Barrie

15 Sperling Drive

Barrie, Ontario

Phone: (705) 721-7520

Fax: (705) 721-1495

www.simcoemuskokahealth.org

EFFECTIVE PSYCHOLOGICAL AND PSYCHOSOCIAL INTERVENTIONS TO PREVENT PERINATAL DEPRESSION AND ANXIETY DISORDERS

Simcoe Muskoka District Health Unit

November 2016

EIDM Team Authors:

Becky Blair, Public Health Nutritionist

Louise Azzara, Infection Prevention Control Coordinator

John Barbaro, Epidemiologist

Sherry Diaz, Public Health Nurse

Amy Faulkner, Librarian

Tanya Fehr, Rabies Coordinator

simcoe muskoka DISTRICT HEALTH UNIT

Table of Contents

ACKNOWLEDGEMENTS:

We would like to thank Natalie Riewe, Child Health Program Manager for offering her maternal mental health content expertise to the writing of this report. We would also like to thank Brenda Guarda, Manager of the Population, Health, Assessment, Surveillance and Evaluation Program team and Dr. Lisa Simon, Associate Medical Officer of Health for their advocacy, leadership and support of this Evidence Informed Decision Making (EIDM) work.

EXECUTIVE SUMMARY

Pregnancy and the postpartum period is a time of transition for women and families. This period of the lifespan can be challenging for some women because of the upcoming or new need to parent and care for one or more newborns. The anticipation and process of becoming a parent can trigger depression and anxiety disorders in prenatal or postpartum women. Maternal mental illness in the perinatal period is concerning as it may negatively impact positive parenting practices. As a result, children may experience sub-optimal health and development, increasing their risk of adverse health outcomes.[1-7] In Simcoe Muskoka, about one in five pregnant women reported a mental health concern during pregnancy - significantly higher than the provincial rate.[8] Therefore, the prevention of perinatal mood disorders via the implementation of public health type interventions may be one strategy to promote the general health of our population of mothers and infants in Simcoe Muskoka.

Many factors may contribute to the development of a perinatal mood disorder. Current evidence has yet to identify causative factors. For example, psychological and psychosocial factors have consistently been shown to be associated with the development of postpartum depression. Therefore, it is plausible that developing interventions to address risk factors for postpartum depression may decrease its incidence. In addition, health care providers have

successfully used psychological and psychosocial interventions to treat postpartum depression in the past.[9]

The research question for this rapid evidence review was: "What are the effective psychological or psychosocial interventions to prevent diagnosed perinatal mood disorders?"

The search of electronic databases was limited to randomized controlled trials (RCT), systematic reviews with or without meta-analysis, and guidelines. Results were limited to English language studies published between 2013 and 2016. The primary outcome of interest was diagnosed perinatal mood disorder as defined by study authors. To align with the scope and intent of a rapid review, studies reporting outcomes related to decreasing perinatal depression symptomology, mean differences in depression scores, or depression symptomology were excluded.

After screening and quality assessment, four systematic reviews and two guidelines were retained for this rapid review. The systematic reviews and guidelines that were included involved preventive interventions that began and ended in the prenatal period, began and continued into postpartum, or began in the postpartum period. No systematic reviews or guidelines were found that examined the effectiveness of psychological or psychosocial interventions to prevent a diagnosed perinatal mood disorder, which began and ended in the prenatal period. Similarly, no systematic reviews or guidelines were found that examined the effectiveness of interventions to prevent a diagnosed generalized anxiety disorder or post-traumatic stress disorder. Overall, no consistent, high quality evidence was found that demonstrates psychological or psychosocial interventions are effective in preventing the diagnosis of perinatal mood disorders. The guidelines included in this review did not provide recommendations to implement preventive interventions at the population or individual level.

Decreases in depressive and anxiety symptomology can also be considered as a preventive strategy. Although symptomology as an outcome was out of scope of this rapid review, the two high quality sources of evidence included in this rapid review reported conflicting results. Those considering the implementation of psychosocial or psychological interventions to prevent the diagnosis of perinatal mood disorders may instead consider investigating the effectiveness of treatment interventions. Public health could potentially support program implementation in community settings. In the meantime, further research is needed about effective preventative interventions and their timing, to help perinatal women avoid adverse health outcomes currently associated with mental illness.

Key Findings

- There are relatively few primary studies that examine the prevention of diagnosis of perinatal mood disorders using psychological and/or psychosocial interventions. The majority of these studies are of lower methodological quality. Differing definitions and outcome measurements make comparing results across studies difficult.

- One guideline of high methodological quality and one of moderate quality that met inclusion criteria for this rapid review did not recommend the implementation of psychological or psychosocial interventions for the prevention of perinatal mood disorders.

- A guideline of high methodological quality found no strong evidence that psychosocial and/or psychological interventions are effective to prevent the diagnosis of perinatal mood disorders in women.

- One high quality systematic review found a beneficial effect of combined psychosocial and psychological interventions to prevent the diagnosis of postpartum depression

compared to standard or routine care. A risk reduction of 50 % was reported for these combined interventions. However, this finding is based only on the five out of 28 primary studies examined in this review that were relevant to our study question. Some of these five studies were lower quality studies with a high risk of bias. When these studies were removed from the meta-analysis, the results failed to show a significant difference in depression diagnosis in the treatment groups relative to the control groups. The authors also cautioned that the results of the meta-analysis combined trials with very different types of interventions.

- This review did not include studies focusing on outcomes of reduced depressive symptomology, quality of parent child interactions and/or child developmental outcomes, which are other outcomes of interest for public health.

ISSUE

Perinatal mood disorders, such as depression and anxiety, are of particular concern for public health as they may negatively impact positive parenting practices. As a result, children may experience sub-optimal health and development, increasing their risk of adverse health outcomes.[1-7] Pregnancy and the postpartum period is a time of transition for many women and their partners. This period of transition can be challenging for some women because of the need to adapt to new parenting roles including the demands of caring for newborns. These transitions can bring about or worsen pre-existing psychological problems. The symptoms of mental health disorders experienced in pregnancy and postpartum present similarly to those experienced at other stages of life. In pregnancy and the postnatal period, women are vulnerable to having or developing the same range of mental health problems, such as depression and anxiety disorders, as other non-pregnant women.[1]

Depression is the most commonly diagnosed mental health disorder in the perinatal period. Perinatal depression is a term used to describe a major depressive episode during pregnancy and/or after birth or adoption of an infant.[10] Factors such as lack of partner support, history of abuse or of domestic violence, personal history of mental illness, unplanned or unwanted pregnancy, adverse events in life and high perceived stress, past or present pregnancy complications, and pregnancy loss are risk factors for prenatal depression or anxiety.[11] Similar factors may contribute to the development of postpartum depression.[9] Given the psychosocial and psychological nature of these risk factors, health care providers have successfully used psychological and psychosocial treatment interventions to treat postpartum depression. These same interventions may also be effective to prevent postpartum depression.[9]

Anxiety disorder is a broad term used for a variety of anxiety disorders, including generalized anxiety disorders (GAD) and post-traumatic stress disorders (PTSD). Generalized anxiety disorders can be described as persistent or excessive anxiety about issues or situations which cause significant distress. In general, the main feature of anxiety disorders is the irrational, persistent or severe fear or worry over situations encountered in daily life. The clinical features of anxiety disorders experienced in the perinatal period are similar to those experienced by non-pregnant women.[10] Indeed, there is no specific criteria to identify GAD in the perinatal period according to the DSM-5.[12] Up to 60 % of women with GAD are thought to also have another mental health disorder such as major depression.[10]

In contrast to GAD, post-traumatic stress disorder (PTSD) is an anxiety disorder that may follow an extremely traumatic event. Women may be at an increased risk of postpartum PTSD because, for some women, childbirth can be physiologically and psychologically traumatic, especially if there are birth complications. This trauma can trigger an intense emotional stress reaction that causes new-onset PTSD. Risk factors for PTSD include a negative subjective birth experience, operative birth, lack of support,[13] currently having depression, poor maternal interactions with medical staff and history of psychopathology.[14] After birth, PTSD has been associated with poor coping and stress. It is also highly comorbid with depression.[13] Similar to the psychological and psychosocial risk factors of postpartum depression, academics researching PTSD have theorized that there is potential to reduce or prevent the likelihood of developing PTSD by offering interventions for women in the early postpartum period.

The prevention of perinatal mood disorders is important from an individual level and from a population level. Maternal mental health problems can be associated with impairment in social and personal functioning, which may affect a woman's ability to care for herself and her children. Maternal death or infanticide, especially after the first month postpartum, has been

reported as a result of untreated severe maternal depression.[1] Prenatal depression has been associated with preterm birth[2,3] and low birth weight babies,[1] especially among women of low socio-economic status.[15] Prenatal and postpartum depression are also associated with adverse childhood outcomes such as: childhood internalizing and externalizing disorders,[4,6,16] insecure attachment[17] and adverse childhood behavioural, cognitive and psychomotor development.[18] One prospective study found women with postpartum depression may be less likely to implement health promoting behaviours.[19] Current evidence also suggests that the potential outcomes of maternal mental health interventions are not restricted to positive outcomes for the mother. These interventions could also impact the physical health of children, as well as decrease their exposure to maltreatment, which could improve their intellectual and social functioning.[1] One study has also found maternal depression may have long-term adverse cognitive impacts in adolescents.[7]

LOCAL CONTEXT

Perinatal mood disorders are a serious public health concern; the incidence of postnatal depression is estimated to be between 10-20% of new mothers. In Simcoe Muskoka, according to results from the Better Outcomes Registry Network (BORN) 2015 data, more than one in five pregnant women [22.2% (95% confidence interval: 21.0%, 23.4%)] reported a new or pre-existing mental health concern during their pregnancy. This estimate is significantly higher than the Ontario rate of 15.9% (15.7%, 16.1%) of women who reported a mental health concern prenatally.[8]

Of the 22.2% of women who reported a mental health concern, the most commonly reported concerns were related to anxiety (64.3%) and depression (49.6%). Approximately half (48.3%) of pregnant women who reported feeling depressed during their pregnancy also reported feelings of anxiety.[8]

In total 11.0% (10.2%, 11.9%) of pregnant women living in Simcoe Muskoka reported depression during their pregnancy. Depression was significantly more common in younger pregnant women when compared to older pregnant women, with 17.9% (15.2%, 20.8%) of pregnant women 15 to 24 years old reporting depression, compared with 9.5% (8.5%, 10.6%) of women aged 25 to 34 years and 10.8% (8.8%, 13.0%) of women aged 35 to 49 years. Approximately 3% (2.8% (2.4%, 3.3%) of pregnant women in Simcoe Muskoka reported a history of post-partum depression.[8]

In order to address the issue of perinatal mood disorders, the Simcoe Muskoka District Health Unit (SMDHU) works with the Northern Ontario Post-Partum Mood Disorder (PPMD) Project, North Simcoe Muskoka Local Health Integration Network's (NSMLHIN) Perinatal Mood Disorder coordinator and other community committees and partners to provide programs and service for parents with young children affected by perinatal mood disorders.

