
The purpose of this study was to determine whether the mode of delivery was different between women who attended childbirth education (CBE) class, had a birth plan, or both compared with those who did not attend CBE class or have a birth plan. This is a retrospective cross-sectional study of women who delivered singleton gestations > 24 weeks at our institution between August 2011 and June 2014. Based on a self-report at the time of admission for labor, women were stratified into four categories: those who attended a CBE class, those with a birth plan, both, and those with neither CBE nor birth plan. The primary outcome was the mode of delivery. Multivariate logistic regression analyses adjusting for clinical covariates were performed. In this study, 14,630 deliveries met the inclusion criteria: 31.9 percent of the women attended CBE class, 12.0 percent had a birth plan, and 8.8 percent had both. Women who attended CBE or had a birth plan were older ($p < 0.001$), more likely to be nulliparous ($p < 0.001$), had a lower body mass index ($p < 0.001$), and were less likely to be African-American ($p < 0.001$). After adjusting for significant covariates, women who participated in either option or both had higher odds of a vaginal delivery (CBE: OR 1.26 [95% CI 1.15-1.39]; birth plan: OR 1.98 [95% CI 1.56-2.51]; and both: OR 1.69 [95% CI 1.46-1.95]) compared with controls.

**Conclusion:** Attending CBE class and/or having a birth plan were associated with a vaginal delivery. These findings suggest that patient education and birth preparation may influence the mode of delivery. CBE and birth plans could be used as quality improvement tools to potentially decrease cesarean rates.

The primary purpose of this study was to assess the influence of a systematic multidisciplinary birth preparation program on satisfaction with childbirth experience. A secondary aim was to detect factors that affect the childbirth satisfaction.

In this prospective study, 77 pregnant women who completed the 4-month birth preparation program (Group 1) and 75 women in the control group (Group 2) were asked to fill out two questionnaires with face-to-face interviews within 48 h after labor. One of the questionnaires was the translated form of Salmon's Item List German (SIL-Ger), and SIL-Ger scores ≥70 was accepted as a satisfactory experience.

There was no statistically significant difference between the groups in terms of sociocultural and intrapartum characteristics, and obstetric outcome parameters. The women who received antenatal education experienced significantly less pain \((p = 0.01)\), had a better communication with midwife or obstetrician during delivery \((p = 0.001)\), and participated more actively in decision-making before, during, and after childbirth \((p < 0.001 \text{ for all})\). SIL score was significantly higher in Group 1 \((105.7 \pm 2.2 \text{ vs } 80 \pm 2.5, p < 0.01)\), and significantly more women had a SIL score ≥70 \((96.1 \text{ vs } 73.3\%, p < 0.01)\). In multivariate logistic regression model, attending the birth preparation program and the level of pain perceived during labor were found to have a significant effect on the birth satisfaction.

**Conclusion:** The systematic birth preparation program improves satisfaction with childbirth experience by enabling women to communicate better with healthcare providers and to participate in decision-making during labor, as well as by decreasing the perception of labor pain.

Chen, I., Opiyo, N., Tavender, E., Mortazhejri, S., Rader, T., Petkovic, J., ... & Wasiak, J. (2018). Non-clinical interventions for reducing unnecessary caesarean section. *Cochrane Database of Systematic Reviews, (9).*

Background: Caesarean section rates are increasing globally. The factors contributing
to this increase are complex, and identifying interventions to address them is challenging. Non-clinical interventions are applied independently of a clinical encounter between a health provider and a patient. Such interventions may target women, health professionals or organisations. They address the determinants of caesarean births and could have a role in reducing unnecessary caesarean sections. This review was first published in 2011. This review update will inform a new WHO guideline, and the scope of the update was informed by WHO’s Guideline Development Group for this guideline.

The purpose of this study was to evaluate the effectiveness and safety of non-clinical interventions intended to reduce unnecessary caesarean section. Randomised trials, non-randomised trials, controlled before-after studies, interrupted time series studies and repeated measures studies were eligible for inclusion. The primary outcome measures were caesarean section, spontaneous vaginal birth and instrumental birth. The authors evaluated a wide range of non-clinical interventions to reduce unnecessary caesarean section, mostly in high-income settings. Few interventions with moderate- or high-certainty evidence, mainly targeting healthcare professionals (implementation of guidelines combined with mandatory second opinion, implementation of guidelines combined with audit and feedback, physician education by local opinion leader) have been shown to safely reduce caesarean section rates. There are uncertainties in existing evidence related to very-low or low-certainty evidence, applicability of interventions and lack of studies, particularly around interventions targeted at women or families and healthcare organisations or facilities.


Childbirth fear is linked with lower labor pain tolerance and worse postpartum adjustment. Empirically validated childbirth preparation options are lacking for pregnant women facing this problem. Mindfulness approaches, now widely disseminated, can alleviate symptoms of both chronic and acute pain and improve psychological adjustment, suggesting potential benefit when applied to childbirth education.
This study, the Prenatal Education About Reducing Labor Stress (PEARLS) study, is a randomized controlled trial (RCT; n=30) of a short, time-intensive, 2.5-day mindfulness-based childbirth preparation course offered as a weekend workshop, the Mind in Labor (MIL): Working with Pain in Childbirth, based on Mindfulness-Based Childbirth and Parenting (MBCP) education. First-time mothers in the late 3rd trimester of pregnancy were randomized to attend either the MIL course or a standard childbirth preparation course with no mind-body focus. Participants completed self-report assessments pre-intervention, post-intervention, and post-birth, and medical record data were collected.

