

# *A Different Way of Being*

The Influence of a Single Antenatal Relaxation Class on Maternal  
Psychological Wellbeing and Childbirth Experience  
An Exploratory Sequential Mix-Method Study

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## Abstract

**Background:** Perinatal mental health problems are prevalent, have a wide range of adverse effects on the mother and her child, and are predictors of negative childbirth experiences. Therefore, improving perinatal mental health is a global public health priority and developing services that could promote it must be a priority for maternity services. There is growing evidence that antenatal education incorporating hypnosis or guided imagery techniques may have the potential to promote perinatal mental health and positive childbirth experiences. However, high-quality research in the field is lacking.

**Aim and objectives:** This study aimed to explore the influence of a single 3- hour Antenatal Relaxation Class (ARC), incorporating theory on childbirth physiology, hypnosis and guided imagery, on maternal psychological wellbeing and childbirth experiences. The objectives of the study were to: a) identify the aspects of maternal psychological wellbeing and childbirth experiences that may be influenced by ARC, b) understand ‘why’ and ‘how’ any influence may occur, c) identify the factors that may mitigate the influence of ARC during labour and birth, and d) test the significance of any influence over time.

**Methods:** The study took an exploratory sequential mixed-method approach. In the initial qualitative phase, a purposive sample of 17 women and 9 birth partners participated in either individual (8 women) or joint (9 women and their birth partners) semi-structured in-depth interviews. The data were analysed using descriptive qualitative and reflexive thematic analysis. The follow up quantitative phase was a prospective longitudinal cohort study that used surveys to further examine childbirth experiences and measure psychological wellbeing in a sample of 91 women at three time points: pre-class, post-class, and post-birth.

**Findings:** Attending ARC was associated with increased childbirth self-efficacy, reduced fear of childbirth and state and trait anxiety, as well as improved mental wellbeing. These changes were significant and lasted over time, until after the birth. Attitudes towards childbirth changed after attendance at ARC, which motivated wide use of relaxation techniques as a self-care behaviour during pregnancy, labour, birth and beyond. Use of relaxation techniques was perceived to positively influence women’s childbirth experiences and choices including a decline in choice of epidural use for labour pain. The efficacy of the learned techniques in the management of labour pain, however, depended on the ‘birth space’ which encompassed the physical environment, interactions with birth attendants and the clinical picture of the experience.

**Conclusion:** Incorporating theory on childbirth physiology, hypnosis and guided imagery in childbirth education can enhance perinatal psychological wellbeing and childbirth experiences. Providing relevant education for birth practitioners may contribute to a salutogenic model of childbirth care in which practitioners can facilitate childbirth education as well as a birth space that is conducive to experiencing an altered state of consciousness as a health promoting state.

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## **Glossary**

**ARC:** Antenatal Relaxation Class, a single 3-hour class incorporated in the present study

**ARE:** Antenatal Relaxation Education, in this thesis applies to any antenatal education programme that incorporates guided imagery/visualisation and/or hypnosis.

**ANOVA:** Analysis of Variance

**ASC:** Altered State of Consciousness

**CBSEI:** Childbirth Self-Efficacy Inventory

**Childbirth:** In this text the term is considered as a continuum including pregnancy, labour, and birth

**FOC:** Fear of Childbirth

**GP:** General Practitioner

**Hypnosis:** A state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion

**Imagery/visualisation:** A technique of focusing the mind on a pleasant image using different senses

**IOL:** Induction of Labour

**M:** Mean

**NCT:** National Childbirth Trust

**NHS:** National Health Service

**NICE:** National Institute for Health and Care Excellence

**NRES:** National Research Ethics Service

**No:** Number

**PIS:** Participant Information Sheet

**RCT:** Randomised Control Trial

**SD:** Standard Deviation

**SE:** Self-Efficacy

**SPSS:** Statistical Package for the Social Sciences

**SVB:** Spontaneous Vaginal Birth

**TA:** Thematic Analysis

**UK:** United Kingdom

**US:** United States

**WEMWBS:** Warwick-Edinburgh Mental Well-being Scale

**WHO:** World Health Organisation

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## **Introductory Section**

This section presents the theoretical context and the structure of this thesis with a brief description of each chapter.

### **Theoretical context of the research**

This thesis presents a research project that was designed to explore the influence of a single antenatal relaxation class on maternal psychological wellbeing and childbirth experiences, in the context of a Scottish NHS Health Board.

### **Thesis structure**

The thesis includes nine chapters as outlined below.

