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Systematic review

Antenatal interventions to reduce maternal distress: a systematic review and meta-analysis of randomised trials

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Background Maternal distress can have adverse health outcomes for mothers and their children. Antenatal interventions may reduce maternal distress.

Objective To assess the effectiveness of antenatal interventions for the reduction of maternal distress during pregnancy and for up to 1 year postpartum.

Search strategy EBSCO, Medline, PubMed, Cochrane, secondary references of Cochrane reviews and review articles, and experts in the field.

Selection criteria Randomised controlled trials in which the association between an antenatal intervention and the reduction of maternal distress was reported.

Data collection and analysis Two authors independently abstracted data from each trial. A random-effects meta-analysis assessed the reduction of maternal distress associated with antenatal preventive and treatment interventions, compared with routine antenatal care or another intervention.

Main results Ten trials with 3167 participants met the inclusion criteria, and nine trials (n = 3063) provided data for the meta-analysis of six preventive interventions and three treatment interventions. The preventive interventions indicated no beneficial reduction of maternal distress (six trials; n = 2793; standardised mean difference, SMD –0.06; 95% confidence interval, 95% CI −0.14–0.01). The treatment interventions indicated a significant effect for the reduction of maternal distress (three trials; n = 270; SMD –0.29; 95% CI –0.54 to –0.04). A sample of women, selected retrospectively, who were more vulnerable for developing maternal distress showed a significant reduction of maternal distress after the interventions (three trials; n = 1410; SMD –0.25; 95% CI –0.37 to –0.14).

Author's conclusions Preventive antenatal interventions for maternal distress show no effect. Antenatal interventions for women who have maternal distress or are at risk for developing maternal distress are associated with a small reduction in maternal distress.

Keywords Interventions, midwifery, mental health, maternal distress, pregnancy, public health.

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Introduction

Maternal psychological health problems during pregnancy and the postpartum period are common: rates vary between 10 and 41%.[1] Maternal psychological problems have become a public health issue as they are associated with an increase in the risk of obstetric complications,[2,3] postnatal problems,[4–7] including severe and/or chronic maternal mental health problems,[8] and unfavourable infant and child neurobehavioral and cognitive development.[9–11]

Maternal psychological problems are evident in a spectrum of different constructs, most commonly identified as depression, anxiety, and stress. Disregarding the differences in symptoms these constructs are significantly correlated,[2] and have imbalanced or disturbed psychosocial functioning in common.[12] In this article we will use the term 'maternal distress'. Maternal distress is an appropriate conceptualisation of the wide spectrum of psychological problems, and refers to the distinct period of maternal transition, including pregnancy, birth, and the postnatal period, excluding

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psychiatric pathophysiology.[12] Midwives are identified to have an extended public health role with regard to maternal distress during this period.[13]

From a public health perspective, the antenatal period offers a window of opportunity to implement interventions in order to prevent or to limit any further exacerbation of negative outcomes. Antenatal interventions fall into two categories: preventive interventions that target pregnant women before the onset of maternal distress and treatment interventions aimed at women already suffering from maternal distress, thereby aiming at a wide population of pregnant women.[14,15] Although various antenatal interventions for maternal distress have been systematically reviewed, focusing on separate constructs of maternal distress, an unambiguous antenatal approach for maternal distress has not yet been identified.[16–18] Intervention studies have focused mainly on postnatal depression, specific interventions, and defined populations of pregnant women.[19] Jomeen and DiPietro have noted that a one-dimensional focus on a single psychological construct overestimates its importance within the spectrum of maternal distress: they argue in favour of a non-fragmented and broad approach.[19,20] Within this broad approach, a number of different individual measurements can be compiled.[20]

To date, broadly, there have been no systematic reviews examining the effect of antenatal interventions on the reduction of maternal distress. Our systematic review seeks to answer the following question: do preventive and treatment interventions for maternal distress during the antenatal period reduce maternal distress during pregnancy and up to 1 year postpartum, when compared with routine antenatal care or another intervention? Using meta-analyses we summarised the reduction of maternal distress associated with antenatal preventive and treatment interventions, and we evaluated whether outcomes differed between these types of interventions.