**Conclusion:** In a demographically diverse sample, this small RCT demonstrated mindfulness-based childbirth education improved women's childbirth-related appraisals and psychological functioning in comparison to standard childbirth education. MIL program participants showed greater childbirth self-efficacy and mindful body awareness (but no changes in dispositional mindfulness), lower post-course depression symptoms that were maintained through postpartum follow-up, and a trend toward a lower rate of opioid analgesia use in labor. They did not, however, retrospectively report lower perceived labor pain or use epidural less frequently than controls.


The objective of this study was to investigate first-time mothers’ views about antenatal childbirth and parenthood education and their contact with other class participants after birth, and to compare participants and non-participants with respect to the use of pain relief, experience of pain, mode of delivery, childbirth overall, duration of breastfeeding, and assessment of parental skills.

A national cohort of 1197 Swedish-speaking women completed three questionnaires: during early pregnancy, 2 months, and 1 year after giving birth. Seventy-four percent of first-time mothers stated that antenatal education helped prepare them for childbirth, and 40% for early parenthood. One year after giving birth, 58% of the mothers had met with other class participants. These outcomes were associated with the number of class sessions. When controlling for the selection
of women into participants and non-participants, no statistical differences were found concerning memory of labor pain, mode of delivery, overall birth experience, duration of breastfeeding, and assessment of parental skills. However, participants had a higher rate of epidural analgesia. Mothers who were young, single, with low level of education, living in a small city, and smokers were less likely to find the classes helpful.

**Conclusion:** Participation in childbirth and parenthood education classes did not seem to affect first-time mothers’ experience of childbirth and assessment of parental skills, but expanded their social network of new parents. The higher epidural rate suggests that participation in classes made women more aware of pain relief techniques available, rather than improving their own coping with pain. More research should focus on current forms of antenatal education, with special focus on women of low socioeconomic status.

Ferguson, S., Davis, D., & Browne, J. (2013). Does antenatal education affect labour and birth? A structured review of the literature. *Women and Birth, 26*(1), e5-e8. This is a structures review of the literature to determine the effect of antenatal education on labour, and birth, particularly normal birth.

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).

**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 labor 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.

The objective of this study was to assess the effects of antenatal education on knowledge acquisition, anxiety, sense of control, pain, labour and birth support, breastfeeding, infant-care abilities, and psychological and social adjustment. The authors searched the Cochrane Pregnancy and Childbirth Group’s Trials Register (April 2006), CINAHL (1982 to April 2006), ERIC (1984 to April 2006), EMBASE (1980 to April 2006) and PsycINFO (1988 to April 2006). They hand searched the Journal of Psychosomatic Research from 1956 to April 2006 and reviewed the reference lists of retrieved studies. They updated the search of the Cochrane Pregnancy and Childbirth Group’s Trials Register on 7 July 2011 and added the results to the awaiting classification section of the review. Randomized controlled trials of any structured educational program provided during pregnancy by an educator to either parent that included information related to pregnancy, birth or parenthood were included. The educational interventions could have been provided on an individual or group basis. Educational interventions directed exclusively to either increasing breastfeeding success, knowledge of and coping skills concerning postpartum depression, improving maternal psycho-social health including anxiety, depression and self-esteem or reducing smoking were excluded.

Nine trials, involving 2284 women, were included. Thirty-seven studies were excluded. Educational interventions were the focus of eight of the studies (combined n = 1009). Details of the randomization procedure, allocation concealment, and/or participant accrual or loss for these trials were not reported. No consistent results were found. Sample sizes were very small to moderate, ranging from 10 to 318. No data were reported concerning anxiety, breastfeeding success, or general social support. Knowledge acquisition, sense of control, factors related to infant-care competencies, and some labour and birth outcomes were measured. The largest of the included studies (n = 1275) examined an educational and social support intervention to increase vaginal birth after caesarean section. This high-quality study showed similar rates of vaginal birth after caesarean section in ‘verbal’ and ‘document’ groups (relative risk 1.08, 95% confidence interval 0.97 to 1.21).

**Conclusion:** The effects of general antenatal education for childbirth or parenthood, or both, remain largely unknown. Individualized prenatal education directed toward avoidance of a repeat caesarean birth does not increase the rate of vaginal birth after caesarean section.

The objective of this randomized controlled trial was to test the effectiveness of an efficacy-enhancing educational intervention to promote women’s self-efficacy for childbirth and coping ability in reducing anxiety and pain during labour.

An efficacy-enhancing educational intervention based on Bandura’s self-efficacy theory was evaluated. The eligible Chinese first-time pregnant women were randomly assigned to either an experimental group (*n* = 60) or a control group (*n* = 73). The experimental group received two 90-minute sessions of the educational programme in between the 33rd-35th weeks of pregnancy. Follow-up assessments on outcome measures were conducted within 48 hours after delivery. The short form of the Chinese Childbirth Self-Efficacy Inventory was used to measure maternal self-efficacy prior to labour. Evaluation of pain and anxiety during the three stages of labour and performance of coping behaviour during labour were measured by the Visual Analogue Scale and Childbirth Coping Behaviour Scale respectively.

The experimental group was significantly more likely than the control group to demonstrate higher levels of self-efficacy for childbirth (*p* < 0.0001), lower perceived anxiety (*p* < 0.001, early stage and *p* = 0.02, middle stage) and pain (*p* < 0.01, early stage and *p* = 0.01, middle stage) and greater performance of coping behaviour during labour (*p* < 0.01).

**Conclusion:** The educational intervention based on Bandura’s self-efficacy theory is effective in promoting pregnant women’s self-efficacy for childbirth and reducing their perceived pain and anxiety in the first two stages of labour.