LITERATURE REVIEW QUESTION

The research question guiding this review is:

> What are the effective psychological or psychosocial interventions to prevent diagnosed perinatal mood disorders?

This rapid review was informed by the *Dennis and Dowswell* Cochrane review.[9] As such definitions for some terminology used in this Cochrane review were used for this rapid review.

The PICO question is:

P *(population)* - pregnant or postpartum women at no known risk or at risk of developing perinatal depression or an anxiety disorder.

I *(intervention)* - any psychological or psychosocial intervention

C *(comparison)* - standard or usual care

O *(outcome)* - proportion of women diagnosed with perinatal depression or an anxiety disorders

Definitions:

The definition of perinatal mood disorders used for this rapid review was adapted from the definition used by Perinatal Services BC.[10] This guideline identified four major mental health disorders common in the perinatal period; depression, anxiety disorders, bipolar disorders, and psychotic disorders and postpartum psychoses. Because this rapid review investigates effective interventions relevant to public health programming, the decision was made to focus only on the prevention of depression and anxiety disorders. The two remaining mental health disorders may not be preventable. Anxiety disorders themselves can also be subdivided into four categories.[10] For similar reasons, post-traumatic stress disorder and general anxiety disorder were included in our perinatal depression definition. For the purposes of this report, the term "anxiety" refers to both post-traumatic stress disorders and general anxiety disorders, unless specifically differentiated in the text.

As stated above, the definitions for psychosocial and psychological interventions used for this rapid review were the same as those used by Dennis and Dowswell.[9] Briefly, psychosocial interventions were defined as interventions that take place in the social environment; those that enhance supportive interactions or create supportive relationships. Psychological interventions were defined as those interventions that are based in psychological methods such as cognitive behavior therapy, interpersonal psychotherapy, or psychological debriefing.

The authors of this rapid review defined the term perinatal as the time starting at conception to up to one year postpartum. Our primary outcome of interest was the prevalence of a perinatal mood disorder in the intervention group compared with the control group; defined

as an anxiety or depressive disorder diagnosed in the perinatal period (see definition above). The outcome of a "diagnosed" perinatal mood disorder was as defined by the authors of the included studies. The term "diagnosed" was defined in three possible ways; by using a specific cut-off value on a scale as defined by the author(s) to classify perinatal depression or an anxiety disorder, by the author referring to a "probable" diagnosis or as a depressive or anxiety disorder "episode". Therefore, we did not differentiate between studies who did or did not use an actual clinical diagnosis by a physician/psychiatrist to confirm the diagnosis of depression or an anxiety disorder. For the purposes of this report, the term "diagnosed perinatal depression or anxiety" refers to any of the three outcome measurement criteria listed above.

LITERATURE SEARCH

The search strategy was developed by the librarian at SMDHU. The initial Medline search strategy was peer reviewed by two librarians. The search strategies for the electronic databases contained select MeSH and free-text terms relating to perinatal mood disorders and psychosocial or psychological interventions and were further limited to search for randomized controlled trials, systematic reviews, meta-analyses or guidelines. Results were limited to articles published between 2013 and 2016 and were limited to English language (see Appendix 1 and 2 for the Medline search strategy). 2013 was chosen as lower limit of the date range because December 31, 2012 was the date the Dennis and Dowswell[9] updated their comprehensive search strategy. Limiting inclusion criteria by date is also one approach to streamline a rapid review.[20]

Additional database search strategies conducted are available by request. The following databases were searched between January 20, 2016 - January 26, 2016.

- Ovid MEDLINE(R) 1946 to January Week 1 2016
- PsycINFO 2002 to January Week 2 2016

- EMBASE 1996 to 2016 Week 3- limited to exclude Medline journals
- CINAHL Plus with Full Text
- Medline in process searched on January 25, 2016
- PubMed results limited to publisher only

Authors of Cochrane reviews located in our initial search were contacted to ask if they were aware of any recently published (since their search ended) RCTs or quasi-RCTs that reported on our outcome. Because this is a rapid review, we did not conduct an additional search based on the last search date of the most current systematic review to identity additional single studies. Results were imported into ENDNOTE and duplicates were removed.

Inclusion and Exclusion Criteria:

The inclusion and exclusion criteria for this rapid review were adapted from those used in the Dennis and Dowswell Cochrane review.[9] Decisions regarding inclusion criteria were made, in part, to maximize the applicability of findings to the Simcoe Muskoka region. The inclusion criteria for this rapid review was as follows:

1) Publication types include systematic review with or without meta-analysis, guideline, or a randomized controlled trial (RCT);
2) The report was published in the English language;
3) Contains trials from high income countries as defined by the World Bank;
4) Tested a psychological or psychosocial preventative intervention;
5) Investigated a change in prevalence of a diagnosed perinatal depression or anxiety; and,
6) Original trials could contain no more than 20% of women with a current mental health diagnosis at baseline. Outcome measures for diagnosis of a perinatal mood disorder had to report an odds ratio or relative risk reduction.

There were no restrictions on the types of primary study designs analyzed or described in systematic reviews, meta-analyses or guidelines. Meta-analyses that included studies from developing countries, as well as developed countries were included.

Given our outcome measure of diagnosis of depression or anxiety post-intervention, studies reporting outcomes related to decreasing symptomology of perinatal depression or anxiety were excluded. Trials reporting outcome measures as proportions without statistical testing were excluded. In addition, studies focusing on any type of treatment intervention, diagnostic studies, any type of drug trial or other pharmaceutical intervention, or screening, even if preventative in nature, were excluded. Study participants who experienced pregnancy loss or who had concurrent eating disorders, bipolar disorders or schizophrenia, including trials of mothers who had diagnosed depression at baseline or who had alcohol or substance abuse issues were also excluded.

SELECTION OF STUDIES:

The six authors (LA, JB, BB, SD, AF, TF) screened the first 70 results as a group to refine and finalize the inclusion/exclusion criteria for the rapid review. Slight adjustments were made. The remaining references were equally divided into three portions to allow for the titles and abstracts to be independently screened by three pairs of authors (LA and JB, BB and TF, SD and AF). When there was uncertainty about inclusion/exclusion or agreement could not be achieved between the paired authors, the article was included for full text review. Full text articles were then retrieved for review and were equally divided into three portions to allow for the references to be independently screened by two separate authors. One RCT[21] was sent by e-mail by a Cochrane review author and was added to the initial list of articles to be assessed for inclusion/exclusion.

Randomized controlled trials were included in our original search because the number of systematic reviews meeting our inclusion/exclusion criteria was unknown. The review team, in consultation with Health Evidence at McMaster University, deemed that the number of systematic reviews found was sufficient to meet the objectives of this rapid review; therefore, we decided to exclude all randomized controlled trials from full text review. Each group member independently assessed the full text articles against the inclusion/exclusion criteria. Full text articles moved onto the quality assessment stage if agreement was reached among the pair of reviewers assigned to the article. If agreement was not reached by the pair, consensus among all six members was required.

QUALITY ASSESSMENT

All systematic reviews and meta-analyses were assessed using the AMSTAR quality assessment tool.[22] The two guidelines were appraised using the AGREE II tool.[23] Systematic reviews and guidelines that met the inclusion criteria were divided in half and independently assessed by two groups of three reviewers. The independent reviewers then met to come to an agreement, where needed, on the final quality assessment scores.

Any remaining disagreements were discussed with the whole group and were resolved by consensus. Studies were rated as low, moderate or high methodological quality using a slight adaptation of the scoring system of Health Evidence.[24] Health Evidence uses a scoring system of between eight and 10 to rate systematic reviews as strong or high methodological quality. Since we are using the AMSTAR[22] tool and not Health Evidence criteria, we considered a score of eight to 11 as strong or high quality. A score between five and seven was considered moderate quality and scores between one and four were considered low or weak quality. Criteria within AMSTAR[22] rated as unclear were counted as “NO”. We did not quality assess primary studies within systematic reviews.

DATA EXTRACTION

The data extraction process was carried out by the six authors with at least two authors independently conducting the data extraction using a data extraction template. A group consensus process was used to resolve any disagreements among the pair of reviewers extracting data for a given study.

