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REVIEW

The effects of mindfulness training on weight-loss and health-related behaviours in adults with overweight and obesity: A systematic review and meta-analysis



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Summary The aim of this study was to conduct a comprehensive quantitative synthesis of the effects of mindfulness training interventions on weight-loss and health behaviours in adults with overweight and obesity using meta-analytic techniques. Studies included in the analysis ($k = 12$) were randomised controlled trials investigating the effects of any form of mindfulness training on weight loss, impulsive eating, binge eating, or physical activity participation in adults with overweight and obesity. Random effects meta-analysis revealed that mindfulness training had no significant effect on weight loss, but an overall negative effect on impulsive eating ($d = -1.13$) and binge eating ($d = -.90$), and a positive effect on physical activity levels ($d = .42$). Meta-regression analysis showed that methodological features of included studies

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accounted for 100% of statistical heterogeneity of the effects of mindfulness training on weight loss ($R^2 = 1,00$). Among methodological features, the only significant predictor of weight loss was follow-up distance from post-intervention ($\beta = 1.18$; $p < .05$), suggesting that the longer follow-up distances were associated with greater weight loss. Results suggest that mindfulness training has short-term benefits on health-related behaviours. Future studies should explore the effectiveness of mindfulness training on long-term post-intervention weight loss in adults with overweight and obesity.

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Introduction

Obesity and health-related behaviours

According to a recent systematic review, 36.9% of men and 38.0% of women are overweight or obese [1]. According to the World Health Organization [2], obesity results from an inappropriate energy balance between energy intake and energy expenditure. Negative affective states, such as acute stress and depressive mood, have been associated stronger drive to eat, which leads to excess weight gain and obesity [3–6]. Additionally, excessive food consumption is known to lead to excess weight and is also associated with sedentary behaviours [2,7]. Binge eating disorder (BED) is the most prevalent

eating disorder in individuals with overweight and obesity [8] and is characterised by recurrent and persistent episodes of uncontrolled and disinhibited eating sustained by psychological distress without any compensatory behaviour [9].

Research has outlined that impulsive actions occur without considered deliberation or reflection [10,11]. Such actions are the result of action patterns being initiated beyond an individual's awareness usually as a result of repeated exposure to cues and action pairings that are linked to reward (e.g., pleasure sensations, positive affect). The strength of these impulsive pathways are dependent on moderating factors such as context (e.g., the strength of the cue), and an individual's motivation (e.g., beliefs perceived benefits and costs of

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