This study examined data for all 3136 Medicaid beneficiaries enrolled at American Association of Birth Centers (AABC) Center for Medicare and Medicaid Innovation Strong Start sites who gave birth between 2012 and 2014. Using the AABC Perinatal Data Registry, descriptive statistics were used to evaluate socio-behavioral and
medical risks, and core perinatal quality outcomes. Next, the 2082 patients coded as low medical risk on admission in labor were analyzed for effective care and preference sensitive care variations. Finally, using binary logistic regression, the associations between selected care processes and cesarean delivery were explored. Medicaid beneficiaries enrolled at AABC sites had diverse socio-behavioral and medical risk profiles and exceeded quality benchmarks for induction, episiotomy, cesarean, and breastfeeding. Among medically low-risk women, the model demonstrated effective care variations including 82% attendance at prenatal education classes, 99% receiving midwifery-led prenatal care, and 84% with midwifery-attended birth. Patient preferences were adhered to with 83% of women achieving birth at their preferred site of birth, and 95% of women using their preferred infant feeding method. Elective hospitalization in labor was associated with a 4-times greater risk of cesarean birth among medically low-risk childbearing Medicaid beneficiaries.

**Conclusion:** *The birth center model demonstrates the capability to achieve the triple aims of improved population health, patient experience, and value.*


There is continued debate about the role of women and communities in influencing rising rates of caesarean section (CS). In settings where CS rates exceed recommended levels, mothers and babies are exposed to potential harms that may outweigh the potential benefits. There is therefore a need to understand how educational interventions targeted at women and communities to reduce unnecessary CS are perceived and used. This qualitative evidence synthesis aimed to explore what women and communities say about the barriers and facilitators to intervention effectiveness for these important group. Seven electronic databases were searched using predefined search terms. Studies reporting qualitative data pertaining to interventions, published between 1985 and March 2017, with no language restriction were sought. Study quality was independently assessed by two authors before qualitative evidence synthesis was
undertaken using an interpretive, meta-ethnography approach. Resulting Statements of Findings were assessed using GRADE-CERQual, and summarised thematically. Twelve studies were included. They were published between 2001 and 2016. Eleven were from high-income countries. Twelve Summaries of Findings encompassed the data, and were graded (moderate or high) on CerQual. The Statements of Findings are reported under three final themes: 1) Mutability of women’s and communities’ beliefs about birth; 2) Multiplicity of individual information needs about birth; 3) Interactions with health professionals and influence of healthcare system on actual birth method. Women and communities value educational interventions that include opportunities for dialogue, are individualised (including acknowledgement of previous birth experiences), and are consistent with available clinical care and the advice of the health professional they come into contact with.

**Conclusion:** Women’s values and preferences for birth, and for information format and content, vary across populations, and evolves in individual women over time. Interactions with health professionals and health system factors can partly be responsible for changes in views. Educational interventions should take into account these dynamic interactions, as well as the women’s need for emotional support and dialogue with professionals alongside information about birth. Further research is required to test these findings and the utility of their practical application, particularly in medium and low income settings. **Note:** For CBE, see Table 2


The objective of this study was to determine the effect of education that gives information about the delivery room, labor and coping strategies on the fear of pain of childbirth in primigravida women.

This study was conducted experimentally using pre–post tests and a control group. A total of 99 primigravida women with 50 in the study group and 49 in the control group at a maternity hospital in a city of middle region of Turkey were recruited to the study. Data were collected using the Pregnant Introduction Form, Interview Form After Delivery and Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ), version A. Preparatory labor education was provided in two sessions between pregnancy weeks 28 and 34 to the women in the study group. Fisher, MC Pearson,
chi-square, Mann-Whitney U and Wilcoxon t tests were used for statistical data analysis.

In the first interview session, no significant difference was found between W-DEQ-A scores of the study and control groups. The mean pre-education W-DEQ-A score was 61.1 while it was 42.0 post-education in the study group. The post-education W-DEQ-A score was 58.5 in the control group while it was 42.0 in the study group.

**Conclusion:** It was determined that positive perception regarding birth was provided and fear of childbirth decreased with the preparation education for birth.


A woman's lack of knowledge about the risks and benefits of the various methods of pain relief can heighten anxiety. Women are increasingly expected, and are expecting, to participate in decisions about their healthcare. Involvement should allow women to make better-informed decisions; the National Institute for Clinical Excellence has stated that we need effective ways of supporting pregnant women in making informed decisions during labour. Our aim was to systematically review the empirical literature on women's expectations and experiences of pain and pain relief during labour, as well as their involvement in the decision-making process.

A systematic review was conducted using the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Bath Information and Database Service (BIDS), Excerpta Medica Database Guide (EMBASE), Midwives Information and Resource (MIDIRS), Sociological Abstracts and PsychINFO. Studies that examined experience and expectations of pain, and its relief in labour, were appraised and the findings were integrated into a systematic review.

Appraisal revealed four key themes: the level and type of pain, pain relief, involvement in decision-making and control. Studies predominantly showed that women underestimated the pain they would experience. Women may hope for a labour free of pain relief, but many found that they needed or benefited from it. There is a distinction between women’s desire for a drug-free labour and the expectation that they may need some sort of pain relief. Inaccurate or unrealistic
expectations about pain may mean that women are not prepared appropriately for labour. Many women acknowledged that they wanted to participate in decision-making, but the degree of involvement varied. Women expected to take control in labour in a number of ways, but their degree of reported control was less than hoped for.