**Chapter 1** introduces the research topic and overall research aim and sets the scene for the study. The historical and theoretical background of the research topic as well as relevant national and international guidelines and policy documents are discussed. Further, the social and medical context in which research was undertaken is described to provide a fuller picture of the context of the study.

**Chapter 2** provides a review of the pertinent empirical literature. The chapter concludes by outlining the identified gaps in knowledge which led to the formulation of the research questions and choice of methodology.

**Chapter 3** presents the methodological approaches and design for the study and the rationale for selecting them. An exploratory sequential mixed method design was selected to explore the phenomena in question in the initial qualitative phase (Phase 1), prior to further testing of the findings' validity in a follow up quantitative phase (Phase 2).

**Chapter 4** covers the methods used within the qualitative phase and the justification for selecting these methods. In addition, the chapter discusses the pertinent ethical issues.

**Chapter 5** presents the findings of the qualitative phase (Phase 1).

**Chapter 6** explains how Phase 2 hypotheses and research questions were generated based on Phase 1 findings. This chapter also describes the research methods used within the quantitative phase of the study and the rationale for selecting these methods. The chapter concludes by discussing the relevant ethical considerations.

**Chapter 7** presents the findings of the quantitative phase (Phase 2).

**Chapter 8** draws together and interprets the main findings of Phases 1 and 2, in the context of the wider theoretical, empirical, and philosophical literature. The strengths and limitations of the study are discussed, and the final conclusions of the whole research are presented. The chapter concludes with recommendations for education, practice, policy, and future research.

**Chapter 9** includes the researcher's reflection on the research process.

# Chapter 1 Introduction & Setting the Scene

This chapter will introduce the topic of antenatal education involving relaxation practices in relation to maternal mental health. A background to the topic and rationale for the current study is provided before presenting the research aim. Next, the terms used in the thesis are defined, prior to setting the scene for the study.

## **1.1 Background and rationale for the study**

Perinatal<sup>1</sup> mental health refers to mental health in the period spanning pregnancy, childbirth, and the first postnatal year (NICE, 2020). It has been reported that approximately one in five women<sup>2</sup> experience perinatal mental health problems in the UK (Bauer et al., 2014; Department of Health, 2011; NICE, 2020) and worldwide (WHO, 2008). Further, the current COVID-19 pandemic, as a significant source of stress, has been suggested to potentially have superimposing effects on already prevalent perinatal mental health problems (Caparros-Gonzalez & Alderdice, 2020). A reciprocal relationship between perinatal mental health and childbirth experience has been demonstrated in the literature. Whilst antenatal mental health problems are associated with negative childbirth experience (Alder et al. 2011; Havizari et al. 2021), negative experience of childbirth is understood to lead to a variety of postnatal mental health problems (Bell & Andersson, 2016). In addition, maternal mental health problems are suggested to have a wide range of adverse effects on the mother, her child, and family (Howard et al., 2014). In the UK, maternal suicide remains the leading cause of direct deaths occurring within the first year after childbirth (Knight et al., 2021). In addition, maternal mental health problems including anxiety and stress are known to be associated with an increased risk of obstetric complications such as placental abruption, premature labour, low Apgar score and low birth weight (Alder et al., 2007; Cohen &

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<sup>1</sup> The terms 'perinatal' and 'maternal' have been used interchangeably in this thesis.

<sup>2</sup> Using a gender-inclusive language in perinatal related texts is of paramount importance. However, as in the current study none of the participants identified themselves otherwise, the terms 'woman' and 'women' have been used throughout the thesis.

Nonaes, 2005; Ding et al., 2014; Grigoriadis et al., 2018) as well as longer-term adverse outcomes for the offspring, including emotional, behavioural and cognitive outcomes (Luoma et al., 2001; O'Connor et al., 2002; Ramchandani et al., 2008), later psychiatric disorders, and chronic physical ill-health (Kenny et al., 2014; WHO, 2008). Furthermore, there is a significant financial burden attached to perinatal mental ill health for society. It is estimated the long-term costs, for every one-year cohort of births in England, is £1.2 billion to health and social services and £8.1 billion to society (National Collaborating Centre for Mental Health, 2018).

Considering the scale and gravity of the problem, improving perinatal mental health is a global public health priority (McDougall et al., 2016; WHO, 2015). Having access to services for early diagnosis and treatment for those affected by perinatal mental health problems is of paramount importance (National Collaborating Centre for Mental Health, 2018). Developing preventative interventions that can target the general population of pregnant women and promote their mental wellbeing must also be a priority for maternity services (NHS Education for Scotland, 2019; Public Health England, 2019; WHO, 2008). Such interventions have the potential to improve childbirth experience and outcomes for the woman, minimise the negative impact on the unborn child (National Collaborating Centre for Mental Health, 2018), and reduce the financial burden on health services and society. Nevertheless, little research exists about the effectiveness of interventions for the treatment of perinatal mental disorders (Howard et al., 2014), and even less on the effectiveness of preventative interventions.

