Research overview: self-efficacy – a key construct for antenatal education

Virginia Campbell, a development tutor for NCT’s yoga for pregnancy training programme, is currently conducting a grounded theory study into the effects of yoga on women’s ability to manage the sensations of labour and birth. Here she explores the literature on self-efficacy theory.

Introduction
In 1977, Albert Bandura, a Canadian psychologist working in the area of social behaviour and learning, introduced the concept of self-efficacy. Self-efficacy theory attempts to explain how a person’s belief in their ability to succeed affects their behaviour. In the four decades since Bandura’s seminal work was published, many other researchers have used and developed his theory, and the concepts have been tested and validated in experimental studies.

This article explores the potential to increase the positive outcomes of antenatal education programmes by using self-efficacy theory and evidence. Literature was sourced using the term ‘self-efficacy’ with assistance from MIDIRS and NCT librarians who searched the Maternity and Infant Care and NCT databases. References from studies found which had not been previously identified were followed up.

What is self-efficacy?
Self-efficacy theory postulates that beliefs and expectations are crucial in human behaviour. Bandura showed there are two important factors which increase the likelihood that people will instigate and then persist with the behaviours needed to achieve their goals. He defined them as self-efficacy expectancy and outcome expectancy.

Self-efficacy expectancy is the belief that one will be able to perform a certain task. For example:

- I will be able to relax during labour
- I will be able to position my baby correctly at the breast
- I will be able to remain calm when my baby is crying.

Outcome expectancy is the belief that performing certain behaviours will achieve the desired outcome:

- If I relax during labour it will be less painful
- If I position my baby correctly at the breast I will be more likely to breastfeed my baby successfully for as long as I would like to
- If I remain calm when my baby is crying I am more likely to be the parent I would like to be.

Studies have shown that people with higher self-efficacy beliefs put more energy into mastering the behaviour which will enable them to achieve their goals and persist longer with that behaviour than those with lower self-efficacy beliefs. Those with lower self-efficacy beliefs spend more time worrying, persist for less time in behaviours which might enable them to succeed, and are more vulnerable to stress and depression.

How does self-efficacy theory relate to childbirth?
An example of using self-efficacy theory in childbirth is that women who believe they will be able to use breathing techniques in labour, and that those techniques will help them, are more likely to persist in learning them and use them effectively. The theory suggests that women with higher self-efficacy beliefs in their ability to manage labour are more likely to use a larger number of pain management strategies, and persist with them for longer, than women with lower self-efficacy beliefs. This would lead in turn to fewer interventions and better postnatal outcomes for women and their families.

Women’s previous birth experiences affect their sense of self-efficacy, which can then influence their future birth preferences. Birth experiences which are perceived negatively have been shown to reduce self-efficacy beliefs, and positive birth experiences to increase them. In a study of 74 American women, Dilks and Beal found that those choosing elective caesarean after previous caesarean had lower self-efficacy beliefs than either first-time mothers or women choosing vaginal birth after caesarean. They suggested that in subsequent pregnancies, women who had had a previous caesarean should attend antenatal classes incorporating self-efficacy enhancing techniques, concluding ‘A woman must have the opportunity to learn that these behaviours will help lead to the desired outcome of a vaginal birth and that she is capable of mastering them’.

How can self-efficacy beliefs be increased?
Bandura identified four principal ways in which self-efficacy beliefs can be increased: 1. These are by performance accomplishments, vicarious experience, verbal persuasion and understanding of physiological states. Using this framework, American researcher Nancy Lowe proposed ways in which women’s belief in their ability to manage the sensations of labour can be increased:

1. Performance accomplishments: through successful coping experiences such as past childbirth or previous experience with pain;
2. Vicarious experience: by observing successful coping by others, such as watching a birth or film;
3. Verbal persuasion: being encouraged by influential others, such as childbirth educators;
4. Physiological states: learning to recognise and reduce reactions, such as panic, in response to the anticipation or experience of a stressful event. A sense of anxiety has been shown to be associated with reduced self-efficacy.

Research suggests that in the case of birth, previous performance accomplishment, i.e. a previous positive experience of vaginal birth, is the most important factor in a woman’s belief in her ability to manage a future labour.

Since its development for use with phobia patients, self-efficacy theory has been applied in many other areas of health and education, including weight management, smoking cessation, and the promotion of academic success, parenting skills and...
How are self-efficacy beliefs assessed?

In 1981 Jerusalem and Schwarzer developed a General Self-Efficacy scale to measure an individual’s sense of personal agency, i.e. the belief that one’s actions are responsible for successful outcomes. This included nine self-scoring items such as ‘I can usually handle whatever comes my way’. In 2002, a meta-analysis by Scholz et al examined the General Self-Efficacy scale, to see whether the measure works consistently in different languages and cultural settings. The findings, based on studies from 25 different countries, confirm that there is a consistent underlying construct representing an optimistic sense of personal competence...accounting for motivation and accomplishments.