**Conclusion:** Women may have ideal hopes of what they would like to happen with respect to pain relief, control and engagement in decision-making, but experience is often very different from expectations. Antenatal educators need to ensure that pregnant women are appropriately prepared for what might actually happen to limit this expectation-experience gap and potentially support greater satisfaction with labour.


The objective of this research was to assess whether the multitherapy antenatal education ‘CTLB’ (Complementary Therapies for Labour and Birth) Study programme leads to net cost savings using analysis of outcomes and hospital funding data. Authors took a payer perspective and used Australian Refined Diagnosis-Related Group (AR-DRG) cost data to estimate the potential savings per woman to the payer (government or private insurer). We consider scenarios in which the intervention cost is either borne by the woman or by the payer. Savings are computed as the difference in total cost between the control group and the study group.

Authors found if the cost of the intervention is not borne by the payer, the average saving to the payer was calculated to be $A808 per woman. If the payer covers the cost of the programme, this figure reduces to $A659 since the average cost of delivering the programme was $A149 per woman. All these findings are significant at the 95% confidence level. Significantly more women in the study group experienced a normal vaginal birth, and significantly fewer women in the study group experienced a caesarean section. The main cost saving resulted from the reduced rate of caesarean section in the study group.
**Conclusion:** The CTLB antenatal education programme leads to significant savings to payers that come from reduced use of hospital resources. Depending on which perspective is considered, and who is responsible for covering the cost of the programme, the net savings vary from $A659 to $A808 per woman. Compared with the average cost of birth in the control group, we conclude that the programme could lead to a reduction in birth-related healthcare costs of approximately 9%.


The objective of this study was to evaluate the effect of an antenatal integrative medicine education programme in addition to usual care for nulliparous women on intrapartum epidural use.

The study design was open-label, assessor blind, randomised controlled trial. The setting was two public hospitals in Sydney, Australia. The study population was 176 nulliparous women with low-risk pregnancies, attending hospital-based antenatal clinics.

The Complementary Therapies for Labour and Birth protocol, based on the She Births and acupressure for labour and birth courses, incorporated 6 evidence-based complementary medicine techniques: acupressure, visualisation and relaxation, breathing, massage, yoga techniques, and facilitated partner support. Randomisation occurred at 24–36 weeks’ gestation, and participants attended a 2-day antenatal education programme plus standard care, or standard care alone.

There was a significant difference in epidural use between the 2 groups: study group (23.9%) standard care (68.7%; risk ratio (RR) 0.37 (95% CI 0.25 to 0.55), p≤0.001).

The study group participants reported a reduced rate of augmentation (RR=0.54 (95% CI 0.38 to 0.77), p<0.0001); caesarean section (RR=0.52 (95% CI 0.31 to 0.87), p=0.017); length of second stage (mean difference=−0.32 (95% CI −0.64 to 0.002), p=0.05); any perineal trauma (0.88 (95% CI 0.78 to 0.98), p=0.02) and resuscitation of the newborn (RR=0.47 (95% CI 0.25 to 0.87), p≤0.015). There were no statistically significant differences found in spontaneous onset of labour, pethidine use, rate of
postpartum haemorrhage, major perineal trauma (third and fourth degree tears/episiotomy), or admission to special care nursery/neonatal intensive care unit (p=0.25).

**Conclusion:** The Complementary Therapies for Labour and Birth study protocol significantly reduced epidural use and caesarean section. This study provides evidence for integrative medicine as an effective adjunct to antenatal education, and contributes to the body of best practice evidence.

**Maurer, M., Carman, K. L., Yang, M., Firminger, K., & Hibbard, J. (2017). Increasing the Use of Comparative Quality Information in Maternity Care: Results From a Randomized Controlled Trial. Medical Care Research and Review, 1077558717712290**

This randomized controlled trial tested an intervention to increase uptake of hospital-level maternity care quality reports among 245 pregnant women in North Carolina (123 treatment; 122 control). The intervention included three enhancements to the quality report offered to the control: (a) biweekly text messages or e-mails directing women to the website, (b) videos and materials describing the relevance of quality measures to pregnant women’s interests, and (c) tools to support discussions with clinicians. Compared with controls, intervention participants were significantly more likely to visit the website and report adopting behaviors to inform care, such as thinking through preferences, talking with their doctor, or creating a birth plan.

**Conclusion:** Reports designed to put quality information into the larger context of what consumers want and need to know, along with targeted and timely communications, can increase consumer use of quality information and prompt them to talk with providers about care preferences and evidence-based practices.


The objective of the study was to report the experience of labor as described by nulliparous women who participated and who did not in a systematic Birth Preparation Program (BPP).
A qualitative study was conducted with eleven women who participated in a BPP and ten women attending routine prenatal care selected through purposeful sampling. The BPP consisted of systematized antenatal group meetings structured to provide physical exercise and information on pain prevention during pregnancy, the role of the pelvic floor muscles, the physiology of labor, and pain relief techniques. A single, semi-structured interview was conducted with each participant. All interviews were recorded, transcribed verbatim and thematic analyses performed. The relevant themes were organized in the following categories of analysis: control of labor, positions adopted during labor, and satisfaction with labor.

Women who participated in the systematic educational activities of the BPP reported they maintained self-control during labor and used breathing exercises, exercises on the ball, massage, baths and vertical positions to control pain. Also they reported satisfaction with their birthing experience. Women who did not participate in systematic educational activities referred to difficulties in maintaining control during labor and almost half of them reported lack of control. Also they were more likely to report dissatisfaction with labor.

