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## **Do Psychosocial Interventions Have An Impact On Maternal Perception Of Perinatal Depression? A Systematic Review.**

### **Abstract:**

Poor perinatal mental health, in particular depression, affects at least 10% of new mothers in the UK. Current best practice recommends the use of talking therapies or medication, however, many women choose not to use medication or are deterred from accessing NHS services for example due to immigration status. Those who can access NHS treatment often face a long waiting list to see a clinician or therapist. Untreated perinatal depression impacts on the health and wellbeing of mothers and babies, consequently it is essential that alternative psychosocial interventions delivered by non-clinicians are considered. A systematic review was conducted on seven quantitative studies examining the effect of psychosocial interventions in reducing maternal symptoms of depression. Interventions focused either on physical activity or peer support, measuring depression scores on a validated screening tool. The review concludes that antenatal group peer support may benefit women in the antenatal period and that postnatal peer telephone support may be helpful for primiparous women but further large scale research is required.

## **Introduction and background**

Perinatal mental health is a key issue in contemporary maternity care with suicide continuing to be a leading cause of maternal death in the UK. The most recent Confidential Enquiry into Maternal Deaths and Morbidity found that death rates by indirect causes have not reduced in recent years with a woman being more likely to die due to suicide (0.67 per 100,000) rather than obstetric complications such as genital tract sepsis (0.50 per 100,000) (Knight et al. 2014). Perinatal mental illness is defined as a mental health condition which is prevalent in pregnancy, around childbirth or up to 1 year following delivery and may include depression, anxiety, psychosis or bipolar disorder (O'Hara and Wisner 2014).

Although NICE (2014) estimate that 10% of all new mothers are affected by a perinatal mental health condition, it is argued that actual figures are much higher with many women not seeking help (Flynn et al. 2006). Depression is the most commonly diagnosed perinatal mental illness (NICE. 2014). Perinatal depression is defined in this paper as depression, new or pre-existing, experienced during pregnancy (antenatal depression) or up to 1 year postpartum (postnatal depression).

Contemporary research acknowledges that the entire period is an interlinking transitional phase of life for women, with external factors influencing maternal mental health even prior to conception (Rallis et al. 2014). Also, having an untreated antenatal or pre-existing mental health issue significantly increases the risk of developing a postnatal mental health condition (O'Hara and Wisner 2014).

Untreated depression increases the risk of premature birth, intra-uterine growth restriction and low birth weight (Grote et al. 2009; Misra et al. 2010). Prolonged exposure to increased levels of circulating cortisol can affect fetal brain development,

potentially correlating with emotional and behavioural problems in childhood such as attention deficit disorder, anxiety and hyperactivity disorder (Letourneau et al. 2006; Talge et al. 2007). In addition, life-long health inequalities increase when children are not exposed to effective consistent social and emotional relationships from an early age (Marmot et al. 2010). Depressed mothers are more likely to limit episodes of play and the associated cognitive and emotional development (Bowlby 1978; Murray et al. 2011). Consequently, it is essential that perinatal depression is detected and treated early to prevent the potential long term impact on the child and the associated economic impact on the NHS.

Research suggests that the current UK health system does not always offer timely assessment or treatment of women identified as at risk from perinatal mental health conditions (Bauer et al. 2014). Almost half of all women have no access to a specialist perinatal mental health service and only 3% of clinical commissioning groups have a strategy for increasing future provision (Bauer et al. 2014).

Women cite pregnancy related triggers to depression including changing body shape, transition to motherhood, relationship changes in social circles and perceived loss of an established career (Rallis et al. 2014). The incidence is reduced when the transition to parenthood is supported by family, friends and community (Solmeyer and Feinberg 2011). Contemporary society and increased globalisation is not conducive to this, with families frequently living geographically separate lives.

Talking therapies and medication are considered best practice for the treatment of perinatal depression (Dennis and Hodnett 2007; NICE. 2014). Many women decline medication due to fears of adverse neonatal outcome or medicine transmission through breastmilk (Dennis and Chung-Lee 2006; Hanley and Oberlander 2014).

Talking therapies are successful but the restricted availability of appointments mean that many women cannot access the help that is recommended. Logistical barriers such as travel or childcare prevent women from engaging in long term counselling (Goodman 2009; Kim et al. 2010).