STATISTICAL ANALYSIS

After reviewing preliminary findings, it became apparent that we would need to conduct a post-hoc meta-analysis that re-analyzed the data from the five studies used in table 1.3 of the Dennis and Dowswell Cochrane review.[9] In Appendix 19 of the NICE Guidelines,[25] available case analysis (as presented in the Dennis and Dowswell paper) and the intention-to-treat analysis (where all those lost to follow-up are treated as cases) were reported. All the data for these five studies were inputted into Stata® Statistical Software Package (MP version 12). The meta-analysis command 'metan' was used to generate the pool relative risks and to create forest plots using random-effects models for both the available case and the intention-to-treat data.[26] To validate this process, the results for the available case data were examined and found to be identical to what was published in table 1.3 of the Dennis and Dowswell Cochrane review.[9]

SEARCH RESULT

Figure 1: Evidence Search and Screening Flow Diagram

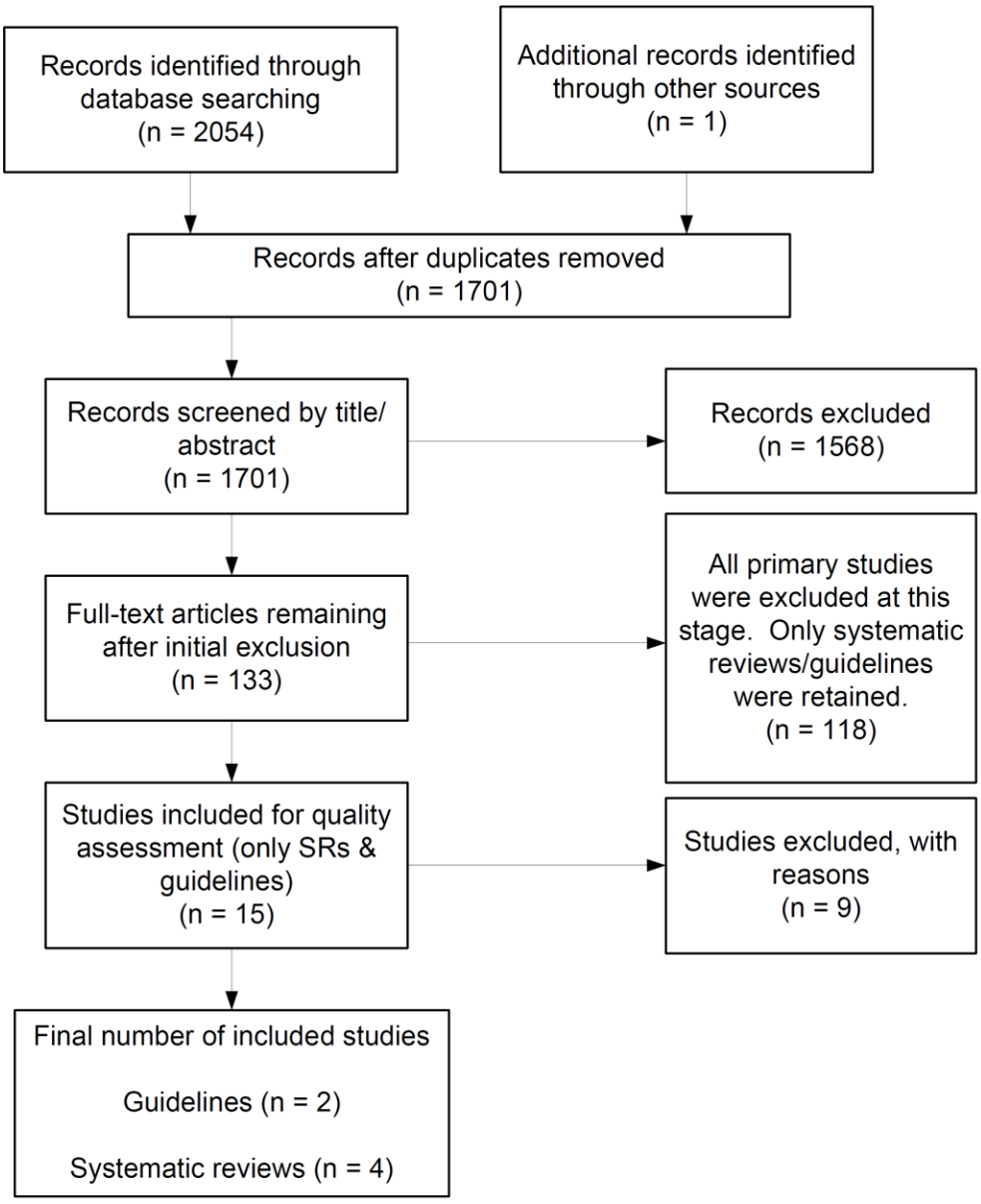


Figure 1. Evidence Search and Screening Flow Diagram

DESCRIPTION OF INCLUDED STUDIES

Table 1: Characteristics of Included Systematic Reviews

Citation (AMSTAR quality assessment rating)	# studies with outcome (total # studies in SR)	Study designs included in systematic review	Total sample size of studies with outcome	Characteristics of sample	Intervention Type (vs. comparison/control)	Outcome Measure	Outcome
Dennis and Dowswell[9] (11)	5 (28)	RCTs	458/481	Pregnant women and new (less than six weeks postpartum) mothers, including those at no known risk and those identified as at risk of developing postpartum depression.	psychological and psychosocial (vs. any form of standard or usual care)	As variously defined and measured by trialists.	All psychological and psychosocial interventions vs. usual care, 5 studies, diagnosis of depression, 458/481, RR=0.50(0.32 to 0.78)
Pilkington et al.[27] (2)	1/13	No study design restrictions in SR.	Matthey n=268	Couples expecting first baby. Australian sample.	Preparation for Parenthood program including Empathy vs. Baby Play (non-specific	Structured diagnostic interview schedule-DSM-IV	There were no significant differences in rates of depression or depression-anxiety across conditions.

		Matthey (2004)[28]: 3 x3 RCT			control) or usual program (control)		
Sockol[29] (5)	12 (40)	RCTs and quasi-RCTs	3,149	Studies from developed and developing nations, both antenatal and postnatal.	CBT* (vs. treatment as usual, active control condition, or enhanced treatment as usual)	Met criteria for depressive episode. No outcome definition for prevention studies provided.	OR= 0.71 (0.59-0.87)
Sockol[30] (5)	23 (28)	RCTs and quasi-RCTs	4,485	Studies from developed and developing nations, both antenatal and postnatal.	Review combined biological and psychosocial intervention. Psychosocial interventions include: modified care, therapy, social support and educational.	Various scales and diagnostic criteria as defined by primary study authors, including EDPS**	Psychosocial interventions: OR = 0.61 (0.50, 0.84)

*CBT= Cognitive Behavioural Therapy

**EPDS= Edinburgh Postnatal Depression Scale

Table 2: Characteristics of Included Guidelines

Citation (AGREE II quality assessment rating)	Evidence Description	Recommendations
National Institute for Health and Care Excellence (NICE)[1] (7/7)	Effect of social support compared with treatment as usual on preventing depression diagnosis outcome in women at risk – intention-to-treat (ITT) analysis 1 study: RR 0.85 (0.65 to 1.1) 117 participants, VERY LOW QUALITY Effect of psychologically CBT/IPT* informed psychoeducation compared to treatment as usual-depression diagnosis post treatment-ITT analysis (at risk populations) 3 studies: RR 0.69 (0.45 to 1.05) 360 participants. LOW QUALITY. Depression diagnosis intermediate follow (up) (17-24 weeks post intervention ITT analysis. 1 study: RR 0.77 (0.33 to 1.75) 45 participants, LOW QUALITY. Effects of mother-infant relationship interventions compared with treatment as usual-women with identified risk factors-depression diagnosis post treatment. ITT analysis (at-risk populations). 1 study: RR 1 (0.76 to 1.31) 449 participants, LOW QUALITY No studies were found that assessed change in diagnosis of depression in populations without risk.	There are no recommendations specific to preventative interventions for depression or anxiety disorders in the antenatal or postnatal period.

BC Reproductive Mental Health & Perinatal Services BC.[10] (4/7)	Regarding prenatal depression, the guideline cites a guideline from Scotland[31]. It identified that current evidence does not support specific interventions for the prevention of depression in pregnancy in those without identified risk factors. Regarding post-partum depression, the guideline describes promising practices for all postpartum related outcomes (not just prevalence of diagnosed postpartum depression) from Dennis and Dowswell.[9]	There are no recommendations specific to preventative interventions for depression or anxiety disorders in the antenatal or postnatal period.

*CBT/IPT= Cognitive Behavioural Therapy/Inter-Personal Therapy

RESULTS OF SEARCH AND QUALITY ASSESSMENT

Results of the search retrieved 2054 records and one additional record was found through other sources (see Figure 1). After removal of duplicates (353), the authors assessed the titles and abstracts of 1701 studies for relevance. Once completed, 133 records were retained for full-text eligibility assessment. As a result, thirteen systematic reviews and two guidelines went on to full text review. Nine systematic reviews were excluded after full text review. The most common reasons for exclusion were the outcome measured change in symptomology rather than diagnosis (either clinical or above a cut-off score) and duplication of primary studies already cited in more current systematic reviews (see Appendix 3 for more detail). A total of four systematic reviews (see Table 1) and two guidelines (see Table 2) are analyzed in this rapid review.

QUALITY ASSESSMENT

Of the four systematic reviews found to meet our inclusion criteria, one review[9] (Dennis and Dowswell, 2013) was rated as high quality evidence. Two reviews by Sockol,(Sockol, 2013[30] and 2015[29]) were rated as moderate quality evidence. The main methodological quality concerns for Sockol 2013[30] was the lack of a comprehensive search strategy and not addressing the quality of included primary studies in the conclusions of the systematic review. Sockol 2015[29] did not report the methodological quality of the individual primary studies nor was the quality of the primary studies addressed in conclusions. One review (Pilkington et al., 2015[27]) was rated as weak quality. This review did not assess the status of publication or the possibility of publication bias, did not duplicate data extraction, lacked descriptions of the methodological quality of individual primary studies and did not address issues of methodological quality of primary studies in their conclusions.

The NICE guideline[1] was rated as high methodological quality (7/7) using the AGREE II quality assessment tool.[23] The BC Reproductive Mental Health & Perinatal Services guideline[10] was rated as moderate. This guideline was rated lower in the domains of Rigour of Development, and Applicability.