Methods

We carried out this review and meta-analysis in accordance with the *Cochrane Handbook for Systematic Reviews of Interventions*.[21]

Search strategy and study selection

In order to capture appropriate studies we searched articles limited to humans, and used multiple combinations of the Medical Subject Headings (MeSH) terms and related phrases: low-risk pregnancy; health condition; intervention and study design; (pregnancy or midwifery or midwife or midwives) AND (mental health or maternal mental health or perinatal mental health or maternal distress or psychological distress) AND (education or health education or health promotion or early interventions or interventions) AND (randomised controlled trial). The key terms for inclusion in the search strategy were discussed and agreed with three authors (Y.F., M.N., and M.A.). Two authors (Y.F. and M.N.) performed the search between 1 May 2011 and 25 August 2011. We performed independent searches of the electronic databases EBSCO (CINAHL, EMBASE, Psycarticles, Psychology and Behavioral Sciences Collection, and Psycinfo), Medline (OVID), PubMed, and Cochrane, with publication dates between 2002 and August 2011. We manually searched one journal that frequently appeared in our initial searches (*Journal of Affective Disorders*), and we entered frequently appearing authors (Matthey S, Priest RG, and Vieten C) in the previously mentioned electronic databases. We scanned the reference lists of relevant articles and those of Cochrane reviews of antenatal interventions to reduce maternal distress. We asked experts in the field for references. We considered articles published in all languages.

We applied the following inclusion criteria: published randomised controlled trials (RCTs) carried out from 1999 onwards and methodologically strong, based on a validity assessment; trials with primiparous and multiparous pregnant women of all ages and ethnicities, from economically developed countries,[22] who entered the maternal health service during pregnancy; trials with demonstrated levels of maternal distress ranging from absent to mild or severe; trials that studied the effects of an antenatal intervention to reduce maternal distress offered by a health professional or lay person (individual or group sessions); trials in which the primary or secondary outcomes of interest were scores of psychological constructs within the spectrum of maternal distress measured, using one or more validated measurement instruments, for up to 1 year postpartum. We identified maternal distress as depression, anxiety, stress, fear, worry, distress, insufficient self-efficacy, and self-esteem, and any of these descriptions combined with the word 'disorder' within the text of the article. We excluded studies including women with overt severe mental pathophysiology (i.e. women requiring hospitalisation for treatment; women requiring acute psychiatric care; women exhibiting psychotic, dissociative, hallucinatory, or delusional symptoms, suicidal ideation, or showing reduced communication abilities; women with active substance abuse) or physical pathophysiology (i.e. complex pregnancies; cancer; HIV/AIDS). We aimed to represent a Western, modern, healthy, low-risk pregnant population.

Two authors (Y.F. and M.N.) independently assessed the eligibility of the trials by using the title and abstract for initial screening followed by an examination of the full text. We used a data extraction form to document generic data items of individual records. We extracted details on study design, study objective, participants, inclusion/exclusion criteria, intervention type, control group (alternative intervention), outcomes, and statistical methods.

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Data collection and analysis

Figure S1. describes the literature search process. We used the CONSORT 2010 checklist to gain insight into the methodological quality and validity of the trials.[23] Details of the excluded studies can be requested from the corresponding author. The results were compared by two researches (Y.F. and M.N.), and differences were resolved through discussion. The search yielded ten trials. A kappa values of 0.69 reflects good agreement between the reviewers.[21]

The primary outcome of the pooled analyses was maternal distress reported at the final assessment of the trial. We calculated pooled estimates using standardised mean differences (SMDs) with 95% confidence intervals (95% CIs). The differences were statistically significant when the 95% CI excluded 0. Pooling was performed on the *a priori* intervention characteristics: prevention and treatment, as these differ in function and aim.[14,15] We decided to use the random-effects model to address between-study variance of the maternal distress parameters as data were drawn from different populations and included different implementation of interventions.[24,25]. When multiple outcome measurements were used in one study, the single end points were combined by means of the formulae for combining groups.[21] If trials contained a two-arms control group, the control groups were combined to create a single pairwise control comparison group using the same formulae.[21]

We assessed each trial for risk of bias according to the recommendations of the Cochrane Collaboration, and we evaluated the quality of the body of evidence using the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach.[21] Heterogeneity was assessed by I^2 statistic to quantify heterogeneity across studies, and was evaluated graphically using forest plots.[21] We explored heterogeneity between the trials by looking at factors that could be responsible for heterogeneity, such as characteristics of the samples and publication year. We carried out a sensitivity analysis and evaluated the stability of the pooled estimates by examining changes to the results after the exclusion of specific studies.[21] Meta-analysis was performed with REVIEW MANAGER 5.1 (Cochrane collaboration software).