**Conclusion:** Women who participated in the BPP reported self-control during labor and used non-pharmacological techniques to control pain and facilitate labor and expressed satisfaction with the birthing experience.


Comprehensive prenatal education on infant feeding is recommended by many United States health organizations because of the need to maximize maternal preparedness for managing lactation physiology. Ready, Set, BABY (RSB) is a curriculum developed for counseling women about breastfeeding benefits and management including education on optimal maternity care practices. We hypothesized that RSB would be acceptable to mothers and that mothers’ strength of breastfeeding intentions would increase, and their comfort with the idea of formula feeding would decrease after educational counseling using the materials. We also hypothesized that mothers’ knowledge of optimal maternity care practices would increase after participation.
Materials were sent to a total of seven sites in the United States and Puerto Rico. Local health care practitioners completed training before counseling mothers with the curriculum. A pre- and postintervention questionnaire was administered to participants. Statistical analysis of results included paired t tests, Wilcoxon signed-rank tests, and McNemar’s tests.

Four hundred and sixteen expectant women participated. In the pre- and postintervention comparison, maternal participation in RSB significantly improved Infant Feeding Intentions Scale scores (P < 0.001) and knowledge of Baby-Friendly recommended maternity care practices (P < 0.001), while significantly decreasing comfort with the idea of formula feeding (P < 0.001). The education materials were positively rated by participants.

**Conclusion:** The findings indicate that the approach of using RSB in prenatal counseling group classes or individual sessions improves breastfeeding intentions. Future testing is needed to determine the effectiveness of the materials for impacting breastfeeding outcomes.


The objective of this study was to examine the effects of antenatal education on fear of childbirth, maternal self-efficacy, and maternal and paternal attachment using a quasi-experimental study, comparing an antenatal education group and a control group (63 women total).

Measurements included demographic data forms, the Wijma Delivery Expectancy/Experience Questionnaire, the Childbirth Self-Efficacy Inventory, the Maternal Attachment Inventory and the Postnatal Paternal-Infant Attachment Questionnaire were used for data collection.

**Conclusion:** Antenatal education was found to reduce the fear of childbirth and to increase childbirth-related maternal self-efficacy. However, antenatal education was found to have no effect on parental attachment.

The purpose of this study was to explore reasons why nulliparous women chose to have an elective labor induction and to identify the influence of prepared childbirth classes on their decision. The study included 1,349 nulliparous women at term who participated in a survey regarding their choices for childbirth, their attendance at prepared childbirth classes, and their experience with labor and birth. Sixty-three percent of women who attended childbirth classes and did not have elective induction reported that classes provided helpful information to assist in their decision-making process.

**Conclusion:** Study results suggest attendance at prepared childbirth classes can be an effective source of information regarding elective labor induction and influential in women’s decisions regarding whether or not to have elective labor induction. Women perceive prepared childbirth classes positively and find the information provided valuable.


The objective of this review was to examine the effects of manual healing methods including massage and reflexology for pain management in labour on maternal and perinatal morbidity.

The authors searched randomised controlled trials comparing manual healing methods with standard care, no treatment, other non-pharmacological forms of pain management in labour or placebo. They included six trials, with data reporting on five trials and 326 women in the meta-analysis. They found trials for massage only. Less pain during labour was reported from massage compared with usual care during the first stage of labour (standardised mean difference (SMD) -0.82, 95% confidence interval (CI) -1.17 to -0.47), four trials, 225 women), and labour pain was reduced in one trial of massage compared with music (risk ratio (RR) 0.40, 95% CI 0.18 to 0.89, 101 women). One trial of massage compared with usual care found reduced anxiety during the first stage of labour (MD -16.27, 95% CI -27.03 to -5.51, 60 women). No trial was assessed as being at a low risk of bias for all quality domains.
**Conclusion:** Massage may have a role in reducing pain, and improving women’s emotional experience of labour. However, there is a need for further research.


A negative experience in childbirth is associated with chronic maternal morbidities. The aim of this systematic review and meta-analysis was to identify currently available successful interventions to create a positive perception of childbirth experience which can prevent psychological birth trauma.

Randomized controlled trials of interventions in pregnancy or labour which aimed to improve childbirth experience versus usual care were identified from 1994 to September 2016. Low risk pregnant or childbearing women were chosen as the study population. PEDRO scale and Cochrane risk of bias tool were used for quality assessment. Pooled effect estimates were calculated when more than two studies had similar intervention. If it was not possible to include a study in the meta-analysis, its data were summarized narratively.

After screening of 7832 titles/abstracts, 20 trials including 22,800 participants from 12 countries were included. Successful strategies to create a positive perception of childbirth experience were supporting women during birth (Risk Ratio = 1.35, 95% Confidence Interval: 1.07 to 1.71), intrapartum care with minimal intervention (Risk Ratio = 1.29, 95% Confidence Interval: 1.15 to 1.45) and birth preparedness and readiness for complications (Mean Difference = 3.27, 95% Confidence Interval: 0.66 to 5.88). Most of the relaxation and pain relief strategies were not successful to create a positive birth experience (Mean Difference = -2.64, 95% Confidence Interval: -6.80 to 1.52).

**Conclusion:** The most effective strategies to create a positive birth experience are supporting women during birth, intrapartum care with minimal intervention and birth
preparedness. This study might be helpful in clinical approaches and designing future studies about prevention of the negative and traumatic birth experiences.


Women of color in the United States, particularly in high-poverty neighborhoods, experience high rates of poor birth outcomes, including cesarean section, preterm birth, low birthweight, and infant mortality. Doula care has been linked to improvements in many perinatal outcomes, but women of color and low-income women often face barriers in accessing doula support.

