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The research reported in this issue of the journal was commissioned by the HTA programme as project number 06/83/01. The contractual start date was in January 2008. The draft report began editorial review in June 2009 and was accepted for publication in January 2010. As the funder, by devising a commissioning brief, the HTA programme specified the research question and study design. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the referees for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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Abstract

Group cognitive behavioural therapy for postnatal depression: a systematic review of clinical effectiveness, cost-effectiveness and value of information analyses

MD Stevenson,* A Scope, PA Sutcliffe, A Booth, P Slade, G Parry, D Saxon, E Kalthenthaler and the group cognitive behavioural therapy for postnatal depression advisory group

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Background: Postnatal depression (PND) describes a wide range of distressing symptoms that can occur in women following childbirth. There is substantial evidence to support the use of cognitive behaviour therapy (CBT) in the treatment of depression, and psychological therapies are recommended by the National Institute for Health and Clinical Excellence as a first-line treatment for PND. However, access is limited owing to expense, waiting lists and availability of therapists. Group CBT may, therefore, offer a solution to these problems by reducing therapist time and increasing the number of available places for treatment.

Objectives: To evaluate the clinical effectiveness and cost-effectiveness of group CBT compared with currently used packages of care for women with PND.

Data sources: Seventeen electronic bibliographic databases were searched (for example MEDLINE, MEDLINE In-Process & Other Non-Indexed Citations, EMBASE, PsycINFO, etc.), covering biomedical, health-related, science, social science and grey literature (including current research). Databases were searched from 1950 to January 2008. In addition, the reference lists of relevant articles were checked and various health services' related resources were consulted via the internet.

Review methods: The study population included women in the postpartum period (up to 1 year), meeting the criteria of a standardised PND diagnosis using the *Diagnostic and Statistical Manual of Mental Disorders*-Fourth Edition, or scoring above cut-off on the Edinburgh Postnatal Depression Scale (EPDS). No exclusion was made on the basis of the standardised depression screening/case finding instrument of standardised clinical assessment tool used to define PND. All full papers were read by two reviewers (AS and DS) who made independent decisions regarding inclusion or exclusion, and consensus, where possible, was obtained by meeting to compare decisions. In the event of disagreement, a third reviewer (EK) read the paper and made the decision. All data from included quantitative studies were extracted by one reviewer (AS) using a standardised data extraction form. All data from included qualitative studies were extracted by two reviewers (AS and AB) using a standardised data extraction form with disagreements resolved by discussion. Two different data extraction forms were used, one for the quantitative papers and a second for the qualitative papers.

Results: Six studies met the inclusion criteria for the quantitative review. Three were randomised controlled trials (RCTs) and three were non-randomised trials. Two studies met the inclusion criteria for the qualitative review. These were both treatment evaluations incorporating qualitative methods. Only one study was deemed appropriate for the decision problem; therefore a meta-analysis was not performed. This study indicated that the reduction in the EPDS score through group CBT compared with routine primary care (RPC) was 3.48 [95% confidence interval (CI) 0.23 to 6.73] at the end of the treatment period. At 6-month follow-up the relative reduction in EPDS score was 4.48 (95% CI 1.01 to 7.95). Three studies showed the treatment to be effective in reducing depression when compared to RPC, usual care or waiting list groups. There was no adequate evidence on which to assess group CBT compared with other treatments for PND. Two

studies of group CBT for PND were included in the qualitative review. Both studies demonstrated patient acceptability of group CBT for PND, although negative feelings towards group CBT were also identified. A de novo economic model was constructed to assess the cost-effectiveness of group CBT. The base-case results indicated a cost per quality-adjusted life-year (QALY) of £46,462 for group CBT compared with RPC. The 95% CI for this ratio ranged from £37,008 to £60,728. There was considerable uncertainty in the cost per woman of running a CBT course, of the appropriateness of efficacy data to the decision problem, and the residual length of benefit associated with group CBT. These were tested using univariate sensitivity analyses. Supplementary analyses that fitted distributions to the cost of treatment and the duration of comparative advantage reported a cost per QALY of £36,062 (95% CI £20,464 to £59,262).

Limitations: The cost per QALY ratio for group CBT in PND was uncertain because of gaps in the evidence base. There was little quantitative or qualitative RCT evidence to assess the effectiveness of group CBT for PND. The evidence that was available was of low quality in the main because of poor reporting of the results. Furthermore, little information was reported on concurrent treatment used in the studies, which was controlled for in only two of the studies.

Conclusions: Evidence from the clinical effectiveness review provided inconsistent and low quality information on which to base any interpretations for service provision. Although three of the included studies provided some indication that group psycho-education incorporating CBT is effective compared with RPC, there is enough doubt in the quality of the study, the level of CBT implemented in the group programmes, and the applicability to a PND population to limit any interpretations significantly. It is also considered that the place of group CBT in a stepped care programme needs to be identified, as well as there being a need for a clearer referral process for group CBT.

Contents

Glossary and list of abbreviations

Glossary

Postnatal depression (also known as postpartum depression) A non-psychotic depressive episode meeting standardised diagnostic criteria for a minor or major depressive disorder, beginning in or extending into the postnatal period. The term puerperal is also used to describe the postnatal period.

Cognitive behaviour therapy (CBT) The pragmatic combination of concepts and techniques from cognitive and behaviour therapies common in clinical practice. CBT aims to facilitate, through collaboration and guided discovery, recognition and re-evaluation of negative thinking patterns and practising new behaviours.

Interpersonal psychotherapy A time-limited, structured and psycho-educational therapy which links depression to role transitions, interpersonal disputes, interpersonal sensitivity or losses. It facilitates understanding of recent events in these interpersonal terms and explores alternative ways of handling interpersonal situations.

Multipara A woman who has given birth two or more times.

Primipara A woman who is pregnant for the first time, or has given birth to only one child.

The Beck Depression Inventory A 21-item self-report scale used to determine depression severity. Items are scored on a 0–3 scale giving a total range of 0–63. Total scores within the 1–9 range indicate minimal depression, 10–18 mild depression, 19–29 moderate depression, and 30–63 severe depression.

The Edinburgh Postnatal Depression Scale The most widely used self-report scale designed to measure postnatal depression symptomology. The scale consists of 10-item Likert format relating to depression and anxiety symptomology. Items are scored on a 0–3 scale to give a total range of 0–30. Total scores within the 12–30 range suggest significant depression.

The Center for Epidemiological Studies Depression Scale A short self-report scale designed to measure depressive symptomology in the general population. The 20-item scale has a possible range of score from 0 to 60, with higher scores indicating more symptoms, weighted by frequency of occurrence during the past week.

List of abbreviations

BDI	Beck Depression Inventory
CASP	Critical Appraisal Skills Programme
CBT	cognitive behavioural therapy
CEAC	cost-effectiveness acceptability curve
CES-D	The Center for Epidemiological Studies Depression Scale
CI	confidence interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
DSM-IV	*Diagnostic and Statistical Manual of Mental Disorders*-Fourth Edition
EPDS	Edinburgh Postnatal Depression Scale
EVPI	expected value of perfect information
EVPPI	expected value of partial perfect information
GP	general practitioner
HEED	Health Economic Evaluations Database
ICD-10	*International Classification of Diseases*-Tenth Edition
IPT	interpersonal psychotherapy
ITT	intention to treat
MCI	multicomponent intervention
M–ITG	mother–infant therapy group
NHS EED	NHS Economic Evaluations Database
NICE	National Institute for Health and Clinical Excellence
PCT	Primary Care Trust
PEG	psycho-educational group
PND	postnatal depression
PSA	probabilistic sensitivity analyses
QALY	quality-adjusted life-year
QUORUM	quality of reporting of meta-analyses
RCT	randomised controlled trial
RPC	routine primary care
SF-6D	Short Form questionnaire-6 Dimensions
UC	usual care
WLG	waiting list group

All abbreviations that have been used in this report are listed here unless the abbreviation is well known (e.g. NHS), or it has been used only once, or it is a non-standard abbreviation used only in figures/tables/appendices, in which case the abbreviation is defined in the figure legend or in the notes at the end of the table.

Executive summary

Background

Postnatal depression (PND) describes a wide range of distressing symptoms that can occur in women following childbirth. A clinical diagnosis of the disorder is often made using the *Diagnostic and Statistical Manual of Mental Disorders*-Fourth Edition which describes a range of diagnostic categories indicative of a depressive disorder. There is substantial evidence to support the use of cognitive behaviour therapy (CBT) in the treatment of depression, and psychological therapies are recommended by the National Institute for Health and Clinical Excellence as a first-line treatment for PND. However, access is limited owing to expense, waiting lists and availability of therapists. Group CBT may, therefore, offer a solution to these problems by reducing therapist time and increasing the number of available places for treatment.

Objectives

The overall aims of the review were to evaluate the clinical effectiveness and cost-effectiveness of group CBT compared with currently used packages of care for women with PND.

Methods

Clinical effectiveness

A systematic review of the literature was performed to identify all studies describing trials of group CBT for PND. Databases were searched (for example MEDLINE, MEDLINE In-Process & Other Non-Indexed Citations, EMBASE, PsycINFO, etc.) from 1950 to January 2008 for both quantitative and qualitative studies.

Cost-effectiveness

A systematic review of the literature was performed to identify all cost-effectiveness studies of group CBT for PND. Databases were searched from 1950 to January 2008.

Results

Number and quality of studies

Clinical effectiveness

Six studies met the inclusion criteria for the quantitative review. Three were randomised controlled trials (RCTs) and three were non-randomised trials. Two studies met the inclusion criteria for the qualitative review. These were both treatment evaluations incorporating qualitative methods.

Cost-effectiveness

No studies were identified that were deemed relevant to the decision problem.

Evidence of effectiveness

Clinical effectiveness

Six studies of group CBT for PND were included in the quantitative review as part of a narrative analysis. Only one study was deemed appropriate for the decision problem; therefore a meta-analysis was not performed. This study indicated that the reduction in the Edinburgh Postnatal Depression Scale (EPDS) score through group CBT compared with routine primary care (RPC) was 3.48 [95% confidence interval (CI) 0.23 to 6.73] at the end of the treatment period. At 6-month follow-up the relative reduction in EPDS score was 4.48 (95% CI 1.01 to 7.95). Three studies showed the treatment to be effective in reducing depression when compared to RPC, usual care or waiting list groups. There was no adequate evidence on which to assess group CBT compared with other treatments for PND. Two studies of group CBT for PND were included in the qualitative review. Both studies demonstrated patient acceptability of group CBT for PND, although negative feelings towards group CBT were also identified.

Cost-effectiveness

A de novo economic model was constructed to assess the cost-effectiveness of group CBT.

Summary of cost-effectiveness

The base-case results indicated a cost per quality-adjusted life-year (QALY) of £46,462 for group CBT compared with RPC. The 95% CI for this ratio ranged from £37,008 to £60,728. There was considerable uncertainty in the cost per woman of running a CBT course, of the appropriateness of efficacy data to the decision problem, and the residual length of benefit associated with group CBT. These were tested using univariate sensitivity analyses. Supplementary analyses that fitted distributions to the cost of treatment and the duration of comparative advantage reported a cost per QALY of £36,062 (95% CI £20,464 to £59,262).

Sensitivity analyses

The cost of running a group CBT course, the assumed efficacy of group CBT and the length of residual benefit all markedly affected the results; plausible combinations of these values would produce cost per QALY values below currently used thresholds. Expected value of information analyses were undertaken. These showed that there was expected to be a considerable benefit in conducting further research, particularly regarding the cost of treatment and the relationship between changes in values of the EPDS and changes in the value of the Short Form questionnaire-6 Dimensions (SF-6D).

Discussion

Strengths, limitations and uncertainties of the analyses

A strength of our work is that an estimation of the cost-effectiveness of group CBT for PND in the UK has been calculated; previously such estimates have not been published. Furthermore, a relationship between a change in EPDS score and utility has been estimated, although the correlation is only moderate. We believe that such a relationship has not previously been published. The analyses have shown that the cost per QALY is heavily dependent on the cost per women treated with group CBT and the assumed relationship between changes in EPDS values and changes in SF-6D values.

Limitations include the dearth of RCT evidence to assess the effectiveness of group CBT for PND. The available evidence was in some cases of low quality due to poor reporting. Some of the included studies failed to provide adequate information about the exact nature of the CBT element of the intervention, concurrent treatment in the intervention group, and patient characteristics such as time postpartum. These factors may have significant implications for the generalisability of the findings. Furthermore, the potentially small number of health visitors involved in delivering the group CBT assumed applicable to the UK setting may provide severe limitations in generalising the results to other health visitors.

No robust comparisons between group CBT and individual CBT, or between group CBT and other group therapies, were found. For the quantitative analyses only one RCT was considered appropriate for meta-analysis and this had only 45 participants. A further limitation is that utility measurements were not recorded in the RCTs, thus benefits were estimated from a regression of the relationship between EPDS and SF-6D.

As such there is considerable uncertainty in the estimated efficacy of group CBT compared with RPC. This, and uncertainties in the costs of conducting group CBT and in the duration of benefit, mean that the cost-effectiveness of group CBT for PND is uncertain.

Conclusions

Implications for service provision

Evidence from the clinical effectiveness review provides inconsistent and low quality information on which to base any interpretations for service provision. Although three of the included studies provide some indication that group psycho-education incorporating CBT is effective compared with RPC, there is enough doubt in the quality of the study, the level of CBT implemented in the group programmes, and the applicability to a PND population to limit any interpretations significantly.

It is also considered that the place of group CBT in a stepped care programme needs to be identified, as well as there being a need for a clearer referral process for group CBT. There is also a requirement to make clearer assessments of the facilitators and resources required for group CBT, including training needs, and to provide a clear method of assessing suitable participants for the treatment.

Suggested research priorities

The key research priorities would be to determine the cost per woman of providing group CBT were it to be widely available, collection of paired data for EPDS and a utility measure such as the

SF-6D, to determine the effectiveness of group CBT compared with RPC and individual CBT (preferably in terms of a utility measure to obviate the transformation from the EPDS) and to determine the duration of comparative advantage by following up the women 1 year, or longer, after randomisation.

If the sample size is large enough, data on the following aspects should be recorded: the effect of the size of the participant group; the effect of the session duration; the effect of the setting; the qualifications and involvement of the facilitator; the effectiveness of group CBT on the different subtypes of PND; whether effectiveness is dependent on patient background, comorbidity, the number of children, previous PND, pre-pregnancy or antenatal depression; and the indirect effects of the treatment on the infant and other family members.

Chapter 1
Background

Description of health problem

The term 'postnatal depression' (PND) has been used to describe a wide range of distressing symptoms following childbirth. This has led some clinicians to describe women as suffering from PND on the basis of the symptom of lowered or depressed mood.[1] It is more common, however, for a clinical diagnosis to be made based on the pattern and severity of symptoms. PND is also referred to as puerperal depression, postpartum depression and perinatal depression, and is defined as a non-psychotic depressive episode meeting standardised diagnostic criteria for a minor or major depressive disorder, beginning in or extending into the postnatal period, which is usually defined at up to 12 months postpartum.[2]

Current criteria for the measurement of depression are provided in two major international classifications, *International Classification of Diseases*-Tenth Edition (ICD-10) and *Diagnostic and Statistical Manual of Mental Disorders*-Fourth Edition (DSM-IV). The ICD-10[3] divides depression into three categories: mild, moderate and severe, and 10 symptoms of depression are identified. In the DSM-IV,[4] nine symptoms of depression are identified.

DSM-IV criteria for a major depressive disorder require the presence of either (1) depressed mood most of the day, nearly every day with self-reports of sadness, emptiness or observation of appearing tearful, or (2) markedly diminished interest or pleasure, plus five (or more) of the criteria in *Table 1* for at least a 2-week period, nearly every day. PND can range in severity and can include the symptoms of major or minor depression as described in the DSM-IV. An additional symptom specific to PND is guilt about the sufferers' inability to look after their baby.

Neither of these classification systems provides a category specifically for PND. The ICD-10 recommends that depression in the postnatal period be categorised as one of the usual categories of depression, but does make provision for a mental disorder beginning within 6 weeks of the delivery, if the symptoms do not fit the other criteria for depression. The DSM-IV accepts a 'postpartum onset specifier'. This refers to the same symptoms as those associated with major depression, but is used when onset in within 4 weeks of the delivery of the child (p. 386). However, it should be noted that in some cases women with sub-threshold symptoms are referred to services,[1] and current National Institute for Health and Clinical Excellence (NICE) guidance for antenatal and postnatal mental health[5] suggests that if the health-care professional or patient has significant concerns regarding a possible mental disorder in a women during pregnancy or the postnatal period, the woman should be referred for further assessment to her general practitioner (GP). In addition to, or as an alternative to, these diagnostic criteria, self-report scales such as the Edinburgh Postnatal Depression Score (EPDS) are used to

TABLE 1 *Diagnostic criteria for a major depressive episode – DSM-IV*

1	Markedly diminished interest or pleasure in all, or almost all, activities
2	Significant weight loss when not dieting, weight gain, or decrease or increase in appetite
3	Insomnia or hypersomnia
4	Psychomotor agitation or retardation (observable by others, not merely subjective feelings of restlessness or being slowed down)
5	Fatigue or loss of energy
6	Feelings of worthlessness or excessive or inappropriate guilt
7	Diminished ability to think or concentrate, or indecisiveness
8	Recurrent thought of death (not just fear of dying) or recurrent suicidal ideation

identify PND; although this scale is the most widely used self-report scale for the identification of PND administered by the health-care provider, it should be noted that further research is required to establish the measure as a tool of identification or diagnosis for PND. The scale consists of 10-item Likert format relating to depression symptomology and has also been shown to measure anxiety symptomology.[6] Items are scored on a 0–3 scale, giving a total range of 0–30. Total scores within the range 12–30 suggest significant depression. The Beck Depression Inventory (BDI) is also used in the screening of PND. It is a 21-item self-report scale used to determine depression severity. Items are scored on a 0–3 scale, giving a total range of 0–63. Total scores within the 1–9 range indicate minimal depression, 10–18 mild depression, 19–29 moderate depression, and 30–63 severe depression.

A clinical definition in use in the UK is non-psychotic depression occurring during the first 3 months postpartum.[7] Symptoms of PND may spontaneously resolve 3–6 months after onset,[8] although some symptoms of depression are common in sufferers up to a year after delivery.[9] It should also be noted that there are strong links between prenatal depression and anxiety, and PND and anxiety,[10,11] and that the presentation of PND may be comorbid with other mental disorders.

Morrell *et al.*[12] provide UK data on EPDS levels at 6 weeks postpartum. Based on a sample of 3449 postnatal women, 595 had an EPDS[13] score of 12 or more at 6 weeks postpartum; an estimated proportion of 17.3% [95% confidence interval (CI) 16.0 to 18.5]. However, it should be noted that the EPDS does not yet have a proven role in the identification, screening or diagnosis of PND. Therefore, prevalence rates based on the EPDS should be treated with caution. This is comparable with previous reports that have suggested PND affects approximately 14.5% of women in developed countries during the first 3 months postpartum,[14] and 13% of new mothers in developing countries.[15] At 6 months postpartum it is reported that the prevalence of PND in the UK is 9.1% in new mothers compared to 8.2% in women who had not given birth within the previous 6 months.[2] Milgrom *et al.*[1] report that prevalence rates of PND are affected by the measurement tool used such as self-report measures of depression including the EPDS and BDI;[16] sampling; timing of the assessment; differing diagnostic criteria used in clinical interviews, including the DSM-IV criteria and the ICD-10[3] criteria; and by the length of the postpartum period under evaluation, as longer periods tend to identify higher prevalence. It is noted, however, that the EPDS is not, in itself, a diagnostic test. It should be followed by a diagnostic interview or longer structured measure if a diagnosis of PND is required.

Mental illness associated with childbirth can occur in the form of new episodes but also as a recurrence of pre-existing illnesses.[7] The risk of suffering from severe affective disorders, including PND, is elevated in women who have recently given birth compared to the general population.[7] Women with a history of severe mental illness, whether associated with childbirth or not, have an increased risk of a recurrence of their condition of between 33% and 50% following the birth of a child. This risk is at its greatest during the first 30 days after birth.[17] PND is distinguished from both postnatal blues and postnatal psychosis: PND is considered to be more severe and has a longer duration of depressive symptoms in comparison to postnatal or maternity blues, as they are sometimes called.[1] However, Beck[18] suggests that it is the timing of the depressive symptoms that differentiates PND and postnatal blues.

Up to 80% of women experience emotional lability, known as postnatal blues, in the first 2 weeks postpartum, making this experience extremely common.[1] For those with postnatal blues, symptoms occur in the first few days after delivery and can last for up to 10 days. Evaluation should take place if symptoms continue beyond 10 days to identify PND. However, the symptoms of postnatal blues and PND can be difficult to distinguish at this early stage. Symptoms of postnatal blues include crying, irritability, fatigue, anxiety and emotional lability, and it is suggested that maternity blues may be a normal reaction following the physiologic changes associated with childbirth.[18]

Postnatal depression is also distinguished from postpartum psychosis which has a much less frequent incidence and is more severe.[1] The prevalence of postpartum psychosis has been reported as one to two women per 1000 deliveries.[19] Symptoms can include delusions, hallucinations, extreme agitation, confusion, inability to eat or sleep, exhilaration and rapid mood swings, and women with postpartum psychosis are regarded as a danger to themselves and their infant.[18]

A multifactorial aetiology of PND has been suggested as no single causative factor has emerged. There is little evidence for a biological

basis of PND;[9,20] however, a number of psychosocial factors have emerged as risk factors. Prenatal depression and anxiety, a history of previous depression, and maternity blues have been shown to be strongly related to PND.[10,11,15,21] Further, psychosocial variables, such as self-esteem,[10] stressful life events,[11,15,21,22] childcare stress,[10] marital conflict,[10,15,21,22] a lack of social support,[10,11,15,23] low social status,[10,15] infant temperament[10] and unplanned or unwanted pregnancy,[10] have emerged as significant predictors of PND.

Impact of health problem

Significance for patients in terms of ill-health (burden of disease)

Postnatal depression is a major health issue for the affected individual but also represents a significant risk to the child of the sufferer. Impaired maternal–infant interactions[24] can lead to attachment insecurity,[25] and impaired cognitive[26] and social-emotional development.[27] Fewer positive mother–child interactions are reported in dyads where the mother's depression persists beyond 6 months postpartum than in those whose depressive symptoms end before 6 months.[28] In addition to the impacts on mother and child, findings have shown that there are links between women's depression and their partner's mental health.[29,30] In men, partner depression has been found to be associated with a higher probability of reporting depression,[29] and PND in men has been reported as associated with depression in their partners during pregnancy and after delivery.[30]

Current service provision

Postnatal care typically involves a short stay in hospital followed by at least two visits by a midwife. The woman remains under the care of the midwife for up to 6 weeks postpartum when care is transferred to the health visiting service.[31] In practice this transfer is likely to occur much earlier, often within 14 days. The current NICE clinical guideline for antenatal and postnatal mental health[32] (p. 96) outlines the recommended care pathway to identify and treat women with PND. At a woman's first antenatal contact with primary care, then at two postnatal contacts (usually at 4–6 weeks and 3–4 months), health-care professionals (including midwives, obstetricians, health visitors and GPs) routinely ask questions to identify possible depression: (1) during the past month 'have you often been bothered by feeling down, depressed or hopeless?' and (2) 'during the past month, have you often been bothered by having little interest or pleasure in doing things?'. If the woman answers yes to either question then a third question should be considered, 'Is this something that you feel you need or want help with?'. Health-care professionals may also consider the use of self-report measures such as the EPDS, Hospital Anxiety and Depression Scale or Patient Health Questionnaire-9 items.

In Sheffield, midwives visit postnatal women up to 28 days after the birth, although they do not necessarily have to visit the women at home every day, and often only visit until the 10th day. They do not usually use any formal tool for the detection of PND, but are required to ask questions (as outlined in the previous paragraph) to assess how the woman is feeling. If the midwife feels there is a significant mental health problem he or she can refer the woman to her GP for further assessment. Women should not be discharged by the midwife until the health visitor has made contact, which usually occurs by 28 days after birth, although practice is variable. Some health visitors use self-report measures such as the EPDS typically at 6 weeks postpartum if they feel PND may be an issue, although use of the EPDS is not a universal practice. If they are concerned about the mental health of the women and believe this is beyond their scope they may consult the GP who could refer the patient to the community mental health team. Diagnosis is usually undertaken by the GP, using a formal diagnostic framework, such as DSM-IV criteria, for depression (source: Sheffield Teaching Hospitals, Jessop Wing).

If a possible mental disorder is identified in a woman during pregnancy or the postnatal period, further assessment is recommended. If there are significant concerns about the mental health of the woman, she should be referred to her GP for further assessment. Targeted psychosocial interventions are recommended for women who have symptoms of depression and/or anxiety, but who do not meet the threshold for a formal diagnosis. Women who have a severe mental illness (such as bipolar disorder or schizophrenia) can expect to be referred to a specialist mental health service, including, if appropriate, a specialist perinatal mental health service. Women who need inpatient care for a mental disorder within 12 months of childbirth should normally be admitted to a specialist mother and baby unit, although these are not always available. For a woman who develops mild or moderate depression during pregnancy or the postnatal period it is

stated that self-help strategies [guided self-help, computerised cognitive behaviour therapy (CCBT) or exercise], non-directive counselling delivered at home (listening visits), brief cognitive behaviour therapy (CBT) or interpersonal therapy (IPT) are recommended by NICE.[5]

Antidepressant drugs are considered for women with mild depression during pregnancy or the postnatal period if they have a history of severe depression and they decline, or their symptoms do not respond to psychological treatments. However, it is noted that, to minimise the risk of harm to the fetus or child, drugs should be prescribed cautiously.[5] There is also evidence that women prefer non-pharmacological modes of intervention at this time.[33]

For women with a moderate depressive episode or a history of depression, or those with a severe depressive episode during pregnancy or in the postnatal period, it is recommended by NICE that structured psychological treatment specifically for depression (CBT or IPT) should be considered. If the woman has expressed a preference for it antidepressant treatment will be considered as an alternative, or combination treatment will be considered if there is no response, or there is a limited response to psychological or drug treatment alone.

Services are ideally provided in a timely fashion to ensure that adverse effects on the health of the woman and her baby can be avoided.[34] Specifically, it is recommended that women requiring psychological treatment for PND should be seen for treatment normally within 1 month of initial assessment, and no longer than 3 months afterwards.[5]

Variation in services and/or uncertainty about best practice

The NICE guidance states that the structure of services varies in different parts of the country because of local factors including the organisation of existing mental health services, the demographic profile of the population and geographical issues. Recommendations are made to ensure local needs are met and integrated care is delivered, by developing managed clinical networks involving linked groups of services in primary, secondary and tertiary care.

As services vary widely across the UK it is appropriate to provide details of how PND is managed in a particular NHS trust and how this may potentially contrast with the management of PND in other areas of the UK. Rotherham Primary Care Mental Health Service provides a service based in GP practices for common mental health problems, including PND. Women can be referred to the service by any practitioner, obstetrician, midwife, health visitor or other health professional during both the antenatal and postnatal periods, if it is felt necessary. Rotherham Primary Care Mental Health Service provides a service based in GP practices for common mental health problems, including PND. Women can be referred to the service by any practitioner, obstetrician, midwife, health visitor or other health professional during both the antenatal and postnatal periods, if it is felt necessary. The NICE clinical guidance for antenatal and postnatal mental health is used by practitioners where PND is suspected and they are aware of the primary care mental health service and how to refer into it (although it should be noted that this service is not specific to PND). The EPDS is not used. Once referred to the service, women may attend the GP practice or be visited at home for assessment; women may then be offered six to eight sessions of individual treatment in which CBT approaches and counselling are utilised by the primary care mental health service staff (J Hunter, Head of Service, Primary Care Mental Health Service, Rotherham Community Health Services, 2008, personal communication). This service may differ from other services provided in the UK in the following ways: health visitors in other services may routinely administer the EPDS, which was previously used in the Rotherham service and may be used again in the future; there may not be a dedicated GP-based service for common mental health disorders; and individual CBT may not be routinely administered. The applicability of the Rotherham model to other areas is also likely to be limited owing to the wide variation in health service provision amongst Primary Care Trusts (PCTs) with a reported range of whole time equivalent health visitors per child under 5 years old of 165 in County Durham PCT to 894 in Lambeth PCT.[35]

As the section on current service provision indicates, psychological interventions to treat pregnant and breastfeeding women are preferable to the use of psychotropic medication because of the risks of harm to the fetus or child. However, in reality there is a significant mismatch between provision of psychological therapies and the recommendations for their provision.[34] Although undocumented it is widely held that conventional

antidepressants are the usual first-line treatment prescribed by GPs for women with PND. However, women have been found to prefer psychological intervention, rather than antidepressants, during the postnatal period.[33,36] Furthermore, it is common to prescribe antidepressants and provide psychological therapies together, although a report suggests that there is no advantage in receiving both, and that cognitive behavioural counselling and a separate antidepressant are equally effective.[33]

Previous attempts to improve services have had only limited success. A Royal College of Psychiatrists' report suggests that, despite efforts to improve the recognition of and screening for PND in primary care, little has changed.[37] In a more recent report by the Healthcare Commission[31] (now known as the Care Quality Commission) it is stated that the recording of mental health needs by maternity staff in trusts is inconsistent, making it problematic to assess the prevalence of mental health problems associated with child birth. It reported the number of women receiving a postnatal check-up of their own health and well-being at 6 weeks postpartum as ranging between 71% and 97%. Half of the trusts reported a rate of 89% or below, showing that many women may not be receiving postnatal checks with the GP.

The Healthcare Commission report in relation to mental health focuses on input from perinatal psychiatry and puerperal psychosis and suggests that PND can be treated with support from mainstream services and does not usually require specialist services. As women with a previous history of mental health problems and those with depression during pregnancy are reported as at higher risk of developing postnatal illnesses,[15,21] the data reported by the Healthcare Commission may have some relevance to PND.

Data for the Healthcare Commission report[31] were provided from 40 trusts, and of these the median trust reported that 8% of women were identified at booking as having personal or family history of mental illness (range 2–30% across trusts). Twenty-nine trusts provided data on referrals to mental health teams following booking; the median number of women referred by these trusts to a mental health team was 1.6% (range 0–7%). It was also reported that about a third of trusts had joint clinics with mental health teams for previous puerperal psychosis, and some had specialist midwives for women with previous puerperal psychosis (19%) or to support women with a psychiatric disorder (21%). Forty-two per cent of trusts had no access to a specialist perinatal mental health service. Midwives provided most antenatal and postnatal care but only 70% of trusts were able to refer women directly to mental health specialists, this was not possible for the remaining 30%. Ninety-five per cent of trusts had access to a mother and baby unit, it is assumed that the other 5% do not have any access to a mother and baby unit, although this is not detailed in the report.

The Healthcare Commission report concluded that there are inadequate provisions for mental health needs in many trusts' maternity services, including booking, speciality training, streamlining referral pathways and access to specialist services. If services are lacking for those with severe postnatal illnesses, the likelihood is that this will be the case with those treated only in primary care for mild to moderate depression associated with pregnancy and the postpartum period, although this is not explicitly covered in the Healthcare Commission report.

There is also uncertainty around the number of women with PND who may be undiagnosed or unidentified. It is reported that women are often reluctant to pursue health care for PND for a variety of reasons. These include a lack knowledge about the condition meaning they are not aware they have it, thinking they could or were expected to cope with it without help, stigma and a fear of failure a fear of losing their baby if they admit to having PND, the fear of giving the family a bad name, and the fear of being labelled as mentally ill.[13,36] Cultural reasons have also been reported, these include the fact that the family may discourage women from obtaining help as it is seen as unacceptable to discuss such issues with people external to the family. Furthermore, it is reported that health professionals may limit the number of women who come forward for treatment for PND by making inappropriate assessments and having insufficient knowledge of PND to provide adequate care. It is also reported that women with PND feel health professionals have a tendency to normalise depressive symptoms making women less likely to pursue treatments. They also feel that they have limited time with health professionals and are not taken seriously.[36] These reports suggest that there may be a significant number of women with PND who remain undiagnosed and that a clearer referral process may help address this.