Results

The ten trials included were conducted between 2001 and 2008, and were reported between 2005 and 2011. Collectively they had a total of 3167 participants in their analyses (1696 in intervention groups; 1471 in control groups), with a range from 34 to 977 participants per RCT. Three RCTs were conducted in Australia,[26–28] three were conducted in the USA,[29–31] two were conducted in Europe (in Sweden and Northern Ireland),[32,33] and two were conducted in Asia (in Iran and Taiwan).[34,35] The maternal mean age ranged between 20.4 and 33.9 years. Interventions in the experimental groups were compared with standard antenatal care,[26,28,29,33–35] or with another antenatal intervention.[27,30,32] The trials included 2841 primiparous women (90%), 295 multiparous women (9%), and 31 women who were not classified as being primiparous or multiparous (1%). Four trials included only primiparous women (n = 1594).[27,32–34] Combined samples of primiparous and multiparous women were found in six trials (primiparous, n = 967; multiparous, n = 295; non-specified, n = 31).[26,28–31,35] The starting point of the interventions varied amongst all trimesters of pregnancy, and two interventions included postpartum sessions.[26,35] Details of the trials included are presented in Table S1.

Outcome data were collected through various self-completed questionnaires in order to measure levels of maternal distress, all with one-dimensional scaling. Data were collected during the second and third trimester of pregnancy,[29–31,34,35] and up to 1 year postpartum.[26–29,31–33] The included scales measured in the same direction. Eight trials included multiple outcome measurements.[26,27,29,31–35] For depression, the Edinburgh Postnatal Depression Scale (EPDS) was used.[28,35] The Beck Depression Inventory (BDI–II),[26] the Hamilton Rating Scale for Depression (HAM–D),[30] and the Centre for Epidemiological Studies Depression Scale (CES–D)[29–31] were also used to measure depression. The State–Trait Anxiety Inventory (STAI) was used to measure anxiety.[34,35] Mental wellbeing was measured with the Short Form Health Survey (SF–36).[33] Anxiety and stress were measured with the Depression Anxiety Stress Scale (DASS).[26] The perception of presence of stress was measured with the Perceived Stress Scale (PSS).[29,31,34,35] Parenting stress was measured with the Swedish Parenting Stress Questionnaire (SPSQ)[32] and the Parenting Stress Index (PSI).[26,29,32] Perceived parenting self-efficacy was measured with the Parent Expectations Survey (PES),[27] and self-esteem was measured with the Self-Esteem Scale (SES).[29,32] Pre- and postnatal fear of childbirth was measured with the Wijma Delivery Expectancy/Experience Questionnaire (W–DEQ).[32] Maternal worry was measured with the Cambridge Worry Scale (CWS).[27] An overview of measurement instruments and cut-off points at the last assessment for maternal distress is presented in Table 1.

Two trials did not report continuous outcome measurements, but these were obtained from the corresponding authors of the trials.[26,30] Timing and length of interventions differed between the trials. Maternal distress was measured at baseline, except in one study,[32] and at final

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Table 1. Overview of measures and cut-off points at last assessment for maternal distress