To address this issue, the New York City Department of Health and Mental Hygiene’s Healthy Start Brooklyn introduced the By My Side Birth Support Program in 2010. The goal was to complement other maternal home-visiting programs by providing doula support during labor and birth, along with prenatal and postpartum visits. Between 2010 and 2015, 489 infants were born to women enrolled in the program.

Data indicate that By My Side is a promising model of support for Healthy Start projects nationwide. Compared to the project area, program participants had lower rates of preterm birth (6.3 vs. 12.4%, p < 0.001) and low birthweight (6.5 vs. 11.1%, p = 0.001); however, rates of cesarean birth did not differ significantly (33.5 vs. 36.9%, p = 0.122). Further research is needed to explore possible reasons for this finding, and to examine the influence of doula support on birth outcomes among populations with high rates of chronic disease and stressors such as poverty, racism, and exposure to violence. However, feedback from participants indicates that doula support is highly valued and helps give women a voice in consequential childbirth decisions.

**Conclusion:** Available evidence suggests that doula services may be an important component of an effort to address birth inequities.

The purpose of this study was to test an antenatal psycho-education intervention by midwives in reducing women’s childbirth fear. Women (n = 1,410) attending three hospitals in South East Queensland, Australia, were recruited into the BELIEF trial. Participants reporting high fear were randomly allocated to intervention (n = 170) or control (n = 169) groups. All women received a decision-aid booklet on childbirth choices. The telephone counseling intervention was offered at 24 and 34 weeks of pregnancy. The control group received usual care offered by public maternity services. Primary outcome was reduction in childbirth fear (WDEQ-A) from second trimester to 36 weeks’ gestation. Secondary outcomes were improved childbirth self-efficacy, and reduced decisional conflict and depressive symptoms. Demographic, obstetric & psychometric measures were administered at recruitment, and 36 weeks of pregnancy. There were significant differences between groups on postintervention scores for fear of birth (p < 0.001) and childbirth self-efficacy (p = 0.002). Decisional conflict and depressive symptoms reduced but were not significant.

**Conclusion:** Psycho-education by trained midwives was effective in reducing high childbirth fear levels and increasing childbirth confidence in pregnant women. Improving antenatal emotional well-being may have wider positive social and maternity care implications for optimal childbirth experiences.


The majority of women experience pain during labour and childbirth, however not all women experience it in the same way. In order to develop a more complete understanding of labour pain, this study aimed to examine women’s experiences within the perspective of modern pain science. A more complete understanding of this phenomenon can then guide the development of interventions to enhance women’s experiences and potentially reduce their need for pharmacological intervention.

A qualitative study was conducted using phenomenology as the theoretical framework. Data were collected from 21 nulliparous women, birthing at one of two
large maternity services, through face-to-face interviews and written questionnaires. Data were analysed using an Interpretative Phenomenological Analysis approach. The data from this study suggest that a determining factor of a woman’s experience of pain during labour is the meaning she ascribes to it. When women interpret the pain as productive and purposeful, it is associated with positive cognitions and emotions, and they are more likely to feel they can cope. Alternatively, when women interpret the pain as threatening, it is associated with negative cognitions and emotions and they tend to feel they need help from external methods of pain control. The social environment seems particularly important in shaping a woman’s pain experience by influencing her interpretation of the context of the pain, and in doing so can change its meaning. The context and social environment are dynamic and can also change throughout labour.

**Conclusion:** A determining factor in a woman’s experience of pain during labour is its perceived meaning which can then influence how the woman responds to the pain. The meaning of the pain is shaped by the social environment and other contextual factors within which it is experienced. Focussed promotion of labour pain as a productive and purposeful pain and efforts to empower women to utilise their inner capacity to cope, as well as careful attention to women’s cognitions and the social environment around them may improve women’s experiences of labour pain and decrease their need for pain interventions.


Rates of cesarean deliveries have been increasing, and contributes to the rising number of elective cesarean deliveries in subsequent pregnancies with associated maternal and neonatal risks. Multiple guidelines recommend that women be offered a trial of labor after a cesarean (TOLAC). The objective of the study is to systematically review the literature on adjunct clinical interventions that influence vaginal birth after cesarean (VBAC) rates. We searched Ovid Medline, Ovid Embase, Wiley Cochrane Library, CINAHL via EBSCOhost; and Ovid PsycINFO. Additional studies were identified by searching for clinical trial records, conference proceedings and dissertations. Limits were applied.
for language (English and French) and year of publication (1985 to present). Two reviewers independently screened comparative studies (randomized or non-randomized controlled trials, and observational designs) according to a priori eligibility criteria: women with prior cesarean sections; any adjunct clinical intervention or exposure intended to increase the VBAC rate; any comparator; and, outcomes reporting changes in TOLAC or VBAC rates. One reviewer extracted data and a second reviewer verified for accuracy. Two reviewers independently conducted methodological quality assessments using the Mixed Methods Appraisal Tool (MMAT).

Twenty-three studies of overall moderate to good methodological quality examined adjunct clinical interventions affecting TOLAC and/or VBAC rates: system-level interventions (three studies), provider-level interventions (three studies), guidelines or information for providers (seven studies), provider characteristics (four studies), and patient-level interventions (six studies). Provider-level interventions (opinion leader education, laborist, and obstetrician second opinion for cesarean sections) and provider characteristics (midwifery antenatal care, physicians on night float call schedules, and deliveries by family physicians) were associated with increased rates of VBAC. Few studies employing heterogeneous designs, sample sizes, interventions and comparators limited confidence in the effects. Studies of system-level and patient-level interventions, and guidelines/information for providers reported mixed findings.