It is beneficial to improve the commissioning of effective antenatal and postnatal mental health services for a number of reasons outlined in the

commissioning guide. These include improving the mother–child relationship, reducing inequalities and improving timely access to services in primary care, mental health and maternity services; reducing the risk of relapse; reducing the risk of women stopping medication in an unplanned way; reducing the number of inappropriate referrals and readmissions and the length of inpatient stays, and offering alternatives to admission; reducing the risk of self-harm and suicide; preventing avoidable separation of mother and baby; and improving performance and person-centred clinical care.[34]

Current service cost

It is assumed that usual care (UC) for PND includes visits by midwives and health visitors, visits to the GP, prescriptions for medication, and other health contacts, such as community mental health contacts, clinical mental health contacts and social services contacts. Based on these contacts, Morrell *et al.*[13] report that costs at 6 months postpartum for women scoring 12 or above on the EPDS are £374 per patient. Health visitor costs per hour of client time were reported as £77 for UC, and £79 for those trained in using a cognitive behavioural or person-centred approach. Overall costs at 6 months were £339 for those receiving CBT or person-centred therapy. These prices were based on 2003–4 unit costs: prices using 2007–8 inflation indices[38] would equate to health visitor costs of £86 for UC and £89 for those trained to deliver an intervention, and overall costs as £419 for UC and £380 for intervention care. The findings of Morrell *et al.*[13] provide some evidence that a psychological intervention delivered by health visitors is cost-effective compared to UC. The costs related to UC did not include any formal CBT treatment.

The current NICE guidance recommends psychological intervention such as CBT or IPT for women with PND. On occasions where formal CBT is provided it is assumed in current practice to be on an individual basis. If a course of individual CBT were offered this would most likely be delivered by a CBT therapist, and would consist of around 12 sessions, 90 minutes in duration. One or two follow-up sessions may be included and the therapist would be required to undertake clinical supervision for approximately 10–30 minutes per session; however, it should be noted that the current service provision of CBT may vary widely (P Slade, Professor of Clinical Psychology, University of Sheffield and J Curran, Consultant Cognitive Behavioural Psychotherapist, Sheffield Health and Social Care NHS Foundation Trust, 2008, personal communication). The cost of a CBT session has been estimated as £62[38] (based on a 55-minute session), therefore we estimate the cost per hour to be £68. Assuming 25 hours of treatment and clinical supervision, the cost per patient would be £1700. An alternative method based on health visitor hourly rate provides a larger cost; the cost per hour of health visitor time was estimated at £89 (based on information from Morrell *et al.*[13] amended using inflation indices to represent current prices), which equates to an estimated cost of £2225 assuming a health visitor was required for 25 hours per patient, although it is unclear whether these resources would be used in reality and may be an overestimation.

Description of technology under assessment

Summary of intervention

Cognitive behavioural therapy is a psychotherapy commonly practised in the NHS. CBT refers to a combination of concepts and techniques from cognitive and behaviour therapies. Cognitive therapy is derived from cognitive theories and seeks to challenge negative automatic thoughts with an aim of changing maladaptive thoughts and beliefs.[39] Behavioural therapy refers to a therapy derived from learning theory and works on symptoms by changing behaviour and environmental factors that control behaviour. The patient works collaboratively with a therapist to identify the types and effects of thoughts, beliefs and interpretations on current symptoms, feelings states and/or problem areas. They develop skills to: identify, monitor and then counteract problematic thoughts, beliefs and interpretations related to the target symptoms/problems; learn a repertoire of coping skills appropriate to the target thoughts, beliefs and/or problem areas; and test out new behavioural patterns.[40]

Cognitive behavioural therapy has an important role to play in helping people with mental health problems. There is evidence to support the use of CBT in the treatment of several mental health problems (e.g. depression, panic/agoraphobia, social phobia, generalised anxiety disorder, obsessive compulsive disorder, bulimia, etc.).[39] However, it has also been reported that psychological therapy is effective in the treatment of mild to moderate, non-childbirth related depression.[41] There is no evidence that CBT is more effective than other psychological therapies in the treatment of the same condition. Specific

to PND, a systematic review has indicated that psychosocial and psychological interventions are effective treatments.[42] Furthermore, a recent trial has demonstrated that psychologically informed treatments delivered by trained health visitors are clinically effective at 6 and 12 months for women with PND compared with UC.[12]

Cognitive behavioural therapy can be practised in an individual or group setting; the potential benefits of providing CBT in a group setting include increasing the availability of therapists, reducing waiting times and reducing costs. Group CBT differs from individual CBT only in the respect that participants are treated in small groups of around eight people, rather than in a one-to-one situation with their therapist. Group CBT treatment usually runs for 12 weeks, and is often preceded by one individual session of 2-hour duration with the purpose of assessing the patient and briefing the patient regarding group treatment, and one or two sessions follow-up the treatment. Thus, approximately 13 sessions are required for the group treatment, each typically of 2-hour duration. The group facilitators are likely to require 12 hours for preparation and supervision. Follow-ups may take place at 6 months and sometimes at 12 months, but may vary to a large extent. Group psycho-educational CBT is lower impact than normal group CBT and is usually delivered in a smaller number of sessions, four to six opposed to 10–12 (J Curran, personal communication).

There is little available evidence on the service provision of group CBT specifically for PND. For this reason we have provided details of service provision from two sources. The first from a UK study which has reported data on the efficacy of group CBT for PND,[43] and the second based on the delivery methods deemed by the authors to be most likely were group CBT to become widely available.

The UK study[43] indicates that it is likely that two health visitors trained to use a cognitive behavioural approach would normally deliver group CBT for PND. Clinical psychologists, mental health workers and nurses may also be involved in supervision or run groups, but this is less likely to occur. Although not reported in this study, group CBT for PND would usually take place at the health visitor base which is often the GP surgery. In some situations the setting could also be a health centre or another community-based facility. Minimal equipment would be required, but would include a flip chart, audio-visual equipment, and equipment to display POWERPOINT presentations (J Curran, personal communication). It is likely that services of this kind are very limited.

The resources required using the delivery methods deemed by the authors to be most likely were group CBT to become widely available would include two group facilitators, a recently qualified clinical psychologist and a health visitor.

The criteria used for entry to the treatment would normally include a diagnosis of DSM-IV depression, or an elevated score on a self-report measure such as the EPDS. However, those with subthreshold symptoms of PND or those with a history of depression may also be referred at the discretion of the GP (J Curran, personal communication).

Identification of important subgroups

From a clinical perspective, PND includes four subgroups of women whose management may differ: (1) those who develop depression only after childbirth; (2) those who have developed antenatal depression which continues into the postnatal period; (3) those with pre-existing chronic or relapsing depression; and (4) subthreshold groups. It was not possible to assess the efficacy of group CBT for these subgroups separately because of a lack of available data.

Anticipated costs associated with intervention

As detailed in the Summary of intervention section, because of the little available evidence on the service provision of group CBT specifically for PND, details of service provision have been provided both from a UK randomised controlled trial (RCT)[43] and also based on the delivery methods deemed by the authors to be most likely were group CBT to become widely available.

Based on the UK RCT[43] it is estimated that one programme of group CBT treatment would include eight sessions, occurring once per week for a duration of 2 hours. It is assumed that the group sessions would also be preceded by a 2-hour individual session for the initial assessment of each participant. The average number of participants for the treatment was reported as five. It is assumed that preparation time would be required for each session and this would equate to 1 hour per

health visitor per session, and a further hour per session per health visitor would be required for travelling to and from the sessions. Based on these parameters the health visitor time required would be 74 hours, cost per hour of health visitor time was estimated at £89 (based on information from Morrell *et al.*[13] amended using inflation indices to represent 2007–8 prices). This equates to a total health visitor cost of £6586 and a total cost per participant of £1317.

The authors estimated that two group facilitators would be required, a recently qualified clinical psychologist and a health visitor. The programme would consist of 12 sessions occurring once per week for a duration of 2 hours. These would be preceded by a 2-hour individual session for the initial assessment. The average number of participants for the treatment was estimated as eight. Preparation time was estimated as 1 hour per health visitor per session, and a further hour per session per health visitor would be required for travelling to and from the sessions (G Parry, University of Sheffield, P Slade, University of Sheffield, J Hamilton, St John's Hospital, West Lothian, Clinical experts, 2008, personal communication). Facilitator time required would be 112 hours, cost per hour of facilitator time was estimated at £89 (based on information from Morrell *et al.*[13] amended using inflation indices to represent current prices). This equates to a total facilitator cost of £9968 and a total cost per participant of £1246.

We assume the group facilitators would be undertaking their normal duties relating to UC during the rest of the week. The costs presented may be slightly underestimated as they do not include any set up costs or additional running costs, such as room hire and crèche facilities, which may be incurred (J Hamilton, Psychiatrist, personal communication).

Chapter 2
Definition of the decision problem

Decision problem

- *Interventions* The focus of this report is on the use of CBT; however, this may form only a component of an overall treatment package. All interventions that incorporate a form of 'psycho-education' (i.e. any psycho-educational activity that is informed by cognitive behavioural theory or technique) in a group setting were included. All settings were included. The included studies therefore were required to specifically refer to the use of CBT when describing their intervention. Therefore, when we refer to group CBT we are referring to a group programme which incorporates, or claims to incorporate, some level of CBT theory or technique. The degree to which each study actually reflects and incorporates CBT theory or technique will be assessed.
- *Population including subgroups* The population was defined as women meeting the criteria of a standardised PND diagnosis through using DSM-IV, or women designated at being at risk of depression through their scores on the EPDS, subthreshold women referred by their GP, women with PND in the postpartum period (up to 1 year) and women with no other comorbid psychiatric disorder or major medical problems. From a clinical perspective, PND includes four subgroups of women whose management may differ: (1) those who develop depression only after childbirth; (2) those who have developed antenatal depression which continues into the postnatal period; (3) those women with pre-existing chronic or relapsing depression; and (4) subthreshold groups.
- *Relevant comparators* All comparators were considered (e.g. comparators that function as specific comparisons as well as controls). These included routine primary care (RPC) and individual CBT.
- *Outcomes* All outcome measures were considered in both reviews of the quantitative and qualitative research literature.

Overall aims and objectives of assessment

The overall aim of the review was to evaluate the clinical effectiveness and cost-effectiveness of group CBT compared with currently used packages of care for women with PND. The purpose of the project was to apply rigorous methods of systematic reviewing, evidence synthesis and decision analytic modelling to evaluate group CBT for PND.

The objectives of the review were:

- To determine the relative clinical efficacy of group CBT treatment compared with currently used packages of care for women with PND. A full systematic review of the literature will be undertaken to provide evidence on efficacy.
- To provide a detailed user perspective on the acceptability and potential harms of group CBT, a second systematic review will be undertaken on the available qualitative research literature.
- To undertake a full synthesis of available evidence. This will include the use of a higher level synthesis of the data with mixed-treatment comparisons if appropriate.[44]
- To estimate the cost-effectiveness of group CBT for PND. This will include a systematic review of published economic evaluations in the area and identification of other evidence needed to populate an economic model. Cost-effectiveness will be assessed in terms of the incremental cost per quality-adjusted life-year (QALY) gained. Uncertainty will be explored by probabilistic sensitivity analyses (PSA) with data displayed using cost-effectiveness acceptability curves (CEACs).[45]
- To determine the value of collecting further data on all or some of the input parameters, an expected value of information analysis will be performed, if deemed appropriate.[46–48]

Chapter 3

Assessment of clinical effectiveness

Methods for reviewing effectiveness

Identification of studies

Search strategies

The search aimed to identify all references relating to the clinical effectiveness of group CBT for PND. The original intention was to synthesise evidence within the framework of a mixed-treatment comparison;[44] however, during the early stages of the research it became clear that the clinical evidence regarding group CBT was relatively poor. As such, confidence in building a coherent network that contained comparable study designs and homogeneous participants was low. The use of substantial resources to construct a comparison with potential low internal validity was not deemed appropriate.

Sources searched

Seventeen electronic bibliographic databases were searched, covering biomedical, health-related, science, social science and grey literature (including current research). A list of the databases searched is provided in Appendix 1.

In addition, the reference lists of relevant articles were checked and various health service-related resources were consulted via the internet. These included health technology assessment organisations, guideline producing bodies, generic research and trials registers, and specialist mental health sites. A list of these additional resources is given in Appendix 1.

Search terms

A combination of free-text and thesaurus terms were used. Key papers identified through initial scoping searches were used to develop keyword strategies. 'Population' search terms (e.g. depression, postpartum, postnatal depression and post pregnancy depression) were used to identify any references related to this population. The searches were not restricted by intervention because of the complexity of defining the intervention and to prevent omission of relevant references. Copies of the search strategies used in the major databases are included in Appendix 1, for the other databases the same strategy was used with minor alterations necessary for specific databases. The searches were undertaken in January 2008. The databases were searched from 1950 to 2008, the actual date range for each of the databases searched depended on the coverage of the individual database.

Search restrictions

The searches were intended to be as broad as possible, and whilst they were restricted to human studies where possible, they were not restricted by language, date, publication type or study design. Non-English papers were excluded at the sifting stage rather than setting this as an inclusion criterion.

Inclusion and exclusion criteria

Population

Included: Women in the postpartum period (up to 1 year), meeting the criteria of a standardised PND diagnosis using DSM-IV, or scoring above cut-off on the EPDS. No exclusion was made on the basis of the standardised depression screening/case finding instrument of standardised clinical assessment tool used to define PND.

Excluded: Prenatal women, women with other comorbid psychiatric disorders or major medical problems, and women who have been involved in a previous psychological programme.

Intervention

Included: All interventions that included elements designated as deriving from cognitive behavioural principles including those that are purely 'psycho-education' (i.e. any psycho-educational activity which is informed by cognitive behavioural theory or techniques) in a group setting.

Setting

Included: All settings.

Comparator

Included: All comparators were considered. These included RPC, waiting list, individual CBT, group-based counselling, medication, group behaviour therapy and group IPT.

Outcomes

Included: All outcomes measures were considered for reviews of the quantitative and qualitative research literature. The outcomes analysed for the quantitative review were depression measured using the EPDS and the BDI. Both of these depression measures have been demonstrated as valid and reliable in identifying symptoms of PND and depression, respectively.[49,50] Outcomes for the qualitative review included case study, interview, and observational data gathered from group participants and group facilitators.

Study type

Included: The quantitative review papers were assessed according to the accepted hierarchy of evidence, whereby systematic reviews of RCTs were taken to be the most authoritative forms of evidence, and uncontrolled observational studies the least authoritative.[51] Unpublished studies were considered for inclusion. Non-RCT evidence was included in this review to supplement the limited amount of RCT evidence. Case studies were not included in the quantitative review. For the qualitative review, any papers incorporating a qualitative approach were included.

It was necessary to make a number of alterations to the original protocol, these are outlined below.

- Although it was stated in the inclusion criteria that only studies investigating women in the postpartum period of up to 1 year would be included it proved difficult to ascertain the time postpartum for a number of the included studies. A number of studies either failed to report time postpartum or included both women who were less than and greater than 1-year postpartum. These studies were included in the review with clear details on the postpartum status of the participants where information was available.
- The definition of the intervention was modified such that at least a component of the intervention had to be explicitly described as CBT or informed by CBT.
- A further addition related only to the qualitative review. The searches produced only two qualitative papers examining group CBT for PND,[52,53] the inclusion criteria were therefore broadened to include any non-specific group treatment for PND, with the exclusion of group treatments based on other specific theoretical frameworks (e.g. group psychosocial interventions, and group IPT). The CBT studies were analysed in full and the support group studies were presented only as a comparator, noting that there were inherent differences between support groups and structured time-limited intervention groups.
- Child development outcome measures were not analysed because of the lack of available data contained in the included studies.
- Three subgroups of women whose management may differ have been highlighted: (1) those who develop depression only after childbirth; (2) those who have developed antenatal depression which continues into the postnatal period; (3) those with pre-existing chronic or relapsing depression; and (4) subthreshold women. Owing to the lack of available data in the included studies these subgroups were not separated in either the clinical effectiveness or cost-effectiveness analyses.

Quality assessment strategy

Deeks *et al.*[54] suggest that the Downs and Black[55] checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health-care interventions is the most appropriate checklist to assess non-RCTs. As this checklist can be applied to both RCTs and non-RCTs, all included papers were assessed using this checklist. Qualitative studies were assessed using the qualitative version of the Critical Appraisal Skills Programme (CASP).[56] Key components of the quality appraisal are listed as part of the data extraction tables in Appendices 2 and 3.

Data extraction strategy

All full papers were read by two reviewers (AS and DS) who made independent decisions regarding inclusion or exclusion, and consensus, where possible, was obtained by meeting to compare decisions. In the event of disagreement, a third reviewer (EK) read the paper and made the decision. All data from included quantitative studies were extracted by one reviewer (AS) using a standardised data extraction form. All data from included qualitative studies were extracted by two reviewers (AS and AB) using a standardised data extraction form with disagreements resolved by discussion. Two different data extraction forms were used, one for the quantitative papers and a second for the qualitative papers.

Data synthesis

Quantitative review

Studies were assessed for suitability of pooling results with regard to populations, comparators outcomes and study type. Both RCTs and non-RCTs were considered for data synthesis. The main outcome measure of interest was change in depression. It was considered important to provide a meta-analysis of the studies using the depression outcome measure if possible and to undertake a narrative analysis of the studies in addition to the meta-analysis or as an alternative approach.

Qualitative review

A qualitative evidence synthesis was undertaken for data extracted from the included qualitative papers. A thematic data-driven approach was employed in recognition that the review did not start from a theoretical stance. For similar reasons the team judged an integration/aggregation approach to the synthesis of the data as more appropriate than an interpretive approach.[57] This approach entailed data from each study being extracted and grouped together in a meta-synthesis table to form themes with supporting quotations. Themes were assessed to ascertain whether they could be structured, whether they may inter-relate, and whether they could be organised hierarchically, to produce synthesised findings. Synthesised findings could be used to inform practice or policy in the form of standardised documentation.

Results

Quantitative papers

Quantity and quality of research available

For this review a total of six relevant quantitative studies of clinical effectiveness were identified, of which three were RCTs[43,58,59] and three were non-randomised trials.[60–62] The evidence tables for these studies are presented in Appendix 2. The qualitative studies are considered later in this section with evidence tables in Appendix 3. *Figure 1* shows the quality of reporting of meta-analyses (QUOROM) flowchart for the included quantitative studies.

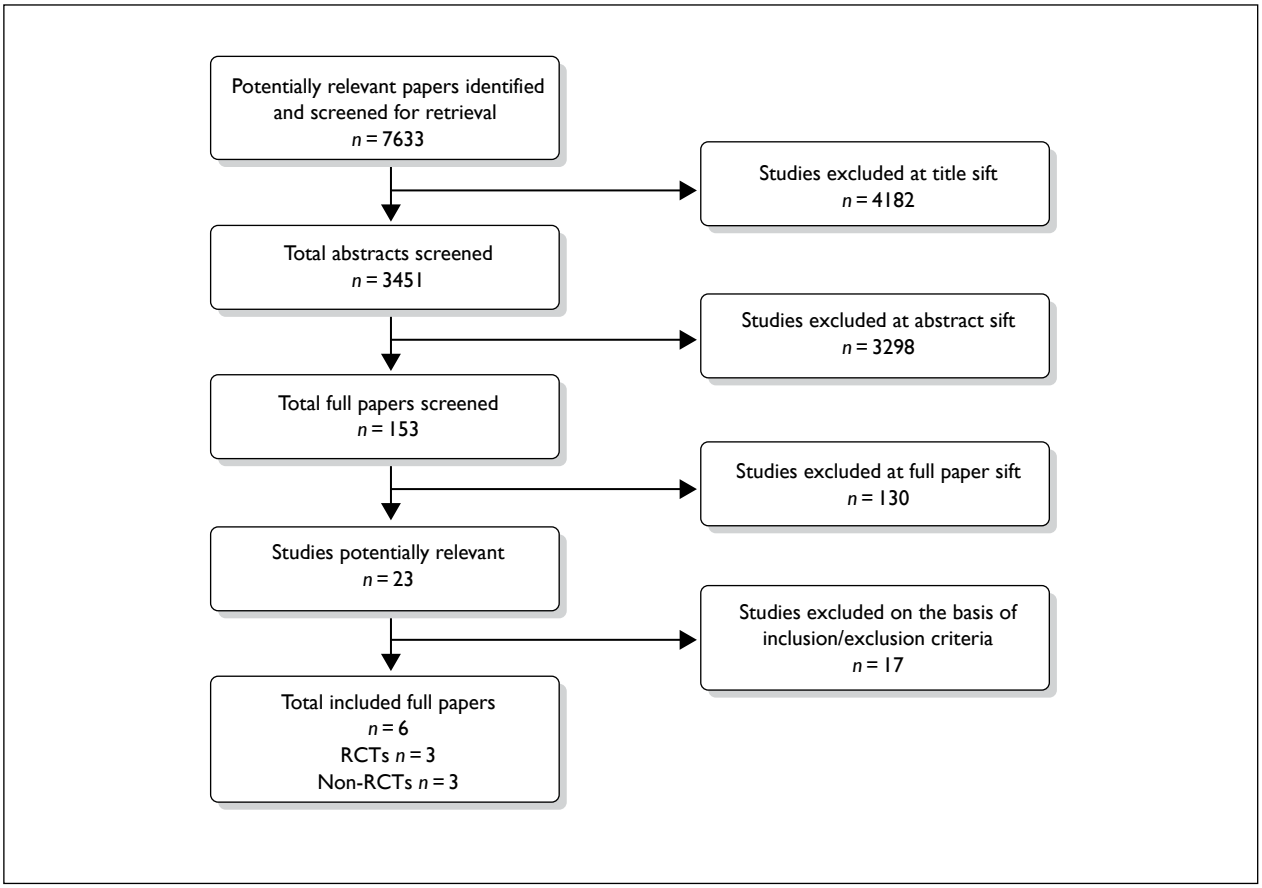

FIGURE 1 *Summary of study selection and exclusion of quantitative papers.*

Tables relating to those studies excluded at full paper sift with reasons for exclusion are presented in Appendix 4 (see *Tables 47–50*).

Study characteristics

Study characteristics for the six studies are described in Appendix 2, and a summary of this information is provided in *Table 2*. RCTs are presented followed by non-randomised trials in date order.

Description of group CBT

Included studies were those whose interventions incorporated any psycho-educational activity which is informed by cognitive behavioural theory or technique, in a group setting. The included studies therefore were required to specifically refer the use of CBT when describing their intervention. Varying degrees of detail regarding the description of the group programmes were provided and in the main these descriptions were brief. Therefore, when we refer to group CBT we are referring to a group programme that states that it incorporates some level of CBT theory or technique.

It was deemed important to assess the degree to which the interventions used in each study actually reflected and incorporated CBT theory or technique. The CBT components of the studies are described here and studies are presented in order of relevance to group CBT. The Milgrom *et al.*[59] study was judged to most accurately reflect group CBT for a number of reasons. The intervention was termed group-based CBT rather than a group incorporating CBT theory or techniques, and it was reported to be clinic-based and delivered according to detailed manuals. The Highet and Drummond[60] study specifically reported the use of 'group CBT'; however, no further details were reported. The Honey[43] study used the term 'brief psycho-educational group' and specifically referred to 'use of cognitive behavioural techniques' as one of the three aspects of the group intervention; it also stated that although the intervention was not proscribed by a manual, a predefined programme was employed. Meager and Milgrom[62] referred to their intervention as a cognitive behavioural treatment programme, and the cognitive behavioural component was reported as one of eight components of the programme, they did not refer to the use of a manual. The Rojas *et al.*[58] study was less specific in describing the group intervention. The group was referred to as a psycho-educational group (PEG) and among other aspects included behavioural activation and cognitive techniques. The authors stated that the groups followed a structured format; however, the use of a manual was not reported. The use of antidepressants also formed part of the intervention and medication use proved to be much higher in the intervention group than in the control group. The Clark *et al.*[61] study examined a group that provided therapeutic intervention and peer support. Exercises and strategies were drawn from CBTs, although it was reported that the intervention was not proscribed by a manual. In addition to the 1-hour women's group, there was an additional mother–infant dyadic group which lasted 30 minutes; therefore the findings of the study may be confounded by this co-therapy. Information on the content of the group interventions extracted from the studies is provided in Appendix 2 (*Tables 18* and *19*).

In summary, three studies[43,59,60] specifically referred to at least a CBT component which appeared to be a core, predefined aspect of the treatment. It should be noted that this could not be claimed with any certainty for the Highet and Drummond[60] study because of poor reporting. The definitions used in the other three studies[58,61,62] were somewhat ill-specified and it was unclear whether CBT was a core aspect of the group treatment.

Study quality

The Downs and Black checklist[55] was used to assess both the randomised and non-randomised studies. Key components of the quality assessment are listed in *Table 3* and in Appendix 2 (see *Tables 18* and *19*). The components of the checklist used to assess the studies included (1) the standard of reporting, (2) the external validity of the study, (3) the internal validity of the study, and (4) power to detect changes in depression.

1. To assess the standard of reporting the following issues were examined: whether there were clearly described objectives, outcomes, patient characteristics, interventions and findings; whether estimates of random variability for main outcomes were assessed; and whether adverse events had been reported.
2. For external validity, the representativeness of the sample and representativeness of the intervention and its setting were assessed.
3. The following issues were considered to assess internal validity (bias): blinding; whether data dredging had been used; whether follow-up time was equivalent for controls and experimental groups; whether appropriate statistical analyses had been applied; the compliance with interventions; and the

TABLE 2 *Summary of study characteristics for the six included studies*

Author (date), study type, setting	Sample size	Dates of measurement	Duration, numbers in group, etc.	Intervention (s)	Comparator
Rojas *et al.* (2007),[58] RCT, Chile	114 MCI group; 116 UC	Baseline prior to randomisation; 3 months after randomisation; and 6 months after randomisation	Group treatment one session per week for 8 weeks; 50 minutes in duration; maximum 20 attendees	MCI – included PEG and structured pharmacotherapy if needed	UC – all services normally available in the clinics, including antidepressant drugs, brief psychotherapeutic interventions, medical consultation or external referral for speciality treatment
Milgrom *et al.* (2005),[59] RCT, Australia	46 group-based CBT; 47 group-based counselling; 66 individual counselling; 33 RPC	Baseline prior to randomisation; 12 weeks after treatment began; 12 months after the end of treatment (although too few data for analysis)	Group-based CBT one-session per week for 9 weeks, 90 minutes in duration; 5–10 attendees	Group-based CBT – designed to address specific target behaviours within the context of general components recognised as important in determining the success of cognitive behavioural intervention. Each session involved psycho-education, review of homework exercises, role playing and discussion[l] Group-based counselling – designed for depression Individual counselling	RPC – the routine care provided via the state's universal Maternal and Child Health Service
Honey (2002),[43] RCT, UK	23 controlled PEG; 22 RPC	Baseline prior to randomisation; at the end of treatment – 8 weeks; 6 months after the end of treatment (i.e. 8 months)	Controlled PEG one-session per week for 8 weeks, 2 hours in duration; four to six attendees	Controlled PEG – educational information on PND, strategies for coping, use of cognitive behavioural techniques, relaxation	RPC – further details not provided

continued

TABLE 2 *Summary of study characteristics for the six included studies (continued)*

Author (date), study type, setting	Sample size	Dates of measurement	Duration, numbers in group, etc.	Intervention (s)	Comparator
Highet and Drummond (2004),[60] non-RCT, Australia	136 in combined treatment groups; 10 WLG	Baseline; following treatment (which differed in duration); 6 months after end of treatment	NR	Eight different, not mutually exclusive, treatment groups	WLG – participants who had to wait at least 3 weeks to receive group intervention
Clark *et al.* (2003),[61] non-RCT, USA	13 M–ITG; 15 IPT; 11 WLG	Baseline prior to treatment; at the end of treatment 12 weeks	M–ITG one session per week for 12 weeks, 90 minutes in duration (60 minutes for mothers group, 30 minutes for mother–infant dyadic activities); number of attendees not reported	M–ITG, IPT and infant development group occurred simultaneously, followed by mother–infant dyadic group. Based on interpersonal, psychodynamic, family systems, and cognitive behavioural approaches IPT group – individual therapy, relating to partners, children and others	WLG – those waiting to receive M–ITG
Meager and Milgrom (1996),[62] non-RCT, Australia	10 group treatment; 10 WLG	Baseline prior to allocation and beginning of treatment; at the end of treatment 10 weeks	Group treatment one session per week for 10 weeks, 90 minutes in duration; 10 attendees	Group treatment programme – consisting of targets which take into consideration the risk factors for postpartum depression. An environment of social and emotional support, an educational component, a cognitive behavioural component, encouragement of networking, examination of patterns of communication, normalising of feelings, involvement of spouse in the group, practical homework	WLG had the opportunity to participate in the treatment programme once the participants in the treatment group had completed the programme

MCI, multicomponent intervention; M–ITG, mother–infant therapy group; NR, not reported; PEG, psycho-educational group; RPC, routine primary care; WLG, waiting list group.

TABLE 3 *Assessment of study quality for the six included studies*

Author (date), study type, setting	Quality
Rojas *et al.* (2007),[58] RCT, Chile	*Reporting:* Objectives, outcomes, patient characteristics and interventions clearly described, results difficult to interpret. Estimates of random variability given for main outcomes. Adverse events were not reported *External validity:* Baseline characteristics of participants were not compared across groups using a statistical test although they appeared to be well matched. The intervention was not representative of UC for this population *Internal validity:* Participants could not be blinded; recruiters and assessors were blind to treatment allocation. Data dredging was not used. Follow-up times were equivalent for each group. Appropriate statistical analyses were employed. It is unclear whether compliance with interventions was reliable, as the experimental intervention was multicomponent making the assessment of the effects of group treatment difficult, and the control group were not receiving identical treatment, as is the case in UC. Outcome measures were reliable and valid. Participants were in different intervention groups. Randomisation was individually based with use of computer-generated random numbers. Numbers lost to follow-up were reported, but reasons for loss to follow-up not reported *Power:* Calculation reported
Milgrom *et al.* (2005),[59] RCT, Australia	*Reporting:* Objectives, outcomes, patient characteristics and interventions clearly described, results difficult to interpret as combined scores used. Estimates of random variability given for main outcomes although only for combined scores. Adverse events were not reported *External validity:* Baseline characteristics of participants were not compared across groups, reported for all participants together. The interventions were not representative of UC for this population *Internal validity:* Assessors blinded. Participants blinded until treatment started. Data dredging was not used. Follow-up times were equivalent for each group. Appropriate statistical analyses were employed, although combined analyses were performed making interpretation regarding individual interventions difficult. It is unclear whether compliance with interventions was reliable, as it is not clear whether participants in the experimental conditions were receiving other treatment. The control group may not have been receiving identical treatment, as is the case in routine primary care. Outcome measures were reliable and valid. Participants were in different intervention groups. Randomisation was performed by cycling allocation and by drawing lots (one coded slip of paper drawn from a bag containing multiple slips coded in equal number for each of the four treatment conditions). Numbers lost to follow-up were reported, but reasons for loss to follow-up not reported *Power:* Calculation reported
Honey (2002),[43] RCT, UK	*Reporting:* Objectives, outcomes, patient characteristics, interventions and results clearly described. Estimates of random variability given for main outcomes. Adverse events were not reported *External validity:* Baseline characteristics of participants were compared across groups using a statistical test. The intervention was not representative of UC for this population *Internal validity:* Details of blinding were not reported. Data dredging was not used. Follow-up times were equivalent for each group. Appropriate statistical analyses were employed. It is not clear whether compliance with interventions was reliable; antidepressant use was included as a covariate in the analyses. However, the control group may not have been receiving identical treatment, as is the case in routine primary care. Outcome measures were reliable and valid. Participants were in different intervention groups. Randomisation was performed using a block randomisation procedure. Numbers lost to follow-up were reported, but reasons for loss to follow-up not reported *Power:* Calculation not reported
Highet and Drummond (2004),[60] non-RCT, Australia	*Reporting:* Objectives and outcomes clearly described, limited patient characteristics reported and not clearly described, and interventions were not clearly described. The results were difficult to interpret because of participants being included in more than one intervention group. Estimates of random variability given for main outcomes. Adverse events were not reported *External validity:* Baseline characteristics of participants were not compared across groups using a statistical test and it was difficult to ascertain whether they were well matched because of the limited detail reported. The interventions were representative of the array of UC for this population, due to the retrospective nature of the trial

continued

TABLE 3 *Assessment of study quality for the six included studies (continued)*

Author (date), study type, setting	Quality
	Internal validity: No blinding was employed as the study was retrospective. Data dredging was used. Follow-up times differed depending on the treatment given. Appropriate statistical analyses were employed, although these were combined analyses making interpretations regarding specific interventions difficult. Compliance with interventions was not reliable as the intervention groups were overlapping, although data for some intervention groups were presented separately. The control group was very small and participants were not receiving any treatment. Outcome measures were reliable and valid. Participants were not in different intervention groups in all cases. No randomisation took place because of the retrospective nature of the study. Numbers lost to follow-up were reported and not included in the study, reasons for loss to follow-up were reported
	Power: No power calculation was reported
Clark *et al.* (2003),[61] non-RCT, USA	*Reporting:* Objectives, outcomes, patient characteristics, interventions and results clearly described. Estimates of random variability given for main outcomes. Adverse events were not reported
	External validity: Baseline demographic characteristics of participants were compared across groups using a statistical test, pretreatment depression scores were included as a covariate in the analyses. The interventions were not representative of UC for this population
	Internal validity: No blinding was reported. Data dredging was not used. Follow-up times were equivalent for each group. Appropriate statistical analyses were employed. It was not clear whether compliance with interventions was reliable; other treatments may have been prescribed simultaneously. The mother–infant dyadic activities may have confounded the group intervention. It was not clear whether the control group were receiving any treatment during the waiting period. Outcome measures were reliable and valid. Participants were in different intervention groups. No randomisation was performed; participants were matched and sequentially assigned to groups. Numbers lost to follow-up were reported, but reasons for loss to follow-up not reported
	Power: No power calculation was reported
Meager and Milgrom (1996),[62] non-RCT, Australia	*Reporting:* Objectives, outcomes, patient characteristics and interventions clearly described, results difficult to interpret because of statistical tests used. Estimates of random variability not given for main outcomes. Adverse events were not reported
	External validity: Baseline characteristics of participants were compared across groups using a statistical test. The intervention was not representative of UC for this population
	Internal validity: No blinding was reported. Data dredging was not used. Follow-up times were equivalent for each group. Appropriate statistical analyses were not employed or not reported. Compliance with interventions appeared reliable. Medication use was reported and post hoc examination revealed no significant differences between the groups on medication usage. Outcome measures were reliable and valid. Participants were in different intervention groups. The study was reported to be randomised but method was not reported. Numbers and reasons for loss to follow-up provided
	Power: No power calculation reported

reliability and validity of outcome measures. To assess internal validity – confounding (selection bias), the following were considered: whether participants were in different intervention groups, whether randomisation had been used, whether adjustment for confounding in the analyses were employed [were intention-to-treat (ITT) analyses employed], and the reporting of loss to follow-up.