When considering the barriers to women accessing recommended treatment, alternative support needs to be considered. Although NICE (2014) does not make any recommendations supporting the use of psychosocial interventions, this may fill the gap in relation to meeting the needs of women with perinatal depression.

Psychosocial interventions are any intervention of a non-pharmacological nature that addresses both the mental health condition and secondary issues such as social and relational problems (Walker 2014). Arguably, talking therapies delivered by health professionals are a psychosocial intervention but there are a number of published studies examining the effectiveness of the use of other perinatal psychosocial interventions by the non-clinical persons. Further review of these papers may offer alternative or additional care pathways for women accessing care in an overstretched NHS system. Many published papers also evaluate data based on the clinician's perception of the woman's depression using structured clinical interviews or a population deemed at risk of becoming depressed in the future. It is essential to consider the woman's lived experience and perception of her own mental health (Johnstone and Dallos 2013) and no evidence could be found that this perspective has been examined systematically. Consequently this systematic review addresses the following question:

“Do psychosocial support interventions have an impact on maternal perception of perinatal depression?”

A further review objective considers:

Is any single psychosocial intervention more effective than another?

## **Methods**

The Centre for Reviews and Dissemination's (CRD's) structure for systematic review protocol was used (CRD 2009). DARE, Cochrane CENTRAL trials database, CDSR, NHS EED, NIHR HTA and the Campbell Collaboration databases were searched and identified 3 systematic reviews in this topic area. Dennis and Hodnett (2007) considered psychosocial interventions for treatment of postpartum depression but only 1 study in the paper met the date parameters set for this review Lavender et al (2013) assessed the effect of telephone support for women during pregnancy with many studies not meeting the inclusion criteria for this review because the interventions were clinician supported or studied women deemed at risk of depression rather than screened for depressive symptoms. One study from the review was excluded after reading the full text. A narrative review of peer support by Leger and Letourneau (2015) identified two studies which were later excluded from this review.

Search terms and associated synonyms (table 1) were collated from the scoping exercise and utilised to perform a methodical search of CINAHL, Medline, PubMed and PsycINFO electronic databases. Grey literature and internet searching was conducted using Google and Google Scholar. Reference lists of key authors, similar reviews and all included papers were searched. Due to feasibility constraints the following limiters were applied: primary research published in the English language between 2005 and 2015. Alerts did not capture any newly published papers.

The PICOS tool (Higgins and Green 2008) was utilised to define the individual elements of the research question and the inclusion/exclusion criteria (table 2). 3463 records were identified through database searching and an additional 13 studies were identified through hand searching. Duplicate citations were removed leaving 3156 records. A further 3049 were excluded by title and 85 by abstract. The remaining 22 full text articles were assessed against the inclusion/exclusion criteria leaving 7 studies suitable for inclusion in the review (figure 1). Reasons for exclusion are documented in table 3.

The Critical Appraisal Skills Programme checklist for RCTs (randomised controlled trials) (CASP 2015) was selected for critical appraisal of the papers. There appears to be no consensus on the most appropriate tool for non-randomised studies and Quigley et al (2014) states that the CASP RCT checklist is often used to appraise both study designs, even though it is not validated to do so. Use of a single checklist in this instance was deemed to be the most efficient way of appraising all papers consistently but is acknowledged as a potential source of bias in the review. A summary of results of the CASP checklist (and relating them to the PICOS framework) is displayed in table 4. Level of bias within the studies was assessed using the Cochrane Collaboration Risk of Bias tool and displayed using the tabular form suggested by Higgins et al (2011) (see figure 2). Data were extracted using a piloted data extraction tool based on the Cochrane Collaboration data collection form (Higgins and Green 2008). One paper was excluded after contacting the authors for more information, which led to discrepancies in the data (documented in table 3).

A meta-analysis of the data was not possible due to the heterogeneity of the review papers. A narrative synthesis approach, using a systematic method, considered

each paper, aiming to reduce bias by not inappropriately stressing the results of one paper over another.

