

**Title:** Behavioural Weight Management Interventions in Bariatric Surgery: A Systematic Review and Meta-Analysis

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**Background:** Evidence-based data are lacking to inform the development and testing of adjunct behavioural weight management (BWM) interventions in bariatric populations. This review and meta-analysis evaluated the efficacy of pre- and/or post-operative BWM interventions in patients undergoing bariatric surgery and provided further evidence regarding the timing of the most efficacious interventions.

**Methods:** BWM interventions designed to promote weight loss/management among adult patients who reported anthropometric data were included. Searches were conducted in PubMed, PsychInfo, Scopus, Embase and Cochrane up to February 2020. Random effect meta-analyses were performed on weight and body mass index (BMI) to examine pre- to post-behavioural intervention effects.

**Results:** Thirty-three studies (2,919 participants) comprising 41 experimental and 36 comparison conditions were included. BWM led to greater WL, expressed as absolute weight (SDM = -0.41; 95% CI: -0.766 to -0.049,  $p < 0.05$ ) and BMI (SDM = -0.60; 95% CI: -0.913 to -0.289,  $p < 0.001$ ), relative to comparison but only when delivered postoperatively.

**Conclusion:** *Post-operative* BWM interventions may have the potential to optimise weight outcomes in patients undergoing bariatric surgery. However, the current evidence has a high risk of bias and high variability across trials. Future interventions should be developed using an established framework (e.g., ORBIT) in conjunction with an integrated knowledge translation strategy to improve effectiveness and uptake.