4. Power was also considered by assessing whether the study had employed a power calculation.

Randomised controlled trials

Of the six included studies three[43,58,59] were RCTs. The method of randomisation was reported in all three RCTs, blinding of participants is not possible for psychological interventions owing to their nature; however, two studies reported blinded assessment,[58,59] and two[58,59] reported power calculations. All three RCTs reported numbers lost to follow-up, but none reported reasons for loss to follow-up.

Non-randomised controlled trials

The three non-randomised studies were Meager and Milgrom,[62] Clark *et al.*[61] and Highet and Drummond.[60] Participants included in the Meager and Milgrom[62] study were volunteers and were reported to be randomly assigned to either the

group treatment or a waiting list group (WLG); however, the randomisation method was not detailed. The Highet and Drummond study[60] was a retrospective study which examined patient records; therefore, no randomisation had taken place. In the Clark *et al.*[61] study, suitable participants were referred for the treatment by a health-care provider. Sequential assignment to group treatment or to the waiting list was performed on the basis of matching for sociodemographic variables. A third individual treatment group was added later. Owing to the retrospective nature of the Highet and Drummond[60] study, no blinded assessment was performed. Meager and Milgrom[62] and Clark *et al.*[61] did not report that the assessment had been blinded. None of the non-RCTs presented a power calculation. Meager and Milgrom[62] detailed numbers and reasons for loss to follow-up, these included physical illness, need to support de facto husband who was on a methadone programme, difficulty in organising attendance and distance to travel. Clark *et al.*[61] gave numbers but not reasons for loss to follow-up. Highet and Drummond[60] was a retrospective study therefore participants who had been lost to follow-up were not included in the study at all. Reasons were provided for loss to follow-up, these included not being contactable post treatment, not considered to have PND by their health-care provider, refusal to take part in the study and stopping treatment prior to completion.

Co-therapy or medication

Concurrent use of antidepressants was reported in Rojas *et al.*,[58] Honey,[43] and Meager and Milgrom,[62] although not controlled for in Rojas *et al.*,[58] making interpretations regarding the effects of group treatment problematic. Both cotherapy and medication use was reported in Highet and Drummond[60] and was controlled for in the analyses. No medication was detailed in Milgrom *et al.*[59] and Clark *et al.*,[61] although the intervention group participants in the Clark *et al.*[61] study were also receiving mother–infant dyadic therapy.

Comparators

Comparators are shown in *Table 3* and in Appendix 2 (see *Tables 18* and *19*). All six included studies had a comparison arm.[43,58–62] Five of the studies, the three RCTs[43,58,59] and two non-RCTs[61,62] compared group CBT to RPC or a WLG [although it should be noted that definitions of RPC and waiting list vary across the studies, details are provided in *Table 3* and in Appendix 2 (see *Tables 20* and *21*)]. Only one non-RCT[60] compared group CBT to individual CBT. One non-RCT[61] compared group CBT to IPT (and RPC). One RCT[59] compared group CBT to group counselling and individual counselling (and RPC). One non-RCT[60] compared a number of different conditions (with overlapping populations); non-overlapping conditions were group CBT only, individual CBT only and medication only (but not to RPC as noted above).

Sample size and drop-out rates

Sample sizes are shown in *Table 2*. The sample sizes for the included studies were relatively large for two of the RCTs[58,59] and relatively small for Honey,[43] Clark *et al.*[61] and Meager and Milgrom.[62] The Highet and Drummond[60] study had a relatively large sample size due to its retrospective nature and the large number of conditions analysed, but as noted above participants who dropped out of treatments were not included in the analyses. Of the RCTs, Rojas *et al.*[58] had a large sample size (> 200) with relatively low drop-out rates (21 at 3 months, 22 at 6 months), Milgrom *et al.*[59] had a large sample size (> 192) but had a relatively large number of dropouts prior to the start of the interventions (52). Honey[43] had a moderate sample size (< 50) and relatively low drop-out rates before intervention (four) but these participants were followed-up, although three participants in each condition who did participate could not be followed-up (six). Of the non-RCTs, Meager and Milgrom[62] had a small sample size (20) with only one dropout prior to intervention; Clark *et al.*[61] had a relatively small sample size (40) with a relatively low drop-out rate before intervention for the group treatment (four). The Highet and Drummond[60] study had a relatively large sample size overall; however, the relevant treatment condition sample was of moderate size (< 60).

Therapy details

Table 3 and *Tables 22* and *23* in Appendix 2 describe the details of therapy for the three RCTs and three non-RCTs.

Recruitment

For the RCTs, participants were recruited from a community screening programme of newly delivered mothers at 6–18 weeks postnatal, and were invited to take part if they scored 12 or above[59] on the EPDS (the cut-off used for the Rojas *et al.*[58] study was 10 or above), from three clinics at any stage during the first postnatal year,[58] or referred by health visitors if they were attending mother and baby clinics.[43] For the non-RCTs, recruitment was through health-care provider referrals and newspaper advertisements,[61] and

through advertisements in local hospitals and maternal and child health centres; some of these women were already attending outpatients for treatment of mood disorders.[62] The final non-RCT[60] was a retrospective study of women who had sought or been referred to treatment for PND from clinics and through a range of health professionals. The treatments included medication, group and individual CBT, and group and individual behaviour therapy.

Number and length of sessions and number of attendees

Of the six included studies, five[43,58,59,61,62] gave details of the number and length of sessions, and four[43,58,59,62] gave details of the number of attendees for the CBT group intervention. The number of sessions ranged from 8 to 12 weekly sessions, the length of sessions ranged from 50 to 120 minutes and the number of attendees ranged from 4 to 20. One study did not provide any details,[60] and a further study did not provide details of number of attendees per group session.[61] The five studies that provided details all ran sessions once per week. Rojas *et al*.[58] reported that group treatment was administered for 8 weeks, with each session 50 minutes in duration and the maximum number of attendees per group was 20. Milgrom *et al.*[59] reported that the treatment programme ran for 9 weeks, with each session 90 minutes in duration and each group had 5–10 attendees. Honey[43] reported that the treatment group ran for 8 weeks, was 2 hours in duration and had four to six attendees. Clark *et al.*[61] reported that the group treatment was administered for 12 weeks and was 90 minutes in duration, although 60 minutes was devoted to the group intervention and 30 minutes to the mother–infant dyadic intervention. The number of attendees was not reported. Meager and Milgrom[62] reported that sessions ran for 10 weeks, were 90 minutes in duration and had 10 attendees. It should be noted that none of these studies has used a group CBT structure that matches exactly the assumed structure of group CBT for PND in the UK. However, one study[43] is similar in terms of length of the treatment programme and duration of the sessions, although the number of attendees was much lower with four to six than would be expected for CBT groups which are currently provided in the UK. These would typically include an average of eight participants (G Parry, P Slade, J Hamilton, Clinical experts, personal communication).

Therapist background

Of the six included studies, five gave details of the therapist who ran the group sessions and their background.[43,58,59,61,62] One study did not provide any details.[60] Milgrom *et al.*[59] reported that one of two senior therapists delivered the interventions, supported by cotherapists with professional registrations and backgrounds in clinical psychology, postgraduate psychology researcher and nurse with postgraduate qualifications in counselling and/or psychology. All received one-to-one instruction in the use of the therapy manuals and regular, intensive supervision from the principal investigator. Honey[43] reported that health visitors administered the programme, no further details were given. Rojas *et al*.[58] reported that midwives or nurses with 8 hours of training ran the sessions and that a medical doctor was responsible for the group. The midwives and nurses were given supervision every week. Meager and Milgrom[62] reported that a clinical psychologist ran the sessions. Clark *et al.*[61] reported that three licensed psychologists, three social workers, three psychology interns and three postdoctoral fellows with at least 2 years of clinical experience administered the sessions. Variability in therapist effectiveness can account for variance in treatment outcomes.[63] Given that few therapists were involved in facilitating the interventions reported in each study it should be noted that a particularly good or poor therapist could have markedly affected the results.

Study site, follow-up and inclusion/exclusion criteria

Tables 24 and *25* in Appendix 2 describe the details of study site, follow-up and inclusion/exclusion criteria for the three RCTs and three non-RCTs.

Study site and setting

One of the studies was conducted in the UK,[43] one was conducted in Chile,[58] three were conducted in Australia,[59,60,62] and the final study[61] did not report the study site, although it is assumed that the study took place in the USA as this was the place of funding.

Follow-up

Reasons for loss to follow-up were not reported in five[43,58–61] of the six included studies. Meager and Milgrom[62] did provide reasons for loss to follow-up, including physical illness and difficulty in organising attendance. Follow-up exceeded 60% in all studies.

Inclusion and exclusion criteria

Five[43,58,59,61,62] studies included in the review had clearly stated inclusion criteria; however, one study[61] did not report exclusion criteria. The sixth study[60] did not report selection of participants using a standardised diagnostic measure as part of the inclusion criteria.

Patient characteristics

Tables 26 and *27* in Appendix 2 describe the details of patient characteristics for the three RCTs and three non-RCTs.

Diagnosis of disorder

For the RCTs, PND was indicated using the EPDS in one study,[43] and a DSM-IV diagnosis of major or minor depression was given in the other two studies.[58,59] For the non-RCTs diagnosis was performed using the DSM-IV criteria for major depression in the Clark *et al.*[61] study. Diagnosis information was not supplied in the Highet and Drummond[60] or Meager and Milgrom[62] studies other than that the participants had been referred for treatment of PND, although all participants included in the trials had an EPDS score of 12 or above.

Age, gender, ethnicity, background and patient history

As PND follows childbirth, those diagnosed with the disorder are exclusively female. The mean age of the women taking part in the treatment was around 30 years across five of the studies, the sixth[60] did not provide details of participants ages. Three studies provided standard deviations around the mean age.[43,58,59]

Information regarding ethnicity was reported in only two of the studies, indicating in one study that 80% of the participants were Australian born with the remaining born in Ireland or the UK[62] and in the other that one participant was African American and the remaining participants were Caucasian.[61]

Four studies provided information on either the education or socioeconomic background of participants. It was reported in one study[59] that 62.7% had received 12 or more years of education, with 30.5% receiving higher education. The majority of the participants in the Rojas *et al.*[58] study had received 8–12 years of education [73% in the multicomponent intervention (MCI) group, 75% in the UC group]. A further study reported that two women had a professional background, six had a semi-professional occupation, six were in sales or business management, two worked in skilled occupations and four were housewives.[62] The final study reported the mean educational level for each group; this was 14.9 years for the mother–infant therapy group (M–ITG), 15.5 years for the IPT group and 16 years for the WLG.[61] Two studies did not report this information.[43,60]

Some details of patient history were reported in four studies. These included mean number of children as 1.8[59] and two,[58] and the percentage of primiparas in each group, which was 50% for the PEG and 59% for the RPC groups.[43] A further study also reported the mean number of children in each group, which was two in the treatment group and 1.6 in the control group, the average age of the infant was 10.6 months, and the marital status of the women was 15 married, four in de facto relationships and one separated.[62] No details of patient history were reported in the remaining two studies.[60,61]

Time postpartum was reported only in four[43,58–61] of the studies. In Honey,[43] Rojas *et al.*[58] and Milgrom *et al.*,[59] all participants were < 12 months postpartum, and the time postpartum in the Clark *et al.*[61] study ranged from 1 to 24 months. Details of time postpartum were not reported in Meager and Milgrom[62] and Highet and Drummond.[60]

Baseline comparability

Four studies reported baseline comparability.[43,60–62] In one study it was reported that groups did not differ significantly on sociodemographic and baseline self-report measures,[43] a second reported that groups had been matched on sociodemographic characteristics and baseline depression scores had been used as a covariate in the analyses,[61] the third reported that groups were similar in terms of clinical status and social support across all scales,[60] and the fourth reported no significant differences between the groups on mean age of infant, medication usage, pretest BDI scores or occupational background.[62] Two studies did not report any details of baseline comparability.[58,59]

Outcomes and results

Tables 28 and *29* in Appendix 2 describe the details of the outcomes and results for the three RCTs and three non-RCTs.

Improvement in psychological symptoms

The outcomes to be reported in the quantitative part of the review were clinical effectiveness in

terms of improvement in psychological symptoms of PND.

Instruments

All six studies reported outcome measures relating to depression. The main outcomes related to improvement in depression symptoms in five of the six studies. The main outcome in the Clark *et al.* study[61] was infant development, although depression was measured. Studies reported various other outcome measures such as social support, self-esteem, mood, parenting stress and infant development; however, these were not consistently reported across all included studies and therefore the data were not available to review these outcome measures. The full range of outcome measures reported is listed in *Tables 30* and *31* of Appendix 2. Measures of depression were reported in each of the six included studies using either the EPDS or the BDI. These are well-recognised and frequently used scales to measure depression.

Results for psychological symptoms

Meta-analysis

Meta-analyses using the six quantitative studies were considered. Data were available to assess group CBT against RPC. However, data were not available to assess group CBT against individual CBT, or any other intervention. The suitability of these data for meta-analysis was assessed and the following issues were encountered:

- The outcome measure, depression, was measured using two different scales, the EPDS and the BDI. Although this could be overcome using a standardised mean difference statistic, assumptions regarding the standard deviation of each scale would be required.
- Depression is measured at baseline, after treatment or at 3 months, and at follow-up (usually 6 months); however, this was not the case for all six papers. Some of the studies only measured depression twice.[59,61,62] See *Tables 28* and *29* in Appendix 2 for details.
- One paper[62] did not provide any measures of variability around the mean (standard deviations or CIs) and attempts were made to gain this information from the author. A further paper[59] did not provide separate means and measures of variability around the mean for each treatment group, again further information was requested from the author. The authors of these papers have responded to these requests but were not able to provide these additional data.
- One paper[58] included a confounding factor, antidepressant treatment in the intervention group, making it insufficiently similar to the other studies.
- The delivery settings varied widely for each of the studies.
- There was a mix of RCT and non-RCT data.
- The level of CBT use was undetermined in a number of the studies.

Only one study was deemed appropriate for data extraction relevant to our decision problem. This was due to the lack of appropriate data in two cases,[59,62] and the lack of sufficient similarity in study type and comparator in one,[60] a retrospective study which did not provide appropriate data for the WLG. Two studies were suitable for the meta-analysis of change in depression between baseline and follow-up;[43,58] the third study[61] did not report follow-up data. A final study[58] included a confounding factor in the intervention arm. Therefore, it was concluded that there was not enough commonality of intervention, service setting, population and antidepressant use to perform a meta-analysis.

For the study that was deemed appropriate, the reduction in the EPDS score through group CBT compared with RPC was 3.48 (95% CI 0.23 to 6.73) at the end of the treatment period. At 6-month follow-up the relative reduction in EPDS score was 4.48 (95% CI 1.01 to 7.95).

Narrative analysis

As meta-analyses could not be performed the results are presented in narrative format.

Group psycho-education incorporating CBT versus RPC, UC or WLG

Honey[43] reported that depression symptomatology as measured by the EPDS was significantly reduced in the intervention group compared to the RPC group. Depression scores improved over time for those in the intervention group, but not for those in the RPC group. Six months after the end of the intervention, significantly more women scored below cut-off than in the RPC group, although there were no differences immediately post intervention. The benefit in terms of improved depression score was not related to antidepressant use and was maintained 6 months after the group had ended. However, some women in the intervention group continued to show evidence of depressive symptomatology at this 6-month

follow-up. Improvements in EPDS score were not accompanied by changes in coping, perceptions of social support or the marital relationship. Rojas *et al.*[58] reported that the MCI group had significantly improved scores on EPDS and Short Form questionnaire-36 items measures compared to the UC group overall, and when examining simple effects this was true at 3 months post randomisation, significant simple effects were not reported at the 6-month follow-up. Meager and Milgrom[62] reported significant improvements on the EPDS and BDI in the intervention group compared with the control group. Clark *et al.*[61] reported no significant differences between the groups on the BDI, although BDI was lower post treatment in both intervention groups than in the control group. Also, both the women in the M–ITG and those in the IPT condition reported significantly fewer symptoms on the Center for Epidemiological Studies Depression Scale (CES-D) measure post treatment than did those in the WLG, there were no differences between the intervention groups. Specific analyses comparing group CBT with the WLG or RPC group were not reported by Highet and Drummond[60] or Milgrom *et al.*[59]

Group versus individual treatment

Highet and Drummond[60] reported comparisons of participants receiving individual treatment with those receiving treatment in groups. Depression decreased significantly following treatment for both groups and these treatment gains were maintained at follow-up. Comparison of participants treated in groups (alone and in conjunction with individual treatment) versus those treated individually revealed that depression was significantly lower at post treatment in subjects treated individually than in those who received group or combined intervention. At follow-up there was also a significant decrease in depression particularly in those treated in both group and individual settings. Depression continued to decrease for those who had been treated in the combined settings, whilst there was no change for those treated in groups only. Psychological anxiety declined at post treatment and during the 6 months' follow-up, particularly in those who received individual treatment only. Specifically, anxiety decreased more for those treated only on an individual basis than for subjects treated in groups. The Milgrom *et al.*[59] study reported significantly better BDI scores for those undertaking individual treatment than for those receiving group treatment, although these were combined group treatment scores and they did not provide direct comparisons of specific group CBT versus individual treatment. When further examining these findings they do give an indication that group CBT may be just as effective as individual treatment. Clark *et al.*[61] reported that the two treatment groups did not differ from each other on any of the measures administered, although the small sample size may have contributed to the null findings.

Other comparisons

Highet and Drummond[60] reported that receiving treatment, compared with being part of the WLG, achieved significant decreases in depression between pre and post treatment; a decrease in psychological anxiety also approached statistical significance ($p = 0.081$). There were no differences between the groups for physiological anxiety following treatment. Highet and Drummond[60] also reported that for CBT versus behaviour therapy, following treatment, there were significant reductions in depression, psychological anxiety and physiological anxiety. Treatment gains were maintained 6 months later for both treatment conditions. The study suggested that whilst CBT was no more effective than behavioural-based supportive counselling, confounding effects of greater medication use and greater treatment duration for those in the latter group may have resulted in underestimation of the efficacy and efficiency of CBT. It was also reported that medication was no more effective than CBT. Participants treated with CBT (alone or in combination with medication) had greater decreases in depression and psychological anxiety following treatment than those who received medication alone. Milgrom *et al.*[59] reported that changes in depression and anxiety immediately post intervention significantly differed between psychological interventions (combined data) compared with RPC, although it was not possible to assess effects of the group CBT intervention alone as data for the interventions were not presented separately. Milgrom *et al.*[59] also reported data showing that interventions based on a counselling approach may be more effective when delivered on an individual rather than a group basis.

Patient preference, satisfaction and acceptability

Only one of the six studies provided data on patient satisfaction.[60] Similar ratings of satisfaction were reported when comparing CBT with medication, with neither being preferred over the other. Individual treatment was preferred to group treatment, and similar ratings of satisfaction were reported when comparing group CBT with group behaviour therapy, with neither being preferred

over the other. These data are summarised in *Tables 32* and *33* in Appendix 2.

Qualitative papers

Quantity and quality of papers available

Figure 2 shows the QUOROM flowchart for the included qualitative studies. A table of excluded studies with reasons for exclusion is presented in Appendix 5 (see *Tables 52* and *53*), with the reference for these studies provided in Appendix 6.

Included studies

Details of those studies included in the qualitative review are provided in *Tables 34* and *35* of Appendix 3. The support groups without any theoretical CBT basis were used as a collective comparator against CBT groups, and are detailed at the end of this section. The following sections relate to the two CBT studies.

Study characteristics

Study characteristics for the two support group with a specific CBT basis are described in *Table 36* of Appendix 3, and a summary of this information is provided in *Table 4*. Study characteristics for support groups without any theoretical CBT basis are provided in *Table 37* of Appendix 3.

Description of the treatment

As in the quantitative review, included studies were those where interventions incorporated any psycho-educational activity informed by cognitive behavioural theory or technique, in a group setting. Therefore, when we refer to 'group CBT' we are referring to a group programme which states that it incorporates some level of CBT theory or technique. Only two[52,53] papers examined a group treatment that was informed using CBT techniques. Included studies reported varying degrees of 'thickness'[64] regarding the description of the support groups, although in the main

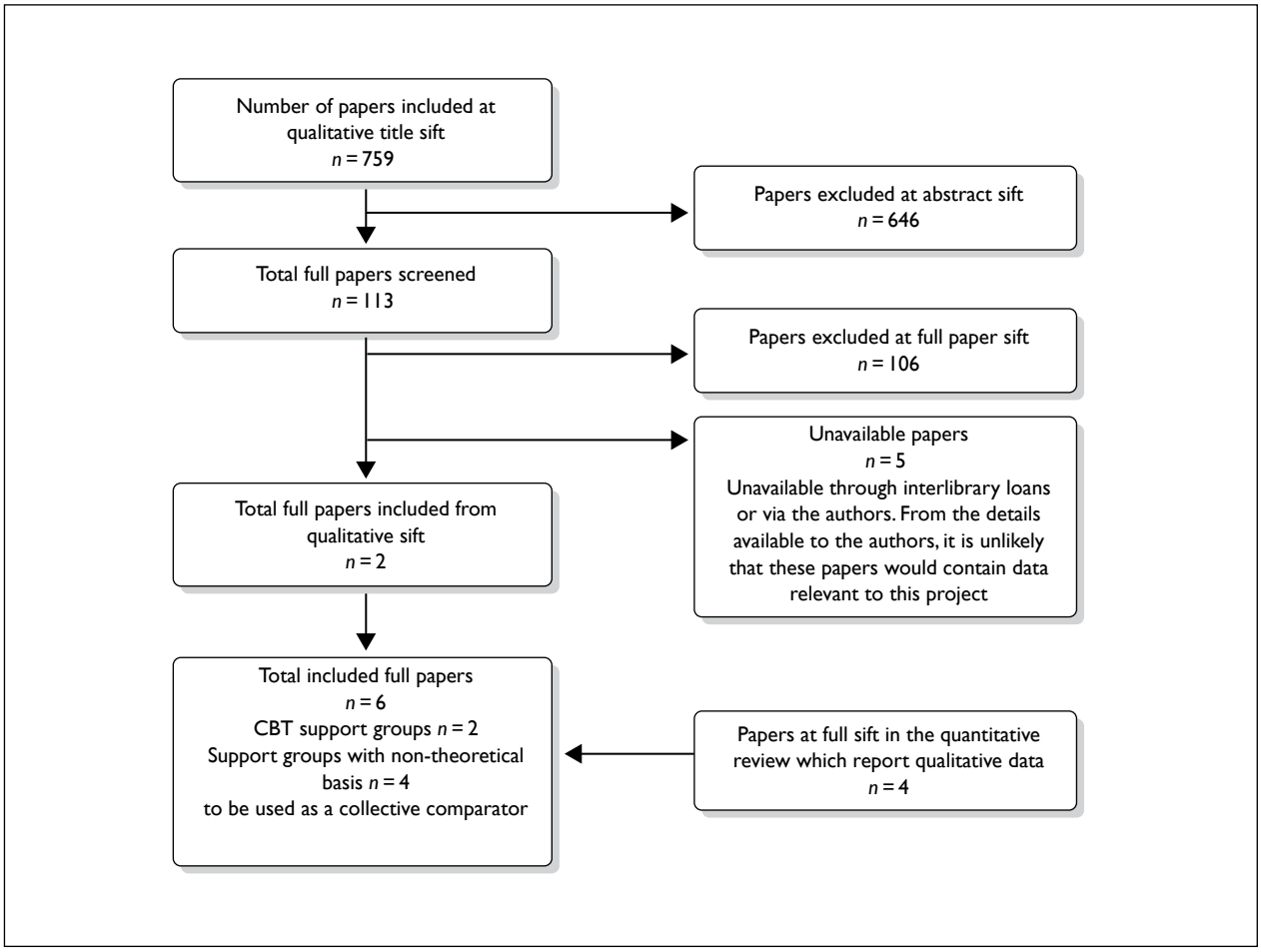

FIGURE 2 *Summary of study selection and exclusion of qualitative papers.*

TABLE 4 *Postnatal depression support group with a CBT basis*

Author (date), setting	Sample size	Duration, numbers in group, etc.	Intervention(s)/Facilitator
Davies and Jasper (2004),[52] UK	8	12 weekly sessions, 90 minutes in duration; eight attendees	CBT-based support group for women with PND. Health visitor led, primary mental health worker provided clinical supervision
Morgan *et al.* (1997),[53] Australia	34	Eight weekly sessions, 2 hours in duration; average of six attendees	Support group for women with PND. Incorporating cognitive behavioural exercises. Occupational therapist led with the assistance of a nurse

these descriptions were brief; this information is provided in Appendix 3. Most included detail of the number of sessions, their frequency, duration, the number of participants per group and details of the group facilitator. The degrees to which the interventions used in each study actually reflected and incorporated CBT theory or technique are detailed here in order of relevance to group CBT.

The Davies and Jasper[52] study termed the intervention as a therapeutic group, known as The Lifeskills Group. The group programme had aims to encourage cognitive restructuring and self-help. Although the use of a manual was not stated, the group had a predefined programme based on the CBT model. The Morgan *et al.*[53] study examined a group programme for postnatally distressed women and their partners. Psychotherapeutic and cognitive behavioural strategies were employed as part of the group programme, although a particular manualised or predefined structure was not reported. Little information was provided on the level of CBT used in the programme.

Study quality

The CASP checklist for qualitative studies[56] was used to assess the quality of the studies. The key components of quality assessment are listed in Appendix 3. The studies were assessed on the following criteria: justification of the research design; whether the recruitment strategy and setting for data collection were explained and justified; whether the data collection methods were explained and justified; whether reflexivity and ethical issues were addressed; whether data analysis was sufficiently rigorous; and whether findings were clearly stated. Neither study could be defined as a qualitative research study, although both incorporated a qualitative approach and were included on this basis. Both studies were evaluations of a group treatment and the research design was justified in one of the studies,[52] although justification of the design in the second study[53] is not clear. The qualitative methodology was therefore appropriate for evaluation purposes in both cases. Both studies provided explanation and justification of the recruitment strategy and setting for data collection. Data collection methods were clearly explained in one study;[52] however, such detail was lacking in the second.[53] Reflexivity and ethical issues were addressed in only one of the studies.[52] Data analysis was presented in a rigorous way in only one of the studies,[52] although there was no reference to particular qualitative methods of analysis in either study. Findings were clearly stated in both studies.[52,53]

Co-therapy or medication

Only one of the studies provided information on cotherapy or medication.[53]

Comparators

Neither of the studies utilised a comparator group.

Numbers of participants

The Morgan *et al.*[53] study had a reasonable number of participants (34), whilst the Davies and Jasper[52] study had numbers of participants that reflected the size of the group taking part in the treatment (8).

Therapy details

Tables 38 and *39* in Appendix 3 describe the details of therapy for the six studies.

Recruitment

In one study the women were referred to the group treatment by health visitors,[52] in the other study[53] the women were referred from another treatment.

Number and length of sessions

One study ran eight weekly 2-hour sessions,[53] whilst the other ran 12 weekly sessions of 90 minutes in duration.[52]

Therapist background

Both studies provided information regarding the background of the therapist facilitating the group treatment. Health visitors facilitated the group in one of the studies,[52] and were supported and given clinical supervision by a primary mental health worker. In the other study[53] the group was led by an occupational therapist with the support of a nurse.

Study site, follow-up and inclusion/exclusion criteria

Tables 40 and *41* in Appendix 3 describe the details of study site, follow-up and inclusion/exclusion criteria for the studies.

Study site and setting

One study was carried out in the UK,[52] and one in Australia.[53]

Follow-up

For one study, qualitative data were collected only during the treatment sessions, quantitative follow-ups took place at 6, 9 or 12 months (not all participants were followed up at all three time points).[53] The other study had a follow-up at 6 weeks after the end of the intervention.[52]

Inclusion and exclusion criteria

One of the studies required an EPDS score of 13 or above for entry to the study,[53] and also specified adequate spoken English as an inclusion criterion. The final study used the EPDS for participant selection, although a cut-off was not given; participants also had to meet DSM-IV criteria for depression and have an infant aged < 18 months.[52] This is beyond the typical cut-off of 12 months for postnatal depression. Exclusion criteria were not reported for either of the studies.[52,53]

Patient characteristics

Tables 42 and *43* in Appendix 3 describe the details of patient characteristics for the six studies.

Diagnosis of disorder

Both studies reported depression as the diagnosed disorder,[52,53] based on the EPDS in one study[53] and the DSM-IV in the other.[52]

Age, gender, ethnicity, background and patient history

One of the studies did not report the age of the participants.[52] The age range for the other study was 23–36 years.[53] The Davies and Jasper[52] study included only female participants, whilst the Morgan *et al.*[53] study also included 20 males as part of couples' sessions. One of the studies did not report details of ethnicity[52] and the other reported that it included four women and seven men from a non-English speaking background.[53] One study did not report detail regarding the background of the participants,[53] whilst the other reported that participants came from a range of backgrounds.[52] Neither study reported details of comorbidity.[52,53] One study reported that all participants were married,[53] the other did not report details of relationship status. There were 16 primiparas and 18 multiparas in one study,[53] and four primiparas and four multiparas in the other study.[52] Time postpartum was < 18 months for Davies and Jasper,[52] and between 2 and 24 months for Morgan *et al.*[53] As such, neither could be strictly considered as a postnatal population.

Outcomes and results

Tables 5 and *6* below and *Tables 44* and *45* in Appendix 3 summarise the findings with themes presented by findings related specifically to PND and those related to depression in general. These are followed by a narrative summary of the findings.

The environment

Davies and Jasper[52] reported:

> All seven mothers who completed the course were able to identify positive changes, and five recorded several. Some examples were joining a new group, enjoying their baby more and starting a new job. These findings suggest that the mothers were regaining a sense of control and purpose in their lives.
>
> (p. 431)

Such comments demonstrated that the women attending the group were able to make positive gains with their depression, and they attributed these changes to group attendance. More specifically, some of these gains related to their relationship with their baby, thus illustrating the use of group treatment for PND and its symptoms, such as a poor relationship with the baby. Women were not specific as to whether they viewed the CBT element as instrumental in this change or whether they viewed more general group processes as responsible for these results.

