

Impact of antenatal lifestyle education on reducing preterm birth: A retrospective cohort study

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Abstract

Objective Investigate the effect of an antenatal lifestyle education seminar on reducing preterm birth, and whether education timing modifies outcomes among women with different characteristics. **Design** Retrospective cohort study **Setting** A metropolitan hospital in Beijing, China **Population** A total of 3008 singleton livebirths **Methods** Extracted data from deidentified electronic medical records were analyzed. Odds ratios (ORs) for preterm birth according to antenatal education attendance using stepwise binary logistic regression stratified by different maternal characteristics was conducted. **Outcome measure** Preterm birth (gestational age <37+0 weeks) **Results** Overall prevalence of preterm birth was 8.7%, but higher for women who did not attend the antenatal seminar (11.5%). Risk of preterm birth for first trimester attendees decreased by 53% ([OR] 0.47, 95% CI 0.35-0.64), and 41% for later attendees ([OR] 0.59, 95% CI 0.41-0.86). Estimates persisted after adjusting pre-existing and gestational covariates. In subgroup analysis, young or nulliparous women who attended later than first trimester were at decreased risk. For women aged ≥35 years, multiparous, who had a previous caesarean section/myomectomy, the risk of preterm birth was reduced among first trimester attendees, but no longer significant after adjusting for pre-existing and gestational covariates ($p > 0.05$). Timing of the seminar was not significant for women received assisted reproductive technologies. **Conclusions** Offering an antenatal lifestyle education seminar was associated with lower preterm birth risk and was modified by education timing and women's characteristics. Results can inform the development of tailored preterm birth prevention strategies. **Keywords** Antenatal education, lifestyle factors, preterm birth, intervention timing, health promotion.

Title Impact of antenatal lifestyle education on reducing preterm birth: A retrospective cohort study

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The shortened running title: Antenatal lifestyle education timing and preterm birth

Abstract

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Design Retrospective cohort study

Setting A metropolitan hospital in Beijing, China

Population A total of 3008 singleton livebirths

Methods Extracted data from deidentified electronic medical records were analyzed. Odds ratios (ORs) for preterm birth according to antenatal education attendance using stepwise binary logistic regression stratified by different maternal characteristics was conducted.

Outcome measure Preterm birth (gestational age $<37^{+0}$ weeks)

Results Overall prevalence of preterm birth was 8.7%, but higher for women who did not attend the antenatal seminar (11.5%). Risk of preterm birth for first trimester attendees decreased by 53% ([OR] 0.47, 95% CI 0.35-0.64), and 41% for later attendees ([OR] 0.59, 95% CI 0.41-0.86). Estimates persisted after adjusting pre-existing and gestational covariates. In subgroup analysis, young or nulliparous women who attended later than first trimester were at decreased risk. For women aged ≥ 35 years, multiparous, who had a previous caesarean section/myomectomy, the risk of preterm birth was reduced among first trimester attendees, but no longer significant after adjusting for pre-existing and gestational covariates ($p > 0.05$). Timing of the seminar was not significant for women received assisted reproductive technologies.

Conclusions Offering an antenatal lifestyle education seminar was associated with lower preterm birth risk and was modified by education timing and women's characteristics. Results can inform the development of tailored preterm birth prevention strategies.

Keywords Antenatal education, lifestyle factors, preterm birth, intervention timing, health promotion.

Tweetable abstract A brief antenatal lifestyle education lowers preterm birth risk but is modified by education timing.

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