Construct maternal distress	Measurement instrument	Cut-off point	Author
Preventive interventions			
Maternal mental wellbeing	SF–36 mental health	No cut-off point	Cupples[33]
Presence of depression	EPDS	9/10	Chang[35]
Presence of depression	EPDS	≥13	Taft[28]
Presence of depression	CES-D	No cut-off point	Ickovics[29]
Presence of high level of anxiety	STAI	≥80	Chang[35]
Perception of presence of stress	PSS	No cut-off point	Chang[35], Ickovics[29]
Parenting stress	SPSQ	No cut-off point	Bergström[32]
Perceived parenting self-efficacy	PES	No cut-off point	Svensson[27]
Pre and postnatal fear of childbirth	W-DEQ	No cut-off point	Bergström[32]
Maternal worry	CWS	No cut-off point	Svensson[27]
Self-esteem	SES	No cut-off point	Ickovics[29]
Treatment interventions			
Presence of depression	EPDS	≥13	Milgrom[26]
Presence of mild depression	HAM-D	8–13	Manber[30]
Presence of moderate depression	HAM-D	14–18	Manber[30]
Presence of severe depression	HAM-D	19–23	Manber[30]
Presence of very severe depression	HAM-D	>23	Manber[30]
Presence of mild depression	BDI-II	14–19	Milgrom[26]
Presence of moderate depression	BDI-II	20–28	Milgrom[26]
Presence of severe depression	BDI-II	29–63	Milgrom[26]
Presence of clinical depression	CES-D	No cut-off point	Vieten[31]
Presence of clinical anxiety	STAI	No cut-off point	Vieten[31]
Presence of moderate to severe anxiety	STAI	State 21–40	
Trait 41–60	Bastani[34]*		
Presence of high anxiety	STAI	>60	Bastani[34]*
Presence of mild anxiety	DASS	≥8	Milgrom[26]
Presence of mild stress	DASS	≥15	Milgrom[26]
Perception of presence of stress	PSS	No cut–off point	Bastani[34]*, Vieten[31]
Parenting stress	PSI	>260	Milgrom[26]

Ranked by intervention character, construct maternal distress, and measurement instrument.
*Not included in meta-analysis.

assessment, which was either during pregnancy or in the postpartum period. Some trials had measurements in between these points.[27,29,30] There was no common time point used in all trials. The times of assessment varied among trials, and therefore the final assessment of maternal distress from the trials was included in the meta-analysis. Eight trials included multiple outcome measurements at the last study assessment,[26,27,29,31–35] the single end points of which were then combined.[21] One trial contained a two-arm control group,[30] and the control groups were combined as planned.

The data indicated that amongst the preventive intervention trials, samples of women were included who appeared to be more vulnerable to develop maternal distress,[28,29,33] based on predisposing factors such as a low social economic status and low self-esteem.[12,13,36,37] We performed a subgroup analysis on this selected sample.

Preventive interventions

The pooling of results from six trials focusing on prevention (including antenatal education programmes,[27,32] mentoring interventions,[28,33] music therapy,[35] and group antenatal care[29]) indicated no observed beneficial effect in relation to the reduction of maternal distress (six trials; $n = 2793$; SMD –0.06; 95% CI –0.14 to 0.01; Figure 1a).[27–29,32,33,35] These trials included pregnant women who were selected because of the non-occurrence of maternal distress. The preventive intervention trials focused on the overall improvement of maternal health, including pregnancy, intrapartum, postnatal, and parental issues. There was no heterogeneity among the studies ($I^2 = 0\%$; $P = 0.63$).

The results of the subgroup analysis from trials in which participants were selected on characteristics that made them more vulnerable to develop maternal distress showed a small significant effect for the reduction of maternal