Over time, as more research has been carried out, specialised self-efficacy scales have been developed for particular areas of study, enabling greater consistency and comparability between studies. For example, there is now an established Breastfeeding Self-Efficacy Scale, a 33-item scale measuring items such as ‘Recognise the signs of a good latch’, and ‘Position my baby correctly at my breast’, and also a Parenting Self-Efficacy Scale.

In early studies on childbirth self-efficacy, the General Self-Efficacy scale was used in combination with various other inventories assessing pain, confidence, anxiety, stress, helplessness and locus of control.

Nancy Lowe created the Childbirth Self-Efficacy Inventory (CBSEI) in 1993. This is a 16-item scale where women self-evaluate firstly their confidence in performing behaviours such as ‘Think positively’ and ‘Using breathing’, and secondly their belief that the behaviours will be effective during labour. This was the culmination of several developmental studies exploring labour pain and its relation to confidence and coping mechanisms.

The CBSEI has been translated into many different languages and validated internationally. An interesting finding from these later studies is that cultural and religious beliefs, which were not part of the original CBSEI, play an important part in women’s self-efficacy beliefs.

An ongoing discussion around the validity of the CBSEI questions its measurement of purely cognitive pain management techniques (counting, visualising, affirmations etc). Drummond and Rickwood suggested adding behavioural techniques (showering, swaying, vocalising etc) and Beebe et al found that all the women in their study used both cognitive and behavioural strategies, employing an average 17 different strategies. The CBSEI has not been amended to incorporate behavioural strategies but researchers such as Beebe have used additional tools to measure behavioural strategies in labour.

Do higher self-efficacy beliefs affect childbirth experience?

Despite some interesting and promising studies, research on self-efficacy theory and childbirth is still limited and so far there has been no meta-analysis of studies. However, most research has found that self-efficacy beliefs are positively correlated with use of coping behaviours and appears to support the idea that higher self-efficacy beliefs correlate positively with:

- increased confidence and lower anxiety for labour and birth
- increased birth experience satisfaction
- lower labour pain perception.

Early American research on women’s ability to manage labour pain, including a longitudinal study with 280 primiparous women, showed that up to half the variance in perceived labour pain could be explained by a mother’s confidence in her ability to cope. Lowe also reported that maternal self-efficacy assessed in late pregnancy was associated with lower perceived pain intensity during labour.

One study found that women with higher self-efficacy beliefs interpreted pain as less intense and distressing.

More recent studies have presented a mixed and more complex picture. A small study of 35 American women found no relationship between self-efficacy beliefs and pain in early labour or control of labour pain without medication. However, a recent longitudinal study of 230 women from New Zealand found stronger self-efficacy beliefs predicted reduced perception of pain in labour and higher birth satisfaction. Interestingly, this study found no correlation between self-efficacy beliefs and women’s ability to manage labour pain without analgesia. However, it did find that women with higher self-efficacy beliefs interpreted pain as less intense and distressing than those with lower self-efficacy beliefs, even after pain medication use was controlled for, leading them to conclude that women with lower self-efficacy beliefs tend to find labour more painful regardless of analgesia. This might explain a 2003 study which demonstrated that low self-efficacy beliefs were one of the significant predictors of postnatal post-traumatic stress disorder symptoms.

Can childbirth education affect self-efficacy beliefs?

The Cochrane review of antenatal education for childbirth or parenthood included nine trials involving 2,284 women, none of which included self-efficacy as an outcome measure. The review found insufficient evidence to determine the effects of antenatal education for childbirth or parenthood, as studies were generally small to medium sized, varied in design and used a range of different outcome measures. The review is currently being updated.

There is some evidence from other kinds of studies to support the hypothesis that antenatal education can increase self-efficacy beliefs. Manning and Wright in an early study designed to increase self-efficacy through a childbirth preparation course in America, gathered data on self-efficacy expectancies in 52 first-time mothers in three phases. Their results showed that self-efficacy expectancies affected behaviour in labour, as women with higher self-efficacy beliefs not only persisted longer without medication, but also used less analgesia overall.

Crowe and von Baeyer reported similar findings from their Canadian study with 30 women which examined a number of variables including childbirth knowledge, fears, locus of control, anxiety, expectation of pain and confidence in pain controlling ability. The results showed those who demonstrated higher confidence after antenatal classes reported a less painful birth.

Sieber et al showed that self-efficacy scores increased after antenatal classes. However, as there was no control group with this study of 61 low-risk Swiss women, it was impossible to attribute this to class attendance.

One study with 146 Spanish women found knowledge to be the most influential factor in explaining self-efficacy beliefs, accounting for 12% variance in comparison with previous birth experience which accounted for only 4% variance.

