

Interventions during pregnancy to reduce excessive gestational weight gain: a systematic review assessing current clinical evidence using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) system

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CRD summary

The authors concluded that there was insufficient good quality evidence to make recommendations about clinical interventions to reduce excessive weight gain during pregnancy. Although some of the review methods were poorly reported, the authors' conclusions reflect limited evidence from a small number of diverse trials and seem appropriate.

Authors' objectives

To evaluate interventions to reduce excessive weight gain during pregnancy and determine if there is sufficient good quality data to make recommendations for clinical practice.

Searching

PubMed, the Cochrane Library, CINAHL and PEDro were searched up to August 2009 for studies published in English or any of the Scandinavian languages. Search terms were reported. No date restrictions were applied to studies. Reference lists of reviews and relevant articles were screened. The Clinical Trials Registry of the US National Institutes of Health was searched, but no other sources were searched for unpublished studies.

Study selection

Randomised controlled trials (RCTs) and non-randomised controlled trials of women enrolled before the third trimester of pregnancy were eligible for inclusion. Eligible trials had to compare behavioural and educational interventions with standard maternity care and assess any of the outcomes of total gestational weight gain, rate of gestational weight gain, and/or the proportion of women exceeding the Institute of Medicine weight gain recommendations. Trials were excluded if they evaluated weight-reducing pharmaceutical or surgical interventions, or if they only included women with any type of diabetes mellitus.

The included trials evaluated a variety of interventions that included one or more of dietary counselling, nutritional education, behavioural interventions, educational mail shots, use of individual weight-gain grid, physical activity, and/or education of women or care providers. Interventions varied in intensity, frequency and duration. Trials included women in the following weight categories: any weight; normal or overweight; obese. Most trials included women aged over 18 years. Some trials focused on specific populations (African-American teenagers, low-income populations, and Cree Indians). Trials were conducted in the USA, Canada and Scandinavian countries.

The authors did not state how papers were selected for the review.

Assessment of study quality

Two reviewers independently assessed study quality using the QUORUM (Quality of Reporting of Meta-analysis) statement checklist.

Data extraction

Outcome data were presented in tables as percentages of patients with outcomes of interest and/or levels of statistical significance.

Two reviewers independently extracted results data.

Methods of synthesis

The trials were grouped by weight category of patients and combined in a narrative synthesis. Evidence was graded according to the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) system.

The potential for publication bias appeared to be assessed informally.

Results of the review

Eight trials were included in the review (number of women calculated as 1,538 from table 1, but reported as 1,625 in table 3); these included four RCTs (n=306 women; one was a quasi-randomised trial) and four non-randomised controlled trials (n=1,232 women, from table 1). Two RCTs did not clearly describe allocation concealment. Five trials reported no blinding. Six trials had losses to follow-up of more than 20%, unequal distribution of losses between treatment groups, or did not report losses. One trial reported analysis on an intention-to-treat basis. Evidence was graded as very low on the GRADE system.

Women in any weight category or women in the normal/overweight category: Six trials reported no difference between intervention and control groups in the proportion of women gaining weight within the Institute of Medicine (IOM) recommendations. One of these trials reported that the intervention was associated with a significant reduction in gestational weight gain.

Obese women: Results were mixed. Two trials reported that interventions were associated with a reduction in the mean gestational weight gain. One trial reported an increased proportion of women with weight gain within the IOM recommendations. One trial reported an increased proportion of women with excessive weight gain according to IOM recommendations in the intervention group. One trial reported no difference between treatment groups in the proportion within the IOM recommendations.

The authors stated that they could not rule out publication bias.

Authors' conclusions

The results of published intervention trials were of insufficient quality to enable evidence-based recommendations to be made for clinical practice in antenatal care.

CRD commentary

The review question was clearly stated and inclusion criteria were appropriately defined. Several relevant sources were searched. Some attempts were made to minimise language bias and to locate unpublished data, but the authors acknowledged that they could not exclude publication bias. Methods were used to minimise reviewer errors and bias in the extraction of data and assessment of quality, but it was not clear whether similar steps were taken in study selection.

An assessment of trial quality was reported. Some relevant information about the included trials was summarised. In view of the differences between trials, a narrative synthesis was appropriate.

Although some of the review methods were poorly reported, the authors' conclusions reflect limited evidence from a small number of diverse trials with small sample sizes and seem appropriate.

Implications of the review for practice and research

Practice: The authors stated that since the review trials included specific populations, the results may not be applicable to the general population of pregnant women.

Research: The authors stated that large RCTs are required to evaluate interventions to reduce excessive weight gain during pregnancy. Future studies should take account of the limited resources of maternity centres when designing studies. There is also a need to develop methods of identifying women at risk of excessive weight gain during pregnancy.

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