Overall, the NICE guideline and the Dennis and Dowswell Cochrane review were rated to be of high methodological quality. The BC guideline and the two systematic reviews by Sockol were considered moderate quality and the systematic review by Pilkington was considered to be of weak methodological quality.

SYNTHESIS OF FINDINGS

The systematic reviews and guidelines included contained intervention trials that either started their preventive interventions in the prenatal period and continued postpartum, or began in the postpartum period. There were no systematic reviews or guidelines meeting our inclusion criteria that examined the effectiveness of psychological or psychosocial interventions for prevention of a perinatal mood disorder that began and ended during the prenatal period.

Results are presented initially by prenatal and postpartum intervention timing and are then sub-divided by how the interventions were analyzed (e.g. combined or by type of intervention). Levels of evidence are presented before the description of each intervention. Guidelines are considered a higher level of evidence compared to systematic reviews. Therefore, they are always described first in each section if data is available.

Interventions by Prenatal or Postpartum Timing

Prenatal:

Moderate Quality Evidence

A guideline[10] noted current evidence describing interventions implemented during the prenatal period does not prevent depression in women without risk factors for depression.

Postpartum:

No studies investigating the effectiveness of preventive psychological or psychosocial interventions for diagnosed anxiety disorders were found that met our inclusion criteria. The results below are specific to the prevention of postpartum depression.

Psychological and Psychosocial Interventions – Combined

High Quality Evidence

The NICE guideline[1] examined a variety of psychological and/or psychosocial interventions on the outcomes of diagnosis of depression, anxiety and PTSD. GRADE methodology[32] was applied to the data. This guideline used, where possible, an available case analysis and an intention to treat imputation analysis to help interpret the effect of missing outcome data in the primary studies. Different types of psychosocial and psychological interventions were analyzed separately and were not pooled together. Instead, this guideline separated its analysis by those "with identified risk factors" and those "without risk". This guideline found no trials that examined the effectiveness of psychosocial or psychological interventions to prevent the diagnosis of postpartum depression in women "without risk". A few studies were found that reported on the prevalence of postpartum depression in women with "identified risk factors" (see Appendix 5). The results of these studies are reported in Table 2 and below. Overall, this guideline did not provide any specific recommendations about using psychological or psychosocial interventions to prevent diagnosed perinatal depression or anxiety in women.

The Dennis and Dowswell Cochrane review[9] found five studies that reported the outcome of diagnosis of depression, out of 28 studies included in this systematic review. Results of the main analysis of the five studies revealed the combination of psychosocial and psychological interventions reduced the risk of being diagnosed with postpartum depression by 50% (95% CI: 22%-68%) compared to standard or routine care. All five trials included in this analysis sampled women considered "at risk" of depression. However, after sensitivity analysis was conducted by the authors by removing three of the five trials considered at high risk of bias, there was no longer a significant effect from the remaining higher quality studies on risk of postpartum depression diagnosis. GRADE methodology[32] was not applied. Authors used available case analysis as an approach for handling missing outcome data. Sub-analysis examining the outcome of diagnosis of depression found no statistically significant sub-group differences for variations in intervention provider (professional vs. lay-based), intervention mode (individual vs. group based) or intervention onset (prenatal only vs. postpartum only vs. prenatal and postnatal).

Because of the use of available case analysis in this systematic review, the authors of this rapid review re-analyzed the same five studies with the intention-to-treat data available in Appendix 19 of the NICE guidelines. The results demonstrated that the risk reduction for diagnosis of postpartum depression was no longer statistically-significant (RR=0.86 [0.64-1.15]). Please see Appendix 4.

Moderate Quality Evidence

The BC guideline,[10] like the NICE guideline,[1] did not present any recommendations specific to psychosocial or psychological interventions for the prevention the diagnosis of perinatal depression in the postpartum period.

Psychological Interventions- combined:

High Quality Evidence

The NICE guideline did not report a pooled relative risk estimate for a combination of psychological interventions. The Dennis and Dowswell Cochrane review[9] conducted a meta-analysis combining two psychological intervention studies that met their inclusion criteria. There were no statistically significant differences in the prevalence of diagnosed depression for the intervention groups when compared with those who received standard care.

Single Intervention: Cognitive Behavioural Therapy/Inter-Personal Therapy (CBT/IPT):

High Quality Evidence

The NICE guideline[1] found low quality primary studies reporting no statistically significant differences for at-risk women receiving a CBT/IPT informed psychoeducation intervention compared to at-risk women receiving usual care or enhanced usual care (low quality evidence) (see Table 2) in their risk of postpartum depression. For the definition of "at-risk", please see Appendix 5.

Moderate Quality Evidence

Sockol (2015)[29] reported women receiving a CBT intervention had significantly lower odds of postpartum depression when compared with those receiving standard care (RR 0.71, 95% CI: 0.59 to 0.87). This meta-analysis may have contained primary studies assessing the prevention of escalated symptomology as well as the diagnosis of depression. Further sub-analyses revealed individual interventions had statistically significantly greater reduced odds of preventing postpartum depression compared to group interventions (P for the interaction = 0.04). Although methodological quality was not found to be statistically significantly associated

with the effect size, the author did acknowledge methodological quality of the randomized controlled trials and the quasi-randomized controlled trials was a major limitation of the meta-analysis. The use of intention to treat analysis in the meta-analysis was not reported for prevention studies.

Psychosocial Interventions, combined:

High Quality Evidence

The NICE guideline did not report a pooled relative risk estimate for the combination of psychosocial interventions. The Dennis and Dowswell Cochrane review,[9] in sub-analyses of three studies, found psychosocial interventions significantly reduced the risk of postpartum depression by 48% for those in the intervention groups when compared with those receiving standard care (RR 0.52, 95% CI: 0.33 to 0.83). Two out of the three studies examined in the meta-analysis were considered high risk of bias. Removal of these two studies left the Dennis 2009 study as the only study remaining in the meta-analysis, which had a non-statistically significant relative risk reduction of 0.65 (95% CI: 0.34 to 1.23).

Moderate Quality Evidence

In sub-analysis, Sockol (2013)[30] reported a 39% reduced odds (OR=0.61, 95% CI: 0.50 to 0.84) of being diagnosed with depression for those in various psychosocial interventions when compared with those in the control group. Like Sockol (2015), this meta-analysis may have contained primary studies that assessed the prevention of escalated symptomology as well as the diagnosis of depression. The author of this study did not examine methodological quality of prevention studies specifically or commented on methodological quality of the prevention studies in the conclusions of the systematic review.

Single Intervention: Lay based home visiting:

High Quality Evidence:

The NICE guideline[1] found one very low quality primary study that reported no statistically significant differences in prevalence of diagnosed depression in at-risk women receiving a social support intervention (lay based home visits)[33] compared to those who experienced usual care.

Single Intervention: Mother-Infant relationship interventions:

High Quality Evidence

The NICE guideline[1] found one low quality primary study that reported no statistically significant difference in the groups of 'at risk' women receiving a mother-infant relationship intervention[34] compared to women receiving usual care (see Table 2) in their risk of being diagnosed with postpartum depression. For the definition of "at-risk", please see Appendix 5.

Single Intervention: Preparation for Parenthood Class:

Weak Quality Evidence

A systematic review[27] (Pilkington et al., 2015) found one study that reported our outcome of diagnosis of a perinatal mood disorder. This one study found no difference in the prevalence of postpartum depression or anxiety among mothers attending a Preparation for Parenthood program[28] compared to those not receiving the program. The authors did not comment on the methodological quality of this primary study.

DISCUSSION

The NICE guideline was considered the highest quality evidence found in this rapid review. It suggested there is no strong evidence that psychosocial and/or psychological interventions are effective to prevent the diagnosis of perinatal mood disorders in women. The few primary studies found that measuring diagnosis of depression as an outcome were of low or very low quality. Neither of the two guidelines[1,10] that met our inclusion criteria, provided recommendations on the creation of psychological or psychosocial interventions at the individual or population level to prevent perinatal mood disorders.

Interpretation of the results of our two high quality sources of evidence was difficult as different definitions and methodologies produced conflicting results. Perhaps one of the most important distinctions between the NICE guideline[1] and the Dennis and Dowswell Cochrane review[9] was how prevention and treatment studies were defined. The NICE guideline authors pre-determined a threshold for a variety of scales that could have been used to screen for depression or anxiety. Studies where the mean baseline score was above a pre-determined threshold for a particular screening tool were defined as treatment studies. Studies below a threshold were defined as prevention studies (see Appendix 6). It is noteworthy that two of the five studies included in the Dennis and Dowswell Cochrane review[9] that examined diagnosis of postpartum depression as an outcome were categorized as treatment studies in the NICE guideline[1].

The NICE guideline[1] also sub-divided their prevention results by risk status. Dennis and Dowswell[9] defined prevention as no more than 20% of participants having depression at baseline. Since the authors stated the five studies included for the outcome of diagnosis of depression included were women considered at risk for depression, the results of the Cochrane review would apply to women considered “at-risk”; therefore, the findings of this rapid review

apply to at-risk women. It is unknown whether these results could also be applied to women "without risk".

Another important distinction between the NICE guideline[1] and the Dennis and Dowswell Cochrane review[9] is how the authors addressed missing outcome data in the primary studies used in their meta-analysis. With intention-to-treat (ITT) analysis, every subject is analyzed in their originally assigned intervention or control group and is commonly referred to as "once randomized, always analyzed."[35] Intention-to-treat analysis is thought to give an unbiased estimate of the effect of the intervention. Intention-to-treat analysis allows for the greatest generalizability but has been criticized for being too conservative.[35]

The Cochrane Handbook[36] acknowledges there is no consensus among experts about how to handle missing outcome data using the ITT principle. The two commonly used techniques are to apply an available case analysis or an ITT imputation method.[36] Available case analysis excludes those with missing outcome data from the overall denominator. The ITT imputation method[36] can use a "worst case scenario" approach as this form of analysis converts missing data into "cases". The NICE guideline reported results of the ITT imputation method and the available case analysis method. The Denis and Dowswell Cochrane review reported results using available case analysis only.