Ip et al carried out a randomised controlled trial (RCT) in 133 low-risk Chinese primiparas on a two-session education intervention designed to increase self-efficacy for childbirth. This was published after the 2007 Cochrane review, so not included. They measured self-efficacy, pain, anxiety...
and performance behaviours, and found that women in the experimental group who received the educational programme demonstrated higher levels of self-efficacy for childbirth, lower perceived anxiety and greater performance of coping behaviour during childbirth. However, only a low percentage of eligible women completed the trial, and only that group had their data included in the analysis, which weakens the quality of the study. This highlights the challenges when conducting antenatal education RCTs with pregnant women. Firstly, many do not want to be randomised to antenatal education programmes; they understandably prefer to choose their birth preparation. Secondly, it is almost impossible for the intervention to be ‘blind’.

Discussion

Many women find labour intensely painful. Antenatal education which includes preparing women for the strong sensations of labour involves consideration of psychological processes, yet the field of antenatal education has evolved with little reference to advances within psychology which attempt to explain how psychological factors influence experiences of anxiety and pain. Self-efficacy theory may be useful for childbirth educators, as it considers how individual teaching strategies map onto current and potential course content. The kinds of preparation which self-efficacy theory suggests will be effective are all essential elements of NCT’s Signature antenatal courses, which are usually run over several weeks and have a substantial focus on labour and birth, in which preparation skills can be practised regularly, and positively reinforced by repetition and the teacher’s continuing affirmations. In addition, the theory’s emphasis on the importance of prior experiences (performance accomplishment) will match the experience of many childbirth educators who work with both first- and second-time mothers.

Pain in labour is affected by many physical, social and emotional factors, many of which are not under the woman’s control. Antenatal educators will recognise the tension between encouragement or persuasion which builds women’s confidence and ‘setting women up to fail’. Bandura says: ‘It is more difficult to instil high beliefs of personal efficacy by social persuasion alone than to undermine it. Unrealistic boosts in efficacy are quickly disconfirmed by disappointing results of one’s efforts.’

There is a need for more primary research studies, including RCTs, on ‘non-drug interventions for pain management’ and on antenatal education designed to enhance self-efficacy and increase women’s positive experiences of childbirth.

What does this mean for antenatal educators?

Self-efficacy theory suggests that antenatal educators may be able to help women who would like a normal labour by facilitating an increase in their self-efficacy beliefs. It also suggests that antenatal preparation would need to facilitate an increase both in a woman’s confidence in the efficacy of coping strategies and in her ability to perform them, since women consistently believe more in the effectiveness of coping behaviours than in their ability to perform them successfully in labour. "Using Bandura’s theoretical principles, many self-efficacy-enhancing techniques can be included in an antenatal course in order to help women become more confident in their ability to use pain-managing strategies:

Performance accomplishments

- Build in regular practice of both cognitive (visualising, focusing, distraction) and behavioural (positions, massage, movement) pain-coping strategies.
- Ensure women have had enough practice to feel confident in a variety of breathing techniques, such as counting, SOS, visualising, vocalising, controlling.
- Encourage women to practice pain-managing techniques at home.

Vicarious experience

- Show or recommend video clips of other women managing labour successfully with the use of coping behaviours.
- Tell positive birth stories where women have used pain-managing strategies to overcome challenging situations.
- Discuss successful coping experiences with previous pain situations and suggest practising with any current pain experiences.
- Invite previous course attendees who found the birth preparation helpful to visit the class and describe how they used it during labour.
- Invite women who used both non-pharmacological and pharmacological pain relief to demonstrate how self-efficacy enhancing techniques are useful in different kinds of labour and can enhance experiences of women, however their labour develops.

Verbal persuasion

- Make positive statements (‘women’s bodies are designed to give birth’ etc).
- Encourage women to explore and choose their own helpful affirmations (‘I can do this’, ‘just one more contraction’).
- Teach birth partners how to encourage the birthing woman sensitively and appropriately.

Physiological states

- Teach, and encourage regular practice of, relaxation techniques and positive imagery.
- Help parents acquire calming skills by using relevant imaginary situations.
- Raise awareness about how stress and adrenaline levels can be mitigated by relaxation, loving touch and oxytocin-producing behaviours.
- Emphasise the value of a calm environment and positive language.
- Explore ways in which stress responses, such as rising heart rate, are often interpreted as precursors to failure, which undermines self-efficacy and impairs performance, and ways to reverse these responses.

Techniques such as yoga and self-hypnosis, which work at both a cognitive and a behavioural level, are consistent with elements of antenatal preparation that self-efficacy theory suggests will be effective.
relieving pain, so antenatal education was not included. However, it should be noted that educational programmes to enhance self-efficacy are highly relevant as a ‘non-drug intervention’ and would potentially show benefits in terms of sense of control in labour, being low-cost and facilitating breastfeeding.

NCT’s course objectives are so closely aligned with self-efficacy theory that it would be worth all antenatal educators being familiar with the relevant literature and reviewing their course content with the aim of increasing their client’s self-efficacy beliefs using Bandura’s four principal methods.

References