Social comparisons

A quotation from one study demonstrated that the women valued the opportunity to 'normalise' their

TABLE 5 *Themes and findings directly relating to the PND, motherhood and the context of having a baby*

Synthesis	Category/Theme	Finding (author)
The environment	Positive	Positive benefits from sessions (Davies and Jasper)[52]
Social comparisons	Normalising	Opportunity to 'normalise' their experience (Davies and Jasper)[52]
Practicalities and knowledge	Knowledge	Role as wife and mother (Morgan *et al.*)[53]
	Tasks	Initial difficulty with practical task (Morgan *et al.*)[53]

feelings specifically relating to PND.[52] The women reported:

> … you feel that you are the only one and that the feelings and thoughts you have are dreadful, yes, to people who have not had this they are, but to people who had PND these feelings are normal.
>
> (p. 431)

Being around others with PND enabled them to feel more 'normal' by applying social comparisons and prototyping. The quotation emphasises how women specifically needed to compare themselves to others with PND to achieve this effect, thus illustrating the value of a group treatment specifically for PND.

Practicalities and knowledge

Author comments from one study[53] appeared to show that issues with PND were being addressed with the implication that CBT processes were responsible for the changes.

> The leaders are careful to praise even meagre attempts at self-care. Clearly as the weeks pass they are rethinking their roles as wife and mother. As well as emotional outpouring and frequent tears, sound cognitive work begins to take place.
>
> (p. 915)

The authors of this study also reported:

> …the women were set the weekly task of caring for themselves in some practical way. Initially some members found this difficult. They became irritated when their own or their partner's behaviour was not perfect. They had difficulty too when their babies did not behave 'perfectly'.
>
> (p. 915)

This appeared to illustrate that the participants initially found practical tasks difficult, but the group was instrumental in overcoming this.

TABLE 6 *Themes and findings more generally relating to depression*

Synthesis	Category/Theme	Finding (author)
The environment	Support	Supportive facilitation (Davies and Jasper)[52]
	Solace, trust and safety	Sharing experiences and getting to know each other (Davies and Jasper)[52]
	Honesty	Honesty within group (Davies and Jasper)[52]
Community	Isolation	Reduction in isolation (Davies and Jasper)[52]
	Value	Being valued (Davies and Jasper)[52]
Practicalities and knowledge	Time	Women's concerns/protected time and attention (Morgan *et al.*)[53]
	Helpfulness	Helpfulness of group sessions (Davies and Jasper)[52]
Adverse effects	Inhibitive effect of group	Group environment inhibitive (Davies and Jasper)[52]
	Difficulties in application	Difficulty in applying approaches in practice (Davies and Jasper)[52]
Other considerations	Partners	Emotional tension with partners (Morgan *et al.*)[53]
		Usefulness of session in relationship to partner (Morgan *et al.*)[53]

The environment

The authors of one study reported:[52]

> The leadership qualities most appreciated were the caring and supportive attitudes and the provision of a safe environment for the sharing of feelings.
>
> (p. 431)

They further reported:[52]

> All eight members found small group work helpful for sharing experiences and getting to know each other. Other people's honesty. Sharing their darkest thoughts, not being alone any more.
>
> (p. 430)

These comments appeared to illustrate the utility of the group environment for overcoming depression.

Community

Author comments from one of the studies illustrated the value of the development of community:[52]

> These were the … reduction in isolation 'not being alone anymore'.
>
> (p. 430)

A case study also demonstrated this value:

> Additionally, the experiential process of being a valued group member improved her sense of self-worth, and increased her self confidence.

Practicalities and knowledge

The practical aspects of the group were also acknowledged as being important in the treatment process. A second study confirmed that the group sessions were of practical use. Author comments, supported by study data, revealed:[52]

> Every session in the programme was acknowledged as being helpful by at least one group member. Even sessions that I didn't expect to be helpful were helpful in ways that I didn't expect so I was glad to come.
>
> (p. 429)

Adverse effects and limitations

Adverse effects and limitations of the group treatment were also reported. Author comments supported by study data from one study demonstrated that it was not always easy for group members to participate fully in the treatment:[52]

> …she found it difficult to participate in the group commenting 'I have been depressed for over 2 years I found it hard to talk openly within a large group after a long period of depression'.
>
> (p. 431)

The same study further demonstrated that these difficulties were specifically related to the application of the CBT techniques learned in the sessions:[52]

> Additionally she found it difficult to apply the CBT techniques at home, commenting 'I find it hard to put anything into practice with others around'.
>
> (p. 431)

Other considerations

Data were also reported on the partner sessions which occurred only as part of one study.[53] These findings appeared to demonstrate the usefulness of partners attending the group at some point during the programme. Author comments illustrated that the relationship with partners may be an important aspect of depression/treatment:

> The sessions on relationships are often emotionally arduous – often sad, angry tones accompany their attempt to understand the meaning of their current emotional experiences. Relationships with partners are often perceived by the women as strained.
>
> (p. 914)

Author comments also confirmed the impression of the usefulness of the couples' session:

> Some women report their partner is now more supportive; some men now look after the infant for specified times, releasing the women to have time to herself. One father has expressed the desire to have counselling for himself. Another couple said that they were now more appreciative of each other's efforts and said so to each other.
>
> The men also report that their session was useful, both from understanding more about their partner's mood state, and from hearing how other men experienced similar difficulties.

Findings specific to PND

Some of the author comments and reported participant quotations related specifically to PND, whereas others can be interpreted as related to depression more generally. Themes relating specifically to PND are summarised in *Table 5*, and can be split into three synthesised findings:

1. *The environment* The group environment enabled women to develop better relationships with their baby.
2. *Social comparisons and prototyping* Women with PND made social comparisons that allowed participants to understand that their feelings associated with PND were normal.
3. *Practicalities and knowledge* The group allowed the women to assess their roles as wife and mother.

Findings specific to CBT

Some of the findings related specifically to the CBT content of the group programmes. Some women reported that they found difficulty in applying the CBT techniques, whereas others found the cognitive components of the course particularly helpful and were able to put them into practice:[52]

> The study found that the group members who practised the CBT techniques positively appraised the approach and appeared to gain more benefit from the overall group programme … opinions can change after reflecting and applying the techniques discussed and practised during the sessions. (p. 432)

There were, however, a number of common factors which may be attributed to any type of psychological intervention rather than specifically to CBT. Participants reported feeling that every session had been helpful in ways they had not expected. Additional helpful aspects attributed to the treatment concerned the flexibility of the session, participants appreciated that they did not feel limited to time and the structure of the session could be accommodating to their needs.

Findings relating more generally to depression

Themes relating more generally to depression are summarised in *Table 6*, and can be split into five synthesised findings.

1. *The environment* The caring and supportive environment served to facilitate the sharing of feelings.
2. *Community* The development of a community served to reduce isolation.
3. *Practicalities and knowledge* The practical aspects of the group were also acknowledged as being important in the treatment process.
4. *Adverse effects* Some participants found it difficult to talk openly in the group setting, whilst others found difficulty in applying CBT techniques.
5. *Other considerations* Partner sessions were rated as helpful.

Comparison of the positive and negative aspects of the group treatment

Group members also provided information on positive and negative aspects of the group treatment. These are reported in *Table 7* for each of the studies. Comments generally related to the practical aspects of the group, such as the format of the sessions, although the supportive aspects of the group were raised as important. The comments were in the large part positive; however, some of the comments raised were negative and related to both the format of the sessions and personal issues associated with sharing concerns in a group.

TABLE 7 *Summary of the positive and negative aspects of the CBT group treatment*

Author	Positive	Negative
Davies and Jasper (2004)[52] – CBT group	Time for feedback sessions and flexibility	Too long spent on feedback
	Smaller subgroup session for sharing experiences and getting to know each other	Difficulty in sharing with large group
	Supportive facilitation	
	Supportive group environment	
Morgan *et al.* (1997)[53] – CBT group	Encourages participants to take a step towards getting better	
	The group meets a need	
	Usefulness of couples session	

Comparison of 'CBT' support groups against non-theoretically based support groups

As outlined at the beginning of this section, initially six studies were identified which examined group treatment for PND.[43,58–62] Of these six papers only two referred to a specific basis in CBT;[52,53] therefore, the analysis has focused on these two studies. However, it was deemed useful to provide some information about the other four studies to provide a comparison of components that are common to support groups and those that are unique to 'CBT' groups.

Table 8 gives brief details of the four support group studies, further details can be found in Appendix 3, *Tables 35, 37, 39, 41, 43, 45* and *46*.

Table 9 shows the components of the group treatments which were either specific to the CBT groups or common to both CBT and non-theoretically-based support groups. There appeared to be little difference between the groups in terms of the user perspectives. As would be expected, issues around the use of CBT techniques were raised by members of the CBT groups, but were not relevant to members of the non-theoretically based support groups. However, there were a number of common components, suggesting that the effects of support groups may rely more heavily on 'common factors' rather than specific factors relating to the particular theoretical basis of the techniques being applied. The factors common to both types of support group related to community, social comparison, the environment, and practicalities and knowledge.

Diagrammatic representation of the synthesised findings

The supportive environment enabled a sense of community to be built with group facilitators being instrumental in this. This created an environment where social comparisons and prototyping could take place. Adverse effects could disrupt this flow. Practicalities and knowledge, and the improvement of practical issues via the resolution of partner difficulties, could be gained as a result of the social comparison and community. This is shown in *Figure 3* as a diagrammatic representation.

Assessment of effectiveness

Critical review and synthesis of information of both quantitative and qualitative studies

Quantitative review

A number of the six included papers lacked the high level of detail and experimental control that would be expected from a high-quality RCT (for example, randomisation, blinding and power calculations).[60–62] However, this is to be expected given the nature of the populations and interventions being examined. It can be difficult to perform blinding and randomisation appropriately because of the type of interventions being offered. Compliance with interventions can also be difficult to monitor because of ethical issues as the population is a natural group that cannot be prevented from accessing concurrent treatments. A further difficulty related to this population is the difficulty in gaining large sample sizes, owing to the sensitive nature of the condition; therefore it is unlikely that power calculations and ITT analyses

TABLE 8 *Postnatal depression support groups – without a theoretical basis*

Author (date), setting	Sample size	Duration, numbers in group, etc.	Intervention(s)/Facilitator
Duskin (2006),[65] USA	5	Open-ended support group. Frequency and duration of meetings were not reported. Participants included had attended the group four or more times. Five of the attendees took part	Support group for women with PND. Graduate researcher led
Beck (1993),[66] USA	12	Twice monthly sessions, open-ended duration. Up to 12 attendees	Support group for women with PND. Nurse led
Pitts (1999),[67] UK	48	NR	Support group for women with PND (some participants below cut-off for PND on EPDS); health visitor led
Eastwood (1995),[68] UK	13	12 sessions, length and frequency NR. 13 women in the group (eight completers)	Support group for women with PND. Health visitor led

NR, not reported.

TABLE 9 *A comparison of components specific to CBT-based support groups and non-theoretically based support groups*

Components specific to CBT-based support groups – referenced by CBT group	Component common to CBT and non-theoretically-based support groups – referenced by support group
Adverse effects; difficulties in application (of CBT approaches) (Davies and Jasper)[52]	Community; solace, trust and safety (Beck[66] and Pitts[67]); reduction of isolation (Duskin[65])
Finding CBT techniques helpful (Davies and Jasper)[52]	Social comparison and prototyping; normalising (Duskin,[65] Beck[66] and Pitts[67])
	Practicalities and knowledge; knowledge (Eastwood[68])
	Environment; trust and safety (Eastwood[68]); support (Eastwood[68])

will be used or reported. Finally, it is not typical to report adverse events in studies of psychological interventions.

There were further difficulties specific to the studies reported here which may also constrain interpretations. These included difficulties of ascertaining the use and effects of concurrent treatments, the reporting and effects of the time postpartum of the participants, and the definitions of the CBT aspects of each treatment. These issues are outlined for each of the included studies. A summary of the clinical effectiveness findings is provided in *Table 10*.

The design of the Milgrom *et al.*[59] paper was shown to be of high quality in the main, although a few problems were noted. The reporting of results was unclear as scores were combined across a number of interventions meaning specific comparisons of group CBT with RPC were not possible. BDI scores for those receiving individual treatment were significantly better than for those receiving a group treatment, although it should be noted that this was a combined score relating to various different forms of group treatment which included a CBT group. The paper gave an indication (in the presented figures) that individual treatment was similarly effective to group CBT treatment; however, the statistics were not available to

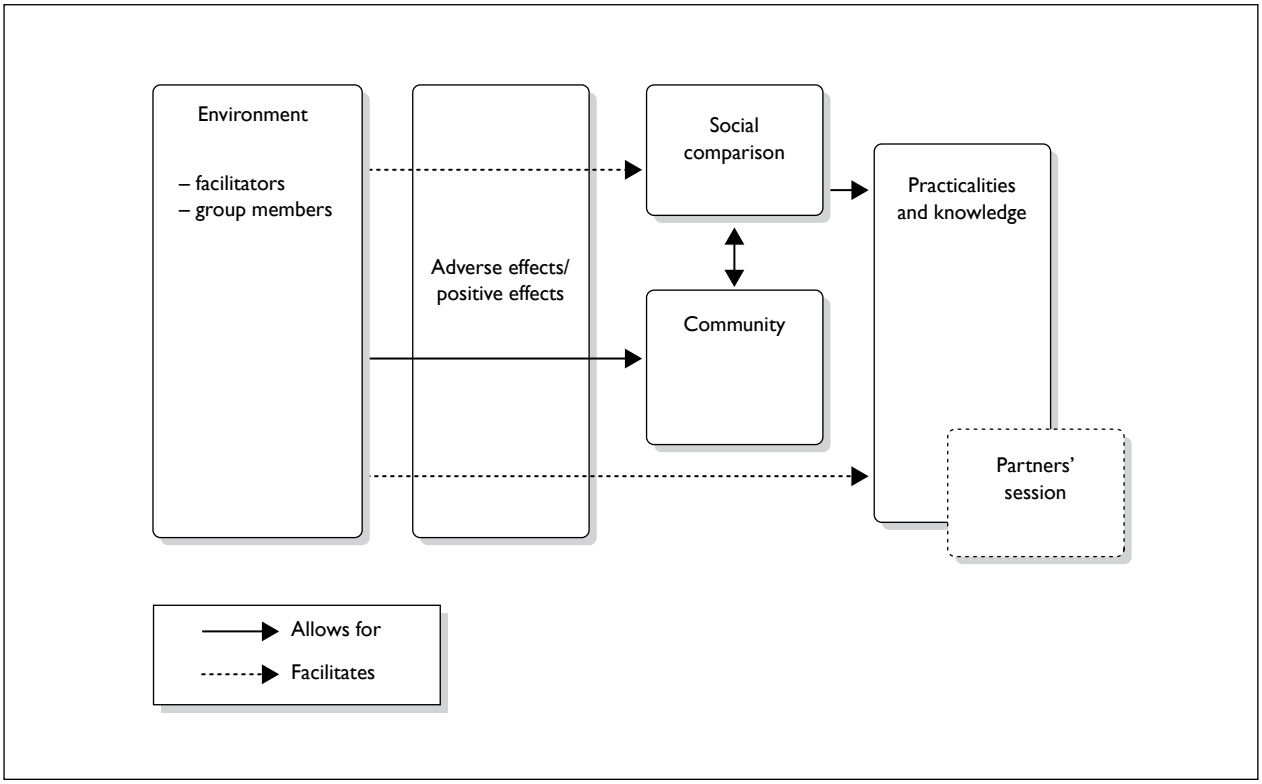

FIGURE 3 *Diagrammatic representation of the synthesised findings.*

TABLE 10 *Summary of clinical effectiveness data*

Study (date), setting	Study type	Total study size	Comparator(s)	Evidence for group psycho-education incorporating CBT
Rojas *et al.* (2007),[58] Chile	RCT	230	UC	MCI more effective than UC at 3 months post randomisation ($p = 0.001$ for EPDS). NR at follow-up
Milgrom *et al.* (2005),[59] Australia	RCT	192	Group-based counselling; individual counselling; RPC	Individual treatment (combined score) more effective than group treatment (combined score) at end of treatment ($p = 0.02$ for BDI). No follow-up. No individual comparisons reported
Honey (2002),[43] UK	RCT	45	RPC	Psycho-educational group more effective than RPC ($p = 0.01$ for EPDS). Simple effects NS at end of treatment; marginally significant at follow-up ($p = 0.058$ for EPDS)
Highet and Drummond (2004),[60] Australia	Non-RCT	146	Eight different not mutually exclusive treatment groups	Individual treatments (combined score) more effective than group treatments (combined score) at end of treatment ($p = 0.05$ for EPDS); at follow-up ($p = 0.05$ for EPDS). No individual comparisons reported
Clark *et al.* (2003),[61] USA	Non-RCT	39	IPT; WLG	M–ITG and IPT more effective than WLG post treatment ($p = 0.02$, $p = 0.04$ for CES-D). No differences on the BDI. No follow-up. No differences between the intervention groups
Meager and Milgrom (1996),[62] Australia	Non-RCT	20	WLG	Group CBT more effective than WLG at end of treatment ($p < 0.02$ for EPDS). No follow-up

NR, not reported; NS, not significant.

confirm this. Furthermore, there was no baseline comparison, and it was unclear whether compliance with interventions was reliable as it was unclear whether participants were receiving other forms of treatment, such as antidepressants, concurrently. The intervention used in the Milgrom *et al.*[59] study was clearly defined as group CBT and was a manualised treatment. Therefore, generalisations may be made to the PND population. All participants were < 12 months' postpartum, indicating a genuine PND group. Whilst the method of randomisation was not ideal (one coded slip of paper drawn from a bag containing multiple slips coded in equal number for each of the four treatment conditions), it was preferable to studies that did not attempt to randomise the participants.

The Honey[43] paper was shown to be high quality and showed that at the end of treatment the EPDS score for those receiving group CBT had been reduced by 3.48 points (95% CI 0.23 to 6.73) more than those receiving RPC. At follow-up this difference was even more apparent, with the intervention group reporting an EPDS score of 4.48 points lower (95% CI 1.01 to 7.95) than those receiving RPC. However, both values had wide CI ranges. Honey[43] also reported that these differences were not related to antidepressant use. Honey[43] was the only included study that was conducted in the UK, therefore it is likely to best reflect current UK practice. When assessing the CBT component of the treatment it appeared that CBT was one of three core components of the treatment. The treatment was also predefined and clearly reported. All participants were < 12 months' postpartum, indicating a genuine PND group.

The Meager and Milgrom study,[62] again not an RCT, appeared to have a good-quality design, although other aspects were poor. The reporting of the results was very unclear, failing to report estimates of random variability, making interpretations very difficult. Therefore, although they report significant improvements on the EPDS and BDI in the intervention group compared to the control group it was difficult to make any conclusions based on these findings. The authors did report that there were no significant differences between the groups on medication usage, giving an indication that the intervention group was not confounded. The CBT aspect of the treatment was ill-specified and was one of eight components of the treatment; therefore it was difficult to make any interpretations regarding the effects of group CBT. Further, the time postpartum was not reported, making it difficult to ascertain whether the experimental group was a genuine PND group.

The critical appraisal of Rojas *et al*.[58] showed that it was generally a high-quality paper, although baseline characteristics were not compared across groups and it did have further significant limitations relating to our objectives/analyses. The compliance with the intervention may not have been reliable as participants in both the control and intervention groups were taking concurrent medications which were not controlled for in the analyses. Participants in the MCI group received antidepressants as part of the intervention, and this resulted in more participants in this group taking antidepressants at both time points (59%; 36%) compared to those in the UC group (17%; 11%). This greater use of antidepressants made interpretations relating specifically to the group CBT aspect of the intervention difficult. However, as most other studies do not report concurrent medication use and it is likely that in reality women with PND will be offered antidepressants in addition to psychological interventions we concluded that this study provided important information on the effectiveness of the group CBT aspect of the intervention. This limitation should be kept in mind when making inferences regarding group CBT. Rojas *et al*.[58] demonstrated that at the end of treatment the EPDS score for those receiving the MCI had been reduced by nearly five points more than for those receiving UC. At follow-up this difference was still apparent, although to a lesser degree, and this difference was not significant with the MCI group reporting an EPDS score of 2.2 points lower than those receiving UC, which may be of questionable clinical significance. The Rojas *et al*.[58] study was based in Chile, therefore this may have further implications for the interpretations of the findings given that current practice may differ from that available in the UK. The definition and use of CBT in the treatment was ill-specified and it was unclear whether CBT was a core component of the treatment. Furthermore, the number of participants taking part in each group session was 20, a much higher number than would be expected for group CBT, and much higher than used in the other studies presented here. All participants were < 12 months' postpartum, indicating a genuine PND group.

The design of the Clark *et al.*[61] study was found to be of high quality. The only significant problem noted was with ascertaining compliance with interventions as it was unclear whether participants were receiving concurrent treatment. The findings demonstrated that both group and individual treatment resulted in lower BDI and CES-D scores post treatment than for the control group. However, these differences were not significant on the BDI. The treatment groups did not differ. Again, this study was not UK based; therefore generalisations should be made with caution with regard to UK practice. The definition and use of CBT in the treatment was ill-specified and it was impossible to ascertain whether CBT was a core component of the treatment. The time postpartum ranged from 1 to 24 months, therefore it was unclear whether all participants could be defined as having PND, and generalisations to PND should be made with caution.

The final non-RCT, Highet and Drummond,[60] was of low quality. All aspects of reporting were poor, particularly the reporting of the results which was in part due to the retrospective, quasi-experimental nature of the study. As such, group CBT was not directly compared against the WLG, or against individual treatment. However, they did report comparisons of those treated in groups, either alone or with individual treatment in addition, against those treated individually only, showing that those receiving only individual treatment had significantly better depression outcomes than those receiving group only or a combined treatment. The design of the study also resulted in difficulties ascertaining compliance with interventions as most participants were receiving more than one type of treatment. They also did not report baseline comparisons. No definitions were provided for the group CBT intervention. It is likely that CBT was a core component as it was termed 'group CBT'. However, it was impossible to ascertain this information because of poor reporting. Further, time postpartum was not reported for the participants, making generalisations to PND difficult.

Milgrom *et al.*,[59] Meager and Milgrom,[62] and Highet and Drummond[60] were all Australian studies constraining generalisations to UK practice.

The strongest evidence on which to base an assessment of clinical effectiveness was the data comparing group psycho-education incorporating CBT treatment with RPC, UC or WLG. However, a number of caveats need to be put in place prior to making any assertions. Honey[43] and Rojas *et al*.[58] supported the idea that group psycho-education incorporating CBT is more effective than UC, although the interpretations by Rojas *et al*.[58] may relate to concurrent group therapy and antidepressant use and the level of CBT in the intervention was very unclear. Honey[43] seemed more likely to reflect a group CBT treatment as

CBT was one of three pre-defined core components of the treatment. Meager and Milgrom[62] also provided an indication that group CBT is more effective than UC; however, because of the low quality of the reporting of the results, the uncertainty that the treatment accurately reflects CBT and the fact that time postpartum was not reported, this interpretation should be treated with caution. It should also be noted that Honey[43] was the only UK study, making the applicability of findings to practice in the UK particularly relevant. The Clark *et al.* study[61] reported that group treatment was more effective than UC, although it did not differ from individual treatment. However, because of difficulties in ascertaining levels of concurrent treatment and the wide range of time postpartum, these findings should be treated with caution.

The Milgrom *et al.*[59] study did not provide evidence that group CBT was more effective than UC, although it was difficult to ascertain whether this was the case because of reporting. No comparisons against UC were made for the treatments examined in the Highet and Drummond study.[60]

There was very little evidence to compare group CBT with individual treatment, and any interpretations should be treated with caution. Clark *et al.*,[61] a study of reasonable quality, and Milgrom *et al.*,[59] which had a design of high quality, showed that although intervention was more effective than UC, individual counselling was not superior to group CBT. The findings reported by Highet and Drummond,[60] a poor-quality study, showed that individual treatment was more effective than either group or combined individual and group treatment. Therefore, overall it was not appropriate to make firm assertions about group CBT compared with individual interventions more generally or individual CBT more specifically.

Patient preferences, satisfaction and acceptability were reported by only one study.[60] There were no preferences for CBT over medication, and no preference for group CBT over group behaviour therapy; however, individual treatment was preferred to group treatment (combined score). However, because of the poor reporting we could not be certain that this treatment did accurately reflect group CBT, also the postpartum status of the participants was not reported, therefore it was difficult to make interpretations with any certainty.

In summary, the Milgrom *et al.*[59] study was of high quality although the reporting was unclear. There was some indication that individual treatment was as effective as group CBT although the statistics were not available to confirm this. The Honey[43] study was of high quality and demonstrated that those receiving group CBT had lower depression scores than RPC, but wide CIs made interpretations difficult. However, as the only UK study it may be most relevant. Meager and Milgrom[62] reported a high-quality design although the reporting of the results was poor. Significant improvements in depression scores compared to the control group were ascertained, but it was difficult to make firm interpretations because of poor reporting. The Rojas *et al*. study[58] found lowered depression scores in the intervention group compared to UC but the study had significant limitations. Clark *et al.*[61] reported a high-quality study but there were problems ascertaining compliance with interventions. Both group and individual treatment resulted in lower depression scores than for control, but interventions did not differ. Highet and Drummond[60] reported a low-quality study with poor quality reporting. Therefore, although they demonstrated that individual treatment resulted in better outcomes than group or combined treatments, any interpretations had to be treated with caution.

Qualitative review

The two qualitative studies included in the review[52,53] differed in quality. Neither study could be classed as a qualitative research study, but both were evaluations that incorporated a qualitative approach. The Davies and Jasper study[52] appeared fairly well conducted and reported, and considerations of reflexivity and ethical issues were dealt with, the data analysis showed some rigor and findings were clearly stated. The Morgan *et al.*[53] study failed to report the design and methods of data collection clearly. They did not report that reflexivity and ethical issues had been addressed, and the data analysis was not rigorous, although findings were clearly stated. A positive aspect was that in the main the evidence reported was from direct quotes or author interpretation supported by direct quotes.

The studies also differed in the extent to which we could be confident that the group treatment included a CBT component. Davies and Jasper[52] stated that the treatment was predefined and based on a CBT model, whereas Morgan *et al.*[53] stated that cognitive behavioural strategies were employed as part of the group programme, and these were not reported as predefined or manualised and did not give an indication of the

level of CBT employed. Furthermore, neither study restricted the sample to those who were < 12 months' postpartum. Included participants were < 18 months' postpartum in the Davies and Jasper study[52] and between 2 and 24 months in the Morgan *et al.* study.[53] This raised issues of whether the treatment groups in these studies were representative of a PND population.

There were also inherent limitations in the studies described here and some of these were acknowledged by some authors. There seemed to be a tendency for participants to give overly optimistic views of an episode of care. This may have influenced the reporting of results toward the positive aspects of the group treatment. In the main, data were only reported for those participants who had been referred as suitable for the group, had attended and had found the group a positive experience. Again this would influence findings in a positive direction. Extraneous factors may have also had an impact on the findings. Cotherapy was not consistently reported across the studies, making it difficult to disentangle the effects of the psychological intervention and other treatment the women may have been receiving. It was also difficult to assess whether the natural remission of depression may have occurred during the study period. Authors may have under-reported negative opinions as the objective of the studies was to identify the positive aspects of group treatment. For these reasons it was important to assess the interpretations made on the basis of these studies with caution.

Women reported that the group environment enabled them to develop better relationships with their baby.[52] Women with PND used the groups to make social comparisons allowing them to understand that their feelings associated with PND were normal, and the group allowed the women to assess their roles as wife and mother.[52] The findings that related specifically to the CBT content of the group programmes included reports that some women had difficulty in applying the CBT techniques;[52] however, others found the cognitive components of the course particularly helpful and were able to put them into practice.[53] There were also common factors which may be attributed to any type of psychological intervention rather than specifically to CBT. It was reported that every session had been helpful in ways they had not expected.[52]

There were also findings which may relate generally to depression rather than specifically to PND. Participants found the caring and supportive environment served to facilitate the sharing of feelings, and the development of a community served to reduce isolation; the practical aspects of the group were also acknowledged as being important in the treatment process.[52] It was also reported by some participants that it was difficult to talk openly in the group setting, whilst others found difficulty in applying CBT techniques. Participants also reported that partner sessions were helpful.

In comparing the CBT groups with support groups, other than issues around the use of CBT techniques there appeared to be little difference in user perspectives. The findings suggested that the effects of support groups may rely more heavily on 'common factors' rather than specific factors relating to the particular theoretical basis of the techniques being applied.

In summary, the Davies and Jasper study[52] was of reasonable quality and demonstrated that participants found the group treatment helped them to develop better relationships with their baby and facilitated social comparisons relating to PND. Although participants in the Morgan *et al.* study[53] reported that cognitive components of the course were particularly helpful as the study details were not clearly reported, interpretations had to be treated with caution.

Discussion

Group psycho-education incorporating CBT appeared to be clinically effective when compared to RPC, UC or WLG in three studies.[43,58,62] The reduction in depression scores was not consistent across time: one[58] demonstrated a significant reduction in depression scores at end of treatment but did not report this effect at follow-up, whilst another[43] did not find a significant reduction at end of treatment but did at follow-up. The remaining three studies[59–61] could not demonstrate such reductions specific to group CBT. Further, interpretations should be made with caution as a number of the included studies may include concurrent therapy, the effects of which are difficult to separate from the group treatment. There is also uncertainty surrounding how accurately the treatment reflects CBT in some studies, and uncertainty around whether generalisations can be made to the PND population because of participants being at different times postpartum in some studies. Furthermore, only one of the

included was conducted in the UK making the applicability of findings from the other studies questionable.[43] There is not enough evidence to adequately compare group treatment with individual treatments or other comparators.

The qualitative review showed that participants had positive views of group treatment. However, it is important to note that it is difficult to assess how accurately the groups reflected group CBT and, further, whether the participants reflected a genuine PND population. Specific benefits of CBT were reported, with participants commenting that cognitive components were helpful. Findings specific to PND included comments that participants were able to develop better relationships with their baby, understand their feelings associated with PND and assess their roles as wife and mother. Some negative aspects were also reported although these were in the minority; these included difficulty in applying the CBT techniques and difficulty in talking openly in the group setting. It is unclear whether CBT in particular or factors common to any group activities are instrumental in the treatment. More general findings demonstrated that group members appreciated the caring and supportive environment which served to facilitate the sharing of feelings, the development of a community which served to reduce isolation, and the practical aspects of the group which were also acknowledged as being important in the treatment process. Participants also reported that partner sessions were helpful, and it was reported that men also benefited from group sessions, resulting in increased practical help for women.

A further consideration related to both the quantitative and qualitative studies surrounds therapist variability. As previously noted, variability in therapist effectiveness can account for variance in treatment outcomes.[69] As a relatively small number of therapists were involved in facilitating the group interventions it is likely that the performance of the therapist could have had a significant affect on the results.

It is acknowledged that although all eight included studies record that at least an element of CBT was employed in the group treatment, they may not fully represent CBT in its most widely recognised form. However, owing to the high level of 'common factors' operating in psychological therapies, such as engendering hope, the conclusions we draw may be applicable to many psychological group treatments.

Chapter 4
Assessment of cost-effectiveness

Systematic review of existing cost-effectiveness evidence

Identification of studies

To retrieve papers on cost-effectiveness the search terms for clinical effectiveness were rerun on MEDLINE, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and EMBASE using an economics filter. The economics filters used are provided in Appendix 1. The literature retrieved in the searches on the NHS Economic Evaluation Database (NHS EED) and the Health Economic Evaluations Database (HEED) was also reviewed. The searches were undertaken in January 2008. Databases were searched from 1950 to 2008 with the actual date range for each of the databases searched depending on coverage of the individual database. The searches were not restricted by language.

Pertinent economic literature was planned to be assessed using the Drummond and Jefferson checklist.[70] However, no applicable publications were found.

Independent economic assessment

No existing models of the cost-effectiveness of group CBT for PND were identified in the systematic review of the literature. As such, a de novo economic model was constructed.