Another relevant decision made by the NICE guideline committee was to not pool the psychological and psychosocial studies together, or pool the psychological studies and psychosocial studies separately to create an overall relative risk estimate. Differences in study intervention types, the various measurement scales used across studies, and issues related to outcome measurement (clinician diagnosis vs. scoring above a threshold on a scale), may have contributed to this decision. Indeed, the NICE guideline review committee stated:

"There is a great deal of inconsistency across studies in how disorders in pregnancy or the postnatal period are characterized, for instance, psychiatric diagnosis compared with scoring above a threshold on a scale (clinician rated or self-report). This variability is also reflected on how researchers define their trials as prevention or treatment. This lack of consistency makes it difficult to assess like for like within meta-analysis."(p.210)[1]

The Dennis and Dowswell Cochrane review[9] did, however, decide to combine the five psychological or psychosocial primary studies reporting on the outcome of diagnosis of postpartum depression and report a 50% relative risk reduction. The authors commented, though, that "in the primary comparison, the diversity of preventative interventions and the widely differing end-points should urge some caution in the interpretation of the pooled data." (p. 20)[9] Some question remains as to whether combining different interventions into one pooled estimate is appropriate and meaningful for program implementation. Given the results of the main analysis of the included studies from this review lost statistical significance after sensitivity analysis, and also after our own re-analysis of the data using ITT, caution is warranted when interpreting this finding of the Dennis and Dowswell review.

As mentioned above, the NICE guideline[1] did not separate its results by whether the individual trials were psychosocial or psychological. Looking specifically at psychosocial interventions, this guideline found low and very low quality evidence from only one study suggesting mother-infant interaction interventions and social support interventions (both of which could be categorized as psychosocial interventions) where no more effective than usual care in preventing the diagnosis of postpartum depression.

In contrast, the Dennis and Dowswell Cochrane review[9] analyzed three psychosocial studies and found a 48% relative risk reduction (95% CI: 0.33 to 0.83) in the prevalence of postpartum depression. Similar analysis issues regarding the handling of missing outcome data

also apply. In addition, two of these three studies were considered at high risk of bias. The only study not considered at high risk of bias, the Dennis 2009 study, reported non-statistically significant findings. In addition, this study was considered a treatment study using the NICE guideline classification criteria.

The results of the Dennis and Dowswell Cochrane review[9] aligns with the sub-analysis conducted in the moderate quality systematic review by Sockol 2013.[30] This author reported women participating in psychosocial interventions had a statistically significant reduced odds (OR=0.61, 95% CI: 0.50 to 0.84) of being diagnosed with postpartum depression compared to controls. As with the Dennis and Dowswell Cochrane review, there is some question about the appropriateness of combining 23 psychosocial interventions into one pooled estimate. Given this was a sub-analysis, different methodological quality of primary studies were included, there was uncertain use of ITT analysis, as well as the differing definitions of preventing and treatment described above, the authors of this rapid review believe, at this time, there is no strong evidence that demonstrates psychosocial interventions are effective to prevent the diagnosis of post-partum depression.

Both of our high quality sources of evidence did agree with each other regarding the effectiveness of psychological interventions. The NICE guideline reported low quality evidence that CBT/IPT interventions were no more effective compared to usual care to prevent the diagnosis of postpartum depression. The Dennis and Dowswell Cochrane review[9] also found psychological interventions were no different than usual care to prevent the diagnosis of depression. However, moderate level evidence from Sockol[29] did suggest intervention effectiveness for CBT (RR=0.71, 95% CI: 0.59 to 0.87]). This author noted the studies included in the meta-analysis had a greater than 20% attrition rates and the included studies were of uncertain methodological quality. In summary, similar to the conclusions for the psychosocial interventions, the lack of statistically significant results of the NICE guideline[1] as well as the

Dennis and Dowswell Cochrane review,[9] and considering the limitations of the Sockol systematic review,[29] suggests at this time, there is no strong evidence that demonstrates psychological interventions are effective to prevent the diagnosis of post-partum depression.

Further hampering interpretation of results is the research base examining the effectiveness of preventive interventions using a variety of outcome measurement scales. The actual definition of a diagnosed perinatal mood disorder was also variously defined by study authors. Many studies measured a depressive episode or probable depression using depression scales, including validated depression scales like the Edinburgh Postnatal Depression Scale (EPDS). However, these scales are not considered a stand-alone diagnostic tool and would usually be accompanied by a clinical assessment to determine diagnosis. It is unknown whether subjectively measured depression scales used as a proxy to formal clinical assessment of depression diagnosis impacts relative risk estimates of interventions. It is possible that random misclassification of the outcome may have resulted from the various methods used by the different primary study authors. Random misclassification of the study outcome will bias in the direction of the null hypothesis, which may help to explain the non-significant findings (along with the fact that many of the meta-analyses were underpowered).[37]

Finally, in addition to the lack of strong quality evidence supporting the effectiveness of psychological and psychosocial interventions, there is also uncertainty about when the ideal time to intervene for prevention purposes may be. For example, there is evidence[38,39] that suggests a strong predictor of prenatal depression is a woman's own history of childhood maltreatment.[1] Therefore, primary prevention for postpartum depression may, in theory, be a result of effective early childhood interventions or parenting programming aimed at preventing childhood maltreatment.

Before this rapid review was finalized, another systematic review meeting our inclusion criteria was brought to our attention. Active searching for additional articles was not done after the initial searches. The systematic review by Morrell et al.[40] did not find statistically significant differences in any psychological or psychosocial intervention aimed at preventing women from achieving above a threshold score on the EPDS.

The outcome of interest for this rapid review was the "diagnosis" of depression or anxiety in the perinatal period. Some may argue that psychological and psychosocial interventions can lead to prevention of depressive "symptomology", which could also be considered a preventative strategy. Although symptomology as an outcome was considered out of scope of this rapid review, examining this outcome in our two high quality sources of evidence could aid in program decision making. The NICE guideline[1] did not report any statistically significant relative risk reductions in depressive symptomology using ITT analysis. They did however find a statistically significant reduction in anxiety symptomology amongst women with identified risk factors receiving a home visiting intervention compared to treatment as usual in the short term (52 weeks) RR= 0.63 (0.43 to 0.91) and longer term, RR=0.74 (0.55 to 0.98). These results were based on one study of very low quality. There was also a statistically significant difference (RR=0.34 [0.18 to 0.62]) in post-miscarriage self-help compared to treatment as usual on preventing PTSD outcomes in women with identified risk factors. This result was also based on one study of very low quality.

The Dennis and Dowswell Cochrane review[9] reported a 22% reduction in depressive symptomology (comparing those who scored above and below a threshold value for symptomology on a depression scale) (95% CI: 0.66 to 0.93) for all psychological and psychosocial interventions combined. However, when all the depression scores were analyzed (as continuous data) for the treatment and control groups, changes in mean depression scores were non-statistically significant.

Therefore, the high quality evidence we did review appears to suggest there is conflicting evidence as to whether psychological and psychosocial interventions are effective in preventing increases in postpartum depression symptomology. The effectiveness of these interventions on symptomology of anxiety disorders or PTSD could be considered emerging, as statistically significant findings were based on one very low quality small study.

LIMITATIONS

Because this is a rapid review and not a full systematic review, it is possible that some systematic reviews were missed that were contained in other databases or in the grey or unpublished literature. We relied on the definitions of prevention and treatment provided by study authors. During full text review, it became apparent that some authors used the term "treatment" to be equivalent to the term intervention. Because articles on "treatment" were not included, it is possible titles were unjustly excluded. In some studies, relative risk or odds ratio were reported for depression symptomology. Because it was unknown if the cut-offs used to dichotomize the depressive symptomology included ranges considered "diagnosable", the authors of this review determined these values did not meet our original inclusion criteria and those studies were excluded. Therefore, some relevant studies may have been excluded during the title and abstract screening stage.

As well, there is a possibility that some of the studies we considered to be psychosocial could also be considered psychoeducational. Because we were interested in group or class service delivery formats in general, we did not specifically exclude a study if authors described an intervention as psychoeducational in definition, but implemented CBT in a group setting, for example. In addition, some psychological and psychosocial interventions were defined as non-pharmaceutical interventions. Specific definitions for what was considered psychological or psychosocial were not always provided.

CONCLUSIONS

This rapid review found a lack of consistent, strong quality evidence that demonstrates psychological or psychosocial interventions are effective in preventing the diagnosis of perinatal mood disorders. It is notable that neither of the two guidelines found in our search made any recommendations to implement preventive interventions at the population or individual level. Those considering the implementation of psychosocial or psychological interventions to prevent the diagnosis of perinatal mood disorders may instead consider investigating the effectiveness of treatment interventions. Public health could potentially play a role in health systems planning by providing recommendations for adequate treatment services, and by aiding implementation of supportive services in community settings. Further understanding is needed about effective interventions and their timing, to help perinatal women avoid adverse health outcomes that are currently associated with mental illness.

APPLICABILITY AND TRANSFERABILITY

For information about how SMDHU applied these rapid review findings to public health programming, please see Appendix 7.