**Conclusion:** Limited evidence indicates some provider-level interventions and provider characteristics may increase rates of attempted and successful TOLACs and/or VBACs, whereas other adjunct clinical interventions such as system-level interventions, patient-level interventions, and guidelines/information for healthcare providers show mixed findings.

**RESEARCH INSTRUMENTS:**


Qualitative systematic reviews or qualitative evidence syntheses (QES) are increasingly recognised as a way to enhance the value of systematic reviews (SRs) of
clinical trials. They can explain the mechanisms by which interventions, evaluated within trials, might achieve their effect. They can investigate differences in effects between different population groups. They can identify which outcomes are most important to patients, carers, health professionals and other stakeholders. QES can explore the impact of acceptance, feasibility, meaningfulness and implementation-related factors within a real world setting and thus contribute to the design and further refinement of future interventions. To produce valid, reliable and meaningful QES requires systematic identification of relevant qualitative evidence. Although the methodologies of QES, including methods for information retrieval, are well-documented, little empirical evidence exists to inform their conduct and reporting. This structured methodological overview examines papers on searching for qualitative research identified from the Cochrane Qualitative and Implementation Methods Group Methodology Register and from citation searches of 15 key papers. A single reviewer reviewed 1299 references. Papers reporting methodological guidance, use of innovative methodologies or empirical studies of retrieval methods were categorised under eight topical headings: overviews and methodological guidance, sampling, sources, structured questions, search procedures, search strategies and filters, supplementary strategies and standards.

**Conclusion:** *This structured overview presents a contemporaneous view of information retrieval for qualitative research and identifies a future research agenda. This review concludes that poor empirical evidence underpins current information practice in information retrieval of qualitative research. A trend towards improved transparency of search methods and further evaluation of key search procedures offers the prospect of rapid development of search methods.*


Due to its potential impact on women’s psychological health, assessing perceptions of their childbirth experience is important. The aim of this study was to develop a multidimensional self-reporting questionnaire to evaluate the childbirth experience. Factors influencing the childbirth experience were identified from a literature review and the results of a previous qualitative study. A total of 25 items were combined
from existing instruments or were created de novo. A draft version was pilot tested for face validity with 30 women and submitted for evaluation of its construct validity to 477 primiparous women at one-month post-partum. The recruitment took place in two obstetric clinics from Swiss and French university hospitals. To evaluate the content validity, we compared item responses to general childbirth experience assessments on a numeric, 0 to 10 rating scale. We dichotomized two group assessment scores: “0 to 7” and “8 to 10”. We performed an exploratory factor analysis to identify underlying dimensions.

In total, 291 women completed the questionnaire (response rate = 61%). The responses to 22 items were statistically significant between the 0 to 7 and 8 to 10 groups for the general childbirth experience assessments. An exploratory factor analysis yielded four sub-scales, which were labelled “relationship with staff” (4 items), “emotional status” (3 items), “first moments with the new born,” (3 items) and “feelings at one month postpartum” (3 items). All 4 scales had satisfactory internal consistency levels (alpha coefficients from 0.70 to 0.85). The full 25-item version can be used to analyse each item by itself, and the short 4-dimension version can be scored to summarize the general assessment of the childbirth experience.

**Conclusion:** The Questionnaire for Assessing the Childbirth Experience (QACE) could be useful as a screening instrument to identify women with negative childbirth experiences. It can be used as both a research instrument in its short version and a questionnaire for use in clinical practice in its full version.


This study sought to develop a short birth satisfaction indicator utilising items from the Birth Satisfaction Scale-Revised (BSS-R) for use as a brief measure of birth satisfaction and as a possible key performance indicator for perinatal service delivery evaluation.

Building on the recently developed BSS-R, the study aimed to develop a simplified version of the instrument to assess birth satisfaction easily that could work as a short evaluative measure of clinical service delivery for labour and birth that is consistent with policy documents, placing women at the centre of the birth experience.
The six item Birth Satisfaction Scale- Revised Indicator (BSS-RI) was embedded within the 2014 National Maternity Survey for England. A random selection of mothers who had given birth in a two week period in England were surveyed three months after the birth. Using a two-stage design and split-half dataset, exploratory factor analysis, confirmatory factor analysis, internal consistency, convergent, divergent and known-groups discriminant validity evaluation were conducted in a secondary analysis of the survey data.

Using this large population based survey of recent mothers the short revised measure was found to comprise two distinct domains of birth satisfaction, ‘stress and emotional response to labour and birth’ and ‘quality of care’. The psychometric qualities of the tool were robust as were the indices of validity and reliability evaluated.

**Conclusion:** The BSS-RI represents a short easily administered and scored measure of women’s satisfaction with care and the experience of labour and birth. The instrument is potentially useful for researchers, service evaluation and policy makers.


The objective was to develop a conceptual framework and preliminary item bank for childbirth-specific patient-reported outcome (PRO) domains. Data sources: Women, who were U.S. residents, ≥18 years old, and ≥20 weeks pregnant, were surveyed regarding their childbirth values and preferences (V&P) using online panels. Using community-based research techniques and Patient-Reported Outcomes Management Information System (PROMIS®) methodology, we conducted a comprehensive literature review to identify self-reported survey items regarding patient-reported V&P and childbirth experiences and outcomes (PROs). The V&P/PRO domains were validated by focus groups. We conducted a cross-sectional observational study and fitted a multivariable logistic regression model to each V&P item to describe “who” wanted each item.