## **Findings**

A summary of papers included in the review is displayed in table 5. No qualitative papers fulfilled the inclusion criteria, suggesting a lack of contemporary qualitative data on this topic. The remaining studies had usable data involving a total of 449 women. 3 of the studies were RCTs, with the remaining four papers consisting of a pilot study, two randomised experimental studies and a controlled trial. Although non-randomised studies are lower in the hierarchy of evidence it is acknowledged that 'real world data' from smaller studies is having a significant impact on health care decision making (Quigley et al 2014).

No UK studies were identified; four were conducted in the USA, with the remaining originating from Canada, Iran and Taiwan. The control group was generally 'standard care', varying from country to country, and not comparable with free at the point of contact UK NHS maternity care. Alternative control groups included an interpersonal psychotherapy group (Field et al. 2013a) and a purely social support group (Field et al. 2013b). The control group itself in Field et al (2013b) met the remit of a psychosocial intervention and was considered accordingly. Battle et al (2015) did not have a control group, detrimentally affecting the validity and reliability of the results. Gjerdingen et al's (2013) study compared both doula and peer telephone support (ie: 2 psychosocial interventions) with standard care. Kamalifard et al (2013) and Field et al (2013b) were judged to have the lowest risk of bias, reducing allocation bias by randomly assigning participants to groups through the use of internet blocking or

random number tables. 2 papers displayed a high risk of bias due to high attrition rates, the researcher telephoning participants as a reminder to complete the exercise programme (Heh et al. 2008) and the absence of a control group (Battle et al. 2015).

#### Physical activity based Interventions:

A postnatal group exercise intervention (Heh et al 2008) initially appeared to be an effective intervention but EPDS scores also reduced significantly in the control group. The results were statistically significant but data shows that there was a minimal difference in terms of mean EPDS screening scores at 5 months postpartum (10.2 in the exercise group versus 12.7 in the standard postnatal care group). The results also have poor external validity with inadequate allocation concealment and evidence of selection and performance bias.

Prenatal yoga was the focus of two papers. However, Battle et al's (2015) paper was methodologically poor with no control group and therefore comparison data. In contrast, Field et al (2013b) presented one of the strongest papers methodologically. Both social support and yoga resulted in statistically significant reduction in depression screening scores with a higher mean reduction in CES-D scores for the social support group (9.9) versus the prenatal yoga group (9.2). There were large standard deviations in data sets, a relatively small sample (n=92) and multiple ways of assessing efficacy of the intervention (of which the CES-D scale was only one). Consequently, from the results of this review prenatal yoga cannot be recommended as an effective psychosocial intervention for maternal perinatal depression in this review.

#### Peer support based Interventions

Peer postnatal telephone support appeared the most effective psychosocial intervention and was significantly more effective than standard private postnatal care for primiparous women in Iran (Kamalifard et al 2013). This paper was methodologically strong and ranked low for bias. 28 out of 50 women receiving peer telephone support had an endpoint EPDS score less than 11 in comparison to 13 out of 50 women in the control group. In contrast, a small amount of not statistically significant data from Gjerdingen et al (2013) found that multiparous white American mothers did not appreciate telephone postnatal peer support due to a lack of time and a preference for practical hands on support rather than the opportunity to talk about their feelings.

One to one home-based peer support (Letourneau et al. 2011) was the only intervention in the review that appeared *less* effective than standard postnatal care. Women who had experienced doula peer support still had a mean EPDS score of 11.8 in comparison to the control group whose score dropped to 8.68. There were similar findings in Gjerdingen et al's (2013) paper which implemented home based doula support. The doula intervention group had more women who were depressed at 6 months post partum than in the telephone support intervention or control group. Data from CES-D screening scores was not statistically significant and the authors suggest that the doula's own training and experience may have influenced women in acknowledging their depressive symptoms more openly, therefore affecting the validity of the data in this study.

This review found group based peer support to be the second most effective intervention (Field et al 2013a) with statistically significant data ( $p < .005$ ) and medium effect sizes. CES-D screening scores fell from a mean of 26.8 to 21 in the social support group in comparison to 20 to 17.5 in the psychotherapy group. However, the

small sample size (n=44) may mean that the effect sizes are over stated as underpowered studies may erroneously report effect sizes larger than the data actually suggests (Panagiotakos 2008). Consequently, these results should be considered with caution and further research of group based peer support is required.

