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#### Review article

## Interventions for reducing fear of childbirth: A systematic review and meta-analysis of clinical trials

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#### ABSTRACT

*Introduction:* Fear of childbirth is a problematic mental health issue during pregnancy. But, effective interventions to reduce this problem are not well understood.

Objectives: To examine effective interventions for reducing fear of childbirth.

Material and methods: The Cochrane Central Register of Controlled Trials, PubMed, Embase and PsycINFO were searched since inception till September 2017 without any restriction. Randomised controlled trials and quasi-randomised controlled trials comparing interventions for treatment of fear of childbirth were included. The standardized mean differences were pooled using random and fixed effect models. The heterogeneity was determined using the Cochran's test and I<sup>2</sup> index and was further explored in meta-regression model and subgroup analyses.

Results: Ten studies inclusive of 3984 participants were included in the meta-analysis (2 quasi-randomized and 8 randomized clinical trials). Eight studies investigated education and two studies investigated hypnosis-based intervention. The pooled standardized mean differences of fear for the education intervention and hypnosis group in comparison with control group were -0.46 (95% CI -0.73 to -0.19) and -0.22 (95% CI -0.34 to -0.10), respectively.

Conclusions: Both types of interventions were effective in reducing fear of childbirth; however our pooled results revealed that educational interventions may reduce fear with double the effect of hypnosis. Further large scale randomized clinical trials and individual patient data meta-analysis are warranted for assessing the association.

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#### Statement of significance

#### Problem or issue

Due to negative outcomes of fear of childbirth, conflicting results reported in the literature and high recent focuses on planning different interventions to ameliorate this negative experience, it would be valuable to specify the most effective interventions that have been tested till this date.

#### What is already known

Several clinical trials have assessed the effects of various interventions for reducing fear of childbirth during and after pregnancy. But, the literature reported inconsistent findings.

#### What this paper adds

The present meta-analysis reveals that educational interventions and self-hypnosis can significantly reduce fear of childbirth. Besides, result suggests that educational interventions may reduce fear of childbirth twice as much. The findings highlights the role of antenatal education, in enhancing childbirth expectations and experiences.

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#### 1. Introduction

Childbirth can be considered as an outstanding life event for every woman; however, this can be a fearful experience. Literature estimates that one in five pregnant women experience moderate fear of childbirth and 6-10% of all pregnant women suffer from a severe fear of childbirth (FOC) worldwide. 1-3 Parity and previous mode of birth (instrumental or caesarean section), depression, decisional conflict, low social support and less perceived knowledge were found to be associated with FOC.3-5 It is highly likely that FOC complicates pregnancy and causes manifestations of anxiety and stress<sup>6,7</sup> leading to physical and psychological hypertension, including preeclampsia, post-traumatic stress disorder.<sup>8–10</sup> These complications would result in increased probability of obstetric interventions particularly emergency caesarean section that in turns, may lead to low birth weight and preterm labour. 11,12 Moreover, it has been shown that high levels of maternal stress during pregnancy can double the probability of emotional or behavioural problems in childhood period.<sup>13</sup>

Several studies have assessed interventions for reducing FOC during and after pregnancy. In a randomized controlled trial (RCT) conducted by Werner et al.<sup>14</sup> among 1222 healthy Danish nulliparous women, a brief course of self-hypnosis significantly ameliorated FOC experienced during 6 weeks after birth (mean W-DEQ B score of 42.9 in the hypnosis vs 47.5 in the care as usual

group) while relaxation techniques did not have any significant influence on FOC (mean score of 47.2 vs 47.5). 14 Some other studies have examined the effect of psycho-education in nulliparous women and reported significant reduction in FOC measured during pregnancy and postpartum period. 15-17 For instance, in a study was conducted among 371 Swedish nulliparous women with severe fear of childbirth, by Rouhe et al.<sup>17</sup> a significant difference in W-DEO B mean score was indicated between psycho-education group and control group (intervention group  $63.0 \pm 32$  vs control group  $73.7 \pm 29$ ). Moreover, a single-arm pilot study in Australia (2014), tested the effect of mindfulness-based childbirth education as a new model of childbirth education. This model that consists of mindfulness, communication and decision-making skills showed to be an significant effective intervention for reducing FOC.<sup>18</sup> Also, certain other studies assessed the effect of prenatal class education with different models and components on FOC resulting in significantly low levels of fear. 19-22 But, our understanding of the modifiable causes of FOC is not consistent and consequently there are no effective approaches to its reduction.

Due to negative outcomes of FOC, and high recent focuses on planning different interventions yielding in conflicting results presented in the literature, it would be valuable to specify the most effective interventions that have been tested till this date. We, therefore, aimed to investigate the pooled effect of interventions for reduction of the FOC during pregnancy and postpartum period using meta-analysis methods.

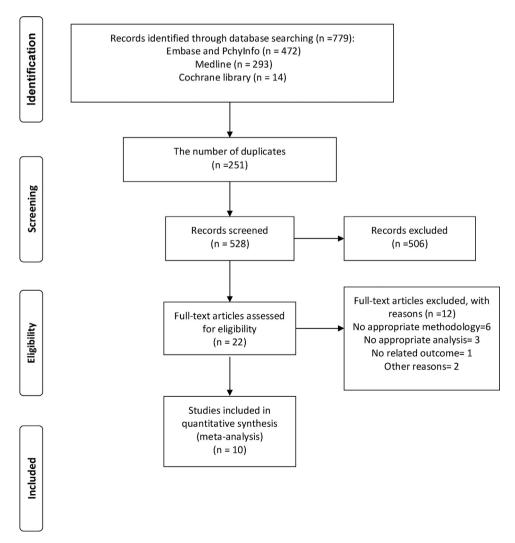


Fig. 1. Flow chart of study selection process.

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