Methods

Given the scarcity of the data identified within the clinical effectiveness section, a pragmatic approach was taken when constructing the mathematical model, with the intention to provide indicative estimations of likely cost-effectiveness ratios rather than a definitive answer.

A conceptual model was constructed which would investigate the benefits associated with group CBT for PND. The design of the conceptual model was influenced by the data that were available to populate the model, which were deemed to be only those data from the Honey RCT.[43] This RCT was selected as it was UK based, had a clear CBT component and reported data at baseline, at end of treatment and at a 6-month follow-up period.

Unfortunately this trial did not incorporate an individual CBT arm; therefore this comparison was not explicitly modelled. Only the cost-effectiveness of group CBT compared with RPC was evaluated.

When modelling the cost-effectiveness of group CBT it was assumed that benefit would be accrued only on initiation of the treatment. Once treatment had commenced it was assumed that there would be a linear increase in the benefit of group CBT compared with RPC, peaking at the end of treatment. Although the CIs were wide, data from the Honey RCT[43] provided relatively strong evidence that any gain would persist throughout a 6-month follow-up period (*Figures 4* and *5*).

We assumed that any gain would be maintained over the 6-month period and would then be followed by a linear decline in the advantage of group CBT compared with RPC that was assumed to be reduced to zero 1 year after treatment. That is, a linear decline over a 14-week period. The duration of this decline was chosen as the authors understand that after 12 months PND would be reclassified as general depression. This may be conservative as the focus of CBT is on developing skills that may provide longer benefits; longer time periods are evaluated in sensitivity analyses. A linear decline was chosen as it appeared reasonable, other distributions may be applicable, however, given the large uncertainty in the model parameters, particularly length of comparative advantage associated with group CBT, it was believed that fitting other distributions would be introducing unnecessary complexity.

These assumptions would lead to a gain in EPDS scores associated with group CBT compared with RPC as depicted in *Figure 6*; the base-case values have been used in this figure. Because of the small time period of the model neither benefits nor costs were discounted.

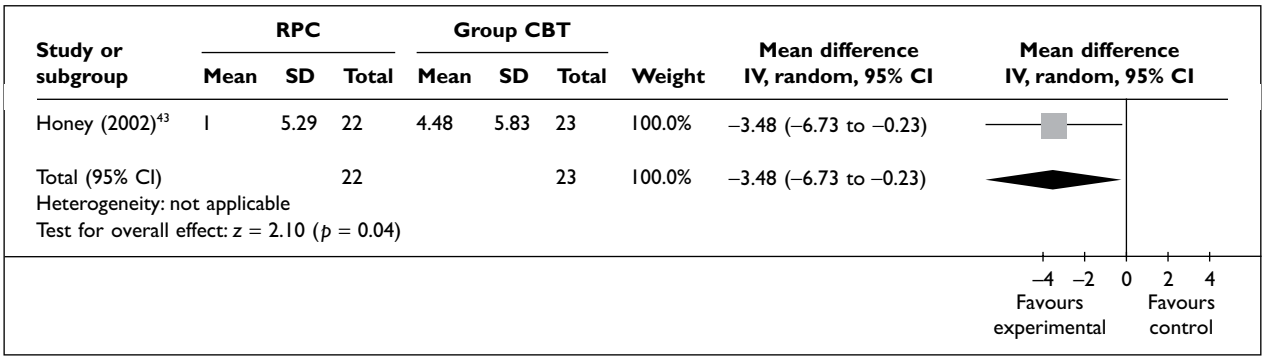

FIGURE 4 *Efficacy data at the end of treatment.*

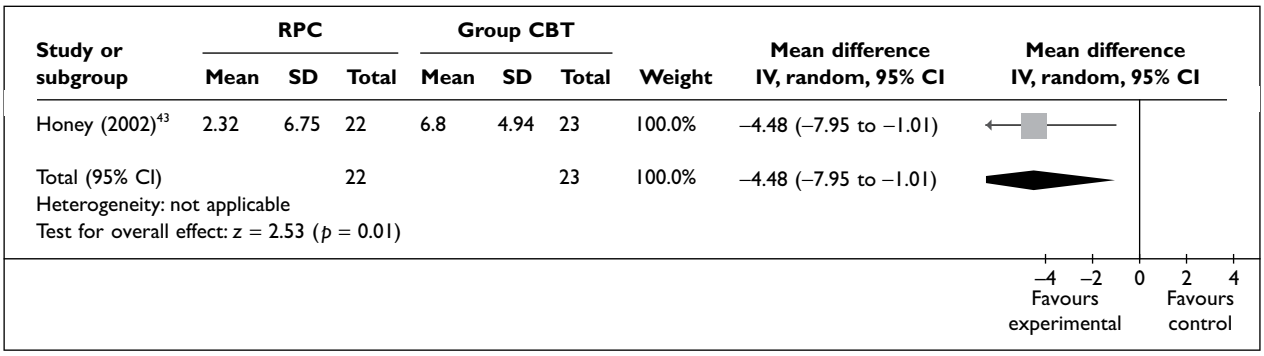

FIGURE 5 *Efficacy data at 6-month follow-up.*

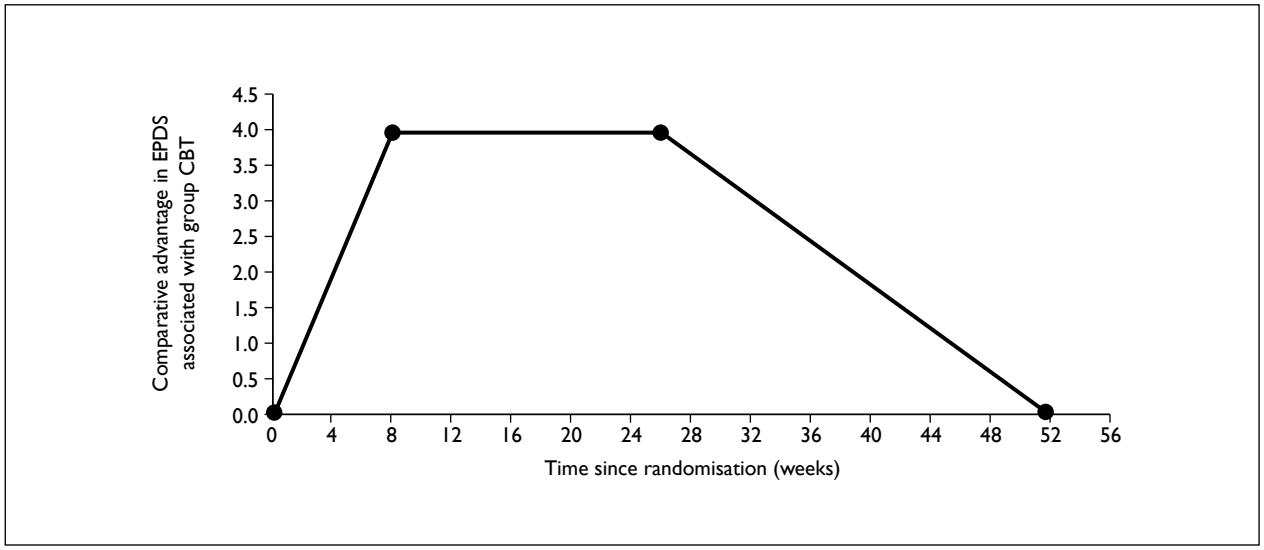

FIGURE 6 *The conceptual model of the effects of group CBT on EPDS compared with RPC.*

In the *Figure 6*, 8 weeks relates to the end of the treatment period, 26 weeks the assumed time at which maximum comparative advantage declines and 52 weeks the period at which there was assumed to be no comparative advantage of group CBT compared with RPC. The duration of comparative advantage was altered within sensitivity analyses.

The assumed effectiveness of group CBT compared with RPC

As previously noted, the CIs for the effects of group CBT compared with RPC at end of treatment and follow-up in the Honey RCT[43] were large. In order to reduce the uncertainty and to provide an estimation of the constant benefit assumed from the end of treatment to 6 months thereafter all

data points for Honey[43] were pooled together to produce a single estimate. It is acknowledged that this will remove any correlation between the two time points, but this was deemed a worthwhile sacrifice. The assumed efficacy is depicted in *Figure 7*.

Thus it was expected that a woman who received group CBT would have at the end of treatment and for the following 6-month period, on average, an EPDS score that was 3.98 lower than a similar woman who received only RPC. The 95% CI ranged from a reduction of 4.69 to a reduction of 3.27.

Mapping from changes in EPDS scores to changes in utility

In order that the cost-effectiveness ratios calculated can be compared with those estimated for other interventions in other disease areas NICE recommends that QALYs be used as the metric for health gain.[71] A methodology was thus needed to translate between changes in EPDS scores and changes in utility. This was achieved by using data from the PoNDER trial[13] which had recorded both EPDS scores and utility scores [as measured using the Short Form questionnaire-6 Dimensions (SF-6D)] for women following childbirth at 6 weeks and 6 months. The SF-6D is a preference-based scoring system that provides a utility value for a patient.[72]

Data were taken for those woman ($n = 401$), regardless of arm in the RCT, who had an EPDS score of 12 or greater at 6 weeks following childbirth and who had values for both EPDS and SF-6D at both 6 weeks and 6 months. The change in EPDS and SF-6D between 6 weeks and 6 months was recorded; these data are plotted in *Figure 8*.

A moderate relationship was observed ($r^2 = 0.27$) that indicated that as the EPDS score improved (i.e. became lower) the SF-6D score improved (i.e. became higher). It was also noted that regardless of any change in EPDS score, the utility of a woman was 0.0625 higher at 6 months than at 6 weeks. This result was not surprising given that the EPDS does not include a sleep component and it is likely that women would be achieving more hours of sleep at 6 months than at 6 weeks.

A plot of the residuals versus the fitted values is provided in *Figure 9* and visually displays no marked bias within the fit.

Tests for heteroskedasticity were conducted in STATA version 9 (StataCorp LP, College Station, TX) using the Breusch–Pagan/Cook–Weisberg test. This showed that the variance was not constant ($p = 0.008$) and therefore robust standard errors were used when sampling from the regression equation.

The STATA output is provided in *Table 11*.

In order that the correlation between the slope and constant of the regression was maintained the variance–covariance matrix was identified. Cholesky decomposition techniques[73] were used, assuming that the coefficients for both the EPDS change and the constant were normally distributed, in order to preserve correlation. The variance–covariance matrix is provided in *Table 12*.

Sampling parameters for the slope and constant of the regression equation and for the efficacy of group CBT

In order to estimate the overall utility gain associated with group CBT, PSA were conducted.[74] One thousand Monte Carlo estimations of the distribution of the efficacy of group CBT were sampled along with 1000 pairs of correlated slope and constant coefficients describing the

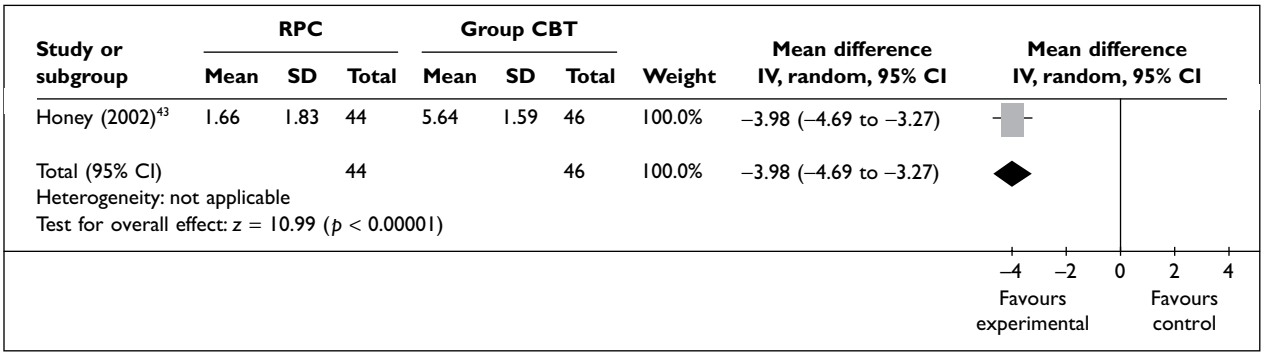

FIGURE 7 *The efficacy of group CBT used within the model.*

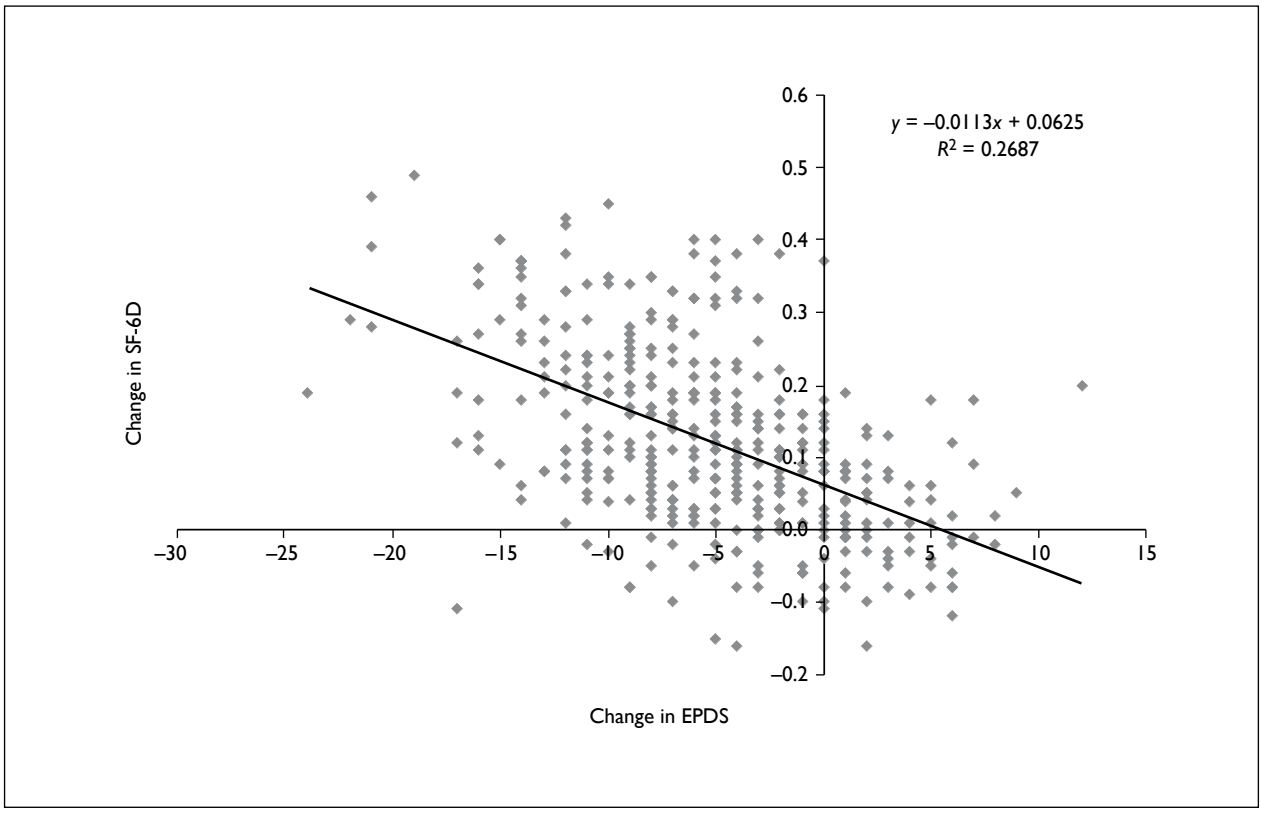

FIGURE 8 *A regression of change in SF-6D against change in EPDS.*

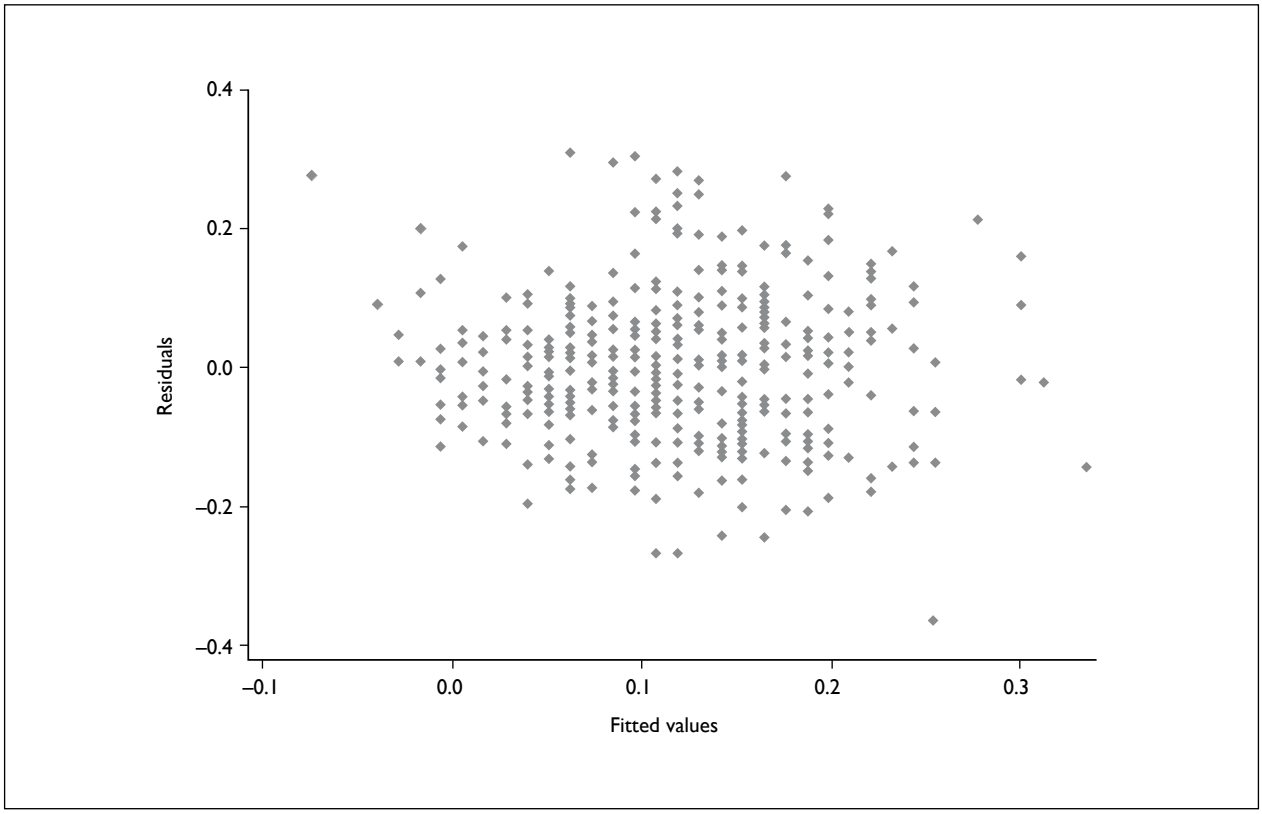

FIGURE 9 *A plot of the residuals versus the fitted values from the change in SF-6D versus change in EPDS regression.*

TABLE 11 *STATA output when regressing change in utility with change in EPDS score*

		Robust			95% CI	
12+	**Coefficient**	**SE**	***t***	***p*>(t)**	**Lower**	**Upper**
EPDS change	–0.01134	0.000984	–11.52	0	–0.01327	–0.0094
Constant	0.062505	0.006818	9.17	0	0.049101	0.07591

SE, standard error.

TABLE 12 *The variance–covariance matrix associated with the regression of change in utility with change in EPDS score*

	EPDS change	**Constant**
EPDS change	9.68×10^{-7}	
Constant	4.11×10^{-6}	4.65×10^{-5}

linear relationship between change in EPDS and change in utility, thus forming 1000 parameter configurations. The gain in utility for each woman associated with each configuration was calculated algebraically using the assumptions depicted in *Figure 6*. The range of the 1000 utility estimates is provided in *Figure 10*.

The mean value of the utility gain was 0.032 with a 95% CI, using a percentile method of 0.025 to 0.041.

The estimated costs per woman completing a group CBT course

The costs for two scenarios of delivering group CBT for PND were explored: one if the Honey RCT[43] regime was to be replicated; and the second being the delivery methods deemed by the authors to be most likely were group CBT to become widely available. The resources expected to be associated with each strategy are detailed in *Table 13* and *Table 14*, respectively. These values were relatively similar, being £1317 and £1246 per woman.

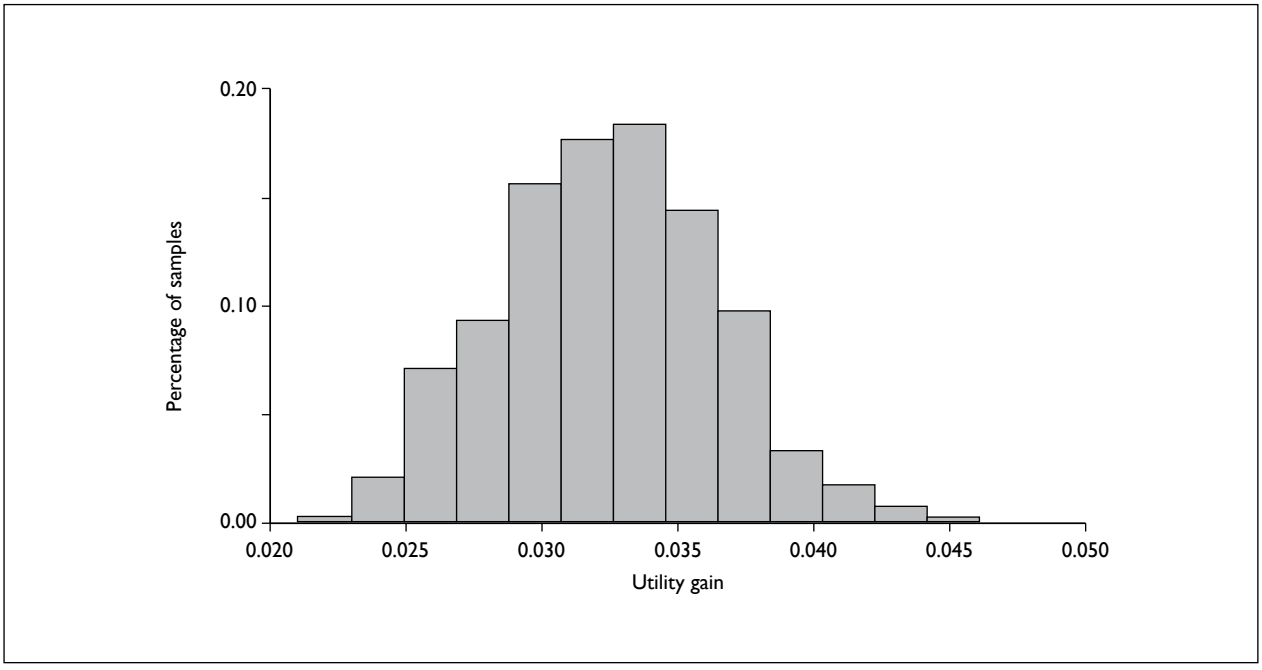

FIGURE 10 *The distribution of sampled utility gains per woman receiving group CBT.*

TABLE 13 *The resources required to duplicate the group CBT regimen used in Honey[43]*

			Source
A	Number of weekly sessions	8	Honey[43]
B	Length of sessions (hours)	2	Honey[43]
C	Number of health visitors required	2	Honey[43]
D	Preparation time required per session	2	Assumed 1 hour per session per health visitor
E	Additional time required in excess of the session	2	Assumed 1 hour per session per health visitor
F	Average number of participants	5	Honey[43]
G	Time for initial assessment per participant (hours)	2	Assumed 2 hours per participant
H	Health visitor time required	74	(A×B×C) + A×(D + E) + F×G
I	Cost per hour of health worker time (£)	89	Morrell *et al.*[13] cost per hour of client time including training costs for psychological therapies (£79 in 2003–4, this has been amended using inflation indices to represent current prices)
J	Total cost of health visitor	6586	H×I
K	Total cost per person (£)	1317	J/F

TABLE 14 *The resources required using the delivery methods deemed by the authors of this report to be most likely were group CBT to become widely available (see Chapter 1 for more detail)*

			Source
A	Number of weekly sessions	12	Authors
B	Length of sessions (hours)	2	Authors
C	Number of facilitators required	2	Authors – one health visitor and one newly qualified clinical psychologist (same salary assumed)
D	Preparation time required per session	2	Authors – assumed 1 hour per session per facilitator
E	Additional time required in excess of the session	2	Assumed 1 hour per session per facilitator
F	Average number of participants	8	Authors
G	Time for initial assessment per participant (hours)	2	Assumed 2 hours per participant
H	Health visitor time required	112	(A B×C) + A×(D + E) + F×G
I	Cost per hour of health worker time (£)	89	Morrell *et al.*[13] cost per hour of client time including training costs for psychological therapies (£79 in 2003–4, this has been amended using inflation indices to represent 2007–8 prices)
J	Total cost of facilitators	9968	H×I
K	Total cost per person (£)	1246	J/F

The costs presented in *Tables 13* and *14* may be underestimates as they did not include any set-up costs or additional running costs, such as room hire and crèche facilities, which may have been incurred. With the additional likelihood that women receive initial assessment (hence incurring costs) but do not progress to group CBT and other miscellaneous costs that would be incurred we estimated that £1500 per woman completing a group CBT course would be approximately correct regardless of the calculation method.

Base-case results

The estimated cost per QALY result for the base case is provided in *Table 15*.

TABLE 15 *The estimated cost per QALY of group CBT compared with RPC*

Mean cost per woman (£)	Mean QALY gain per woman	Mean cost per QALY (£)	95% cost per QALY using a percentile method
1500	0.032	46,462	37,008 to 60,728

These results are displayed in *Figure 11* with a CEAC.[45] The mean cost per QALY results were high when compared with recommended NICE thresholds of £20,000 and £30,000 per QALY,[71] indicating that group CBT was unlikely to be cost-effective based on present assumptions.

Sensitivity analyses

There was uncertainty in the assumptions regarding the modelled results that were explored in univariate sensitivity analyses (*Table 16*). These included altering the costs per woman of running the service, changing the estimated utility gain per woman and extending the length of time during which a woman would receive a utility benefit to a period of 18 months. A further sensitivity analysis was also undertaken assuming arbitrarily that an additional 0.02 QALYs were gained as a crude exploratory analysis of estimation of potential utility gains associated with the woman's partner or by the baby.

It was seen that each altered variable had the ability to alter markedly the cost per QALY ratios. This was particularly of importance when analysing the length of time that group CBT would provide a benefit compared with RPC, as the duration used within the base case (of 1 year after initiating group CBT) was particularly uncertain. If the benefits of group CBT persisted for longer periods then the cost per QALY estimated in the base case would be unfavourable to group CBT when compared with RPC.

A further sensitivity analysis was conducted where combinations of parameter values that were plausible but favourable to group CBT were selected. This gave a value below £20,000, a common threshold of cost-effectiveness used by NICE.[71] This indicated that whilst the base case did not appear to be cost-effective there were plausible scenarios that were cost-effective, and a definitive answer could only be made once there was more certainty in the costs of conducting group CBT, in the efficacy of pure group CBT and in the duration of residual benefit.

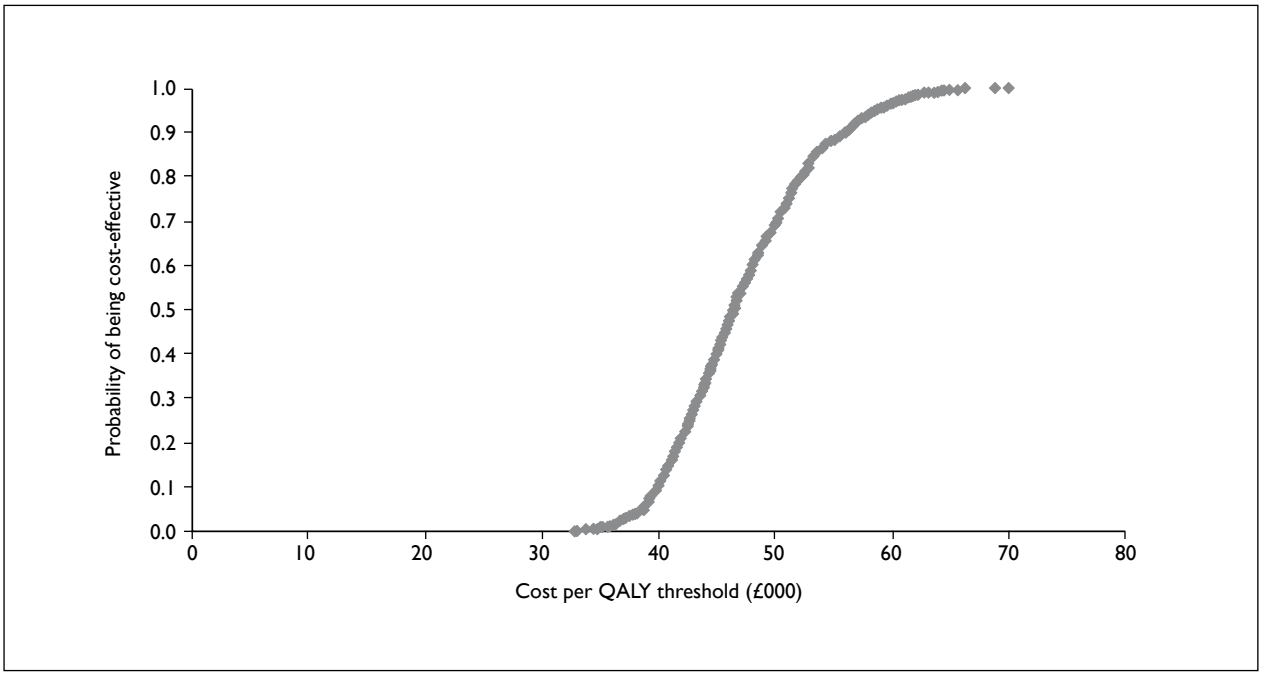

FIGURE 11 *The CEAC for group CBT compared with RPC.*

TABLE 16 *The base-case results following sensitivity analyses*

Sensitivity analysis	Mean cost per woman (£)	Mean QALY gain per woman	Mean cost per QALY (£)
Base case	1500	0.032	46,462
Cost per woman decreased to £750	750	0.032	23,231
Cost per woman increased to £2000	2000	0.032	61,948
Lower 95% of efficacy assumed (EPDS decrease of 3.27)	1500	0.027	56,626
Upper 95% of efficacy assumed (EPDS decrease of 4.69)	1500	0.038	39,481
Linear decline in advantage extended to 18 months	1500	0.044	34,382
Additional QALY gain of 0.02 applied	1500	0.052	28,846
Cost per woman decreased to £1000, EPDS decrease of 4.3 assumed, linear decline in advantage extended to 18 months	1000	0.047	19,230

Exploration of the expected value of information within the decision problem

As discussed previously there was considerable uncertainty within the decision problem. This uncertainty was initially explored using sensitivity analyses assuming remaining parameters in the base case remained constant. Such analyses showed that there were plausible scenarios where group CBT would be deemed cost-effective compared with RPC.

Further analyses were undertaken using formal expected value of perfect information (EVPI) techniques, which indicate the most that a decision-maker would pay to remove all uncertainty from the decision problem.[46,47] This analysis required that distributions were assigned to variables subject to uncertainty. The uncertainty in the efficacy had previously been estimated; however, the uncertainties in the costs of group CBT per woman and the duration of comparable advantage had not addressed using scenario analyses rather than a distribution. It was deemed that a triangular distribution for costs ranging from £750 to £2000 with a mode of £1500 was not unreasonable considering potential economies of scale and also that a triangular distribution for duration of comparative advantage ranging from 1 to 2 years with a mode of 1 year was also not unreasonable. The authors recognised that these distributions were arbitrary but believed that the exploratory results provided from this analysis would provide an indication of the likely value of information. It was also commented that these values did not match identically those in the deterministic base case, as the mean cost was £1418 compared with £1500 and the duration of comparative advantage was 16 months compared with 12 months. The mean of the probabilistic values were not surprising given that it was commented that the comparative advantage in the base case was likely to be conservative, and that were group CBT to become more widespread the cost per participant would be likely to fall.

The estimated cost per QALY result having fitted distributions to data on comparative advantage and cost of group CBT per woman is provided in *Table 17* with a CEAC presented in *Figure 12*.

