

## Motivational interviewing to improve weight loss in overweight and/or obese patients: a systematic review and meta-analysis of randomized controlled trials

Armstrong MJ, Mottershead TA, Ronskley PE, Sigal RJ, Campbell TS, Hemmelgarn BR

### CRD summary

The authors concluded that motivational interviewing appeared to enhance weight loss in overweight and obese patients. The authors' conclusions reflect the evidence presented but their note for caution when interpreting the results should be borne in mind due to the variability and poor methodological quality of included trials.

### Authors' objectives

To evaluate the effectiveness of motivational interviewing to improve weight loss in adults who are overweight or obese.

### Searching

MEDLINE, EMBASE, PsycINFO, CINAHL and CENTRAL were searched without language restriction to November 2009; search terms were reported. Reference lists of retrieved articles and relevant reviews were scanned for additional studies. Experts in the field were contacted to locate ongoing or unpublished studies.

### Study selection

Randomised controlled trials (RCTs) that evaluated the effectiveness of behaviour change interventions using motivational interviewing for reducing body mass in overweight or obese adults were eligible for inclusion. The outcomes of interest were change in body mass measured as body weight in kilograms or body mass index (BMI  $\text{kg}/\text{m}^2$ ). Trials had to include adults who had a BMI of  $25\text{kg}/\text{m}^2$  or more. Trials were excluded if the motivational interviewing component was used combined with other strategies or compared with a no-treatment control.

The delivery of motivational interviewing and professional background of interventionists varied across included trials. Control groups received usual care, print materials and attention control. Over 40% of trials provided a behavioural weight-loss programme to all participants, with motivational interviewing included as an adjunct therapy in the intervention group. The mean age of participants ranged from 41 to 62 years (where reported). The proportion of women ranged from 3 to 100%. Mean baseline BMI ranged from 27.1 to  $37.9\text{kg}/\text{m}^2$ . The estimated total motivational interviewing time provided during the intervention ranged from 50 to 323 minutes.

Two reviewers independently assessed studies for inclusion.

### Assessment of study quality

Quality assessment of included trials was undertaken using the Jadad scale. Criteria evaluated were allocation concealment, randomisation, intention-to-treat analysis, blinding, and loss to follow-up (maximum score of 5 points).

Two reviewers independently assessed quality.

### Data extraction

Data were extracted on the change in mean body mass ( $\text{kg}$  or  $\text{kg}/\text{m}^2$ ), together with standard deviations, from baseline to end of follow-up for intervention and control group and used to calculate the standardized mean difference (SMD) and corresponding 95% confidence intervals (CIs). Data were also stratified by weight ( $\text{kg}$ ) and BMI ( $\text{kg}/\text{m}^2$ ) and weighted mean differences (WMDs), with 95% confidence intervals, were calculated. Trial authors were contacted for additional information where necessary.

Two reviewers independently extracted data. Disagreements were resolved through discussion between all reviewers.

### Methods of synthesis

Pooled standardized mean differences, weighted mean differences, with corresponding 95% confidence intervals, were estimated using a fixed-effects model. Heterogeneity was assessed using the Q statistic and  $I^2$ , as well as visual inspection of forest plots. Where there was evidence of significant statistical heterogeneity, a DerSimonian and Laird random-effects model was used.

Analysis of variables that may affect heterogeneity were undertaken including primary outcome, duration of treatment, whether an attention control was used, if a motivational interviewing fidelity measure was used, and whether motivational interviewing was used as an adjunct to a behavioural weight-loss programme. Univariate meta-regression was performed to explore whether methodological factors mediated the effects of the intervention.

Publication bias was assessed through visual inspection of funnel plots, Begg and Mazumdar's test and Egger's test.

