A comparison of intermittent and continuous support during labor: a meta-analysis

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Authors' objectives
To contrast the influence of intermittent and continuous support provided by doulas during labour and delivery on 5 childbirth outcomes.

Searching
MEDLINE and the American Psychological Association databases were searched using the following terms: doula; birth attendant; labor support; support; childbirth; and outcomes. The Oxford database of Perinatal trials contributed details of European trials. The authors of one abstract and one article were contacted for further information.

Study selection
Study designs of evaluations included in the review
Randomised controlled clinical trials (RCTs) that presented data on the impact of support by doulas on medical outcomes of labour were included.

Specific interventions included in the review
Continuous, intermittent and lack of social support by doulas or female attendants were studied. Support was considered to consist of emotional, social and/or non medical physical labour support and was provided by midwives (including lay midwives and student midwives) and lay women. Continuous support was defined as labour attendant remaining with the mother without interruption, except for toileting, from shortly after admission to the hospital or entry into the study, during labour, and during the birth of the child. Intermittent support was defined as the labour attendant’s leaving the mother during labour and delivery for any length of time and for purposes other than toileting. Interventions in which less than 100% of case women has a doula present at all times were classified as intermittent support.

Participants included in the review
Labouring women in good health who were near or at term were studied. Women included the following groups: primiparous women in spontaneous labour at term; white, middle class, married primigravid women; low income Hispanic and African American nulliparous women; and low or middle income nulliparous women. Women having preterm births were excluded.

Outcomes assessed in the review
The following outcomes were assessed: the use of any analgesia; need for oxytocin augmentation; need for forceps; need for Caesarean section; and length of labour. Studies examining only post partum psychological outcomes were excluded.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
Validity was rated according to the criteria set by Chalmers (see Other Publications of Related Interest no.1). These criteria assigned low, intermediate and full credit for quality on the basis of control of selection bias at entry to the trial; control of selection bias after entry; and control of bias in assessing outcome. One author rated the validity according to the criteria described above.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.
Methods of synthesis
How were the studies combined?
Studies were grouped by reported duration of social support into continuous support studies and intermittent support studies and the pooled odds ratio (OR) and 95% confidence limits (CIs) calculated for analgesia, oxytocin, forceps and Caesarean section with weighting by sample size within these groupings. Baseline levels for each outcome were calculated as the proportion of controls across the studies who experienced an outcome. Mean differences in length of labour between the experimental and control groups were calculated. Significance in overall effect was determined with z-scores and the Z statistics was used to examine differences in mean length of labour between the two groups of studies.

How were differences between studies investigated?
The chi-squared test was used to assess heterogeneity across all studies and in stratum specific (continuous vs intermittent support) studies. Heterogeneity was investigated by testing for heterogeneity after removal of a study which reported high intrapartum intervention rates.

Results of the review
Eleven RCTs were included (4391 women).

The pooled baseline percentages differed significantly between the 2 groups of studies for all outcomes (p<0.05). Heterogeneity was not statistically significant within either of the two groups of studies (intermittent vs continuous support) for the use of analgesia, forceps, Caesarean section and length of labour.

The presence of a doula on an intermittent basis when compared with no support controls was not significantly associated with any of the five outcomes. The continuous presence of a doula statistically significantly reduced the odds for analgesia, oxytocin augmentation, forceps and Caesarean section.

Analgesia: Non-significant heterogeneity across all studies (chi-squared 6.2 on 7 degrees of freedom). Intermittent support (5 RCTs with 2011 women): Baseline in controls = 50%. OR = 0.84 (95% CI: 0.70, 1.0). Continuous support (4 RCTs with 1504 women): Baseline in controls = 37%. OR = 0.64 (95% CI: 0.49, 0.85; p<0.01).

Oxytocin augmentation: Significant heterogeneity across all studies (chi-squared = 56.5 on 9 degrees of freedom). Intermittent support (6 RCTs with 2580 women): baseline in controls = 55%. OR = 1.06 (95% CI: 0.89, 1.3). Continuous support (3 RCTs with 960 women): Significant heterogeneity (chi-squared 15.9 on 3 degrees of freedom). Baseline in controls = 25%. OR = 0.29 (95% CI: 0.20, 0.40; p<0.001). After removal of study with high rates of intrapartum intervention that reported the continuous presence of a doula increased oxytocin use, heterogeneity was no longer significant (chi-squared = 0.51 on 2 degrees of freedom).

Forceps: Non-significant heterogeneity across all studies (chi-squared 7.7 on 8 degrees of freedom). Intermittent support (5 RCTs with 2391 women): Baseline in controls = 6%. OR = 0.72 (95% CI: 0.50, 1.0). Continuous support (4 RCTs with 1063 women): Baseline in controls = 12%. OR = 0.43 (95% CI: 0.28, 0.65; p<0.001).

Caesarean section: Significant heterogeneity across all studies (chi-squared 31.7 on 9 degrees of freedom). Intermittent support (6 RCTs with 2580 women): Baseline in controls = 7%. OR = 0.91 (95% CI: 0.67, 1.2). Continuous support (4 RCTs with 1824 women): Baseline in controls = 20%. OR = 0.49 (95% CI: 0.37, 0.65; p<0.001).

Weighted mean difference (WMD) for length of labour: Significant heterogeneity across all studies (chi-squared 45 on 5 degrees of freedom). Intermittent support (3 RCTs with 2153 women): control mean = 6.8 hours. WMD = -0.21 hours (95% CI: -0.46, 0.04). Continuous support (2 RCTs with 791 women): control mean = 11.2 hours. WMD = -1.64 hours (95% CI: -2.3, -0.96; p<0.001). Control means differed significantly between 2 groups of studies (p<0.05).

Authors' conclusions
Continuous support, when compared with no doula support, was significantly associated with shorter labours, decreased the need for any analgesia, oxytocin, forceps, and Caesarean section. Intermittent support was not significantly associated with any of the outcomes. Continuous support appears to have a greater beneficial impact on the five outcomes than intermittent support. Future clinical trials will need to control for possible confounding factors.

**CRD commentary**
The aims and inclusion criteria were defined. The literature search included attempts to locate unpublished studies. Validity and statistical heterogeneity were assessed and some investigation of heterogeneity undertaken. Some relevant details of the primary studies was presented. The discussion includes consideration of the following factors which may have influenced the results: the duration of support may be a proxy variable for one or more other qualitative components of social support that are associated with beneficial childbirth outcomes; potential confounding factors such as the level of training of the labour attendants, and diverse sociocultural and medical childbirth practices across studies; and the dependence of the study upon primarily qualitative indications of whether doulas were present on a continuous or an intermittent level.

A fuller description of the informal methods used to identify primary studies would have been helpful. No details were given of methods used to select studies or extract data. Results of the validity assessment were not reported and only one reviewer assessed validity. Comparisons of the effect of continuous and intermittent support were based on differences across studies and not on within-study differences.

The strength of the evidence would have been increased by reporting the outcome of the validity assessment and demonstrating that the evidence was from good quality studies.

**Implications of the review for practice and research**
Practice: The authors suggest that in the light of the findings of the review, the current practice of requiring labour and delivery nurses to care for an increasing number of patients requires serious reconsideration.

Research: The authors consider that future research should include the following: the indications for medical procedures to help account for bias; and examination of the biologic mechanisms underlying the effects of social support and of the relationship between support and intervention rates.

**Bibliographic details**

**PubMedID**
10329855

**Other publications of related interest**
Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.