APPENDICES

Appendix 1: Database Search Results

Date searched	Database	Initial Results	Results after duplicates removed
January 20th	**Ovid MEDLINE(R)** 1946 to January Week 1 2016	370	369
January 20th	**PsycINFO** 2002 to January Week 2 2016	517	405
January 22, 2016	**Embase** 1996 to 2016 Week 03 Limited to exclude Medline journals	167	158
January 26, 2016	**CINAHL Plus** with Full Text	284	139
January 26, 2016	**Medline in process** January 25, 2016	491	410
January 26, 2016	**PubMed** Results limited to publisher only	224	220
Total results		2054	1701

Appendix 2: Medline Search Strategy

Ovid MEDLINE(R) *1946 to January Week 1 2016*			
#	Searches	**Results**	**Search Type**
1	Depression/	84711	Advanced
2	depressive disorder/ or depressive disorder, major/ or depressive disorder, treatment-resistant/ or dysthymic disorder/ or seasonal affective disorder/ or mental disorders/ or adjustment disorders/ or exp anxiety disorders/ or exp mood disorders/	284369	Advanced
3	anxiety disorders/ or agoraphobia/ or anxiety, separation/ or neurotic disorders/ or obsessive-compulsive disorder/ or hoarding disorder/ or obsessive hoarding/ or panic disorder/ or phobic disorders/	66761	Advanced
4	stress disorders, traumatic/ or psychological trauma/ or stress disorders, post-traumatic/ or stress disorders, traumatic, acute/	24012	Advanced
5	mood disorders/ or depressive disorder/ or depressive disorder, major/ or depressive disorder, treatment-resistant/ or dysthymic disorder/ or cyclothymic disorder/	94703	Advanced
6	Mental Health/	24858	Advanced
7	or/1-6 [depression or anxiety terms]	388839	Advanced
8	Depression, Postpartum/	3750	Advanced
9	Prenatal Care/	21495	Advanced
10	pregnancy complications/	78480	Advanced
11	puerperal disorders/	10374	Advanced
12	Prenatal Diagnosis/	32460	Advanced
13	perinatal care/ or postnatal care/	7317	Advanced

14	Pregnancy/	762248	Advanced
15	Pregnant women/	5495	Advanced
16	Maternal-fetal relations/	747	Advanced
17	exp infant/	989782	Advanced
18	adoption/	4401	Advanced
19	infant.sh.	682580	Advanced
20	peripartum period/ or postpartum period/ or pregnancy trimesters/ or pregnancy trimester, first/ or pregnancy trimester, second/ or pregnancy trimester, third/	54342	Advanced
21	(prenatal* or "pre-natal*" or postnatal* or "post natal*" or perinatal* or "peri natal*" or peripartum or "peri partum" or prenatal or pregnanc* or pregnant* or antepart* or prenatal* or postpart* or "post partum" or puerper* or maternal or intrapart*).tw.	622820	Advanced
22	or/9-21 [prenatal or postnatal or infant terms]	1759974	Advanced
23	7 and 22 [prenatal or postnatal and depression or anxiety terms]	21459	Advanced
24	8 or 23 [prenatal or postnatal and depression terms or postpartum depression]	21577	Advanced
25	exp Psychotherapy/	164297	Advanced
26	(peer or peers).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	60263	Advanced
27	Public Health Nursing/	9882	Advanced
28	(lay adj3 (people or person* or group*)).mp.	1573	Advanced
29	layperson*.mp.	885	Advanced

30	(Telephone* or phone* or phoning or "talk therap*").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	74211	Advanced
31	text messag*.mp.	1509	Advanced
32	counseling/ or exp directive counseling/ or pastoral care/	35163	Advanced
33	(non-directive or case manager* or "mental health specialist*").mp.	3368	Advanced
34	(support* or intervention*).mp.	8275602	Advanced
35	Self-Help Groups/	8105	Advanced
36	(visit or visits or visitor* or visiting).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	126063	Advanced
37	(psychosocial or "psycho social").mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	64425	Advanced
38	psychological.mp.	360320	Advanced
39	(screen or screens or screened or screening).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	518707	Advanced
40	(debrief* or "debrief*" or psychotherap* or continuity of care).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	80465	Advanced
41	((post partum or postpartum) adj3 (followup* or follow up*)).mp.	312	Advanced

42	(class* or workshop* or education* or group* or program* or service* or course* or session* or meeting).mp.	5214279	Advanced
43	Social Support/	55298	Advanced
44	house calls/	2662	Advanced
45	Peer Group/	15354	Advanced
46	family health/	20952	Advanced
47	cognitive behavio?r* therap*.mp.	8277	Advanced
48	or/25-47 [psychosocial or psychological interventions]	11438814	Advanced
49	meta analysis.mp,pt.	85787	Advanced
50	cochrane database*.jn.	10964	Advanced
51	(search or "systematic review*" or medline).tw.	228319	Advanced
52	practice guideline*.mp.	114409	Advanced
53	guideline.pt.	15633	Advanced
54	or/49-53 [systematic reviews or meta-analysis or practice guidelines]	387573	Advanced
55	randomized controlled trial.pt.	403073	Advanced
56	controlled clinical trial.pt.	89915	Advanced
57	randomized.ab.	300387	Advanced
58	placebo.ab.	154014	Advanced
59	clinical trials as topic.sh.	174213	Advanced
60	randomly.ab.	212904	Advanced
61	trial.ti.	130199	Advanced

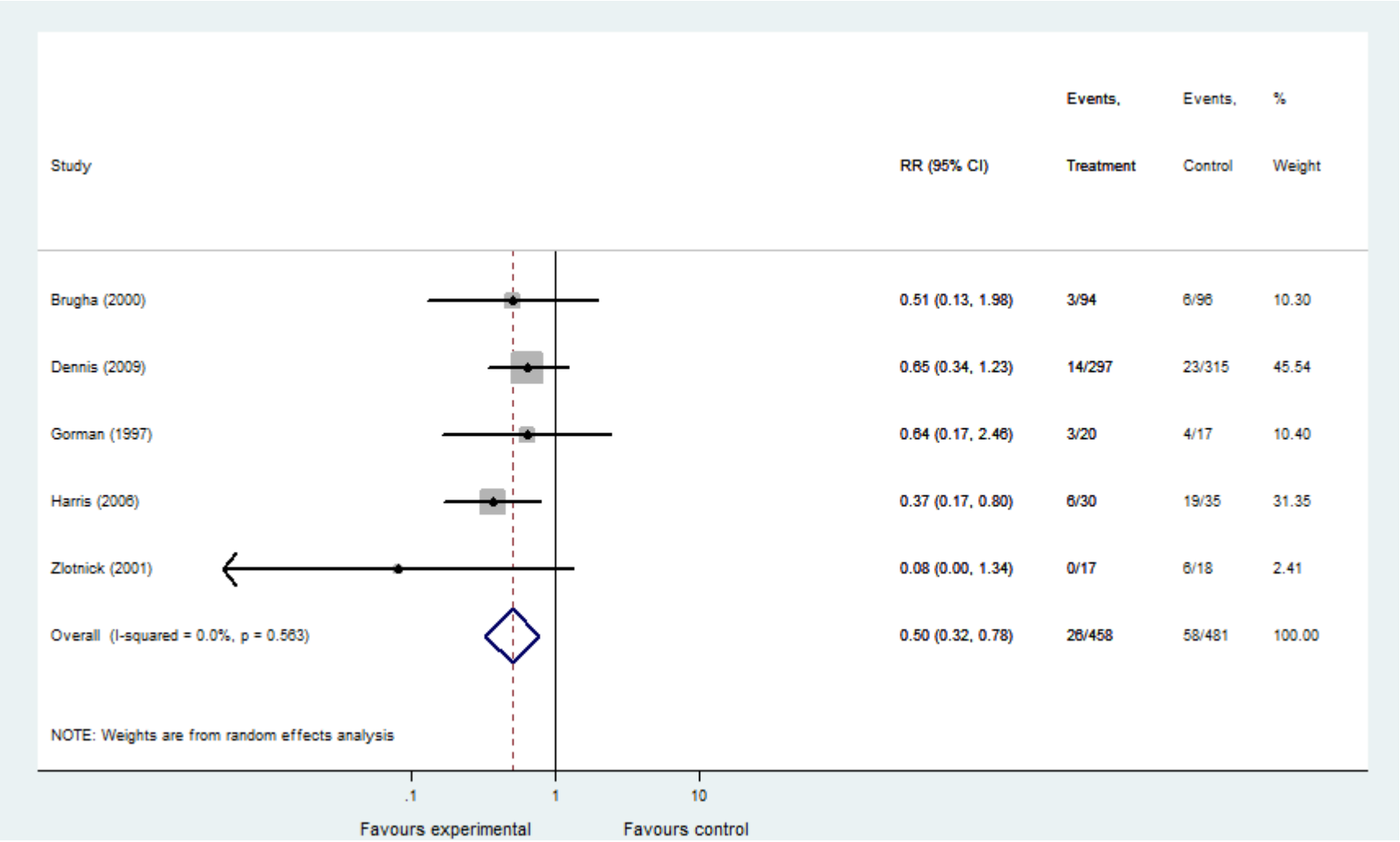
62	or/55-61	920989	Advanced
63	exp animals/ not humans.sh.	4171020	Advanced
64	62 not 63 [Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity- and precision-maximizing version (2008 revision)]	843105	Advanced
65	24 and 48	15956	Advanced
66	limit 65 to (english language and yr="2013 -Current")	2706	Advanced
67	54 and 66 [results limited to articles using systematic review or guideline filter]	168	Advanced
68	64 and 66 [results limited using the Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity- and precision-maximizing version (2008 revision)]	227	Advanced
69	67 or 68	370	Advanced