### Results of the review

Twelve RCTs were included in the review. Eleven RCTs were included in the analysis (1,448 participants, range 22 to 599). One RCT was excluded as the interventionists were randomised rather than the participants. Eight RCTs scored 3 points for quality on the Jadad scale, two RCTs scored 2 points, and two RCTs scored 1 point. Eight RCTs reported randomisation and allocation concealment and blinding. Five RCTs reported an intention-to-treat analysis. All trials reported losses to follow-up ranging from 8% to 35%. The duration of follow-up ranged from three to 18 months)

### Options

Print

PDF

Set alert

Fast track

PubMed record

Original research

### Share

|

You need to be logged in  
to see your keywords

Motivational interviewing was associated with a non statistically significant reduction in body mass compared with control treatments (SMD -0.51, 95% CI -1.04 to 0.01; 11 RCTs), but there was evidence of significant heterogeneity ( $I^2=95\%$ ). There was no evidence of publication bias.

There was a significant reduction in body weight (WMD -1.47kg, 95% CI -2.05 to -0.88; eight RCTs) and a non statistically significant reduction in BMI (WMD -0.25 kg/m<sup>2</sup>, 95% CI -0.50 to -0.01; seven RCTs) for motivational interviewing compared with control treatments. There was evidence of heterogeneity for both these outcomes (body weight  $I^2=55\%$ ; BMI  $I^2=24.5\%$ ).

Subgroup analysis found that weight as a primary outcome, duration of treatment longer than six months, a treatment fidelity measure and the use of a behavioural weight-loss programme were associated with an increased effect of motivational interviewing on body mass. Meta-regression found no significant sources of heterogeneity.

### **Authors' conclusions**

Motivational interviewing appeared to enhance weight loss in overweight and obese patients.

### **CRD commentary**

The review question was clear with appropriate inclusion criteria. Several relevant sources were searched with efforts to reduce language and publication bias; formal assessment found no evidence of publication bias. Appropriate methods to reduce reviewer error and bias were used throughout the review process.

Quality assessment of the included trials was undertaken and results were reported. The authors suggested caution interpreting the results due to the variations between trials for dose, delivery and duration of motivational interviewing, different outcome measures, and poor quality of the included trials. There was also evidence of statistical heterogeneity.

The authors' conclusions reflect the evidence presented. The authors' note for caution when interpreting the results should be borne in mind due to the variability and poor methodological quality of the included trials.

### **Implications of the review for practice and research**

**Practice:** The authors stated that motivational interviewing appeared to be a promising 'value-add' for weight-loss interventions in obesity management.

**Research:** The authors stated further research of the effects of motivational interviewing for weight loss of obese patients was required to determine the optimal dose and delivery. They also stated that further exploration of the effectiveness of motivational interviewing alongside behavioural weight management programmes was warranted. In addition, the fidelity of the intervention needed to be ensured. Further investigation was also required to determine which patient groups (sex and ethnicity) would most benefit from the intervention.

### **Funding**

Canadian Institutes of Health Research; Gerald Webber Cosmopolitan International Club, Germany; Alliance for Canadian Health Outcomes Research in Diabetes; Alberta Heritage Foundation for Medical Research.

### **Bibliographic details**

Armstrong MJ, Mottershead TA, Ronksley PE, Sigal RJ, Campbell TS, Hemmelgarn BR. Motivational interviewing to improve weight loss in overweight and/or obese patients: a systematic review and meta-analysis of randomized controlled trials. *Obesity Reviews* 2011; 12(9): 709-723

### **PubMedID**

[21692966](#)

### **Original Paper URL**

<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2011.00892.x/abstract>

### **Indexing Status**

Subject indexing assigned by NLM

### **MeSH**

Adult; Body Mass Index; Cognitive Therapy /methods; Female; Humans; Interviews as Topic; Male; Middle Aged; Motivation; Obesity /psychology /therapy; Overweight /psychology /therapy; Randomized Controlled Trials as Topic; Weight Loss

### **AccessionNumber**

12011005677

### **Database entry date**

21/06/2012

### **Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.