## **Discussion**

The overall sample of women were from varied backgrounds including low-income black African American and Latina women, Iranian women from affluent, well-educated families and predominantly married white Canadian women from middle class households. Socio-demographic data was not revealed in the Taiwanese paper, but the authors state it was collected.

The papers selected screened for depression using either the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al. 1987) or the Centre for Epidemiological Studies Depression Scale (CES-D) (Radloff 1977). An EPDS score of 10 or higher suggests depression (Cox et al. 1987) although a more contemporary review suggests a score of >15 in the antenatal period and >13 in the post partum period to be a more accurate indicator of depression in English speaking women (Matthey et al. 2006). In this review only Heh et al (2008) adhered to Cox's recommendations including women with a score of 10 or more. Heh also justified this threshold was culturally appropriate based on previous research within a Taiwanese population (Heh 2001). Other authors used different cut-off scores; 11 in the Iranian study (Kamalifard et al. 2013) and 12 in the Canadian study (Letourneau et al. 2011).

The CES-D screening tool (Radloff 1977) is viewed more favourably with a moderate criterion validity when used in vulnerable populations including low income and ethnic minority client groups (Thomas et al. 2001), reflecting the population in the majority of the studies in this review. A score of 16 or more is suggestive of depression. Interestingly all 3 studies which used the CES-D tool (Field et al 2013a, Field et al 2013b and Gjerdingen et al 2013) did not rely on this criterion for inclusion in the study, instead using baseline scores of 20 to 33.

A Cochrane Review does not support the use of screening tools (Austin et al. 2008) and in this context it became clear that their use limited the breadth and depth of data collected. However they do provide some evidence of self-perceived change in depressive symptoms in women receiving psychosocial interventions.

### **Psychosocial interventions and depression scores**

Review papers assessed depression screening scores across the antenatal and postpartum continuum. All papers displayed an overall reduction in depression screening score for both intervention and control groups suggesting that depressive episodes without interventions may be self-limiting for some women. Supporting research by O'Mahen and Flynn (2008) suggests women may not seek medical help when they believe that depressive symptoms may be transient; a concept particularly relevant to women in the antenatal and postpartum period. Women may attribute sleep disturbance, hormonal changes and adaptation to parenthood as reasons for periods of low mood.

Matthey (2010) suggests that 50% of women scoring highly on perinatal depression screening tools (particularly the EPDS) are in reality not depressed and that there is a risk of over-pathologising motherhood. Many stressors are transient in early

parenthood and the use of a screening tool at the wrong time may give a false impression of perinatal distress. This is an important consideration and could arguably detract from the validity of the review findings.

### **Implications of findings**

This review has found that some psychosocial interventions, particularly postnatal peer telephone support for primiparous women and antenatal peer support groups may be effective at reducing maternal perception of perinatal depression. It found limited evidence to support the use of physical activity or one-to-one peer support based interventions. The psychosocial interventions were too heterogeneous to effectively compare and led to the review being insufficiently powered to make strong recommendations for practice. It is important that midwives interpret the findings only tentatively due to the limitations of this review and the multifaceted causes of perinatal depression. A larger review with wider date parameters for literature searching may change the review findings.

Perinatal depression is influenced by many variables and risk factors including ethnicity (Gavin et al. 2011), finances (Lancaster et al. 2010) and level of social support (Solmeyer and Feinberg 2011). The papers in this review acknowledge this complexity but are limited by the ability to only assess set points in time with limited demographics of the samples. None of the papers considered the entire antenatal and postpartum period and it is possible that those interventions which demonstrated an initial effect on depression may have only had a short term benefit. In addition, the results suggest that perinatal depression for some women is time limited and symptoms improve without the use of psychosocial interventions.

The quantitative design of the papers restricts the depth of information collated about the women's lives including their cultural construction of mental ill health, whether they felt that their depressive symptoms were part of a normal transition to parenthood or whether they desired help to actively address their own mental health concerns. The majority of papers did not assess whether the women either enjoyed or felt that they had benefitted from the intervention, which could affect future engagement and compliance.

None of the studies reviewed were undertaken in the UK. Nevertheless they do provide an insight into the response of women from different ethnic backgrounds to psychosocial interventions.

