Does the way maternity care is provided affect maternal and neonatal outcomes for young women? A review of the research literature

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CRD summary
The authors concluded that providing young pregnant women with non-standard models of maternity care (Midwife Group Practice, Group Antenatal Care, Young Women's Clinics) had some beneficial effects on antenatal visits, obstetric and neonatal outcomes, but more research was needed. There were limitations in review methodology and in available data, so the authors' conclusions may not be reliable.

Authors' objectives
To assess whether, and how, the way maternity care was provided affected maternal and neonatal outcomes in young pregnant women.

Searching
Academic Search Complete, CINAHL, The Cochrane Library, Health Collection, Health and Medical Complete, Health Source Nursing/Academic Edition, Intermid, Maternity and Infant Care, PubMed and the Wiley Online Library were searched for articles published in English between 2000 and 2010. Search terms were indicated. Reference lists of relevant articles were checked for further studies.

Study selection
Studies were eligible if they were primary studies of non-standard models of maternity care for pregnant women with a mean age of 21 years or younger. The intervention had to take place in a Western country and include a midwife. Studies had to report antenatal, birth, postnatal and neonatal outcomes.

Of the included studies, all but one had a control group and only one was randomised. Interventions included Midwifery Group Practice (a group of two to three midwives who provided continuity of care throughout pregnancy), Group Antenatal Care (such as use of the programme Centering Pregnancy, with the elements of health assessment, education and support), or multidisciplinary Young Women's Clinics. Most comparison groups received standard care. Most studies specifically examined teenage or adolescent women. Studies were from the USA, the UK and Australia.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors reported outcomes for prospective studies as odds ratios and difference in means. Outcomes for retrospective and audit studies were presented as percentages.

The authors did not state how many reviewers extracted data.

Methods of synthesis
Data were summarised in text and tables. Studies were grouped by intervention type.

Results of the review
Nine studies were included (3,971 pregnant women). Of these, one was a randomised controlled trial, three were prospective cohort studies, two were comparative studies with concurrent controls, two were comparative studies with historical controls and one was a case series.

Midwifery Group Practice was only assessed by one case series from the UK. The study reported high rates of antenatal attendance (51.5% with eight to 12 visits, 11.5% with more than 12 visits), vaginal birth (84%), and breastfeeding (73%
at initiation, 38% at 28 days). The rates of pre-term births (5%) were lower than the UK average, but the rate of low birth weight babies was similar. Continuity of care was not provided in the postnatal period.

Four studies investigated Group Antenatal Care for young women. All had a control group, one was a randomised controlled trial. Two of the four trials reported improved antenatal attendance in the intervention groups. Only one study reported mode of birth and there was no significant difference in Caesarean sections. Three studies reported gestational age at birth and this was significantly higher in the intervention group of only one of the studies. In two of the four trials, pre-term birth was significantly reduced in the intervention groups. In only one of the three trials that reported this outcome, birth weight was significantly higher in the intervention group. Only one of four trials reported significantly reduced rates of low birth weight in the intervention group, while all three studies reporting breastfeeding behaviour reported higher rates in the intervention groups (significant in two studies, significance not reported in one study). Only one study reported neonatal intensive care unit admission and there was no difference between groups.

Four studies investigated Young Women's Clinics; all had non-randomised control groups. These involved very different models of care which included differences in setting, protocols, staff training, continuity of antenatal carer, multidisciplinary input and level of access to allied health professionals. Antenatal attendance was reported by three studies but significantly higher attendance rates for the intervention group were only reported by one study (attendance was higher in a second study, but no significance values were reported). Three studies reported mode of birth, but only one found significantly fewer instrumental births or Caesarean sections in the intervention group compared to standard antenatal care. Gestational age at birth was reported by two studies, and both studies reported significantly higher gestational age at birth for the intervention group compared to control (although in one of the studies this only applied to one of the Young Women's Clinics investigated). Pre-term birth was reported by all studies, and significantly fewer pre-term births were reported for the intervention groups of two of these studies compared to standard antenatal care. Birth weight was reported by two studies and this was significantly higher only in one of the studies compared to control (and in that study this only applied to one of the Young Women's Clinics investigated). Only one study reported on the proportion of babies with low birth weight and this was significantly lower in the intervention group. The two studies that assessed neonatal intensive care unit admission reported no significant differences between groups. Only one of two studies that assessed breastfeeding behaviour found significantly higher rates in the intervention group compared to control (although in that study breastfeeding rates were generally very low).

**Authors’ conclusions**
Providing young pregnant women with a non-standard model of maternity care such as Midwife Group Practice, Group Antenatal Care or Young Women's Clinics has some beneficial and no detrimental effects on antenatal visits, obstetric and neonatal outcomes. Evidence on Midwife Group Practice was very limited and the best evidence exists for Group Antenatal Care.

**CRD commentary**
The review question and inclusion criteria were clear. A search of a range of relevant electronic databases was carried out, but it was unclear how comprehensive the search strategy was. The search was limited to the past ten years without previous reviews being taken into account and without the authors providing a reason, so relevant older studies may have been missed. Only articles in English were included, so relevant foreign articles may have been missed. It was unclear whether study selection and data extraction were carried out with sufficient attempts to minimise error and bias.

The authors did not report any validity assessment of included studies, so the reliability of the data was unclear, especially in view of that fact that only one randomised controlled trial was included. The results on Midwifery Group Practice were hard to interpret as the study had no comparison group. Also, the authors stated that the reliability of included studies was limited by factors such as lack of adequate control for potential confounders, small sample sizes and lack of reporting of important outcomes such as antenatal attendance or mode of birth.

Given the limitations in review methodology and in the available data, the authors' conclusions may not be reliable.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that more well designed and resourced midwifery models of care for young pregnant women should be implemented and researched. Studies should have adequate sample sizes and relevant outcomes.
should be reported.

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