It was seen that the cost per QALY value had fallen to £36,062, but this value still fell outside the recommended cost-effectiveness threshold. However, some scenarios fell below a value of £30,000 per QALY,[71] which may be deemed a more appropriate threshold than £20,000 as only utility gains relating to the woman (neither the partner or baby) were considered, indicating that there was uncertainty in the correct decision.

The EVPI methodology evaluates in monetary terms the cost of potentially making the wrong decision using a net benefit approach.[75] Given our chosen parameter distributions, the EVPI per woman receiving group CBT was calculated to be £53.50.

The number of births in 2003 in the UK was 695,500;[76] assuming that 17.3% of women had an EPDS score of 12 or over[13] this equates to an estimated 120,000 women suffering from PND

TABLE 17 *The estimated cost per QALY of group CBT compared with RPC having fitted statistical distributions to uncertain parameters*

Mean cost per woman (£)	Mean QALY gain per woman	Mean cost per QALY (£)	95% cost per QALY using a percentile method
1418	0.039	36,062	20,464 to 76,293

per annum. It was assumed that CBT may be the most appropriate treatment for the forthcoming 10 years. If the birth rate and the prevalence of PND stay constant this would equal 1,200,000 women with an incident case of PND over the next 10 years. For simplicity, we have assumed that each case of PND represents a new episode. Therefore, 1,200,000 women were estimated to benefit from increased knowledge regarding the efficacy, cost and duration of comparative advantage of group CBT compared with RPC. Combining the number of women who could benefit and the EVPI per woman would mean that decision-makers would be willing to pay a maximum of £64M to remove all uncertainty in the decision problem. This amount appeared more than sufficient to adequately fund an RCT to assess the value of the uncertain parameters as well as to explicitly incorporate individual CBT within the RCT.

Furthermore, the expected value of partial perfect information (EVPPI)[48] was used to estimate the benefit of removing all uncertainty from one of four variables: the assumed efficacy of group CBT in increasing EPDS values; the assumed cost per woman treated of group CBT; the assumed duration of comparative advantage of group CBT; and the assumed gradient in the relationship between EPDS values and the SF-6D. *Figure 13* depicts the EVPI and the EVPPI of the four selected variables.

It was seen that variables with the biggest influence on the cost-effectiveness of group CBT were the cost of treating a woman and the assumed relationship between EPDS values and the SF-6D. By contrast, there was less to be gained by researching the increase in EPDS associated with group CBT and the length of comparative benefit. However, even the variable with the lowest EVPPI value per woman (the efficacy in terms of EPDS) when multiplied by the number of women affected would still equate to an estimated maximum cost of £500,000 to remove all uncertainty in this variable.

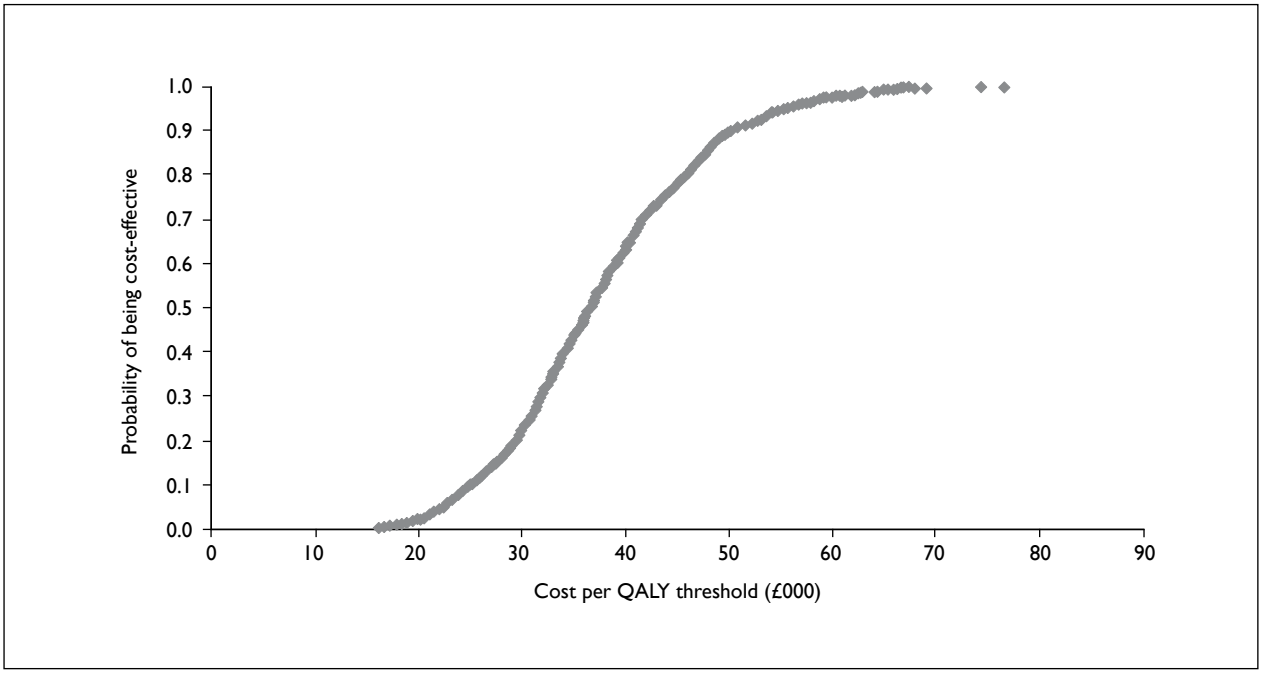

FIGURE 12 *The CEAC for group CBT compared with RPC having fitted statistical distributions to uncertain parameters.*

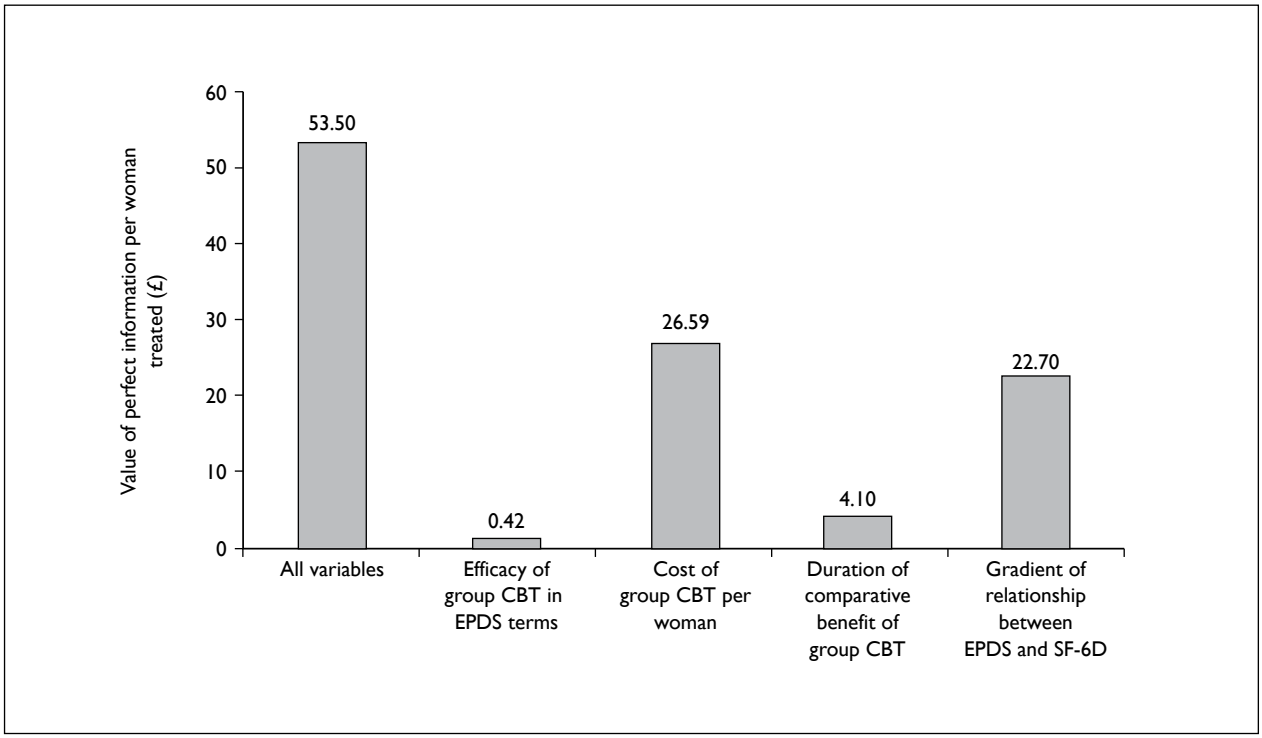

FIGURE 13 *The value of perfect information associated with parameters in the model.*

Discussion

The current work provides the first published estimate of the cost-effectiveness of group CBT for PND in the UK. The base-case cost per QALY is relatively high (£46,462) compared with currently used thresholds,[71] although there is considerable uncertainty in the model parameters. The sensitivity analyses have shown that relatively small QALY gains compared with the base case bring the cost per QALY into values that would potentially be considered cost-effective. The costs of treating a woman with group CBT also markedly affect the cost per QALY ratio. Were the costs estimated here to be larger than those that would arise if group CBT were widely implemented then the cost per QALY value of £46,462 would be an overestimate. It is further noted that any health benefits that are achieved in addition to women with postnatal depression, such as partners and children as previously reported,[26,27,29,30] have not been included, which may also overestimate the cost-effectiveness ratio. There is enough uncertainty in the parameters that we cannot provide more than an exploratory indication of the likely cost-effectiveness of group CBT for PND; when 'reasonable' distributions were fitted to the costs of treatment and the duration of comparative advantage, the cost per QALY fell to £36,062.

Expected value of perfect information analyses were undertaken to provide an indication of the maximum value that would be placed on removing all uncertainty in the decision problem, this value was > £64M and would appear sufficient to fund the further research required to provide more accurate data on input parameters and to produce more robust estimates of cost-effectiveness. EVPPI analyses show that the variables that have the largest influence on uncertainty are the cost per woman treated and the assumed relationship between EPDS values and the SF-6D.

The results reported are for the UK, as studies in other countries (such as Chile) have been excluded because of the differences in delivering CBT between countries. As such, generalising our results to other countries may not be possible.

A strength of our analyses is that an indicative cost-effectiveness ratio for group CBT for PND has been reported, although it is cautioned that this is subject to uncertainty due to gaps within the current knowledge base. An additional strength has been the relationship between changes in EPDS scores and changes in SF-6D; such a relationship has not previously been reported. Our analyses indicate that the SF-6D value typically increases between 6 weeks and 6 months even though the EPDS remains constant, which could be explained

by the lack of a sleep component in the SF-6D. Furthermore, the exploratory analyses have indicated those parameters to which the cost-effectiveness ratio is most sensitive, allowing future research to be more targeted.

The primary limitation of our analysis is caused by the uncertainty in key model inputs. Whilst some, such as the efficacy of group CBT could be tested using PSA, others, such as the residual benefit of group CBT or the costs of group CBT per woman, could not be analysed using PSA, and only selected combinations were tested. Furthermore, utility measurements were not recorded in the appropriate RCT, thus relying on a regression of EPDS to SF-6D, which introduces further uncertainty. The sensitivity analyses undertaken indicate that the cost per QALY can change markedly with plausible combinations of values, which means that a definitive answer on whether group CBT is likely to be cost-effective cannot be provided given current data.

Chapter 5

Assessment of factors relevant to the NHS and other parties

It is acknowledged by NICE[5,34] that there is considerable variation in the provision of antenatal and postnatal mental health services across England. Inconsistent provision of services and referral and care pathways is likely to have a detrimental impact on the provision of group CBT given that it may not be available across the UK. This may need to be addressed to facilitate the introduction of a new service such as group CBT.

To ensure women are seen within 1 month of initial assessment and no longer than 3 months after, the NICE commissioning guide[34] suggests that the level of service may need to be increased by the PCT to improve resources for existing psychological therapies or the addition of a new service. An increase in resource use may relate to increased use of health visitors', CBT therapists' and clinical psychologists' time in the provision of group CBT, any training needs for the treatment, and the potential increased use of community space.

Postnatal depression can have a detrimental effect on the family members of those with the condition and there may also be implications for the treatment of these family members, particularly the infant and partners of women with PND.[26,27,29,30]

Chapter 6
Discussion

Statement of principal findings

Clinical effectiveness

In total 12 studies were identified in the clinical effectiveness review. Six of these studies were included in the quantitative review[43,58–62] and six in the qualitative review.[52,53,65–68] The six studies in the quantitative review comprised three RCTs[43,58,59] and three non-randomised trials.[60–62] The studies were found to be unsuitable for meta-analysis, and a narrative analysis of the findings was undertaken. The findings were inconsistent across the studies but three studies, two RCTs[43,58] and one non-RCT[62] did provide an indication that groups incorporating CBT principles and ranging from intervention to purely psycho-education were more effective than RPC in reducing depression in women with PND. Data were too limited to provide an assessment of group CBT against any other comparator.

The six studies in the qualitative review included two studies[52,53] investigating a group treatment with a specified CBT component, and four studies[65–68] investigating a group treatment without a specific theoretical basis. These four studies were used as a collective comparator against the two group CBT studies. Women in the CBT groups reported that the group environment allowed women to develop better relationships with their baby, to understand that their feelings as a result of PND were normal, and to assess their role as a wife and mother. More generally they appreciated the caring and supportive environment, the development of a community and practical aspects of the group. Negative aspects included difficulty in applying CBT techniques and difficulty in talking openly in a group setting. In terms of the comparison of CBT groups against the non-theoretically-based groups, other than comments specifically relating to practical issues around the use of CBT techniques, the user perspective did not appear to differ.

Cost-effectiveness

An indicative cost per QALY of group CBT for PND has been provided. The base-case value was relatively high (£46,462); however, this value changes markedly with changes in other parameters such as assumed cost of CBT per woman and the duration of any residual benefit. An analysis using plausible, but favourable, assumptions to group CBT for PND produced a cost per QALY value that would generally be considered cost-effective. The analysis excluded any benefits or cost implications associated with partners and children, which may mean that the cost per QALY ratio has been overestimated. These uncertainties mean that a definitive assessment of the cost-effectiveness could not be provided. However, EVPI analyses indicate that the monetary cost of potentially making the wrong decision is large (our estimate is > £64M). This value should be sufficient to fund an RCT to provide robust data on the variables that are currently uncertain. In the interim, EVPPI analyses show that the uncertainty in the cost of treating a woman with group CBT and the gradient of the relationship between EPDS values and SF-6D values have a large influence on potentially making an incorrect decision regarding the cost-effectiveness of group CBT.

Strengths and limitations of the assessment

Clinical effectiveness

One strength is the presented summary of both quantitative and qualitative evidence for group CBT in PND. However, any conclusions drawn from this summary will be subject to limitations which have been detailed in the section below, Uncertainties.

Cost-effectiveness

A further strength of our analyses is that a mathematical model has been constructed and an indicative cost-effectiveness ratio for group CBT for PND has been reported, although it is cautioned that this is subject to uncertainty due to gaps within the current knowledge base. An additional strength includes an analysis of the relationship between changes in EPDS scores and changes in SF-6D; such a relationship has not previously been

reported. Finally, the value of information analyses guide the development of future research agendas.

The primary limitation of our analyses is caused by the uncertainty in key model inputs. Whilst some inputs, such as the efficacy of group CBT, could be tested using PSA, others, such as the residual benefit of group CBT or the costs of group CBT per woman, could not be analysed using PSA, and only selected combinations were tested. Furthermore, utility measurements were not recorded in the appropriate RCT, thus relying on a regression of EPDS to SF-6D which introduces further uncertainty. The sensitivity analyses undertaken show that the cost per QALY can change markedly with plausible combinations of values, which means that a definitive answer on whether group CBT is likely to be cost-effective cannot currently be provided. EVPPI analyses have indicated where further research should initially be focused.

Uncertainties

Clinical effectiveness

There was little quantitative or qualitative RCT evidence to assess the effectiveness of group CBT for PND. The evidence that was available was of low quality in the main because of poor reporting of the results. Furthermore, little information was reported on concurrent treatment used in the studies, which was controlled for in only two of the studies.[43,62]

The evidence from the clinical effectiveness review provides inconsistent and low-quality information on which to base any interpretations for service provision. Although three of the included studies[43,58,62] provide some indication that group psycho-education incorporating CBT is effective compared with RPC, there is enough doubt in the quality, the level of CBT implemented in the group programmes, and the applicability to a PND population to significantly limit any interpretations. Some studies lacked important detail of the intervention, making it difficult to assess whether the treatment did genuinely reflect group CBT. Further, the time postpartum of the participants varied to a great extent across the studies, making generalisations to a PND population problematic. Furthermore, the potentially small number of health visitors involved in delivering the group CBT in the RCT assumed applicable to the UK setting may provide severe limitations in generalising the results to other health visitors. User perspectives assessed in the qualitative review may have been biased toward positive comments, although this was difficult to ascertain because of the limited detail provided on the methods incorporated.

Although NICE guidelines for antenatal and postnatal care exist,[5] these provide little detail on the referral process and the content of treatment programmes. Therefore, it was also difficult to ascertain whether group treatments and the comparators reflect current practice in the UK. Only two of the studies[43,52] assessed in the review had a UK setting and both were pilot investigations.

Impacts on the family and child have been highlighted as important outcomes in the treatment of PND. However, they could not be assessed here because of limited available data.

Based on the evidence presented here it is unclear whether drop-out and withdrawal rates have implications for group interventions. Although reasons for loss to follow-up are presented in some cases, it is unclear whether patient acceptability of group treatment is a causal factor in the drop-out rates reported.

It has been reported that variability in therapist effectiveness can account for variance in treatment outcomes, and is independent of both the therapists' professional background and patient factors at the start of treatment.[69] Given the small number of participants, and therefore the small number of therapists involved in facilitating the interventions reported here, it is possible that a particularly good or poor therapist could have markedly affected the results. As such there may be severe limitations in generalising the results observed in the RCTs to other settings.

Cost-effectiveness

The cost per QALY ratio for group CBT in PND is uncertain because of gaps in the evidence base. Research is urgently needed to populate key parameters in the model including the effectiveness of group CBT compared with both RPC and individual CBT in terms of a utility measure rather than EPDS, the costs of conducting CBT courses and the duration of residual benefit associated with CBT treatment. The cost-effectiveness ratio reported should be treated with caution until more robust data become available.

Chapter 7
Conclusions

Implications for service provision

A number of implications for service provision which would be applicable to group CBT are suggested. These include the clearer identification of the place of group CBT in a stepped care programme, the need for a clearer referral process for group CBT, the need to make clearer assessments of the facilitators and resources required for group CBT, including training needs, and a clear assessment process to identify participants suitable for the treatment.

Suggested research priorities

The variable with the largest impact on the results was the cost of treating a woman with group CBT. This can be estimated within the trial, or primary research can be undertaken to obtain a more robust figure than was obtained within this report.

Most of the included studies in the review were pilot investigations of group CBT for PND. This is a relatively new treatment for PND and as such large-scale trials are yet to be performed. Until these data are available it is difficult to make an assessment of effectiveness. The EVPI and EVPPI analyses undertaken in this report suggest that funding trials to ascertain the comparative efficacy and duration of the advantage of group CBT compared with RPC and the costs of providing group CBT appear cost-effective. The efficacy should be assessed using a utility measure rather than relying on a mapping of the EPDS. It is also recommended that individual CBT be assessed within any prospective RCT to allow a robust comparison between group CBT and individual CBT.

Further research is required to compare group CBT with individual treatment as this may be preferable or more efficacious in some cases, and with other psychological therapies. Furthermore, particular aspects of the group will require assessment, including the effect of the size of the group of participants, the duration of the sessions, the setting, and the qualifications and optimal level of involvement of the facilitator.

There is also a need for more research on patient preference for group CBT. In particular, which groups are likely to benefit, and whether effectiveness is dependent on patient background, comorbidity, the number of children, previous PND or antenatal depression; further, how participants with different subtypes of PND respond to the treatment.

Specific aspects of the group interventions may also benefit from future research. Sessions including partners were rated as important, and as previous research has shown that there is a detrimental impact on the partners of women with PND[29,30] this may be a particularly important area for future research. A related concern is the impact of PND on other family members including the infant and siblings. It has been demonstrated that PND can result in impaired cognitive[26] and social-emotional[27] development in the infant.

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Contributions of authors

Matt Stevenson, Senior Research Fellow, Alison Scope, Research Fellow, and Paul Sutcliffe, Senior Research Fellow, co-ordinated the review.

Alison Scope and Paul Sutcliffe [in conjunction with Anna Cantrell (Systematic Reviews Information Officer)] developed the search strategy and undertook searches; Alison Scope, Andrew Booth (Director of Information Resources, ScHARR), David Saxon (Research Fellow) and Paul Sutcliffe screened the search results. Alison Scope and Andrew Booth screened retrieved papers against the inclusion criteria. Alison Scope developed the critical appraisal tool, appraised the quality of papers and abstracted data from them.

Matt Stevenson, Alison Scope and Andrew Booth analysed the data. Matt Stevenson and Alison Scope wrote the background and discussion chapters. Alison Scope wrote the chapter on the quantitative systematic review. Alison Scope and Andrew Booth wrote the chapter on the qualitative systematic review. Matt Stevenson wrote the chapter on cost-effectiveness modelling. Eva Kalthenthaler, Senior Research Fellow, provided advice on the quantitative review and commented on drafts of the report. Pauline Slade, Professor of Psychology, and Glenys Parry, Professor of Applied Psychological Therapies, commented on drafts of the report.

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Appendix 1

Literature search strategies

A list of the electronic bibliographic databases searched

1. MEDLINE
2. MEDLINE In-Process & Other Non-Indexed Citations
3. CINAHL
4. Cochrane Database of Systematic Reviews (CDSR)
5. Cochrane Central Register of Controlled Trials (CENTRAL)
6. EMBASE
7. Database of Abstracts of Reviews of Effects (DARE)
8. NHS EED
9. NHS Health Technology Assessment (HTA)
10. PsycINFO
11. Science Citation Indexes
12. Social Sciences Citation Indexes
13. Applied Social Sciences Index and Abstracts (ASSIA)
14. BIOSIS
15. British Nursing Index
16. Social Care Online
17. Office of Health Economics Economic Evaluations database.

A list of additional sources

1. National Research Register (NRR)
2. Research Findings Register (ReFeR)
3. Current Controlled Trials and its links
4. Health Services Research Projects in Progress (HSRProj) and index to theses
5. health service research and guideline producing bodies (e.g. Scottish Intercollegiate Guidelines Network, NICE, National Guidelines Clearinghouse, etc.) have been consulted via the internet and other key organisations (e.g. Association for Postnatal Illness, Postnatal illness-Support & Help Association) have been contacted
6. grey literature has been identified from searches of databases including dissertation abstracts.

Copies of the search strategies used in the major databases

Search strategy used on MEDLINE and MEDLINE In-Process & Other Non-Indexed Citations

1. Depression, Postpartum/
2. post-partum depression.tw.
3. post partum depression.tw.
4. postpartum depression.tw.
5. depression, post partum.tw.
6. depression, post-partum.tw.
7. depression, postpartum.tw.
8. post-natal depression.tw.
9. post natal depression.tw.
10. postnatal depression.tw.
11. depression, post natal.tw.
12. depression, post-natal.tw.
13. depression, postnatal.tw.
14. post pregnancy depression.tw.
15. postpregnancy depression.tw.
16. post-pregnancy depression.tw.
17. or/1-16
18. Depression/
19. depress$.tw.
20. 18 or 19
21. Postpartum Period/
22. post-partum.tw.
23. post partum.tw.
24. postpartum.tw.
25. postnatal$.tw.
26. post natal$.tw.
27. post-natal$.tw.
28. postpregnancy.tw.
29. post pregnancy.tw.
30. child birth.tw.
31. childbirth.tw.
32. "labor and delivery".tw.
33. "labour and delivery".tw.
34. puerperal.tw.
35. or/21-34
36. 20 and 35
37. 17 or 36
38. antenatal depression.tw.
39. ante-natal depression.tw.
40. ante natal depression.tw.
41. or/38-40

42. ante-natal$.tw.
43. antenatal$.tw.
44. ante natal$.tw.
45. or/42–44
46. 20 and 45
47. 37 or 41 or 46
48. limit 47 to humans

Search strategy used on CINAHL

1. Depression, Postpartum/
2. post-partum depression.tw.
3. post partum depression.tw.
4. postpartum depression.tw.
5. depression, post partum.tw.
6. depression, post-partum.tw.
7. depression, postpartum.tw.
8. post-natal depression.tw.
9. post natal depression.tw.
10. postnatal depression.tw.
11. depression, post natal.tw.
12. depression, post-natal.tw.
13. depression, postnatal.tw.
14. post pregnancy depression.tw.
15. postpregnancy depression.tw.
16. post-pregnancy depression.tw.
17. or/1-16
18. Depression/
19. depress$.tw.
20. 18 or 19
21. Postpartum Period/
22. post-partum.tw.
23. post partum.tw.
24. postpartum.tw.
25. postnatal$.tw.
26. post natal$.tw.
27. post-natal$.tw.
28. postpregnancy.tw.
29. post pregnancy.tw.
30. child birth.tw.
31. childbirth.tw.
32. “labor and delivery”.tw.
33. “labour and delivery”.tw.
34. puerperal.tw.
35. or/21-34
36. 20 and 35
37. 17 or 36
38. antenatal depression.tw.
39. ante-natal depression.tw.
40. ante natal depression.tw.
41. or/38-40
42. ante-natal$.tw.
43. antenatal$.tw.
44. ante natal$.tw.
45. or/42-44
46. 20 and 45
47. 37 or 41 or 46

Search strategy used on Cochrane Library (CDSR, CENTRAL)

1. MeSH descriptor Depression, Postpartum explode all trees
2. (post-partum depression):ti,ab,kw or (post partum depression):ti,ab,kw or (postpartum depression):ti,ab,kw
3. (post-natal depression):ti,ab,kw or (postnatal depression):ti,ab,kw or (post natal depression):ti,ab,kw
4. (post pregnancy depression):ti,ab,kw or (postpregnancy depression):ti,ab,kw or (post-pregnancy depression):ti,ab,kw
5. (#1 OR #2 OR #3 OR #4)
6. (depress*):ti,ab,kw
7. MeSH descriptor Depression explode all trees
8. (#6 OR #7)
9. MeSH descriptor Postpartum Period, this term only
10. (post-partum):ti,ab,kw or (postpartum):ti,ab,kw or (post partum):ti,ab,kw
11. (postnatal* OR post natal* OR post-natal*):ti,ab,kw
12. (postpregnancy OR post pregnancy OR post-pregnancy):ti,ab,kw
13. (childbirth OR child birth):ti,ab,kw
14. (“labor and delivery” OR “labour and delivery”):ti,ab,kw
15. (puerperal):ti,ab,kw
16. (#9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15)
17. (#8 AND #16)
18. (#5 OR #17)
19. (antenatal depression OR ante natal depression OR ante-natal depression):ti,ab,kw
20. (ante-natal* OR ante natal* OR antenatal*):ti,ab,kw
21. (#8 AND #20)
22. (#18 OR #19 OR #21)

Search strategy used on EMBASE

1. Puerperal Depression/
2. post-partum depression.tw.
3. post partum depression.tw.
4. postpartum depression.tw.
5. depression, post partum.tw.
6. depression, post-partum.tw.
7. depression, postpartum.tw.
8. post-natal depression.tw.
9. post natal depression.tw.
10. postnatal depression.tw.
11. depression, post natal.tw.
12. depression, postnatal.tw.
13. depression, post-natal.tw.
14. post pregnancy depression.tw.
15. postpregnancy depression.tw.

16. post-pregnancy depression.tw.
17. or/1–16
18. DEPRESSION/
19. depress$.tw.
20. 18 or 19
21. puerperium/
22. post-partum.tw.
23. postpartum.tw.
24. post partum.tw.
25. postnatal$.tw.
26. post natal$.tw.
27. post-natal$.tw.
28. postpregnancy.tw.
29. post pregnancy.tw.
30. childbirth.tw.
31. child birth.tw.
32. "labor and delivery".tw.
33. "labour and delivery".tw.
34. puerperal.tw.
35. or/21-34
36. 20 and 35
37. 17 or 36
38. antenatal depression.tw.
39. ante natal depression.tw.
40. ante-natal depression.tw.
41. 38 or 39 or 40
42. antenatal.tw.
43. ante natal.tw.
44. ante-natal.tw.
45. 42 or 43 or 44
46. 20 and 45
47. limit 46 to humans

Search strategy used on Centres of Reviews and Dissemination databases (DARE, NHS EED and NHS HTA)

1. post-partum AND depression OR post AND partum AND depression OR postpartum AND depression
2. post-natal AND depression OR postnatal AND depression OR post AND natal AND depression
3. post AND pregnancy AND depression OR postpregnancy AND depression OR post-pregnancy AND depression
4. MeSH Depression, Postpartum EXPLODE 1 2
5. #1 OR #2 OR #3 OR #4
6. MeSH Depression EXPLODE 1
7. depress*
8. #6 OR #7
9. MeSH Postpartum Period EXPLODE 1
10. post-partum OR postpartum OR post AND partum
11. postnatal* OR post AND natal* OR post-natal*
12. postpregnancy OR post AND pregnancy
13. post-pregnancy
14. child AND birth OR childbirth
15. "labor and delivery" OR "labour and delivery"
16. puerperal
17. #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16
18. #8 AND #17
19. #5 OR #18
20. ante-natal AND depression OR antenatal AND depression OR ante AND natal AND depression
21. ante-natal OR antenatal OR ante AND natal
22. #8 AND #21
23. #19 OR #20 OR #22

Search strategy used on PsycINFO

1. postpartum depression/
2. post-partum depression.tw.
3. post partum depression.tw.
4. postpartum depression.tw.
5. depression, post partum.tw.
6. depression, post-partum.tw.
7. depression, postpartum.tw.
8. post-natal depression.tw.
9. post natal depression.tw.
10. postnatal depression.tw.
11. depression, post natal.tw.
12. depression, post-natal.tw.
13. depression, postnatal.tw.
14. post pregnancy depression.tw.
15. postpregnancy depression.tw.
16. post-pregnancy depression.tw.
17. or/1–16
18. major depression/
19. depress$.tw.
20. 18 or 19
21. postnatal period/
22. post-partum.tw.
23. post partum.tw.
24. postpartum.tw.
25. postnatal$.tw.
26. post natal$.tw.
27. post-natal$.tw.
28. postpregnancy.tw.
29. post pregnancy.tw.
30. child birth.tw.
31. childbirth.tw.
32. "labor and delivery".tw.
33. "labour and delivery".tw.
34. puerperal.tw.
35. or/21-34
36. 20 and 35
37. 17 or 36
38. antenatal depression.tw.
39. ante-natal depression.tw.
40. ante natal depression.tw.
41. or/38-40

42. ante-natal$.tw.
43. antenatal$.tw.
44. ante natal$.tw.
45. or/42-44
46. 20 and 45
47. 37 or 41 or 46

Search strategy used on BIOSIS and the Science and Social Sciences Citation Index

1. TI=(Depression, Postpartum OR post-partum depression OR post partum depression OR postpartum depression OR depression, post partum OR depression, post-partum OR depression, postpartum OR post-natal depression OR post natal depression OR postnatal depression OR depression, post natal OR depression, post-natal OR depression, postnatal OR post pregnancy depression OR postpregnancy depression OR post-pregnancy depression)
2. TS=(post-partum OR post partum OR postpartum child birth OR childbirth OR "labor and delivery" OR "labour and delivery" OR puerperal OR post-natal* OR postnatal* OR post natal*)
3. TI=depress*
4. #3 AND #2
5. TS=(antenatal depression OR ante-natal depression OR ante natal depression)
6. TS=(ante-natal* OR antenatal* OR ante natal*)
7. #6 AND #3
8. #7 OR #5 OR #4 OR #1

Search strategy used on ASSIA

Query: ((antenatal OR ante natal OR ante-natal) and ((depress*) or (DE="depression"))) or (antenatal depression OR ante natal depression OR ante-natal depression) or (((postpregnancy OR post pregancy OR childbirth OR child birth OR "labor and delivery" OR "labour and delivery" OR puerperal) or (post-partum OR postpartum OR post partum OR postnatal* OR post natal* OR post-natal*) or (DE="postpartum women")) and ((depress*) or (DE="depression"))) or ((post pregnancy depression OR post-pregnancy depression OR postpregnancy depression) or (depression post natal OR depression postnatal OR depression post-natal) or (post-natal depression OR postnatal depression OR post natal depression) or (depression post partum OR depression post-partum OR depression postpartum) or (post-partum depression OR postpartum depression OR post partum depression) or (DE="postnatal depression"))

Economics filters used to retrieve cost-effectiveness literature

MEDLINE

1. Economics/
2. exp "Costs and Cost Analysis"/
3. economic value of life/
4. exp economics hospital/
5. exp economics medical/
6. economics nursing/
7. exp models economic/
8. Economics, Pharmaceutical/
9. exp "Fees and Charges"/
10. exp budgets/
11. ec.fs.
12. (cost or costs or costed or costly or costing$).tw.
13. (economic$or pharmacoeconomic$or price$or pricing$).tw.
14. quality adjusted life years/
15. (qaly or qaly$).af.
16. or/1-15

CINAHL

1. exp Financial Management/
2. exp *economics/
3. exp financial support/
4. exp financing organized/
5. exp business/
6. (cost or costs or economic$or pharmacoeconomic$or price$or pricing$).tw.
7. Health resource allocation.sh.
8. Health resource utilization.sh.
9. (editorial or letter or news).pt.
10. (1 or 2 or 3 or 4 or 6 or 7 or 8) not (5 or 9)

EMBASE

1. exp SOCIOECONOMICS/
2. exp "Cost Benefit Analysis"/
3. exp "Cost Effectiveness Analysis"/
4. exp "Cost of Illness"/
5. exp "Cost Control"/
6. exp Economic Aspect/
7. exp Financial Management/
8. exp "Health Care Cost"/
9. exp Health Care Financing/
10. exp Health Economics/
11. exp "Hospital Cost"/
12. (financial or fiscal or finance or funding).tw.
13. exp "Cost Minimization Analysis"/
14. (cost adj estimate$).mp.
15. (cost adj variable$).mp.
16. (unit adj cost$).mp.
17. or/1-16

Appendix 2

Data abstraction tables – quantitative review

TABLE 18 *Included randomised controlled trials*

Study	Funding	Methods	Participants	Interventions	Outcome measures
Milgrom *et al.* (2005)[59]	National Health & Medical Research council, Austin Hospital Medical Research Foundation	Design: RCT; three intervention arms and one control arm Tool of identification: EPDS, DSM-IV minor or major depression	Sample size: 192 (group CBT = 46), (group counselling = 47), (individual counselling = 66), (RPC = 33) Diagnosed condition: depression Method of diagnosis: DSM-IV	Intervention group: group-based CBT, group-based counselling, individual counselling Control group: RPC	Depression: BDI Anxiety: BAI Social support: SPS
Honey (2002)[43]	Wales Office of Research and Development for Health and Social Care	Design: RCT with a treatment arm and a control arm Tool of identification: EPDS	Sample size: 45 (23 controlled PEG), (22 RPC) Diagnosed condition: PND Method of diagnosis: EPDS	Intervention group: controlled PEG Control group: RPC	Depression: EPDS Social support: Duke UNC; DAS; WCC-R
Rojas *et al.* (2007)[58]	Fondo de Ciencia y Tecononlogia (FONDECYT-Chile) Grant	Design: RCT; one intervention arm and one control arm Tool of identification: EPDS	Sample size: 230 (MCI = 114, UC = 116) Diagnosed condition: major depression Method of diagnosis: DSM-IV	Intervention group: MCI Control group: UC	Depression: EPDS; SF-36

BAI, Beck Anxiety Inventory; DAS, Dyadic Marital Adjustment Scale; Duke UNC, Duke UNC Social Support questionnaire; PEG, psycho-educational group; SF-36, Short Form questionnaire-36 items; SPS, Social Provisions Scale; WCC-R, Ways of Coping Checklist-Revised.