This review recommends future research that considers the entire antenatal and postpartum period including qualitative studies which explore in greater depth women's experience of mental health and response to psychosocial interventions. Additionally due to the complex nature of perinatal depression, it is recommended that service users are involved in the design of socio-culturally appropriate psychosocial interventions which can be tested in adequately powered future studies.

## **Conclusions**

This systematic review provides tentative evidence that psychosocial interventions in the form of antenatal peer group support and postnatal telephone support for primigravid women could be beneficial for improving women's perceptions of their symptoms of perinatal depression. Such interventions are relatively inexpensive and could help improve pregnancy outcomes as well as the health and wellbeing of

mothers and babies throughout their life. They could fill a gap in service provision due to the limited access to specialist perinatal mental health services for some women. There may already be local services provided by the voluntary sector which the midwife can signpost women to after assessing their perinatal mental health. However, further large, well designed studies are essential.

**Key Phrases:**

- Depression is the most commonly diagnosed perinatal mental health condition and NHS specialist mental health services are inadequate at meeting women's needs.
- This systematic review has tentatively found that psychosocial interventions; in particular antenatal group peer support and postnatal telephone support for primigravid women may improve women's symptoms.
- The findings from the review are not sufficiently powered to recommend a change in current practice. The review highlights the absence a qualitative data on this topic and recommends future qualitative studies to explore women's experiences of depression and the use of psychosocial interventions.

**Table 1: Final Search Terms Used with PICOS Framework**

Population	Intervention/ Comparator	Outcomes
<ul style="list-style-type: none"> <li>• Perinatal</li> <li>• Antepartum/ antenatal/ prenatal</li> <li>• Postpartum/ postnatal</li> <li>• Pregnancy/ expectant mothers</li> </ul>	<ul style="list-style-type: none"> <li>• Psychosocial support</li> <li>• Support groups/peer support/ peer counselling/ befriend/ volunteer</li> <li>• Exercise/ physical activity/ pram walking/ yoga</li> <li>• Art/ creative/ handicrafts</li> <li>• Phone/ cell phone/ mobile phone/ smart phone/ telephone/ instant messaging/ text messaging.</li> <li>• Discussion board/ discussion forum/ social media/ electronic mail</li> </ul>	<ul style="list-style-type: none"> <li>• Depression</li> <li>• Postpartum depression/ postnatal depression</li> <li>• Antepartum depression/ antenatal depression</li> <li>• Mental health</li> </ul>

**Table 2. Inclusion and Exclusion Criteria**

<b>PICOS</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
<b>Population</b>	Pregnant Women. Women up to one year postpartum. Women who self-identify as feeling depressed or screen positive with depression screening tool.	Non pregnant women or women beyond one year postpartum at the start of the intervention. Women only deemed 'at risk of depression'. Women with no mental health concerns.
<b>Intervention</b>	Any psychosocial support intervention that does not utilise elements of psychotherapy or pharmacotherapy as part of the intervention itself.	Any interventions which comprise of combined elements of structured psychotherapy or pharmacotherapy.
<b>Comparator</b>	Standard treatment Studies may compare the psychosocial intervention to psychotherapy/ pharmacotherapy.	None
<b>Outcomes</b>	Maternal reports on perinatal depression symptoms/ status. Change in depression screening score.	Outcomes observed by a researcher as subjective change in the woman's depression status.
<b>Study Design</b>	Primary research including randomised controlled trials and non-randomised studies including pilot studies, quasi-experimental studies.	Secondary research including literature reviews, discussion papers, audit of services.

Figure 1: Search Strategy



Adapted from Moher et al (2009)