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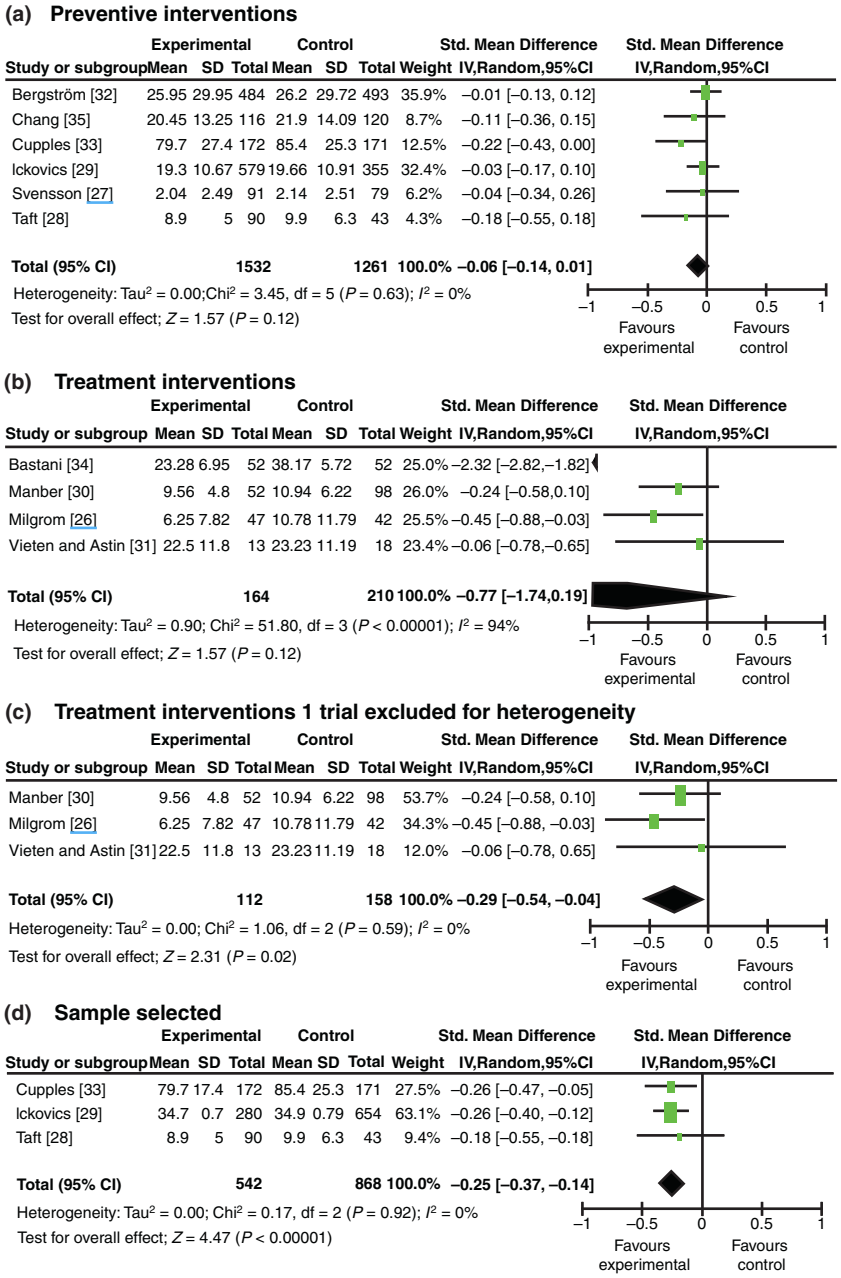

Figure 1. Forest plots.

distress (three trials; n = 1410; SMD –0.25; 95% CI –0.37 to –0.14; Figure 1d).[28,29,33] There was no heterogeneity among the studies (I^2 = 0%; P = 0.92).

Treatment interventions

The treatment interventions included four trials (including relaxation,[34] acupuncture,[30] a self-help support workbook,[26] and mindfulness[31]). Treatment intervention trials selected women with scores above a set cut-off point for maternal distress. The treatment interventions focused on maternal distress only. There was significant clinical heterogeneity among all of the treatment intervention trials (I^2 = 94%; P = <0.00001; Figure 1b). Exploration of heterogeneity showed that one study sample[34] differed from the other three study samples.[26,30,31] These women were from Iran, were younger, were married, were not employed, and had no higher education. The publication year for this trial was from an earlier date than the other three trials. Removing this trial reduced heterogeneity (I^2 = 0%). Although the reliability of I^2 was affected, given the small magnitude of the effect of the

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interventions,[21] we decided to exclude this trial from the meta-analysis (Figure S1). Pooling of results from the three trials showed a small but significant effect for the reduction of maternal distress (three trials; $n = 270$; SMD –0.29; 95% CI –0.54 to –0.04; Figure 1c).[26,30,31] The exclusion of that one trial positively influenced the magnitude of the effect of the interventions. Sensitivity analysis showed selection bias in one trial[31]; excluding this trial did not alter the results.