TABLE 19 *Included non-randomised studies*

Study	Funding	Methods	Participants	Interventions	Outcome measures
Highet and Drummond (2004)[60]	NR	Design: community-based study; between groups for treatment vs wait list; within groups across treatments Tool of identification: pretreatment questionnaire, EPDS	Sample size: 146 = 136 treatment group, 10 WLG Diagnosed condition: PND Method of diagnosis: not detailed – considered by health-care provider to have PND	Intervention group: eight different treatment conditions, participants may be included in one or more groups but this is not clearly stated which participants are in which groups; CBT, CBT and medication, medication only, group CBT only, group and individual CBT, individual CBT only, group cognitive and behaviour therapy, group behaviour therapy only Control group: WLG	Depression: EPDS Physiological and psychological anxiety: State Trait Anxiety Inventory; GHQ Social support: Social Support Scales
Meager and Milgrom (1996)[62]	NR	Design: between groups, two groups Tool of identification: EPDS, BDI	Sample size: 20 (group = 10), (WLG = 10) Diagnosed condition: PND Method of diagnosis: EPDS, BDI	Intervention group: group treatment (including CBT) Control group: WLG	Depression: EPDS; BDI Self-esteem: Coopersmith Self-esteem inventory Mood: Profile of Mood States Social support: SPS Parenting: PSI Relationship adjustment: DAS
Clark *et al.* (2003)[61]	Perinatal Foundation, Madison, WI, and the Research and Development Fund, Department of Psychiatry, University of Wisconsin Medical School	Design: between groups; three groups Tool of identification: DSM-IV, BDI	Sample size: 39 = 13 M–ITG, 15 IPT, 11 WLG Diagnosed condition: major depression Method of diagnosis: DSM-IV	Intervention group: M–ITG Individual therapy group: IPT Control group: WLG	Depression: BDI; CES-D Stress: PSI Child: BSID; PCERA

BSID, Bayley Scales of Infant Development; CES-D, The Center for Epidemiological Studies Depression Scale; DAS, Dyadic Marital Adjustment Scale; GHQ, General Health Questionnaire; NR, not reported; PCERA, The Parent–Child Early Relational Assessment; PSI, Parenting Stress Index; SPS, Social Provisions Scale.

TABLE 20 *Study characteristics of the RCTs*

Study	Description of treatment	Co-therapy or medication	Comparator	Sample size
Milgrom *et al.* (2005)[59]	Group-based CBT – designed to address specific target behaviours within the context of general components recognised as important in determining the success of cognitive behavioural intervention. Each session involved psycho-education, review of homework exercises, role playing and discussion Group-based counselling – designed for depression Individual counselling	NR	RPC: the routine care provided via the state's universal Maternal and Child Health Service	192: 52 of those allocated to a treatment condition did not attend; 121 completed post-intervention measures
Honey (2002)[43]	PEG; educational information on PND; strategies for coping; use of cognitive-behavioural techniques; relaxation	Antidepressant use, details not given	RPC: further details not provided	45 (four dropped out of PEG group but were followed up)
Rojas *et al.* (2007)[58]	MCI – included PEGs and structured pharmacotherapy if needed	Participants were excluded if receiving or had received treatment for depression during current postnatal period, but were offered medication as part of the intervention and control groups – numbers given in results section	UC: all services normally available in the clinics, including antidepressant dugs, brief psychotherapeutic interventions, medical consultation or external referral for speciality treatment (although psychotherapy and speciality treatments rarely offered)	230: 101 participants in MCI completed assessment at 3 months and 106 completed assessment at 6 months; 108 participants in UC group completed assessment at 3 months and 102 completed assessment at 6 months

NR, not reported; PEG(s), psycho-educational group(s).

TABLE 21 *Study characteristics of the non-RCTs*

Study	Description of treatment	Co-therapy or medication	Comparator	Sample size
Highet and Drummond (2004)[60]	Varied by GP/health visitor. Not detailed. Community sample	Various: see description of treatment	WLG: participants who had to wait at least 3 weeks to receive group intervention	188 participants initially involved in the study, 42 were excluded from the final sample leaving 146 participants
Meager and Milgrom (1996)[62]	Group treatment programme consisting of targets which take into consideration the risk factors for postpartum depression. An environment of social and emotional support, an educational component, a cognitive behavioural component, encouragement of networking, examination of patterns of communication, normalising of feelings, involvement of spouse in the group, practical homework	Participants could receive any other treatments at any time. Eight of the 20 participants were on medication but it is not stated how many of these eight were in the experimental group. Post hoc analyses revealed no significant differences between the groups on medication usage	WLG: had the opportunity to participate in the treatment programme once the participants in the treatment group had completed the programme	20: four participants dropped out of each group leaving 12 participants (six per group). These participants did not complete follow-up measures
Clark *et al.* (2003)[61]	M–ITG – mothers therapeutic intervention and peer support group and infant development group occurred simultaneously, followed by mother–infant dyadic group. Based on interpersonal, psychodynamic, family systems, and cognitive behavioural approaches IPT group – individual therapy, relating to partners, children and others	NR	WLG – those waiting to receive M–ITG	39: four participants in the M–ITG were lost to follow-up

NR, not reported.

TABLE 22 *Treatment details for the RCTs*

Study	Recruitment	Number of sessions	Number in group	Length of sessions	Professional background of therapist
Milgrom *et al.* (2005)[59]	Recruitment was via a community screening programme conducted at 47 maternal and child health centres in northern metropolitan Melbourne and rural eastern VIC, Australia	Nine, weekly	5–10	90 minutes	One of two senior therapists delivered the interventions, supported by cotherapists with professional registrations and backgrounds in clinical psychology, postgraduate psychology research and nursing with postgraduate qualifications in counselling and/or psychology. All received one-to-one instruction in use of the therapy manuals and regular, intensive supervision from the principal investigator
Honey (2002)[43]	Women were referred by their health visitor if they were attending mother and baby clinics in Gwent, scoring above 12 on the EPDS	Eight, weekly	Four to six per group	2 hours	Health visitors
Rojas *et al.* (2007)[58]	Recruited mothers at any stage during first postnatal year from three clinics in Santiago, Chile. Approached whilst waiting for health-related consultations. Screened using EPDS, those scoring 10 or above were asked to return for another assessment 2 weeks later. Those still scoring 10 or above were invited to a baseline clinical assessment (DSM-IV)	Eight, weekly	Maximum 20	50 minutes	Midwives or nurses with 8 hours of training and supervision every week. A medical doctor was responsible for the group

TABLE 23 *Treatment details for non-RCTs*

Study	Recruitment	Number of sessions	Number in group	Length of sessions	Professional background of therapist
Highet and Drummond (2004)[60]	Recruited via clinics and a range of health professionals offering treatment for PND	NR	NR	NR	NR
Meager and Milgrom (1996)[62]	Advertisements for the programme in local hospitals and maternal and child health centres	10, weekly	10	1.5 hours	Clinical psychologist
Clark *et al.* (2003)[61]	Through health-care provider referrals and newspaper advertisements. Screened by telephone using a questionnaire based on the DSM-IV criteria. Women who met the criteria for major depression during the postpartum period were included	M–ITG: 12, weekly IPT: 12, weekly	NR	1.5 hours	Three licensed psychologists, three social workers, three psychology interns and three postdoctoral fellows with at least 2 years of clinical experience

NR, not reported.

TABLE 24 *Study site, follow-up and inclusion/exclusion criteria for RCTs*

Study	Study site	Length of follow-up	Numbers lost to follow-up	Reasons for loss to follow-up	Inclusion criteria	Exclusion criteria
Milgrom *et al.* (2005)[59]	Northern metropolitan Melbourne and rural eastern VIC, Australia	12 weeks, and 12 months after treatment began	52 did not attend; 121 completed postintervention measures	NR	DSM-IV diagnosis of depression; 37- to 42-week pregnancy; infant birth weight 2.5 kg and above; no congenital abnormality; no major health problem; no concurrent major psychiatric disorder	Depression affecting competence to give informed consent (e.g. psychotic depression); risk requiring crisis management; participation in other psychological programmes and significant difficulty with English
Honey (2002)[43]	Gwent, Wales, UK	8 weeks (after PEG finished) and 6 months after first assessment	Three in each condition (equals six) at time three (6 months)	NR	Attending mother and baby clinics. > 12 on EPDS. Most recent child < 12 months	Exhibiting psychotic symptoms
Rojas *et al.* (2007)[58]	Santiago, Chile	Baseline, 3 months, 6 months	At three months 21 (13 from MCI, 8 from UC), at 6 months 22 (8 from MCI, 14 from UC)	NR	Mothers within their first postnatal year. Meeting criteria for major depression on DSM-IV	Women who had received any form of treatment for depression during their current postnatal period; those who were pregnant; or those with psychotic symptoms, serious suicidal risk, history of mania, or alcohol or drug abuse

NR, not reported; PEG, psycho-educational group.

TABLE 25 *Study site, follow-up and inclusion/exclusion criteria for non-RCTs*

Study	Study site	Length of follow-up	Numbers lost to follow-up	Reasons for loss to follow-up	Inclusion criteria	Exclusion criteria
Highet and Drummond (2004)[60]	Perth metropolitan area, Western Australia	Baseline (prior to treatment), immediately following treatment and at 6 months' follow-up	28 (these had already been removed from initial sample)	Not contactable post treatment; not considered to have PND by their health-care provider; refused to take part in the study; stopped treatment prior to completion	Women sought for or been referred to treatment for PND	Not considered to have PND by their health-care provider
Meager and Milgrom (1996)[62]	VIC, Australia	At 10 weeks after the last treatment session	Eight	Physical illness; need to support de facto husband who was on a methadone programme; difficulty in organising attendance; and distance to travel	Subjects included in the trial had developed their depressive condition within 6 months' postpartum, had a rating of above 12 on the EPDS, and a BDI score reflecting a moderate to severe depression (i.e. a score above 15)	Subjects excluded from the study were those who had a concurrent major psychiatric disorder or insufficient command of English to follow group discussions
Clark *et al.* (2003)[61]	NR – assume USA due to funding	Pre-assessment and following the 12-week interventions. 12 weeks apart for WLG	Four	NR	Women who met the criteria for major depression during the postpartum period. Scores of 16 or higher on the BDI	NR

NR, not reported.

TABLE 26 *Patient characteristics for RCTs*

Study	Diagnosed condition	Methods for diagnosis of disorder	Age	Ethnicity	Education/socioeconomic background	Patient history	Baseline comparability
Milgrom *et al.* (2005)[59]	Condition: depression Time after diagnosis: NR	DSM-IV	Mean = 29.7 years; SD = 5.4 years	NR	Family income AUS$41,400 (SD = 20,500). 62.7% with 12 or more years of school. 30.5% with higher education	Number of children [mean (SD)]: 1.8 (0.8) Comorbidity: NR, but exclusion criteria – no concurrent major psychiatric disorder	NR
Honey (2002)[43]	Condition: PND not confirmed by diagnostic interview Time after diagnosis: NR	EPDS	PEG: mean = 29.3 years; SD = 5.36 years RPC: mean = 26.48 years; SD = 5.68 years	NR	NR	Number of children: PEG – 50% primiparous; RPC – 59% primiparous Comorbidity: NR	Groups did not differ significantly on socio-demographic and time 1 self-report measures
Rojas *et al.* (2007)[58]	Condition: depression Time after diagnosis: NR	DSM-IV	MCI: mean = 26.7 years; SD = 6.4 years UC: mean = 26.6 years; SD = 7.4 years	NR	Number of years in education: MCI, 0–<8 = 20 (18%), 8–12 = 82 (73%), > 12 = 11 (10%). UC, 0–<8 = 17(15%), 8–12 = 87 (75%), > 12 = 12 (10%) Main occupation: housewife, MCI = 94 (83%), UC = 105 (91%); student, MCI = 3 (3%), UC = 4 (3%); employed, MCI = 16(14%), UC = 5 (4%); unemployed, MCI = 1 (1%), UC = 2 (2%)	Number of children [mean (SD)]: MCI = 2 (1), UC = 2 (1.2) Comorbidity: NR, but exclusion criteria – no concurrent major psychiatric disorder	NR

NR, not reported; PEG, psycho-educational group; SD, standard deviation.

TABLE 27 *Patient characteristics for non-RCTs*

Study	Diagnosed condition	Methods for diagnosis of disorder	Age	Ethnicity	Education/ socioeconomic background	Patient history	Baseline comparability
Highet and Drummond (2004)[60]	Condition: depression Time after diagnosis: NR	EPDS – no other information given	NR	NR	NR	Number of children: NR Comorbidity: NR	Groups similar in terms of clinical status and social support received across all scales and level of support also remained consistent for both groups across assessment intervals
Meager and Milgrom (1996)[62]	Condition: PND Time after diagnosis: NR	EPDS, BDI	Mean age of all participants 29.6 years (31.3 years for the treatment group and 27.9 years for the control group, NS)	80% of the women were Australian born, and the remainder were from Ireland and the UK	Two women had a professional background; six had a semi-professional occupation; a further six were engaged in sales/business management; two worked in skilled occupations; and four were housewives. None fell into the unskilled category	The mean number of children per mother in the treatment group was 2.0, in the control group it was 1.6. Average infant age was 10.6 months. Fifteen women were married, four were in de facto relationships and one was separated	Post hoc examination of the two groups revealed no significant differences between groups on mean age of infant, medication usage, pretest BDI scores or occupational background
Clark *et al.* (2003)[61]	Condition: major depression Time after diagnosis: NR	Questionnaire based on DSM-IV diagnostic criteria for major depression (via telephone)	Mean = 31.4 years Median = NR SD = NR Range = 19–44 years	M–ITG: 13 Caucasian WLG: 11 Caucasian IPT: 14 Caucasian, one African American	Educational level: 2.6% (n = 1) some high school; 7.7% (n = 3) high school diploma; 23.1% (n = 9) some college; 23.1% (n = 9) graduate degree Mean educational level: M–ITG 14.9 years; IPT 15.5 years; WLG 16 years. Family income range $6000–120,000, mean $33,353	NR	WLGs were accrued on the basis of their socio-demographic characteristics indicating a match with participants of the M–ITG cohort. Subsequently, IPT participants were also matched to the M–ITG cohort in a similar fashion. Baseline depression scores were not clearly reported, although they were used as a covariate in the analyses

NR, not reported; NS, not significant; SD, standard deviation.

TABLE 28 *Outcomes and analysis information for RCTs*

Study	Outcomes	Instruments	Measurement periods	ITT analysis
Milgrom *et al.* (2005)[59]	Depression Anxiety Social support	BDI BAI SPS	Baseline, after 12 weeks' intervention, and after 12 months	Yes. Analyses were executed twice: once using only observed cases (121/192 possible cases), and once using multiple imputation under multivariate normal assumptions using methods given by Schafer,[77,78] employing available demographic and psychometric data. Conducted analyses to test the assumption that missing data were missing at random (SAS and WINBUGS)
Honey (2002)[43]	Sociodemographic questionnaire	NR	Baseline	Yes. Data missing for three participants in each condition at time 3. Missing data replaced by the group mean of each measure
	Depression Social support Marital adjustment Coping	EPDS Duke UNC DAS WCC-R	Baseline, after intervention (8 weeks after baseline), 6 months after end of intervention	
Rojas *et al.* (2007)[58]	Depression Mental health Emotional role Social function Vitality	EPDS SF-36	Baseline, 3 months, 6 months	Yes. For between group comparisons

BAI, Beck Anxiety Inventory; DAS, Dyadic Marital Adjustment Scale; Duke UNC, Duke UNC Social Support questionnaire; NR, not reported; SAS, Statistical Analysis System; SF-36, Short Form questionnaire-36 items; SPS, Social Provisions Scale; WCC-R, Ways of Coping Checklist-Revised.

TABLE 29 *Outcomes and analysis information for non-RCTs*

Study	Outcomes	Instruments	Measurement periods	ITT analysis
Highet and Drummond (2004)[60]	Depression	EPDS	Prior to treatment, immediately following treatment, 6 months' follow-up	No. Only participants who completed treatment and assessment at all three time points were included
	Physiological and psychological anxiety	State Trait Anxiety Inventory		
		GHQ		
	Social support	Social Support Scales	Unclear whether this was measured at all three times	
Meager and Milgrom (1996)[62]	Depression	EPDS	Baseline and at end of week 10 when the treatment group had completed their programme and the WLG commenced treatment. Measures were also administered at week 22 to subjects in the wait list control group who had completed the treatment programme	No. Those lost to follow-up were not analysed
		BDI		
	Self-esteem	Coopersmith Self-esteem Inventory		
	Mood	Profile of mood states		
	Social support	SPS		
	Parenting stress	PSI		
	Marital conflict	DAS		
Clark *et al.* (2003)[61]	Depression	BDI	Pre and post assessment (i.e. before and after the 12-week intervention)	No. Those lost to follow-up were not analysed
		CES-D		
	Parenting stress	PSI		
	Infant development	BSID		
	Mother–infant interaction	PCERA		

BSID, Bayley Scales of Infant Development; CES-D, The Center for Epidemiological Studies Depression Scale; DAS, Dyadic Marital Adjustment Scale; GHQ, General Health Questionnaire; PCERA, The Parent–Child Early Relational Assessment; PSI, Parenting Stress Index; SPS, Social Provisions Scale.

TABLE 30 *Results of reported outcomes (psychological symptoms and interpersonal and social functioning RCTs)*

Study	Results						Other outcome information
Milgrom *et al.* (2005)[59]	**Outcome**	**Measure**		**Baseline**	**C1 (RPC vs other three interventions combined)**	**C2 (CBT vs counselling)**	Changes in depression and anxiety immediately post intervention significantly differed between psychological intervention vs routine care. No evidence that CBT and counselling led to different outcomes in terms of depressive symptoms
	Depression	BDI (observed)	Difference in BDI scores	0.580	6.94	–0.065	Intervention based on a counselling approach may be more effective when delivered on an individual basis. Percentages of women in each treatment condition whose post-intervention BDI scores fell below the threshold for clinical depression (17) were: CBT 55%, group counselling 64%, individual counselling 59% and RPC 29%. Social support measure – post intervention levels of perceived social support increased in each intervention group but fell for the RPC group (although there appear to be no statistics)
			SE	0.108	2.29	1.86	
			df	82	34	34	
			p-value	<0.0001	0.005	0.97	
		BDI (imputations)	Difference in BDI Scores	0.510	4.06	–0.75	
			SE	0.11	2.08	1.83	
			df	290.2	556.8	673.7	
			p-value	<0.001	0.05	0.68	
Honey (2002)[43]	**Outcome**	**Measure**	**PEG (*n* = 23) Mean (SD)**	**RPC (*n* = 22)**	**Statistical analysis**		For the EPDS there was a main effect of group $F(1,36) = 7.62$, $p = 0.01$; main effect of time $F(2,43) = 12.06$, $p < 0.001$; and a significant interaction $F(2,43) = 3.16$, $p < 0.05$
	Depression	EPDS (time 1 – pre intervention)	19.35 (4.39)	17.95 (3.95)	Main effect of group $F(1,36) = 7.62$, $p = 0.01$; main effect of time $F(2,43) = 12.06$, $p < 0.001$; and a significant interaction $F(2,43) = 3.16$, $p < 0.05$		Simple effects; effect of time for the PEG $F(2,86) = 13.76$, $p < 0.001$; not for RPC; marginally significant effect of group at time 3 $F(1,107) = 3.68$, $p = 0.058$
		EPDS (time 2 – post intervention 8 weeks)	14.87 (5.97)	16.95 (5.44)			At time 3 there was a significant association between group and percentage scoring below cut-off [X^2 (1, $N = 45$) = 3.75, $p < 0.05$], significantly more women scored below cut-off in the PEG but not in the RPC group. No differences at time 2. No differences between the groups on the social support measures
		EPDS (time 3 – 6 months after intervention)	12.55 (4.62)	15.63 (7.28)			The brief PEG significantly reduced EPDS scores compared with RPC. This was not related to antidepressant use and was maintained 6 months after the group had ended. However, some women in the PEG continued to show evidence of depressive symptomatology 6 months later. Improvements in mood were not accompanied by changes in coping, perceptions of social support or the marital relationship
		% women scoring below cut-off (time 2)	35	27	NS		
		% women scoring below cut-off (time 3)	65	36	χ^2 (1, $N = 45$) = 3.75, $p < 0.05$		

Study	Results					Other outcome information
Rojas *et al.* (2007)[58]	**Outcome**	**Measure**	**MCI mean (95% CI) (SD calculated) (*n* = 114)**	**UC mean (95% CI) (SD calculated) (*n* = 116)**	**Group × time interaction effect (95% CI; *p*-value)**	ANOVA and linear regression performed on data for each group and across the three time periods. There were significant interaction effects for group×time for EPDS and the four SF-36 measures. Simple effects analysis showed that the MCI group had significantly improved scores on each of these measures compared to the UC group at 3 months (simple effects not presented for 6 months). The number of participants who had improved in both group was more similar at 6 months than at 3 months, with all difference in favour of MCI
	Depression	EPDS – baseline	17.7 (16.8 to 18.7) (3)	17.1 (16.4 to 17.9) (4.12)	2.3 (0.8 to 3.8; $p = 0.002$)	
		EPDS – 3 months	8.5 (7.2 to 9.7) (6.8)	12.8 (11.3 to 14.1) (7.7)		
		EPDS – 6 months	10.9 (9.6 to 12.2) (7.07)	12.5 (11.1 to 13.8) (7.43)		

ANOVA, analysis of variance; df, degrees of freedom; NS, not significant; PEG, psycho-educational group; SE, standard error; SF-36, Short Form questionnaire-36 items.

TABLE 31 *Results of reported outcomes (psychological symptoms and interpersonal and social functioning) for non-RCTs*

Study	Treatment condition	Clinical scale	Pre treatment			Post treatment			Follow-up			
			n	Mean	SD	*n*	Mean	SD	*n*	Mean	SD	
Highet and Drummond (2004)[60]	Medication only	EPDS	15	19.27	4.38	15	14.47	6.80	–	–	–	Receiving treatment resulted in significant decreases in depression between pre and post treatment [group×time interaction $F(1,137) = 11.89$, $p < 0.05$] Medication was no more effective than CBT. Participants treated with CBT (alone or in combination with medication) had greater decreases in depression [group×time interaction $F(1,82) = 11.08$, $p < 0.05$] and psychological anxiety [group×time interaction $F(1,79) = 5.98$, $p < 0.05$] following treatment than those who received medication alone Comparison of subjects treated in groups (alone and in conjunction with individual treatment) vs those treated individually revealed a significant group×time interaction [$F(1,83) = 16.98$, $p < 0.05$]. Depression was significantly lower at post treatment in subjects treated individually as opposed to those who received group or combined intervention [$t(84) = 3.9$, $p < 0.05$]. At follow-up there was also a significant decrease in depression [main effect for time, $F(1,63) = 11.36$, $p < 0.05$], particularly in those treated in both group and individual settings [group×time interaction, $F(1,63) = 5.95$, $p < 0.05$]. Depression continued to decline for those who had been treated in the combined setting [$t(34) = 5.26$, $p < 0.05$], while there was no change for those treated in groups only While CBT was no more effective than behavioural-based supportive counselling, confounding effects of greater medication use and greater treatment duration for those in the latter group may result in underestimation of the efficacy and efficiency of CBT for this sample
	Group CBT only	EPDS	23	15.39	4.39	22	9.32	3.67	12	8.15	4.63	

Study				Week					
Meager and Milgrom (1996)[62]	**Outcome**	**Measure**	**Group**	**0 (control *n* = 10) (treatment *n* = 10) (mean)**	**10 (control *n* = 6) (treatment *n* = 6) (mean)**		**Least significant difference**		**Actual difference**
	Depression	**BDI**	**Control**	29.00	29.14				
			Treatment	29.70	16.80		10.27 ($p < 0.05$)[a]		12.90
							11.26 ($p < 0.10$)[b]		12.34
		EPDS	**Control**	27.50	28.00				
			Treatment	24.80	15.80		7.92 ($p < 0.02$)[a]		9.0
							10.74 ($p < 0.05$)[b]		12.2
Clark *et al.* (2003)[61]		**M–ITG (*n* = 9)**		**IPT (*n* = 15)**		**WLG (*n* = 11)**		***F***	***p***	**Other outcome information**
	Measure	**Pre**	**Post (3 months)**	**Pre**	**Post (3 months)**	**Pre**	**Post (3 months)**			Both the women in the M–ITG and those in the IPT condition reported fewer symptoms on the CES-D post treatment than did those in the WLG (ps = 0.02 and 0.04), but the two treatment groups did not differ from each other on this variable
	BDI	26.9 (7.3)	15.9 (8.5)	26.2 (8.2)	16.4 (10.2)	24.5 (6.4)	20.6 (9.2)	1.67	NS	
	CES-D	41.1 (7.6)	19.2 (10.2)	36.2 (9.2)	20.1 (12.9)	32.4 (6.9)	26.6 (10.0)	3.60	0.04	

a Significant difference within group.
b Significant difference between groups.
CES-D, The Center for Epidemiological Studies Depression Scale; NS, not significant; ps, probability values; SD, standard deviation.

TABLE 32 *Patient preferences and conclusions for RCTs*

Study	Patient preference, satisfaction and acceptability of treatment	Conclusions
Milgrom *et al.* (2005)[59]	NR	–
Honey (2002)[43]	NR	–
Rojas *et al.* (2007)[58]	NR	–

NR, not reported.

TABLE 33 *Patient preferences and conclusions for non-RCTs*

Study	Patient preference, satisfaction and acceptability of treatment	Conclusions
Highet and Drummond (2004)[60]	Sharp Consumer Satisfaction Questionnaire (Tanner 1982)[79] administered by telephone 2 weeks after completion of treatment CBT vs medication – similar ratings of satisfaction with treatment received Individual vs group treatment – generally high but significantly higher for those receiving individual treatment alone than those receiving treatment in group settings Group CBT vs group behaviour therapy – similar in terms of satisfaction with treatment services	Individual treatment preferred to group treatment
Meager and Milgrom (1996)[62]	NR	–
Clark *et al.* (2003)[61]	NR	–

NR, not reported.

Appendix 3

Data abstraction tables – qualitative review

TABLE 34 *Studies included in the review – CBT-based group treatment*

Study	Funding	Methods	Participants	Interventions	Outcomes
Morgan *et al.* (1997)[53]	Funding: NR	Design: examination of a group intervention; no control arm Method of randomisation: not randomised Tool of identification: EPDS	Sample size: 34 women, 20 men Diagnosed condition: depression Method of identification: EPDS	Support group programme for women with PND incorporating couples sessions	Depression – EPDS, Coopersmith Self-esteem Questionnaire for women, GHQ-30 for men Qualitative, survey and case study data
Davies and Jasper (2004)[52]	Funding: NR	Design: evaluation of a group programme for the treatment of PND; no control arm Method of randomisation: not randomised Tool of identification: EPDS	Sample size: eight women. Diagnosed condition: depression Method of diagnosis: DSM-IV	Support group programme for women with PND	Depression – EPDS Qualitative, three open-ended questionnaires

GHQ, General Health Questionnaire; NR, not reported.

TABLE 35 *Studies included in the review – non-theoretically-based group treatment*

Study	Funding	Methods	Participants	Interventions	Outcomes
Duskin (2006)[65]	Funding: dissertation – NR	Design: examination of a group intervention; no control arm Method of randomisation: not randomised Tool of identification: NR	Sample size: five women Diagnosed condition: NR Method of diagnosis: NR	Support group programme for women with PND	Qualitative, in-depth interviews and questionnaire
Beck (1993)[66]	Funding: NR	Design: development of a theory of PND using grounded theory; interviews with women attending a PND support group; no control arm Method of randomisation: not randomised Tool of identification: NR	Sample size: 12 women Diagnosed condition: NR Method of diagnosis: NR	Postpartum depression support group	Observations In-depth interviews
Pitts (1999)[67]	Funding: NR	Design: qualitative evaluation; no control arm Method of randomisation: not randomised Tool of identification: EPDS	Sample size: 48 women Diagnosed condition: depression Method of diagnosis: EPDS (not all women were above the cut-off)	Support group for women with PND	Depression – EPDS Qualitative, survey data
Eastwood (1995)[68]	Funding: NR	Design: examination of a group intervention; no control arm Method of randomisation: not randomised Tool of identification: EPDS, HADS, BDI	Sample size: 13 women Diagnosed condition: NR Method of diagnosis: NR	Support group programme for women with PND	Depression – EPDS; BDI; HADS Qualitative questionnaire

HADS, Hospital Anxiety and Depression Scale; NR, not reported.

