (e.g., emotional eating, binge eating and/or weight), and the main findings. In the articles where emotional or binge eating was assessed, the measure used and the within- and between-groups Cohen's *d* effect sizes were extracted or estimated based on available data. In the articles where weight change was assessed, BMI or weight change at post-intervention and follow-up (if applicable) was extracted, and Cohen's *d* was extracted or calculated for the post-intervention change when the variability statistic was provided. We also gathered information about the components of the intervention specific to weight management including any nutrition education, energy balance information, or exercise or dietary self-monitoring or goal setting that was included. Both authors independently entered data into a table and compared information to check for accuracy. If extracted data were discrepant, the first author returned to the original article to clarify the correct information.

[1] Registration number: CRD42013004293; www.crd.york.ac.uk/prospero/.