Weight Management Interventions Provided by a Dietitian for Adults with Overweight or Obesity:
An Evidence Analysis Center Systematic Review and Meta-Analysis

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1. Background & Objective

Background: Obesity has become a worldwide epidemic resulting in a multitude of comorbidities and significant healthcare costs. A critical role of Registered Dietitian Nutritionists (RDNs) is to provide patients with evidenced-based strategies to facilitate weight management.

Objective: This systematic review evaluated the effects of weight management interventions provided by an RDN, compared to usual care or no intervention, on weight-related outcomes among adults with overweight or obesity.

2. Methods

- Eligibility criteria were determined a priori.
- **Population:** Adults ≥ 18 years with overweight or obesity (BMI ≥ 25 kg/m² or as defined by the study authors).
- **Intervention & Comparison:** Weight management counseling/education provided by an RDN or international equivalent (including interdiscipilary interventions) compared to standard care or no intervention by an RDN.
- **Outcomes:** BMI (primary), % weight loss, waist circumference, systolic blood pressure, diastolic blood pressure, fasting glucose, quality of life, cost effectiveness, and adverse events.
- **Study Designs:** Randomized controlled trials (RCTs).
- **Search:** A literature search was conducted using MEDLINE, Embase, PsycINFO, Cochrane CENTRAL, and other databases. Search terms described weight loss or management, lifestyle, behavioral, or diet interventions, overweight and obesity. RCTs were assessed for quality using the ROB 2.0 tool.
- When possible, meta-analyses were conducted for each outcome using a random-effects model.
- Certainty of evidence was determined by outcome using the GRADE method and considered risk of bias across studies, inconsistency in findings between studies, indirectness, imprecision of findings and other factors.

3. Results

- Figure 1 shows the study screening process; 73 articles representing 62 RCTs were included.
- Figure 2 shows a summary of the effects of interventions and Figure 3 shows risk of bias.
  - Among studies reporting BMI outcomes (n=38), adult weight management interventions provided by an RDN decreased BMI by a mean (95% CI) of -1.5 (-1.74, -1.26) kg/m² (*MODERATE* certainty evidence).
  - "HIGH" certainty evidence suggests interventions provided by an RDN result in significant % weight loss (MD [95% CI] = -4.01% [95% CI] = -5.26, -2.75) and reduced waist circumference [MD (95% CI) = -2.3 higher to 9.4 higher] compared to controls.
  - "LOW" certainty evidence suggests weight management interventions provided by an RDN may be cost effective for adults with overweight or obesity.
- "VERY LOW" certainty evidence demonstrates weight management interventions from an RDN likely do not result in any significant % weight loss or waist, circumference, systolic blood pressure, diastolic blood pressure or significant % weight loss.

4. Conclusions

RDNs play a crucial role in safely and effectively improving cardiometabolic outcomes for adults with overweight or obesity. Heterogenous effect sizes highlight the need to individualize intervention components to the needs and preferences of each client. Regular follow-up visits are needed to maintain results of overweight and obesity treatment. Future studies to further elucidate best practices and impact on quality of life as well as cost effectiveness are warranted.

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