



## Review article

## Does antenatal education affect labour and birth? A structured review of the literature

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## ABSTRACT

**Objective:** To undertake a structured review of the literature to determine the effect of antenatal education on labour and birth, particularly normal birth.

**Method:** Ovid Medline, CINAHL, Cochrane and Web of Knowledge databases were searched to identify research articles published in English from 2000 to 2012, using specified search terms in a variety of combinations. All articles included in this structured review were assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

**Findings:** The labour and birthing effects on women attending antenatal education may include less false labour admissions, more partner involvement, less anxiety but more labour interventions.

**Conclusion:** This literature review has identified that antenatal education may have some positive effects on women's labour and birth including less false labour admissions, less anxiety and more partner involvement. There may also be some negative effects. Several studies found increased labour and birth interventions such as induction of labour and epidural use. There is contradictory evidence on the effect of antenatal education on mode of birth. More research is required to explore the impact of antenatal education on women's birthing outcomes.

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## 1. Introduction and background

In Australia, antenatal education has been offered to expectant couples since the 1960s.<sup>1</sup> Over time, the classes have evolved but the underlying goals remain the same: to provide preparation for pregnancy, labour and birth<sup>1</sup> and to a lesser extent, parenting.<sup>2</sup>

Antenatal education represents a significant effort for women and families and a significant cost to maternity services and therefore requires careful evaluation. Antenatal education is viewed by pregnant women and health professionals as an important component of antenatal care in Australia. Most health professionals recommend it and most expectant parents use this service.<sup>3</sup> The aims, content and processes of antenatal education vary considerably as there is a distinct lack of widely adopted standards or guidelines.<sup>4</sup> This makes evaluation difficult.<sup>5</sup> Antenatal education is therefore poorly evaluated<sup>6</sup> and currently doubt exists about its value.<sup>7,1,2,8,9</sup> Gagnon and Sandall<sup>7</sup> in

their systematic review comparing individual and group antenatal classes, found that the effects of antenatal education for childbirth or parenthood or both are largely unknown. Murphy<sup>9</sup> claims antenatal education promotes dependency and coercion into compliance with hospital policies and procedures and often deprives women of freedom and choice. Walker et al.<sup>2</sup> also claim that antenatal education can be used to reinforce institutional policies instead of inspiring confident birthing women.

Antenatal education is in a powerful position to promote normal birth. As Australian midwives, we are charged by the Competency Standards for the Midwife<sup>10</sup> and the International Definition of a Midwife<sup>11</sup> to promote normal birth. The latest Australian labour and birth statistics however, show a concerning fall in spontaneous vaginal birth rates over the last 10 years from 66.2% in 1999<sup>12</sup> to 56.8% in 2009.<sup>13</sup> Although we do not know if women attend antenatal education to help them birth normally, health professionals have long felt that antenatal education is key to successful pregnancy and birth experiences.<sup>2</sup> It would therefore make sense that antenatal education has some health promoting effect on labour and birth. This structured literature review examines the effect of antenatal education on labour and birth, particularly normal birth.

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## 2. Methods

Ovid Medline, CINAHL, Cochrane and Web of Knowledge databases were used to identify appropriate research articles published in English from 2000 to 2012, using relevant terms in a variety of combinations (Appendix 1). A total of 3286 articles were identified. A review of article titles established that 152 articles were relevant to this structured review. Their reference lists were searched for related articles and another three relevant articles were identified making a total of 155 articles. Further review for relevancy for labour and birthing outcomes identified 10 articles eligible for inclusion in this review. All articles included in this structured review were assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

## 3. Findings

The 10 articles originated from Spain, Sweden, Canada, Australia, Iran, UK, Thailand and the USA. Six were randomised controlled trials (RCTs). The other four were observational cohort studies. The following findings emerged from the literature.

### 4. Positive physical labour and birthing effects

Four of the studies found a significant decrease in false labour admissions when women were provided with specific education about recognising true labour.<sup>14–17</sup>

The first of these trials was undertaken by Bonovich<sup>14</sup> in the USA. This RCT of 246 nulliparous pregnant women compared a structured antenatal education programme for the identification of active labour with standard antenatal education. The study demonstrated that a specific antenatal education programme was effective in reducing the mean number of visits to the labour suite before the onset of active labour (experimental group mean 0.29 (standard deviation (SD) 0.59), control group mean 0.58 (SD 0.72); weighted mean difference -0.29, 95% confidence interval (CI) -0.47 to -0.11). No other labour and birthing outcomes were measured in this study. The risk of bias in this trial stems from the unclear methods of randomisation and the 15% of the sample lost to follow up.