Appendix 3: Characteristics of Excluded Reviews

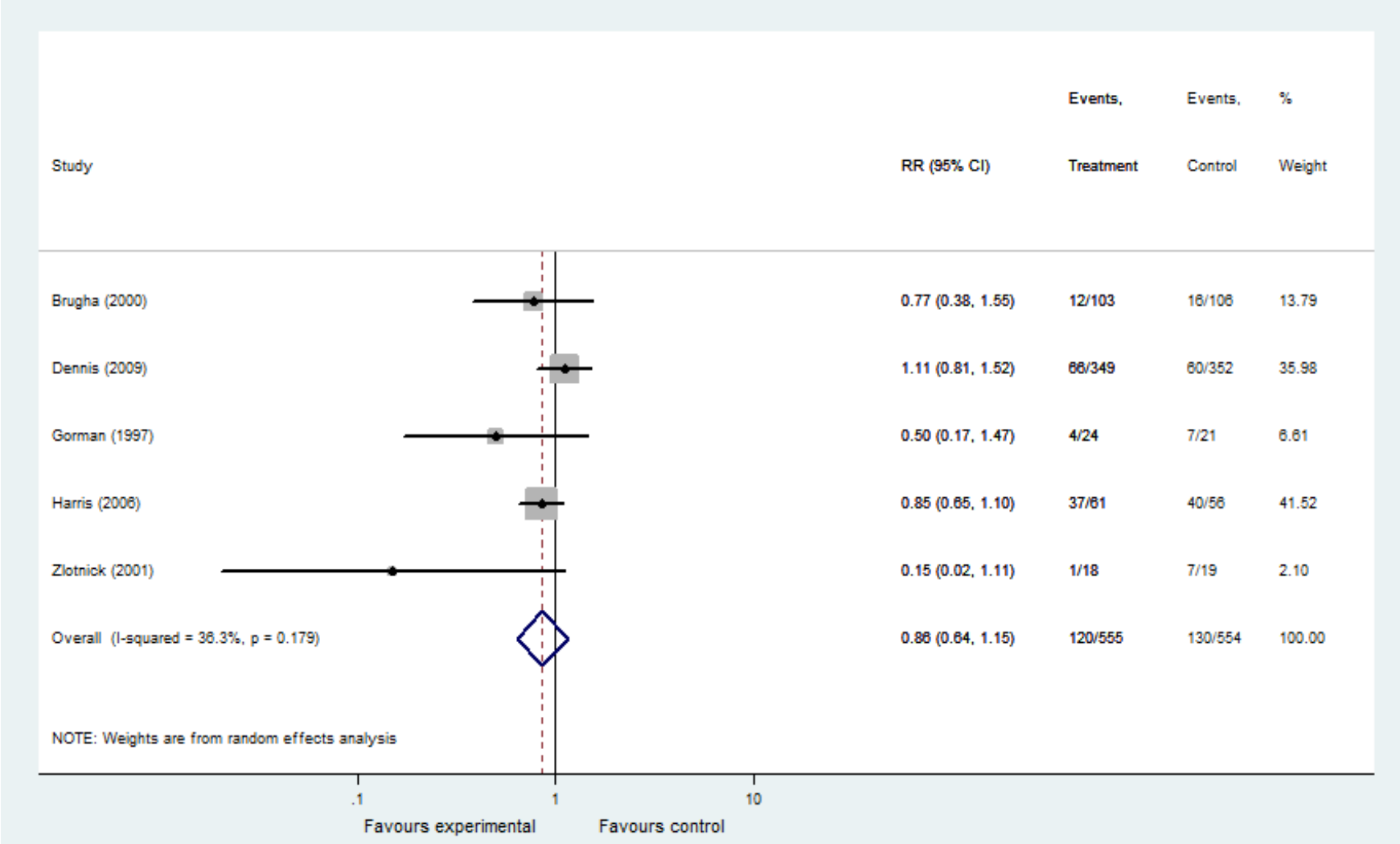
Study	Reason for Exclusion
Kraljevic et al.[41]	Both studies included had > 20% baseline psychiatric illness rates
Lavender et al.[42]	Dennis 2009 study is captured in the 2013 Dennis and Dowswell Cochrane review.[9]
Hall et al.[43]	None of the studies in this review reported the outcome of differences in the diagnosis of depression
Lieberman et al.[44]	The included single study did not meet inclusion criteria.
Alderdice et al.[45]	Prenatal: did not review prevention interventions. Postnatal: Systematic reviews did not meet time frame for inclusion.
Borg Cunen et al.[46]	Studies found were reviewed in Bastos et al.[47] or did not report on our outcome of interest.
Yonemoto et al.[48]	Outcome was symptomology vs. differences in the diagnosis of depression
Zhang et al.[49]	Outcome was symptomology vs. differences in the diagnosis of depression
Bastos et al.[47]	Outcome was symptomology vs. differences in the diagnosis of depression

Appendix 4: SMDHU Reanalysis of Table 1.3 of Dennis-Dowswell Cochrane Review

Available case analysis from Table 1.3 of Dennis-Dowswell Cochrane Review



Intention-to-treat (ITT) analysis from Table 1.3 of Dennis-Dowswell Cochrane Review



Appendix 5: NICE Guideline[1] definition of "at-risk"

From Table 31: Clinical review protocol summary for the review of psychological and psychosocial interventions for the prevention of mental health problems. (page 218)

Women "at risk" of developing a mental health problem were defined as those:

- With a history of mental health problems but who do not meet diagnostic criteria for mental health problems at the current time
- Experiencing major life events
- With a family history of mental health problems
- With psychosocial risk factors (for example, SES)
- Who have infants with regulatory problems
- Who experienced on operative delivery or traumatic birth
- Who experienced a pre-term delivery (> 37 weeks gestation) and/or whose infants who had a low birth weight
- Who experienced a miscarriage
- Who are adolescents
- Who experienced intimate partner violence

Appendix 6: NICE Guideline[1] definition of prevention vs. treatment

Table 30: Criteria for categorizing prevention and treatment studies

Scale	Prevention	Treatment: Subthreshold	Treatment: Symptoms
BDI	<9	9-10	>10
BDI-II	<13	13-14	>14
Center for Epidemiologic Studies Depression Scale (CES-D)	<15	15-16	>16
EPDS	<8	8-9	>9
Hamilton Rating Scale for Depression (HRSD)	<7	7-8	>8
Hospital Anxiety and Depression Scale (HADS)	<7	7-8	>8
Impacts of Events Scale (IES)	<34	34-35	>35
Quick Inventory of Depression Symptoms (QIDS)	<5	5-6	>6
State Trait Anxiety Inventory Scale (STAI-S)	<39	39-40	>40
Wijma Delivery Expectancy Questionnaire (W-DEQ-A)	n/a	n/a	≥100

Appendix 7: Applicability and Transferability Tool Results

Key Finding of the Rapid Review

There is no strong evidence that psychosocial and/or psychological interventions are effective in preventing the diagnosis of perinatal mood disorders in women.

Used the NCCMT's Tool for Assessing Applicability and Transferability of Evidence (A & T tool) was used to guide discussion about the following steps (A: When considering starting a new program).

Step 1: Decide who will be involved in the decision

The following individuals attended the discussion: Dr. Lisa Simon (AMOH), Carolyn Shoreman (Director CFH), Sandra Horney (Director PFF), Natalie Riewe (Manager Child Health), Lori Webel-Edgar (Manager Reproductive Health), Mary Jean Watson (Manager HBHC), Chantelle Reid (Manager HBHC), Brenda Guarda (Manager PHASE), Becky Blair (EIDM Team), John Barbaro (EIDM Team), Sherry Diaz (EIDM Team), Amy Faulkner (EIDM Team), Meghan Gyorffy (PHN Child Health).

Step 2: Orient group members to the process

Donna Ciliska, NCCMT attended the meeting and provided an orientation to the NCCMT's A&T Tool and the process.

Step 3: Choose the most important A & T assessment questions for the intervention and the local context. Are these criteria equally important or should they be weighted differently? If so, choose what weights to assign (see Table below)

Step 4: Decide how final scoring will be done

The group decided to discuss each criterion and achieve consensus. Criteria were rated on a priority scale of 1 to 5, where 1 is low and 5 is high (see Table below)

Step 5: Document the scoring process used (see Table)

Construct	Things to consider	Score
Applicability *Can the intervention we found work for us?*	**Political acceptability or influence**	Board of Health: 1/5; Local community: 3/5 Province: 2.5/5
	Social Acceptability	1/5 (general lack of awareness – particularly related to prevention)
	Available essential resources (human and financial)	1/5 (no new intervention is proposed)
	Organizational expertise and capacity	1/5 (same reason as above)
Transferability *Can we expect similar results?*	**Magnitude of health issue in local setting**	4/5 (significantly higher locally & anecdotal reports)
	Magnitude of the "reach" and cost effectiveness of the intervention	1/5 (no intervention)
	Characteristics of target population	2/5 (high income countries but unknown how closely aligns with the local population characteristics)

*Bolded items were considered to be weighted more heavily compared to those in normal font.

http://www.nccmt.ca/resources/publications/9

Key Messages

1) The research examining the effectiveness of psychological and psychosocial interventions to prevent the diagnosis of postpartum depression or anxiety is sparse and of low methodological quality.

2) Women with established risk factors for postpartum depression or anxiety who attended a form of psychological or psychosocial preventative programs were just as likely to be diagnosed with depression or anxiety compared to women who did not attend these

programs. It is not known whether this lack of effectiveness is due to small sample sizes in available research studies or truly due to ineffective interventions.

3) The effectiveness of psychological and psychosocial programs to prevent the diagnosis of postpartum depression or anxiety in women without established risk factors is unknown due to the lack of research for this population of women.

4) No new interventions or programs focusing on preventing a diagnosis of perinatal mood disorders (depression and anxiety) will be added to existing services provided by the Simcoe Muskoka District Health Unit.

REFERENCE LIST

(1) National Collaborating Centre for Mental Health (UK). Antenatal and postnatal mental health: The NICE guideline on clinical management and service guidance. Updated Edition. Leicester (UK): British Psychological Society; 2014.

(2) Grigoriadis S, VonderPorten EH, Mamisashvili L, Tomlinson G, Dennis CL, Koren G, Steiner M, Mousmanis P, Cheung A, Radford K, Martinovic J, and Ross LE. The impact of maternal depression during pregnancy on perinatal outcomes: A systematic review and meta-analysis. Journal of Clinical Psychiatry 2013; 74(4) : e321-e341.

(3) Staneva A, Bogossian F, Pritchard M, and Wittkowski A. The effects of maternal depression; anxiety, and perceived stress during pregnancy on preterm birth: A systematic review. Women and Birth 2015; 28(3) : 179-193.

