A meta-analysis of treatments for perinatal depression
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CRD summary
This review found that moderate reductions in depressive symptoms were attainable with a range of pharmacological and psychological interventions for women with perinatal depression. Methodological flaws in the review mean that the authors’ conclusions should be interpreted with some degree of caution and make the reliability of the review conclusions unclear.

Authors’ objectives
To assess the efficacy of pharmacologic and psychological interventions for the treatment of perinatal depression.

Searching
PubMed and PsycINFO were searched to September 2010 for relevant studies; search terms were reported. Clinical trial registries searched included databases of Cochrane Pregnancy and Childbirth Group, Cochrane Depression, Anxiety and Neurosis Group and ISRCTN. Reference lists of existing systematic reviews, book chapters and retrieved articles were checked for further studies.

Study selection
Prospective pre- and post-treatment and controlled studies that evaluated the impact of antidepressant medication or psychological interventions in women with unipolar depression (during pregnancy and a defined post-partum period of 12 months) were eligible for inclusion. Additional inclusion criteria were that outcomes were reported for depressive symptoms using validated self-report or clinician-administered measures and that the study provided sufficient data for calculation of effect sizes. Hormonal pharmacological interventions, non-specific psychosocial interventions and interventions that did not explicitly target depressive symptoms were excluded from the review.

The studies were conducted in UK, France, USA, Australia, Austria, Canada and Sweden. Interventions were generally administered at clinics or at home or a combination of both and were to individuals, groups or a combined format. One intervention was in a school setting. Psychotherapy interventions consisted of cognitive-behavioural therapy, interpersonal psychotherapy, non-directive counselling, psycho-dynamic therapy, psycho-educational group therapy and mother-infant therapy groups. Anti-depressant medications used were venlafaxine, sertraline, nefazodone and paroxetine. Omega-3 fatty acids were used alongside manualised supportive psychotherapy in one study. Control treatments were treatment as usual, wait list, active control and placebo treatments. Rating scales used for evaluation of depressive symptoms were Beck Depression Inventory, Edinburgh Post-Natal Depression Scale, Hamilton Depression Rating Scale and Montgomery-Asberg Depression Rating Scale.

The authors did not state how many reviewers performed the study selection.

Assessment of study quality
The authors presented quality data for intention-to-treat analyses, specifications of sample characteristics, descriptions of therapist training, therapist supervision, adherence to therapeutic model and blinding of outcome assessors and clinicians and patients for the pharmacological interventions.

The authors did not state how many reviewers assessed the quality of the studies.

Data extraction
Data were extracted to calculate effect sizes from pre-treatment to post-treatment in the studies for all the treatment groups. Effect sizes were calculated and moderator variable were coded by the first author and a second reviewer coded the moderator variables.

Methods of synthesis
Standardised weighted mean effect sizes represented as Hedges’ g and 95% confidence interval (CI) were calculated. A random-effects model was used for calculation of summary statistics. Statistical heterogeneity was assessed using the Q-
statistic and I². Where heterogeneity was present, exploratory sensitivity analyses assessed potential moderator effects; these included elements of the research designs and intervention characteristics. Publication bias was evaluated by the visual appraisal of funnel plots, Duval and Tweedie's trim-and-fill method and calculation of the fail-safe N to determine the number of studies required to produce a non-significant overall effect size.

**Results of the review**

Twenty-seven studies (1,274 participants, range four to 193) were included in the review: 16 randomised controlled trials (RCTs), two quasi-randomised trials and nine open trials. Nineteen studies used psychotherapy, four studies used pharmacological therapy and four studies used combination therapy. Intention-to-treat analyses were used in 19 studies. Outcome assessors were blinded to treatment status in eight studies. Concurrent treatment was allowed in nine studies, but was not stated for eight studies.

There were statistically significant improvements in depressive symptoms from pre-treatment to post-treatment (Hedges g 1.61, 95% CI 1.40 to 1.81, I²=86%; 25 studies) across all treatment groups. The interventions given to the treatment groups were associated with significantly larger reductions in depressive symptoms than the control treatments with an overall effect size of 0.65 (95% CI 0.45 to 0.86, I²=43%; 13 studies) after the removal of outlier results from one study. The fail-safe N was 229, which was larger than the number of non-significant studies (75). There was no evidence of publication bias shown using funnel plots or the trim-and-fill procedures.

Controlled analyses of the studies with interpersonal psychotherapy interventions had larger effect sizes (g=0.96) than those that utilised cognitive-behavioural therapy interventions (g=0.40). There was a trend for studies of clinic-based interventions to have higher effect sizes than home-based interventions. There were no significant differences on the basis of length of treatment or method of administration (individual compared to group therapy).

**Authors' conclusions**

Moderate reductions in depressive symptoms were attainable with a range of pharmacological and psychological interventions for women with perinatal depression. Interventions with an interpersonal therapy component were found to have larger effects than interventions with a cognitive-behavioural component.

**CRD commentary**

The review addressed a clear question and criteria were outlined for the inclusion of studies. Appropriate databases were searched for relevant studies, although the authors did not state all the databases used and this would hamper any attempts to reproduce the search. It was not clear whether language restrictions were applied; language restrictions would have risked language bias. Attempts were made to identify unpublished studies and the authors evaluated the potential for publication bias using validated methods. Steps were taken to minimise errors and bias for data extraction, but no such steps were reported for study selection and the assessment of methodological quality.

The combination of studies of different designs and clinical heterogeneity in the interventions and outcome measures in a meta-analysis may not have been appropriate as the results of quasi-randomised studies and open trials are vulnerable to a number of potential biases. However, the reviewers explored potential sources of heterogeneity using sensitivity analyses of moderator variables of study and intervention characteristics.

Methodological flaws in the review mean that the authors' conclusions should be interpreted with some degree of caution and make the reliability of the review conclusions unclear.

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

**Practice**: The authors did not state any implications for practice.

**Research**: The authors stated that further research to evaluate the efficacy of well-defined cognitive-behavioural interventions (especially where cognitive-behavioural therapies and individual psychotherapy protocols were compared to each other) were necessary to establish whether individualised psychotherapy was a more effective intervention for perinatal depression. More research was required to determine whether location had an effect on intervention efficacy. Pharmacological interventions should be compared directly to address the relative efficacy of these intervention types.

**Funding**
Bibliographic details

PubMedID
21545782

DOI
10.1016/j.cpr.2011.03.009

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Antidepressive Agents /therapeutic use; Depression, Postpartum /psychology /therapy; Depressive Disorder /psychology /therapy; Female; Humans; Peripartum Period /psychology; Psychotherapy; Treatment Outcome

AccessionNumber
12011004689

Date bibliographic record published
07/12/2011

Date abstract record published
24/04/2012

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.