**Table 3: Characteristics of Excluded Studies**

<b>Study</b>	<b>Reason for Exclusion</b>
<b>Barnes (2009)</b>	Population deemed 'at risk' of depression rather than diagnosed with a perinatal mental health issue.
<b>Caramlau et al (2011)</b>	Protocol and pilot study with no usable data.
<b>Dennis et al (2009)</b>	Population deemed 'at risk' of depression rather than diagnosed with a perinatal mental health issue.
<b>Dubus (2014)</b>	Population deemed 'at risk' of depression rather than diagnosed with a perinatal mental health issue.
<b>Guszkowska et al (2013)</b>	General population rather than with an identified perinatal mental health issue.
<b>Hall and Grundy (2014)</b>	Intervention included elements of Cognitive Behavioural Therapy and therapeutic group work.
<b>Logsdon et al (2010)</b>	Unable to extract relevant data from the study.
<b>Milgrom et al (2011)</b>	Mixed population of depressed and non-depressed women. Unable to extract relevant data.
<b>Morton and Forsey (2013)</b>	Evaluation and case study with a very small sample.
<b>Norman et al (2010)</b>	General population of postnatal women.
<b>O'Mahen et al (2014)</b>	Online psychotherapy-based intervention.
<b>Perry et al (2008)</b>	Population up to 2 years postnatal, scant facts or data for analysis.
<b>Rackett and MacDonald (2014)</b>	Dataset received from authors did not correlate with primary dataset in the paper and therefore was deemed unreliable.
<b>Ross et al (2009)</b>	Study focuses more on HIV than perinatal mental health. Results not generalisable to normal pregnant population.

**Table 4. CASP Checklist/ PICOS Comparison Table**

<b>S</b>	<b>P</b>	<b>I</b>	<b>C</b>	<b>O</b>			
<b>Study</b>	<b>Did the trial/ study address a clearly focussed issue?</b>	<b>Were the study participants recruited in an acceptable way/ randomised?</b>	<b>Was assignment of women blinded?</b>	<b>Were groups similar at the start of the trial/ study?</b>	<b>Aside from the intervention, were groups treated equally?</b>	<b>Were all participants properly accounted for at its conclusion?</b>	<b>Can the results be applied in your context?</b>
<b>Battle et al (2015)</b>	Y	N	N	N	N	N	U
<b>Field et al (2013a)</b>	Y	Y	Y	N	N	Y	Y
<b>Field et al (2013b)</b>	Y	Y	Y	Y	Y	U	Y
<b>Gjerdingen et al (2013)</b>	Y	Y	Y	N	Y	Y	Y
<b>Kamalifard et al (2013)</b>	Y	Y	Y	Y	Y	Y	Y
<b>Letourneau et al (2011)</b>	Y	U	U	Y	Y	Y	Y
<b>Heh et al (2008)</b>	Y	U	U	U	U	Y	Y
CASP – Critical Appraisal Skills Programme							
PICOS – Population/ Intervention/ Comparison/ Outcomes/ Study Type							
Key: Y = Yes, N = No, U = Unsure							

Figure 2: Summary Table - Risk of Bias Mapped By Cochrane Protocol

Paper	Random sequence generation (Selection bias)	Allocation concealment (Selection bias)	Blinding of participants & personnel (Performance bias)	Blinding of outcome assessment (Detection bias)	Incomplete data (Attrition bias)	Selective reporting (Reporting bias)
1. Battle et al (2015)	High risk of bias	High risk of bias	High risk of bias	High risk of bias	High risk of bias	Low risk of bias
2. Field et al (2013a)	Unknown risk of bias	Unknown risk of bias	Unknown risk of bias	Unknown risk of bias	Low risk of bias	Low risk of bias
3. Field et al (2013b)	Low risk of bias	Unknown risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias
4. Gjerdingen et al (2013)	Low risk of bias	Unknown risk of bias	Unknown risk of bias	Unknown risk of bias	Low risk of bias	Low risk of bias
5. Kamalifard et al (2013)	Low risk of bias	Low risk of bias	Low risk of bias	Low risk of bias	Unknown risk of bias	Unknown risk of bias
6. Letourneau et al (2011)	Low risk of bias	Unknown risk of bias	Low risk of bias	High risk of bias	Low risk of bias	Low risk of bias
7. Heh et al (2008)	High risk of bias	High risk of bias	High risk of bias	Unknown risk of bias	High risk of bias	High risk of bias

	High risk of bias
	Low risk of bias
	Unknown risk of bias

(Adapted from Higgins et al. 2011).