A multicentred, prospective, observational study in Spain<sup>17</sup> identified a similar finding of less false labour admissions. This study involving 616 nulliparous pregnant women compared three cohorts of women: women attending no antenatal education sessions, women attending 1–4 sessions and women attending more than 5 sessions. Of the women attending 5 or more antenatal education sessions, 14% visited the hospital in false labour compared to 31% of women attending no antenatal education sessions ( $p < 0.05$ ). The study found that women attending no antenatal education sessions were likely to have increased anaesthesia in the latent phase of labour (39% vs 20%,  $p < 0.05$ ) and more instrumental birth (30% vs 13%,  $p = 0.05$ ). The risk of bias in this trial stems from the assumption by the authors that there would be 40% of women choosing not to attend. Unfortunately for the researchers only 7% of women chose no antenatal care and this altered the statistical power of the trial.

In a RCT in Thailand involving 200 primiparous women, Lumluk and Kovavisarach<sup>15</sup> also identified less false labour admissions. This study compared special with routine antenatal education with the special group receiving extra education for self-diagnosis of true labour onset as well as routine education. The correct self-diagnosis of true labour onset was statistically significant ( $p = 0.01$ ) in their special group (91.8%) compared with the routine education group (77.2%). No other labour and birthing outcomes were measured in this study. The risk of bias in this

study stems from the method of randomisation with women being selected into groups depending on the day of the week they attended the clinic.

In a Danish RCT involving 1193 nulliparous women, Maimburg et al.<sup>16</sup> compared the labour outcomes of women receiving nine hours of antenatal education to women receiving no antenatal education and found that women in the intervention group were significantly more likely to arrive in active labour (RR 1.45, 95% CI 1.26–1.65,  $p < 0.01$ ) and use less epidural anaesthesia (RR 0.99, 95% CI 0.73–0.97,  $p < 0.01$ ) than women in the control group. Caesarean section rates were similar in the two groups.

In a RCT in Iran, Mehdizadeh et al.<sup>18</sup> found higher vaginal birth rates in the women attending antenatal education sessions compared to non-attenders. In this study 200 low risk, nulliparous women were randomly assigned to an antenatal education group or no antenatal education. Mean duration time of first stage labour in the control and trial groups was  $4.9 \pm 2.4$  and  $3.8 \pm 1.4$  h, respectively ( $p = 0.0042$ ). In addition mean duration time of the second stage of labour in the control group ( $25.7 \pm 16.9$  min) was significantly higher in the trial group ( $17 \pm 10.5$  min;  $p = 0.0016$ ). However 73% of women in the trial group received Syntocinon compared to 65% of women in the control group ( $p = 0.033$ ). The rate of vaginal birth was significantly higher in the trial group (97%) than in the control group (90%;  $p = 0.044$ ). These are surprisingly high vaginal birth rates and, as it is not clarified by the authors, these rates may include assisted vaginal birth. Risk of bias in the study stems from the lack of information about method of randomisation and the mode of birth.

In a small UK comparison study Escott et al.<sup>19</sup> compared outcomes of 41 women receiving either a coping strategy enhancement (CSE) method of antenatal education or routine education. Although birthing outcomes were not different in the two groups two of the statistically significant findings were that women using the CSE method had more involvement from their partners during labour ( $p = 0.05$ ) and were less likely to require Syntocinon augmentation in first stage labour ( $p = 0.037$ ). The risk of bias in this study is related to the small numbers.

### 5. Positive emotional effects

This review has identified some positive emotional effects of antenatal education on women's labour and birth. These include decreased anxiety for women and more partner involvement.

In their Spanish RCT, Artieta-Pinedo et al.<sup>20</sup> identified decreased anxiety in non-immigrant women attending antenatal education compared with women non-attenders. They found that non-immigrant women who attended more antenatal education had significantly less anxiety during birth than no or low attenders (no or low attenders: -1.8, 95% CI = -0.14 to -3.03; high attenders = -1.51, 95% CI = -0.32 to -2.70). As mentioned above this study found increased normal birth rates in the non-attending women compared to women attending antenatal education.

Paz-Pascual et al.<sup>17</sup> also identified decreased anxiety in women who attended antenatal education (35%) compared to women not attending (55%). As mentioned above, the risk of bias in this study stems from the very small numbers in the non-attender group (7%).

In a small UK comparison study Escott et al.<sup>19</sup> found increased partner involvement in the special antenatal education group. This study compared outcomes of 41 women receiving either a coping strategy enhancement (CSE) method of antenatal education or routine education. Although birthing outcomes were not different in the two groups one of the statistically significant findings ( $p = 0.05$ ) was that women using the CSE method had more involvement from their partners during labour. The risk of bias in this study is related to the small numbers involved.

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