We identified 5,880 V&P/PRO items that mapped to 19 domains and 58 subdomains. We present results for the 2,250 survey respondents who anticipated a vaginal
delivery in a hospital. Wide variation existed regarding each V&P item, and personal characteristics, such as maternal confidence and ability to cope well with pain, were frequent predictors in the models. The resulting preliminary item bank consisted of 60 key personal characteristics and 63 V&P/PROs.

**Conclusion:** The conceptual framework and preliminary (PROMIS) item bank presented here provide a foundation for the development of childbirth-specific V&P/PROs.


Women’s childbirth experience can have immediate as well as long-term positive or negative effects on their life, well-being and health. When evaluating and drawing conclusions from research results, women’s experiences of childbirth should be one aspect to consider. Researchers and clinicians need help in finding and selecting the most suitable instrument for their purpose. The aim of this study was therefore to systematically identify and present validated instruments measuring women’s childbirth experience.

A systematic review was conducted in January 2016 with a comprehensive search in the bibliographic databases PubMed, CINAHL, Scopus, The Cochrane Library and PsycINFO. Included instruments measured women’s childbirth experiences. Papers were assessed independently by two reviewers for inclusion, and quality assessment of included instruments was made by two reviewers independently and in pairs using Terwee et al’s criteria for evaluation of psychometric properties.

In total 5189 citations were screened, of which 5106 were excluded by title and abstract. Eighty-three full-text papers were reviewed, and 37 papers were excluded, resulting in 46 included papers representing 36 instruments. These instruments demonstrated a wide range in purpose and content as well as in the quality of psychometric properties.

**Conclusion:** *This systematic review provides an overview of existing instruments measuring women’s childbirth experiences and can support researchers to identify appropriate instruments to be used, and maybe adapted, in their specific contexts.*
and research purpose.


The causal inference framework and related methods have emerged as vital within epidemiology. This framework and associated analytic approaches facilitate the conduct of valid science using observational data. These approaches have helped catalyze knowledge development using existing data and also have addressed questions for which randomized controlled trials are neither feasible nor ethical. The study of normal childbearing processes and women who are medically low risk may benefit from more direct and deliberate engagement with the process of inferring causes and the use of methods appropriate for this undertaking. This article is the second in a series of 3 that review scientific challenges encountered in researching pregnancy, labor, and birth and approaches for addressing them. This article introduces 2 methods for causal inference (g-computation and instrumental variable analysis) to an audience of clinician-scientists, including references with further details. The causal inference framework and associated methods hold promise for generating strong, broadly representative, and actionable science to improve the outcomes of women who are medically low risk and their children.


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The objective of this study was to develop and validate a new instrument that assesses women’s autonomy and role in decision making during maternity care. Through a community-based participatory research process, service users designed, content validated, and administered a cross-sectional quantitative survey, including 31 items on the experience of decision-making. Pregnancy experiences (n = 2514) were reported by 1672 women who saw a single type of primary maternity care provider in British Columbia. They described care by a midwife, family physician or
obstetrician during 1, 2 or 3 maternity care cycles. Psychometric testing was conducted in three separate samples.

The Mothers’ Autonomy in Decision Making (MADM) scale measures a single construct: autonomy in decision-making during maternity care. Cronbach alphas for the scale exceeded 0.90 for all samples and all provider groups. All item-to-total correlations were replicable across three samples and exceeded 0.7. Eigenvalue and scree plots exhibited a clear 90-degree angle, and factor analysis generated a one factor scale. MADM median scores were highest among women who were cared for by midwives, and 10 or more points lower for those who saw physicians. Increased time for prenatal appointments was associated with higher scale scores, and there were significant differences between providers with respect to average time spent in prenatal appointments. Midwifery care was associated with higher MADM scores, even during short prenatal appointments (<15 minutes). Among women who preferred to lead decisions around their care (90.8%), and who were dissatisfied with their experience of decision making, MADM scores were very low (median 14). Women with physician carers were consistently more likely to report dissatisfaction with their involvement in decision making.

**Conclusion:** The MADM scale reflects person-driven priorities, and reliably assesses interactions with maternity providers related to a person’s ability to lead decision-making over the course of maternity care.

**Description of Future Research**


This article describes an RCT comparing the effects of Mindfulness-Based Childbirth and Parenting (MBCP) to Fear of Childbirth Consultation (FoCC) on an array of childbirth and early parenting outcomes in pregnant women with a high level of Fear of Childbirth (FoC) and their partners. This study will provide greater insight into the psychological processes underlying the occurrence, development and responses to
FoC. Given the high prevalence and severe negative impact of FoC for pregnant women and their infants, this study can be of major importance if statistically and clinically meaningful benefits are found. Addressing the problem of FoC is critical and the proposed study evaluates an innovative MBCP that holds the potential of being an effective, non-invasive, and non-medical intervention for pregnant women with FoC, with the potential for widespread dissemination that builds on the popularity of Mindfulness-Based Practices (MBPs). The authors expect a potentially stronger effect of MBCP than FoCC on adaptation to the perinatal period, and a decrease in not-urgent medical interventions during childbirth. A reduction in unnecessary medical interventions has the potential to reduce or redirect the costs of midwifery care towards a more preventive approach for women and their partners in the perinatal period.

**COMMENTARY**

www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32394-8/fulltext#articleInformation


**RECOMMENDATIONS**

World Health Organization (2018). WHO recommendations non-clinical interventions to reduce unnecessary cesarean sections. License CC-BY-SA 3.0 IGO