**Table 5. Overview of included studies**

Study	Study Type	Study Characteristics	Participants	Study Population	Intervention	Outcomes
Battle et al (2015)	Experimental pilot study	American study.	34	Women at 12 to 26 weeks gestation with a singleton pregnancy who were not regular yoga practitioners.  Diverse population of white/ Latina/ African American women from a predominantly low income household.	A prenatal yoga class taught in a community setting. A 10 week programme of 75 minute classes offered twice per week. Women encouraged to attend 1 class per week.	Significant decrease in EPDS scores with mean baseline screening score of 13 reduced to mean final screening score of 7.5, p value 0.05. A small sample with high attrition and no control group therefore the results are neither valid or reliable.
Field et al (2013a)	Randomised experimental study (contains the elements of an RCT but does not describe itself as an RCT)	American study	44	Women around 22 weeks gestation with a singleton, uncomplicated pregnancy, younger than 40 years old.  Primarily Hispanic or African American women from low income households and high school level education.	A peer support group participated in 20 minute leaderless groups once per week for 12 weeks. The control group (an interpersonal therapy group) met for 1 hour per week for 12 weeks.	CES-D scores decreased in both groups, with a slightly higher decrease in the peer support group (although they had higher initial CES-D scores in comparison to the interpersonal therapy group). Salivary cortisol levels were also measured pre and post intervention. The decrease in cortisol was greater for the peer support group. The authors report medium effect sizes. Peer support was as effective as psychotherapy.
Field et al (2013b)	Randomised experimental study (contains the elements of an RCT but does not describe itself as an RCT)	American study	92	Women with a singleton pregnancy aged 20-40 years, assigned to the intervention or control group at 22 weeks gestation.  Primarily Hispanic or African American women from low income households and high school level education.	A prenatal yoga group met for 20 minute sessions once per week for 12 weeks. The control group (a peer support group) also met for 20 minutes per week for 12 weeks.	CES-D scores decreased almost equally in both groups showing that group peer support was as effective as yoga for decreasing symptoms of depression.
Gjerdingen et al (2013)	Pilot randomised controlled trial	American Study	39	English speaking women recruited at approx. 2-4 weeks postpartum, with a 0-6 month old infant.  95 % white women population, 84% of whom were married and 74% having degree level education with a moderate to high household income.	Women were assigned to either 1 of 2 intervention groups or a control group of standard postnatal care. The intervention groups were postpartum doula support or peer telephone support.  Doulas provided up to 24 hours of support over a 6 week period.	CES-D scores increased in women who had received doula support (believed to be due to allocation bias and doula's experience in prompting women or recognising depressive behaviours ).  Multiparous women did not

					Peer supporter telephone support was offered over a period of 3 months.	value peer telephone support.  None of the results were statistically significant.
Kamalifard et al (2013)	Randomised controlled trial	Iranian study	100	Primiparous women, 18-35 years old with an uncomplicated pregnancy and full term birth.  2/3 of the sample had private health insurance, almost all women were housewives, almost all husbands were business owners rather than employees.	Women in the intervention group received peer support via telephone at least once per week for 2 months following birth.  The control group was standard care.	EPDS scores decreased significantly for women received peer telephone support. The author suggests the intervention may decrease social stigma for a population who doesn't readily talk about depression and may remove access barriers for women such as geographical distance and transportation – although there is no qualitative data presented to support this. .
Letourneau et al (2011)	Randomised controlled trial	Canadian study	60	English speaking women who had a singleton birth, with an infant less than 9 months old. The infant had no significant health issues. Participant also had to live within driving distance of the research cities.  Most women were married with a good standard of education and had a household income >\$40,000 per year.	Women received 12 weeks of homebased peer support which included an element of maternal-infant interaction teaching.  The control group was standard care.	Homebased peer support was less effective at reducing EPDS scores than standard care. In this study peer support had a negative impact on women – the author believes this may have been influenced by the teaching component of the intervention.
Heh et al (2008)	Controlled trial	Taiwanese study	80	Married, primiparous Taiwanese women aged 20-35 years old. All births were full term normal deliveries.  Socioeconomic status not documented although it is stated this data was collected.	Women completed a 1 hour group exercise programme which they were asked to attend weekly. They also received a CD of the exercise programme and were asked to repeat the exercises twice per week at home.	EPDS scores measured at 5 months postpartum decreased significantly in both the exercise and the control group, with a larger decrease in the exercise group.  The sample size was small with a high attrition rate. Bias was present with the author having direct telephone contact with participants to remind them to exercise as per the schedule.

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