Quality of evidence

Data available for the review was provided by nine randomised trials, providing a high-quality rating.[21] Most of the trials showed an unclear risk of bias for one or two key domains within the trials. These studies provided specific evidence for having been conducted in a manner that avoided bias, such as following strict protocols,[35] including supervision for adherence to the protocol,[26,27,31] and adjusting for bias in analysis.[28,29,32] The trials showed mostly low and some unclear risk of bias across studies (Figure S2), and caused no serious limitations for the quality of evidence. In two trials, the concealment of allocation was not described.[31,34] Blinding of the participants[26,28,35] and providers[26,28,31,32] was not always feasible because of the nature of the interventions. The blinding of assessors was described in six trials.[26,29,30,33–35] Three trials showed attrition rates of greater than 20%.[26,28,30] An intention-to-treat analysis was stated to have been carried out in six trials.[26,28–30,32,33] This implies that participants were kept in the intervention group to which they were randomised.[21] Four trials applied available case analysis,[26,28–30] decreasing the power of the estimates but not affecting bias[38]. Two trials used imputation for a limited number of missing cases evenly distributed over control and experimental groups. There were potential limitations, mainly arising from blinding, but these were unlikely to lower the confidence in the estimate of the effect. Two trials did not address our inclusion and exclusion criteria,[27,32] but characteristics of the participants included in the analyses showed no information that was likely to lower the confidence in the estimate of effect. The treatment interventions in particular showed wide confidence intervals, which seriously weakened the confidence in the results, downgrading the quality rating by one level. There was no unexplained heterogeneity affecting the quality of the evidence. We could not use a funnel plot, and Duval and Tweedie's trim-and-fill method to detect publication bias could not be applied as only nine trials were included.[21] Publication bias cannot be completely ruled out, but negative and positive trials were identified. The level of quality of evidence according to the GRADE approach was rated as moderate.

Discussion

Main findings

This meta-analysis, which summarises the results of nine trials, did not find a significant effect of preventive interventions on the reduction of maternal distress. We found a small but significant effect of interventions offered to women who have maternal distress and women who are more likely to develop maternal distress as a result of predisposing factors.

Strengths and limitations

To our knowledge, a broad approach to examine various interventions and different constructs of maternal distress has not been used before. As a result of this approach a wide variety of interventions with different content have been combined. By pooling the interventions by intervention characteristics, function, and aim (prevention and improvement or cure through treatment),[14,15] we believe that we have been able to show the effects of interventions with a preventive and treatment function. The advantage of a broad approach is that it allows the generalisability and consistency of findings to be assessed across a wider range of different settings, populations, and behaviours.[20] However, we limited our study to healthy low-risk women in developed countries, because we considered that maternal distress might be different in high-risk women or in women from developing countries and cultures. Our findings cannot be generalised to pregnant women belonging to these populations. Grimshaw claims that a broad approach is able to identify generalisable features in interventions.[39] This was evident in our subgroup analysis, which showed that women who are more vulnerable to develop maternal distress benefit from antenatal interventions.

It has been suggested that compiling scores of different measurement instruments provides more stable and readily interpretable data.[20] It can be argued, however, that a reliable compilation of scores will only be realised when cut-off points and time of assessment are consistently measured. A limitation of our broad approach is that the comparison of outcomes assessed by different measurement instruments can affect disparity in scores.[40] Calculating change scores was not possible in this study, as not all of the trials provided baseline information, or used the same measurement instrument at baseline and at the last study assessment. It is also difficult to assess the extent to which the obtained results reflect clinically objective changes in maternal distress, because of the nature of the predominantly self-reported outcome measures, although these measurement instruments are widely accepted and validated.[41,42]

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We did not include the different constructs of maternal distress – depression, anxiety, and stress – in our search strategy, and so might have missed studies in our search; however, we found studies including other constructs of maternal distress. The quality of evidence was rated as moderate, because of the imprecision of results created by wide confidence intervals, which lowered the rating of the quality of the evidence from an initial high-quality rating. The preventive and treatment interventions were clinically diverse. The treatment interventions contained smaller samples than the preventive interventions, thereby contributing to wide confidence intervals. The fact that it was not possible to combine many trials in the pooled treatment intervention group and the subgroup of selected women precluded the possibility of narrowing the confidence intervals. The use of a random-effects method in the meta-analysis may have contributed to the wide confidence intervals, whereas small trials gained more influence even though the effects are less precise.[25] This suggests that some of the treatment interventions might work; however, the evidence remains inconclusive. The wide confidence intervals may have been the result of the small numbers: the subgroup analysis contained three trials selected retrospectively. The post hoc creation of the subgroup might contribute to false-positive findings, although they can have clinical meaning.[43] Findings must be interpreted with caution.