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TABLE 36 *Study characteristics – CBT-based group treatment*

Study	Description of treatment	Study quality	Cotherapy or medication	Comparator	Total sample size
Morgan *et al.* (1997)[53]	Group programme: eight sessions in which discussions took place around: the myths of motherhood; the women's relationships with their mothers; information regarding PND; their own experiences; their relationships with their partners; their expectations of themselves; and information on mother–infant attachment. Cognitive and behavioural exercises are used to challenge some of their beliefs and help them to participant in rewarding activities	Not a research study, an evaluation of group programme only; qualitative methodology appropriate for evaluation purposes; research design not justified; recruitment strategy and setting for data collection explained and justified; data collection methods not fully explained and justified; reflexivity and ethical issues not addressed; data analysis not rigorous, no qualitative analysis method specified; findings clearly stated, credibility/ reliability aspects not discussed although authors acknowledge need for more rigorous evaluations	17 of the women were being seen individually by another health professional and some were on antidepressant medication. 25 of the women had spent approximately 1 week in a residential unit for help with mothercraft issues (such as feeding, sleeping or settling difficulties in their infant). Two other women spent approximately 4 weeks in a different mothercraft unit	None	34 women, 20 men
Davies and Jasper (2004)[52]	The group programme was based on the CBT model, and aimed to encourage cognitive restructuring and self-help. To provide an opportunity to meet with other PND mothers, in order to share experiences, reduce isolation and for mother to give and receive support; to reduce depressive symptomatology thereby enabling group members to regain their sense of emotional well-being; to encourage group members to begin to clarify individual goals to maintain their progress on completion of group programme	Not a research study, an evaluation of the group programme; aims reported for appraising group programme; research design justified for an evaluation; recruitment strategy and setting for data collection explained and justified; data collection methods explained and justified, although some detail missing; reflexivity and ethical issues addressed; some data analysis shows rigour, however, use of particular qualitative methods in analysis not reported; findings clearly stated and explicit, credibility/ reliability aspects discussed	NR	None	Eight

NR, not reported.

TABLE 37 *Study characteristics – non-theoretically-based group treatment*

Study	Description of treatment	Study quality	Cotherapy or medication	Comparator	Total sample size
Duskin (2006)[65]	Open-ended postpartum depression support group. Facilitated by graduate clinical psychology researchers	Research design justified; recruitment strategy and setting for data collection explained and justified; data collection methods explained and justified; reflexivity addressed; ethical issues addressed; rigorous data analysis; findings clearly stated	NR	None	Five
Beck (1993)[66]	Postpartum depression support group. Facilitated by researcher (nurse)	Research design justified; recruitment strategy and setting for data collection explained and justified; data collection methods explained and justified; reflexivity addressed; ethical issues addressed; rigorous data analysis; findings clearly stated	NR	None	12
Pitts (1999)[67]	Support group for women with PND, providing peer identity and support, addressing feelings of isolation and loneliness	Research design not justified; recruitment strategy and setting for data collection explained and justified; data collection methods explained and justified; reflexivity not addressed; ethical issues addressed; data analysis not rigorous; findings could have been more clearly stated	NR	None	48
Eastwood (1995)[68]	PND support group offering five components of peer support: confidentiality, being able to discuss their depression in a safe setting; counselling, talking to other women with PND; focus, focusing on their own needs, thought and feelings; sharing and support, being cared for and being caring to other in the group; sessions on PND, feelings and expectations about self, children and partners, anger and anxiety management, self-support and evaluation	Research design not justified; recruitment strategy and setting for data collection explained and justified; data collection methods explained and justified; reflexivity not fully addressed; ethical issues addressed; data analysis could have been more rigorous; findings could have been more clearly stated	NR	None	13

NR, not reported.

TABLE 38 *Treatment details – CBT-based group treatment*

Study	Recruitment	Number of sessions	Number in group	Length of sessions	Therapist contact	Professional background of therapist
Morgan *et al.* (1997)[53]	Women were referred from mothercraft units or from family care cottages and community health	Eight, weekly	Average of six	2 hours	NR	Groups led by a female occupational therapist, with the assistance of either a registered or enrolled female nurse, the couples session was led by these and a male clinical psychologist
Davies and Jasper (2004)[52]	Women were referred by health visitors	Twelve, weekly	Eight	90 minutes	NR	Health visitors with a registered mental health nursing qualification and a family centre worker facilitated the life skills group. A primary mental health worker provided the group leaders with clinical supervision

NR, not reported.

TABLE 39 *Treatment details – non-theoretically-based group treatment*

Study	Recruitment	Number of sessions	Number in group	Length of sessions	Therapist contact	Professional background of therapist
Duskin (2006)[65]	Participants were recruited to take part in interviews from those who already attended the postpartum depression support group	NR	NR	NR	NR	Graduate students on a clinical psychology course
Beck (1993)[66]	Participants were those attending the support group	Twice monthly	Number of attendees ranged from 1 to 12	Open-ended	NR	Nurse
Pitts (1999)[67]	Women were referred to the group by health visitors	NR	NR	NR	NR	Health visitor
Eastwood (1995)[68]	Women were referred to the group by health visitors	12	13 (eight completed the course, only four attended all sessions)	NR	NR	Health visitors led the group, supervision was provided by a clinical psychologist

NR, not reported.

TABLE 40 *Study site, follow-up and inclusion/exclusion criteria – CBT-based group treatment*

Study	Study site	Length of follow-up	Numbers lost to follow-up	Reasons for loss to follow-up	Inclusion criteria	Exclusion criteria
Morgan *et al.* (1997)[53]	South-western Sydney, Australia	End of treatment (8 weeks), some participants followed up at 6 months, some 9 and some 12 months – for quantitative measures. Qualitative data, via a group evaluation form were collected only during sessions	One of the 34 women dropped out	NR	An EPDS score of 13 or above. Adequate spoken English to enable participation in the groups	NR
Davies and Jasper (2004)[52]	Portsmouth, UK	6-week reunion after end of programme	One	Lack of rapport with group members	EPDS (cut-off not given). Meeting DSM-IV criteria for depression. Have an infant aged < 18 months	NR

NR, not reported.

TABLE 41 *Study site, follow-up and inclusion/exclusion criteria – non-theoretically-based group treatment*

Study	Study site	Length of follow-up	Numbers lost to follow-up	Reasons for loss to follow-up	Inclusion criteria	Exclusion criteria
Duskin (2005)[65]	CA, USA	No follow-up	NA	NA	Those taking part in the support group	NR
Beck (1993)[66]	FL, USA	Data collected during sessions, and during interviews conducted in participants home	No follow-up	NA	Those taking part in the support group	NR
Pitts (1999)[67]	Southampton, UK	Survey data collected only once – during a 2-year period after intervention	14 women did not return the survey	NR	Those taking part in the support group	NR
Eastwood (1995)[68]	Bexley, UK	End of course and at a 10-week recall	Five by end of course, seven at 10-week recall	NR	An EPDS score of 13 or above	Those suffering from psychotic depression were excluded

NA, not applicable; NR, not reported.

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TABLE 42 *Patient characteristics – CBT-based group treatment*

Study	Diagnosed condition	Methods for diagnosis of disorder	Age	Sex	Ethnicity	Education/ socioeconomic background	Patient history
Morgan *et al.* (1997)[53]	Condition: depression Time after diagnosis: NR	EPDS	Range = 23–36 years	Female *n* = 34, male *n* = 20	17 couples had at least one partner from an NESB, six of these had both partners from an NESB, seven had an NESB man and an ESB women, four had an NESB woman and an ESB man	NR	Number of children: mean (SD) = NR 16 primiparas, 18 multiparas All married or in a de facto relationship Comorbidity: some women were also taking antidepressants
Davies and Jasper (2004)[52]	Condition: depression Time after diagnosis: NR	EPDS, DSM-IV	NR	Female *n* = 8	NR	From a range of backgrounds	Number of children: four primiparas, four multiparas Comorbidity: NR

ESB, English speaking background; NESB, non-English speaking background; NR, not reported; SD, standard deviation.

TABLE 43 *Patient characteristics – non-theoretically based group treatment*

Study	Diagnosed condition	Methods for diagnosis of disorder	Age	Sex	Ethnicity	Education/ socioeconomic background	Patient history
Duskin (2006)[65]	Condition: PND Time after diagnosis: NR	NR	Range 37–42 years	Female *n* = 5	Four Caucasian, one Latina	NR	Number of children: all primiparas All married Comorbidity: three participants had a history of depression
Beck (1993)[66]	Condition: NR Time after diagnosis: NR	NR	Range 20–38 years	Female *n* = 12	White	NR	Number of children: five primiparas, seven multiparas All married Comorbidity: NR
Pitts (1999)[67]	Condition: depression Time after diagnosis: NR	EPDS	NR	Female *n* = 48	NR	NR	Number of children: mean (SD) = NR Comorbidity: NR
Eastwood (1995)[68]	Condition: NR Time after diagnosis: NR	NR	Range 19–35 years	Female *n* = 13	NR	Social class II to V, majority IIIM and IIIN	Number of children: two primiparas, 11 multiparas Comorbidity: NR

NR, not reported.

TABLE 44 *Outcomes and analysis information – CBT-based group treatment*

Study	Outcomes	Instruments	Measurement periods	ITT analysis
Morgan *et al.* (1997)[53]	Depression	EPDS (women only) GHQ-30 (men and women)	Baseline, after 8 weeks' intervention, and after either 6, 9 or 12 months (only baseline data collected for men)	NR
	Self-esteem	Coopersmith Self-Esteem Questionnaire (women only)		
	Qualitative data	Group Evaluation Form	During intervention	NA
Davies and Jasper (2004)[52]	Depression	EPDS	Baseline and at 6-week reunion	NR
	Qualitative data	Questionnaire 1	At the end of each session	NA
		Questionnaire 2	At the end of the programme	
		Questionnaire 3	At group reunion 6 weeks after end of programme	

GHQ, General Health Questionnaire; NA, not applicable; NR, not reported.

TABLE 45 *Outcomes and analysis information – Non-theoretically-based group treatment*

Study	Outcomes	Instruments	Measurement periods	ITT analysis
Duskin (2006)[65]	Qualitative data	Questionnaire	At baseline	NA
		In-depth interviews	After intervention	
Beck (2003)[66]	Qualitative data	Observation	During each group, twice monthly	NA
		In-depth interviews	Check paper	
Pitts (1999)[67]	Depression	EPDS (women only)	Baseline and follow-up (any time during a 2-year period)	NR
	Qualitative data	Evaluation survey	At follow-up (any time during a 2-year period)	NA
Eastwood (1995)[68]	Depression	EPDS	Baseline	NR
		BDI	Baseline, end of course, 10-week recall	
		HADS		
	Qualitative data	Questionnaire	At 10-week recall	NA

HADS, Hospital Anxiety and Depression Scale; NA, not applicable; NR, not reported.

TABLE 46 *Results of reported outcomes (psychological symptoms and interpersonal and social functioning) – non-theoretically-based group treatment*

Study	Results
Pitts (1999)[67]	EPDS – of the 34 replies, 28 women had reduced scores, four had increased scores and two were unchanged. 23 women scored below the cut-off of 12, and 11 above it

Appendix 4

Summary of excluded trials – quantitative review

This is not intended to be an exhaustive list of every study examining the intervention. However, it includes studies that passed the first screening but on closer inspection were not deemed to be relevant and/or valid.

A total of 118 papers were excluded at full paper sift. A summary of the reasons for exclusion are shown in *Table 47*. The name of the first author, year, journal and reason for exclusion are reported in *Table 48*. Note that in both tables only the primary reason for exclusion is shown. Many were excluded on several criteria.

TABLE 47 *Summary of reasons for excluding studies from the quantitative review*

Primary reason for exclusion	*n*
Not a group intervention	42
Not a research study	22
Not a depressed sample	12
Prevention study	10
Abstract only	6
Review article	6
Commentary only	3
Qualitative study	3
Not PND	3
Not a treatment study	2
Did not assess intervention	2
Not clinical effectiveness	1
Not English language	1
No group data	1
Economic analysis	1
No depression measures included	1
More than 1 year since childbirth	1
Not an intervention to address depression	1

TABLE 48 *Studies excluded from the quantitative review with rationale*

First author (date)	Journal	Primary reason for exclusion
Abramov (1998)	*American Journal of Medical Genetics*	Not a research study
Ammerman (2007)	*Clinical Case Studies*	Not a group intervention
Anon (1996) – Groups don't help postnatal blues	*Australian Nursing Journal*	Not a research study
Anon (2006) – Psychological intervention for postpartum depression	*Nurses' Drug Alert*	Abstract only
Anon (2007) – Counselling to prevent postnatal emotional problems	*Nurses' Drug Alert*	Abstract only
Appleby (1997)	*British Medical Journal*	Not a group intervention
Appleby (1997)	*New Zealand Medical Journal*	Not a group intervention
Appleby (2003)	*Journal of Affective Disorders*	Did not assess intervention
Austin (2008)	*Journal of Affective Disorders*	Prevention study
Ayers (2007)	*Journal of Psychomatic Obstetrics aand Gynecology*	Not a group intervention
Berchtold (1990)	*NAACOGS Clinical Issues in Perinatal & Women's Health Nursing*	Qualitative study
Bledsloe (2006)	*Research on Social Work Practice*	Review article
Boath (1999)	*Journal of Affective Disorders*	Not a group intervention
Boath (2001)	*Journal of Reproductive and Infant Psychology*	Review article
Boath (2003)	*Journal of Affective Disorders*	Not a group intervention
Bruga (1998)	*Psychological Medicine*	Not a group intervention
Bruga (2000)	*Psychological Medicine*	Prevention study
Buist (1999)	*Archives of Women's Mental Health*	Prevention study
Buist (2007)	*Journal of Psychosomatic Obstetrics & Gynecology*	Not a depressed sample
Camdeviron (2007)	*Expert Systems with Applications*	Not clinical effectiveness
Carroll (2005)	*Canadian Medical Association Journal*	Prevention study
Casiano (1990)	*NAACOGS Clinical Issues in Perinatal and Womens Health Nursing*	Not a research study
Chung (1999)	*Psychologia*	Not a group intervention
Chun-Lui (2005)	*Chinese Mental Health Journal*	Not English Language
Cooper (1997)	*Postpartum depression and child development* (book chapter)	Not a treatment study
Cooper (2003)	*The British Journal of Psychiatry: the Journal of Mental Science*	Not a group intervention
Corral (2007)	*Archives of Women's Mental Health*	Not a group intervention
Creedy (1993)	*The Australian Journal of Rural Health*	Not a research study
Cuijpers (2008)	*Journal of Clinical Psychology*	Review article
Currie (2001)	*Australian College of Midwives incorporated*	Not a depressed sample
Dennis (2003)	*The Canadian Journal of Psychiatry*	Not a group intervention
Dennis (2004)	*Canadian Journal of Psychiatry – Revue Canadienne de Psychiatrie*	Review article
Dennis (2006)	*Evidence-based Mental Health*	Commentary only
Elliott (1988)	*Marshaling social support* (book chapter)	Prevention study
Elliott (2000)	*British Journal of Clinical Psychology*	Prevention study

TABLE 48 *Studies excluded from the quantitative review with rationale (continued)*

First author (date)	Journal	Primary reason for exclusion
Escobar (2001)	*Pediatrics*	Prevention study
Fairchild (1995)	*Social Work with Groups*	Qualitative study
Field (1996)	*Adolescence*	Not a group intervention
Flynn (2006)	*Journal of Women's Health*	Not a group intervention
Fones (1984)	*Birth*	Not a research study
Free (1991)	*International Journal of Group Psychotherapy*	Not PND
Gjerdingen (2008)	*Women's Health Issues*	Review article
Grote (2004)	*Research on social work practice*	Not a group intervention
Grote (2004)	*Clinical Social Work Journal*	Not a research study
Gruen (1993)	*International Journal of Group Psychotherapy*	Not a research study
Gutteridge (2002)	*MIDIRS Midwifery Digest*	Not a research study
Hagan (2004)	*International Journal of Obstetrics and Gynaecology*	Not a depressed sample
Halonen (1985)	*Journal of Consulting and Clinical Psychology*	Not a depressed sample
Hayes (2001)	*Birth*	Not a group intervention
Hayes (2004)	*Research and Theory for Nursing Practice: An International Journal*	Not a group intervention
Heh (2003)	*Journal of Advanced Nursing*	Not a group intervention
Holden (1989)	*British Medical Journal*	Not a group intervention
Honikman (1999)	*Postpartum mood disorders* (book chapter)	Not a research study
Horowitz (2006)	*Nursing Research*	No group data
Hynd (2004)	*Journal of Psychiatric and Mental Health Nursing*	Not a group intervention
Johnston (2006)	*Zero to Three*	Not a depressed sample
Jung (2007)	*Journal of Affective Disorders*	Not an intervention to address depression
Kersting (2003)	*Psychiatry*	Not PND
Klier (2000)	*Infant Mental Health*	Abstract only
Kopelman (2005)	*Psychiatric Annals*	Not a research study
Lane (2001)	*Social Work Health and Mental Health*	Not a research study
Lau (2005)	*The Hong Kong Nursing Journal*	Not a research study
Lee (2001)	*Evidence-based Mental Health*	Commentary only
Lembke (2002)	*Psychiatric Times*	Qualitative study
Lockhart (1988)	*The Lamp*	Not a research study
Loendersloot (1983)	*Journal of Psychosomatic Obstetrics and Gynaecology*	Not a research study
Magalhaes (2007)	*The Journal of Nervous and Mental Disease*	Not a group intervention
Maley (2002)	*AWHONN*	Not a research study
Markou (1999)	*Australian and New Zealand Journal of Psychiatry*	Not a research study
Matthey (2004)	*Journal of Affective Disorders*	Not a depressed sample
McClendon (2005)	*Journal of Clinical Psychiatry*	Not a research study

continued

TABLE 48 *Studies excluded from the quantitative review with rationale (continued)*

First author (date)	Journal	Primary reason for exclusion
Milgrom (1996)	*International Journal of Psychology*	Abstract only
Milgrom (2003)	*Journal of Psychosomatic Research*	Abstract only
Milgrom (2004)	*International Journal of Psychology*	Abstract only
Miller (2003)	*International Journal of Technology Assessment in Health Care*	Economic analysis
Misri (2000)	*Canadian Journal of Psychiatry*	Not a group intervention
Misri (2004)	*Journal of Clinical Psychiatry*	Not a group intervention
Misri (2006)	*American Journal of Orthopsychiatry*	Not a group intervention
Morrell (2000)	*British Medical Journal*	Not a group intervention
Morris (1987)	*British Journal of Medical Psychology*	More than 1 year after childbirth
Murray (2003)	*British Journal of Psychiatry*	Not a group intervention
O'Brien (2002)	*International Journal of Psychiatry In Clinical Practice*	Not a group intervention
O'Hara (1982)	*Journal of Abnormal Psychology*	Not a treatment study
O'Hara (2000)	*Archives of General Psychiatry*	Not a group intervention
O'Hara (1995)	*Women's Health Issues*	Not a group intervention
Olson (1991)	*Canadian Journal of Public Health*	Not a research study
Pendrina (2004)	*Group Analysis*	Not a research study
Prendergast (2001)	*Australasian Psychiatry*	Not a group intervention
Reay (2002)	*Australasian Psychiatry*	Did not assess intervention
Rees (1995)	*Journal of Holistic Nursing*	Not a depressed sample
Reid (2002)	*BJOG: an International Journal of Obstetrics and Gynaecology*	Not a depressed sample
Reid (2003)	*British Journal of Midwifery*	Not a depressed sample
Ryding (2004)	*Birth*	Not a depressed sample
Saltzberg (2003)	*Group*	Not a research study
Seeman (2001)	*Evidenced Based Mental Health*	Commentary only
Spinelli (1997)	*The American Journal of Psychiatry*	Not a group intervention
Spinelli (2001)	*Management of psychiatric disorders in pregnancy* (book chapter)	Not a research study
Spinelli (2003)	*American Journal of Psychiatry*	Not a group intervention
Stamp (1995)	*Birth*	Prevention study
Steinberg (1999)	*International Journal of Psychiatry in Medicine*	Not a group intervention
Stuart (1995)	*Archives of General Psychiatry*	Not a group intervention
Stuart (1995)	*The Journal of Psychotherapy Practice and Research*	Not a group intervention
Stuart (2001)	*Ten*	Review article
Tam (2004)	*Evidence-based Obstetrics and Gynecology*	Not a group intervention
Tam (2003)	*BJOG: an International Journal of Obstetrics and Gynaecology*	Not PND
Tezel (2006)	*Patient Education and Counseling*	Not a group intervention
Thoppil (2005)	*American Journal of Obstetrics and Gynecology*	Not a group intervention

TABLE 48 *Studies excluded from the quantitative review with rationale (continued)*

First author (date)	Journal	Primary reason for exclusion
Ugarriza (2004)	*Archives of Psychiatric Nursing*	Not a depressed sample
Ugarriza (2006)	*Journal of Psychosocial Nursing*	Not a group intervention
Webster (2003)	*BJOG: an International Journal of Obstetrics and Gynaecology*	Not a group intervention
Wickberg (1996)	*Journal of Affective Disorders*	Not a group intervention
Wiggins (2005)	*Journal of Epidemiology and Community Health*	Not a depressed sample
Wilkinson (2003)	*Journal of Family Health Care*	No depression measures included
Wheatley (2003)	*MIDIRS Midwifery Digest*	Not a research study
Zayas (2004)	*Annals of Family Medicine*	Not a group intervention
Zlotnick (2001)	*American Journal of Psychiatry*	Prevention study
Zlotnick (2006)	*American Journal of Psychiatry*	Prevention study

A further 17 were excluded at full paper sift, on the basis of inclusion and exclusion criteria regarding the CBT component of the intervention being investigated, or included only qualitative data. A summary of the reasons for exclusion are shown in *Table 49*. The name of the first author, year, journal and reason for exclusion are reported in *Table 50*.

TABLE 49 *Summary of reasons for excluding studies from the quantitative review because of CBT component*

Reason for exclusion	*n*
Not a psychological therapy	10
Not CBT	5
Qualitative study	2

TABLE 50 *Studies excluded from the quantitative review because of CBT component with rationale*

First author (date)	Journal	Reasons for exclusion
Alder (2002)	*Psychology and Psychotherapy: Theory, Research and Practice*	Not CBT
Armstrong (2003)	*International Journal of Mental Health Nursing*	Not a psychological therapy
Armstrong (2004)	*International Journal of Nursing Practice*	Not a psychological therapy
Chen (2000)	*Journal of Psychosomatic Research*	Not a psychological therapy
Davies (2004)	*Community Practitioner*	Qualitative study
Eastwood (1995)	*Health Visitor*	Not a psychological therapy
Fleming (1992)	*Journal of Child Psychology and Psychiatry*	Not a psychological therapy
Harner (2004)	*Effectiveness of Professionally led postpartum support groups among depressed postpartum women* (clinical psychology doctorate dissertation)	Not a psychological therapy
Klier (2001)	*Journal of Psychotherapy and Practice Research*	Not CBT
Kurzweil (2008)	*International Journal of Group Psychotherapy*	Not CBT
MacInnes (2000)	*Community Practitioner*	Not a psychological therapy
May (1995)	*Health Visitor*	Not a psychological therapy
Morgan (1997)	*Journal of Advanced Nursing*	Qualitative study
Okano (1998)	*Journal of Mental Health*	Not CBT
Onozawa (2001)	*Journal of Affective Disorders*	Not a psychological therapy
Pitts (1999)	*Community Practitioner*	Not a psychological therapy
Reay (2006)	*Archive of Womens Mental Health*	Not CBT

Appendix 5

Summary of excluded trials – qualitative review

A total of 106 papers were excluded at full paper sift. A summary of the reasons for exclusion are shown in *Table 51*. The name of the first author, year, journal and reason for exclusion are reported in *Table 52*. Note that in both tables only one reason for exclusion is shown. Many were excluded on several criteria.

TABLE 51 *Summary of reasons for excluding studies from the qualitative review*

Primary reason for exclusion	*n*
Not a group intervention	59
Not a PND population	19
Not a qualitative study	12
Not about PND	6
Antenatal population	3
Not a research study	3
Group interpersonal psychotherapy	1
Review paper	1
Audit	1
Screening study	1

TABLE 52 *Studies excluded from the qualitative review with rationale*

First author (date)	Journal	Primary reason for exclusion
Ahmad (1994)	*The Arab Journal of Psychiatry*	Not about PND
Albertsson-Karlgren (2001)	*Child Abuse Review*	Not a qualitative study
Amankwaa (2000)	*Dissertation Abstracts International*	Not a group intervention
Amankwaa (2003)	*Issues in Mental Health Nursing*	Not a group intervention
Andajani-Sutjahjo (2007)	*Culture*	Not a group intervention
Arborelius (2003)	*Scandinavian Journal of Caring Sciences*	Not a group intervention
Bagedahl-Strindlund (1997)	*Acta Psychiatrica Scandinavica*	Not a PND population
Baker (2005)	*Feminism and Psychology*	Not a PND population
Beck (1992)	*Nursing Research*	Not a group intervention
Beck (1995)	*JOGNN*	Not a group intervention
Beck (1998)	*Journal of Nursing Scholarship*	Not a PND population
Bennett (1991)	*British Journal of Medical Psychology*	Not a qualitative study
Benoit (2007)	*Journal of Mental Health*	Not a group intervention
Benvenuti (2001)	*Archives of Womens Mental Health*	Not about PND
Berggren-Clive (1998)	*Canadian Journal of Community Mental Health*	Not a group intervention
Brown (1972)	*Psychiatry*	Not a group intervention
Buchwald (1982)	*Journal of preventive psychiatry*	Not a group intervention
Buultjens (2007)	*Midwifery*	Not a group intervention
Campbell (1995)	*Developmental Psychology*	Not a qualitative study
Campbell (1997)	*Postpartum depression and child development* (book chapter)	Not a group intervention
Chan (2002)	*Journal of Advanced Nursing*	Not a group intervention
Chen (1999)	*Kaoshing Journal of Medical Science*	Not a group intervention
Chen (2006)	*Journal of Advanced Nursing*	Not a group intervention
Clark (2000)	*British Journal of Community Nursing*	Not a group intervention
Clemmens (2002)	*Adolescence*	Not a group intervention
Creedy (1999)	*Birth Issues*	Not a group intervention
Cubison (2005)	*Screening for perinatal depression* (book chapter)	Not about PND
Edborg (2005)	*Scandinavian Journal of Public Health*	Not a group intervention
Edge (2004)	*Health and Social Care in the Community*	Not a group intervention
Edge (2006)	*British Journal of Midwifery*	Not a PND population
Edwards (2005)	*Journal of Mental Health*	Not about PND
Engqvist (2007)	*Journal of Clinical Nursing*	Not a PND population
Everingham (2006)	*Social Science and Medicine*	Not a group intervention
Field (2002)	*Early Child Development and Care*	Not a qualitative study
Fisher (1997)	*Austalian and New Zealand Journal of Psychiatry*	Not a PND population
Fisher (2004)	*BJOG: an International Journal of Obstetrics and Gynaecology*	Not a qualitative study
Fooladi (2006)	*Holistic Nursing Practice*	Not a group intervention
Gaff-Smith (2003)	*Birth Issues*	Not a qualitative study
Garel (2007)	*Child Care, Health and Development*	Not a qualitative study
Giovannini (1992)	*Gender constructs and social issues* (book chapter)	Review paper
Hall (2006)	*Community Practitioner*	Not a group intervention

TABLE 52 *Studies excluded from the qualitative review with rationale (continued)*

First author (date)	Journal	Primary reason for exclusion
Hanley (2006)	*Midwifery*	Not a group intervention
Hanley (2007)	*Community Practitioner*	Not a group intervention
Holopainen (2002)	*Australian Journal of Advanced Nursing*	Not a group intervention
Horowitz (2001)	*International Nursing Perspectives*	Not a group intervention
Kane (2006)	*Dissertation Abstracts International*	Not a group intervention
Kazi (2006)	*Social Science and Medicine*	Not a PND population
Kim (2007)	*Archives of Women's Mental Health*	Not a qualitative study
Ketler (1997)	*Dissertation Abstracts International*	Not a PND population
Lauer-Williams (2001)	*Dissertation Abstracts International*	Not a group intervention
Lawler (2003)	*The Royal College of Midwives Evidence Based Midwifery*	Not a group intervention
Lesser (1997)	*Dissertation Abstracts International*	Not a PND population
Letouneau (2007)	*JOGNN*	Not a group intervention
Leung (1985)	*Bulletin of the Hong Kong Psychological Society*	Not a group intervention
Leung (2005)	*Journal of Advanced Nursing*	Not a group intervention
Lewis (1998)	*Journal of Reproductive and Infant Psychology*	Not a group intervention
Luepker (1972)	*Hospital and Community Psychiatry*	Not a group intervention
Maloney (1998)	*Australian College of Midwives Incorporated*	Not a group intervention
Mauthner (1993)	*Feminism and Psychology*	Not a research study
Mauthner (1995)	*Womens Studies International Forum*	Not a group intervention
Mauthner (1997)	*Midwifery*	Not a group intervention
Mauthner (1998)	*Journal of Reproductive and Infant Psychology*	Not a group intervention
Mauthner (1998)	*Feminism and Psychology*	Not a group intervention
Mauthner (1998)	*Feminist Dilemmas in Qualitative Research*	Not a group intervention
Mauthner (1999)	*Canadian Psychology*	Not a group intervention
Mayes (2007)	*Infant Mental Health Journal*	Not a qualitative study
Nahas (1999)	*Journal of Transcultural Nursing*	Not a group intervention
Nahas (1999)	*Journal of Nurse-Midwifery*	Not a group intervention
Nath (2001)	*Dissertation Abstracts International*	Not a group intervention
Nicolson (199)	*Counselling Psychology Quarterly*	Not a group intervention
Nicolson (1999)	*Canadian Psychology*	Not a PND population
Oates (2004)	*British Journal of Psychiatry*	Not a group intervention
O'Hara (1983)	*The Journal of Nervous and Mental Disease*	Not a qualitative study
Olshansky (2003)	*Journal of Nursing Scholarship*	Not a research study
Parvin (2004)	*Family Practice*	Not a PND population
Phillips (1986)	*Journal of Behaviour Therapy and Experimental Psychiatry*	Not a group intervention
Poole (2006)	*Community Practitioner*	Not a PND population
Regev (2003)	*Dissertation Abstracts International*	Not a group intervention
Regmi (2002)	*Tropical Medicine and International Health*	Not a qualitative study
Rodrigues (2003)	*Social Science and Medicine*	Not a group intervention
Ross (2005)	*Journal of Midwifery and Women's Health*	Not a PND population

continued

TABLE 52 *Studies excluded from the qualitative review with rationale (continued)*

First author (date)	Journal	Primary reason for exclusion
Roux (2002)	*The Journal of Perinatal Education*	Not a group intervention
Scott (1992)	*Child Abuse and Neglect*	Not about PND
Scrandis (2005)	*Journal of the American Psychiatric Nurses Association*	Not a group intervention
Setse (2008)	*Maternal and Child Health Journal*	Not PND population
Shakespeare (2002)	*Community Practitioner*	Audit
Shakespeare (2003)	*British Journal of General Practice*	Screening study
Shakespeare (2004)	*Midwifery*	Not about PND
Shakespeare (2006)	*Journal of Reproductive and Infant Psychology*	Not a group intervention
Shanok (2007)	*Archives of Womens Mental Health*	Group inter-personal psychotherapy
Sleath (2005)	*Patient Education and Counseling*	Antenatal population
Small (1997)	*Birth*	Not a qualitative study
Steinfield (1999)	*Journal of Psychotherapy Integration*	Not a group intervention
Stewart (1996)	*Healthcare for women international*	Not a PND population
Tammentie (2004)	*Journal of Clinical Nursing*	Not a group intervention
Templeton (2003)	*Ethnicity and Health*	Not a group intervention
Thomas (2004)	*Health Care for Women International*	Not a PND population
Thurtle (2003)	*Community Practitioner*	Not a group intervention
Uddenberg (1978)	*Acta Psychiatrica Scandinavia*	Not a group intervention
Ugarriza (2007)	*Issues in Mental Health Nursing*	Not a group intervention
Ward (2003)	*Contemporary Nurse*	Not a PND population
Wheatley (1999)	*International Journal of Mental Health Promotion*	Antenatal population
White (2004)	*Health Care for Women International*	Not a PND population
Williamson (2002)	*Singapore Nursing Journal*	Not a research study
Woollett (1997)	*Journal of Reproductive and Infant Psychology*	Not PND population

Appendix 6

References for excluded studies

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We look forward to hearing from you.

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