(4) Barker ED, Jaffee SR, Uher R, and Maughan B. The contribution of prenatal and postnatal maternal anxiety and depression to child maladjustment. Depression and Anxiety 2011; 28: 696-702.

(5) Goodman SH, Rouse MH, Connell AM, Robbins Broth M, Hall CM, and Heyward D. Maternal depression and child psychopathology: A meta-analytic review. Clinical Child and Family Psychological Review 2011; 14: 1-27.

(6) Laurent HK, Leve, LD, Neiderhhiser JM, Natsuaki MB, Shaw DS, and Fisher PA et al. Effects of prenatal and postnatal parent depressive symptoms on adopted child HPA regulation: independent and moderated influences. Developmental Psychology 2016; 49: 876-886.

(7) Sanger C, Iles JE, Andrew CS, and Ramchandani PG. Associations between postnatal maternal depression and psychological outcomes in adolescent offspring: A systematic review. Archives of Women's Mental Health 2015; 18: 147-162.

(8) Data Sources: Better Outcomes Registry and Network (BORN), 2015; extracted June 28, 2016 [data file], 2016,

(9) Dennis CL and Dowswell T. Psychosocial and psychological interventions for preventing postpartum depression. Cochrane Database of Systematic Reviews 2013;

(10) BC Reproductive Mental Health Program, Perinatal Services BC. Best Practice Guidelines for Mental Health Disorders in the Perinatal Period. BC Provincial Health Services Authority, BC Ministry of Health, Healthy Development and Women's Health: Population and Public Health; 2014.

(11) Biaggi A, Conroy S, Pawlby S, and Pariante C. Identifying the women at risk of antental anxiety and depression: A systematic review. Journal of Affective Disorders 2016; 191: 62-77.

(12) American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Fifth Edition ed. Arlington, VA: American Psychiatric Association; 2013.

(13) Ayers S, Bond R, Bertullies S, and Wijma K. The aetiology of post-traumatic stress following childbirth: a meta-analysis and theoretical framework. Psychological Medicine 2016; 46(6) : 1121-1134.

(14) Grekin R and O'Hara MW. Prevalence and risk factors of postpartum posttraumatic stress disorder: A meta-analysis. Clinical Psychology Review 2014; 34: 389-401.

(15) Grote NK, Bridge JA, Gavin AR, Melville JL, Iyengar S, and Katon WJ. A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. Archives of General Psychiatry 2010; 67(10) : 1012-1024.

(16) Goodman JH. Postpartum depression beyond the early postpartum period. Journal of Obstetric, Gynecologic and Neonatal Nursing 2004; 33: 410-420.

(17) Martins C and Gaffan EA. Effects of early maternal depression on patterns of infant-mother attachment: A meta-analytic investigation. Journal of Child Psychology and Psychiatry 2000; 41(06) : 737-746.

(18) Kingston D, Tough S, and Whitfield H. Prenatal and postpartum maternal psychological distress and infant development: A systematic review. Child Psychiatry and Human Development 2012; 43(683) : 714-

(19) Zajicek-Farber ML. Postnatal depression and infant mental health practices among high risk women. Journal of Child and Family Studies 2009; 18(236)

(20) Tricco AC, Antony J, Zarin W, Strifler L, Ghassemi M, Ivory J, Perrier L, Hutton B, Moher D, and Straus SE. A scoping review of rapid review methods. BMC Medicine 2015; 13(224)

(21) Fonagy P, Sleed M, and Baradon T. Randomized controlled trial of parent-infant psychotherapy for parents with mental health problems and young infants. Infant Mental Health Journal 2016; 37(2) : 97-114.

(22) Shea BJ, Grimshaw JM, Wells GA, Boers M, Anderson N, Hamel C, Porter AC, Tugwell P, Moher D, and Bouter LM. Development of AMSTAR: A measurement tool to assess the methodological quality of systematic reviews. BMC Medical Research Methodology 2007; 7(10) : 1-7.

(23) Brouwers M, Kho ME, Browman GP, Burgers JS, Cluzeau F, Feder G, Fervers B, Graham ID, Grimshaw J, Hanna SE, Littlejohns P, Makarski J, Zitzelberger L, and AGREE Next Steps Consortium. AGREE II: Advancing guideline development, reporting and evaluation in health care. Journal of Clinical Epidemiology 2010; 63: 1308-1311.

(24) Health Evidence. Our Appraisal Tools. 2016; [Last accessed 2016 July 6]. Available from: URL: http://www.healthevidence.org/our-appraisal-tools.aspx

(25) National Collaborating Centre for Mental Health (UK). Appendix 19: Clinical Evidence-Forest Plots. From: Antenatal and postnatal mental health: The NICE guideline on clinical management and service guidance. Updated Edition. Leicester (UK): British Psychological Society; 2014.

(26) Harris R, Bradburn M, Deeks, J, Harbord R, Altman D, and Sterne J. Metan: Fixed and random effects meta-analysis. The Strata Journal 2008; 8(1) : 3-28.

(27) Pilkington PD, Whelan TA, and Milne LC. A review of partner-inclusive interventions for preventing postnatal depression and anxiety. Clinical Psychologist 2015; 19(2) : 63-75.

(28) Matthey S, Kavanagh DJ, Howie P, Barnett B, and Charles M. Prevention of postnatal distress or depression: An evaluation of an intervention at preparation for parenthood classes. Journal of Affective Disorders 2004; 79: 113-126.

(29) Sockol LE. A systematic review of the efficacy of cognitive behavioral therapy for treating and preventing perinatal depression. Journal of Affective Disorders 2015; 177: 7-21.

(30) Sockol LE, Epperson CN, and Barber JP. Preventing postpartum depression: a meta-analytic review. Clinical Psychology Review 2013; Dec; 33(8) : 1205-1217.

(31) Scottish Intercollegiate Guidelines Network. Management of perinatal mood disorders: A national clinical practice guideline. 2012. 10-17-2016.

(32) Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, Norris S, Falck-Ytter Y, Glasziou P, deBeer H, Jaeschke R, Rind D, Meerpohl J, Dahm P, and Schunemann HJ. GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings table. Journal of Clinical Epidemiology 2011; 64: 383-394.

(33) Harris T, Brown GW, Hamilton V, Hodson S, Craig TKL. The Newpin Antenatal and Postnatal Project: a randomized controlled trial of an intervention for perinatal depression. 2006.

(34) Cooper PJ, Tomlinson M, Swartz L, Landman M, Molteno C, and Stein A et al. Improving quality of mother-infant relationship and attachment in socio-economically deprived community in South Africa: randomized controlled trial. BMJ 2009; 338(b974)

(35) Gupta SK. Intention-to-treat concept: A review. Perspectives in Clinical Research 2011; Jul-Sep; 2(3) : 109-112.

(36) Higgins JPT and Green S. 16.2.2 Intention-to-treat issues for dichotomous data. 2011; [Last accessed 2016 Oct. 7]. Available from: URL: http://handbook.cochrane.org/chapter_16/16_2_2_intention_to_treat_issues_for_dichotomous_data.htm

(37) Tufts University. CMH110 Epidemiology and Biostatistics, Fall 2004/2005. Lecture 4 - Threats to Validity. 2016; [Last accessed 2016 July 6]. Available from: URL: http://ocw.tufts.edu/Content/1/readings/193317

(38) Plant DT, Barker ED, Waters CS, Pawlby S, and Pariante CM. Intergenerational transmission of maltreatment and psychopathology: the role of antenatal depression. Pscyhological Medicine 2013; 43: 519-528.

(39) Choi KW and Sikkema KJ. Childhood maltreatment and perinatal mood and anxiety disorders: A systematic review. Trauma, Violence, and Abuse 2015; 1-27.

(40) Morrell CJ, Sutcliffe P, Booth A, Stevens J, Scope A, and Stevenson M, et al. A systematic review, evidence synthesis and meta-analysis of quantitative and qualitative studies evaluating the clinical effectiveness, the cost effectiveness, safety and acceptability of interventions to prevent postnatal depression. Health Technoology Assessment 2016; 20(37) : 1-414.

(41) Kraljevic, Marijana and Warnock, Fay F. Early Educational and Behavioral RCT Interventions to Reduce Maternal Symptoms of Psychological Trauma Following Preterm Birth. Journal of Perinatal & Neonatal Nursing 2013; 27(4) : 311-327.

(42) Lavender T, Richens Y, Milan SJ, Smyth, RMD, and Dowswell T. Telephone support for women during pregnancy and the first six weeks postpartum. Cochrane Database of Systematic Reviews 2013; (Issue 7)

(43) Hall, H., Beattie, J., Lau, R., East, C., and Biro, M. A. The effectiveness of mindfulness training on perinatal mental health; a systematic review. Women and Birth 2016; 29: 62-71.

(44) Lieberman K, Le HN, and Perry DF. A systematic review of perinatal depression interventions for adolescent mothers. Journal of Adolescence 2014; 37(8) : 1227-1235.

(45) Alderdice, F., McNeill, J., Lynn, F., and Furuta, Marie. A systematic review of systematic reviews of interventions to improve maternal mental health and well-being. Midwifery 2013; 29: 389-399.

(46) Borg Cunen N, McNeill J, and Murray K. A systematic review of midlife-led interventions to address post-partum post-traumatic stress. Midwifery 2014; 30(2) : 170-184.

(47) Bastos MH, Furuta M, Small R, McKenzie-McHarg K, and Bick D. Debriefing interventions for the prevention of psychological trauma in women following childbirth. Cochrane Database of Systematic Reviews 2015; (Issue 4)

(48) Yonemoto, N., Dowswell, T., Nagai, S., and Mori, R. Schedules for home visits in the early postpartum period. Cochrane Database of Systematic Reviews 2013;

(49) Zhang X, Kurtz M, Lee SY, and Liu H. Early intervention for preterm infants and their mothers. Journal of Perinatal and Neonatal Nursing 2014;