It should be noted that, unlike treatment interventions, maternal distress scores above a fixed cut-off point were not part of the inclusion criteria for preventive interventions.[27–29,32,33,35] The preventive interventions were offered to a general population of pregnant women with few if any symptoms of maternal distress at baseline measurement, who then experienced no effect of the interventions. This is congruent with the findings of a review of interventions for women showing no symptoms of maternal distress.[44] As the preventive interventions in this study had a population approach, it is known that these interventions have a relatively small influence on the improvement of health.[45]

By way of contrast, and not surprisingly, all of the participants of the treatment interventions suffered from maternal distress prior to the intervention, as this was part of the inclusion criteria.[26,30,31] Treatment interventions offered to these women with elevated scores of maternal distress proved effective, with significantly reduced levels of maternal distress post-intervention.

The subsample of participants who were more vulnerable for developing maternal distress because of predisposing factors, such as a low social economic status and low self-esteem,[28,29,33] showed a significant effect of interventions. In a large prospective study it was concluded that the women who are 'at risk' for developing maternal distress might benefit most from interventions to prevent maternal distress.[7] This seems congruent with our findings.

Conclusion

Results of the current study are informative and valuable to different groups of public health professionals. Our findings suggest that it does not seem effective to provide all pregnant women with preventive interventions. Instead, interventions may be offered to women who are more vulnerable to develop, or are already suffering from, maternal distress. In order to provide comprehensive clinical care, treatment, and adequate follow-up for women, the timely detection of potential predisposing factors and maternal distress in the antenatal period seems of importance. Screening methods could be considered as part of routine antenatal care.[46–48]

In our review and meta-analyses we chose to adopt a broad approach, examining various antenatal interventions and different psychological constructs of maternal distress, including depression, anxiety, stress, mental wellbeing, distress, self-esteem, self-efficacy, fear, and worry. Different measurement instruments were used to assess the different constructs. Measures of maternal distress should be multidimensional, given the increasing evidence that women experiencing maternal distress report more than one of the described symptoms.[2] A possible strategy for compiling the several dimensions of maternal distress in future studies is to use validated measurement instruments that measure more than one construct. The EPDS, for example, is validated to measure depression and anxiety simultaneously,[41] and the Four–Dimensional Symptom Questionnaire (4DSQ) is validated to measure distress, somatization, depression, and anxiety in pregnant women.[49]

As data continue to mount on the association between antenatal interventions and the reduction of maternal distress, there is a temptation to consider introducing maternal distress reduction interventions into clinical practice; however, this would be premature in the absence of evidence to identify the most effective antenatal interventions or the effective elements of interventions. The evidence provided is inconclusive, and is predominantly based on small samples. It is recommended that future research should involve the recruitment of larger samples. The use of treatment interventions and interventions for women with predisposing factors for the development of maternal distress are worthy of further research. This review and meta-analyses highlighted the continuing need for further research in the area of antenatal interventions to reduce maternal distress to address the major gap in the literature on effective interventions. It should also be noted that the evidence was identified for short-term outcomes of mater-

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nal distress, and that further research is needed to evaluate longer-term outcomes.

Disclosure of interests

All authors declare that they received no support from any organisation for the submitted work, have no financial relationships with any organisations that might have an interest in the submitted work in the previous 3 years, and have no other relationships or activities that could appear to have influenced the submitted work.

Contribution to authorship

M.N. and M.A. designed the study, and Y.F., M.N., and M.A. developed criteria for including studies. Y.F. and M.N. carried out the literature search and extracted data. Y.F. and L.B. performed the statistical analysis. Y.F. drafted the article. All authors interpreted the data, contributed to discussion, and reviewed or edited the article. All authors take responsibility for the integrity of the data and the accuracy of the data analysis. R.d.V. supervised the study and is the guarantor.

Details of ethics approval

No ethical approval was required.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Figure S1. Flow chart.

Figure S2. Risk of bias graph.

Table S1. Characteristics of studies included (n = 10). ■

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