There is growing evidence that Antenatal Relaxation Education<sup>3</sup> (ARE), incorporating guided imagery and/or hypnosis, may have the potential to promote perinatal mental

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<sup>3</sup> **ARE:** Antenatal Relaxation Education, in this thesis applies to any antenatal education programme that incorporates guided imagery/visualisation and/or hypnosis.



health by reducing maternal fear, anxiety, and stress (Alis & Rathfisch, 2018; Beevi et al., 2016; Downe et al., 2015; Flynn et al., 2016; Hosseini et al., 2018; Isbir et al., 2016; Jallo et al., 2014; Kordi et al., 2014; Werner et al., 2013b). whilst positively influencing childbirth experience (Abbasi et al., 2009; Werner et al., 2013b).

Despite the existence of some evidence on the positive influence of ARE on perinatal mental health and childbirth experience, there is still much that is unknown. Especially, there is a lack of evidence in the context of the UK NHS services. Exploring this topic is important to gain an in-depth understanding of the influence of ARE and the processes involved, particularly from the perspectives of the service recipients. This understanding can then inform the development of effective health-promoting and preventative educational interventions that are more likely to be successfully implemented in the context of NHS maternity services and alike. An established initiative in NHS Grampian (a Scottish NHS Health Board), offering a single three-hour antenatal relaxation class (ARC) provided the opportunity for conducting the current study.

## **1.2 Research aim**

The study aimed to explore the influence of a one-off, three-hour session incorporating education on physiology of childbirth, guided imagery and hypnosis on maternal psychological wellbeing and childbirth experience.

## **1.3 Defining the terms**

The thesis is presented in a traditional format and written in the third person, with the doctoral student being referred to as 'the researcher' throughout. The focus of the thesis is on the influence of ARE on maternal/perinatal psychological wellbeing and childbirth experience. To narrow down the focus of the study and ensure its relevance to the content of the educational session examined in this research, 'ARE' is defined as

antenatal education that comprises guided imagery and/or hypnosis. The term ‘ARC’ refers to a single three-hour antenatal relaxation class that its influence was explored in the present study. The term ‘*relaxation techniques*’ refers to breathing techniques combined with guided imagery and/or hypnosis, and ‘*childbirth*’ refers to childbirth as a continuum encompassing pregnancy, intrapartum and postpartum periods. The phrase “*psychological wellbeing*” is used to describe a woman’s emotional health and overall functioning (Huppert, 2009).

#### **1.4 Setting the scene**

In this section, the theoretical literature pertaining to the physiology of stress and relaxation is presented prior to discussing the use of relaxation techniques in childbirth. Finally, the development and implementation of a single Antenatal Relaxation Class (ARC) as an initiative in an NHS Health Board in Scotland is described, along with the researcher’s involvement in this initiative.

##### **1.4.1 Physiology of stress and relaxation**

In 1915, Walter B. Cannon, the Harvard physiologist described “the fight-or-flight response” or “stress response” (SR) for the first time, which was revolutionary (McCarty, 2016). The SR has evolved as a survival mechanism that enables humans and other mammals to react quickly to life-threatening situations, by fighting or fleeing to safety. The response comprises a sequence of carefully orchestrated yet near-instantaneous hormonal and physiological changes (Harvard, 2018; Benson & Klipper, 1975). When confronting danger, the senses such as visual or auditory send the information to the amygdala, known as the fear centre (McEwen & Gianaros, 2010), an area of the brain that contributes to emotional processing. The amygdala interprets the received information and when it perceives danger, it instantly sends a distress signal to the hypothalamus. The hypothalamus as the command centre, communicates with the

rest of the body through the autonomic nervous system. The autonomic nervous system has two components, the sympathetic nervous system, and the parasympathetic nervous system. After the amygdala sends a distress signal, the hypothalamus activates the sympathetic nervous system by sending signals to the adrenal glands (McEwen & Gianaros, 2010). These glands respond by releasing the hormones adrenaline and nor-adrenalin into the bloodstream to increase heart rate, breathing rate, blood pressure, metabolic rate, and blood flow to large skeletal muscles. As the initial surge of epinephrine subsides, the hypothalamus activates the second component of the stress response system, known as the HPA axis (Everly & Lating, 2019). This network consists of the hypothalamus, the pituitary gland, and the adrenal glands. If the threat or danger continues, the HPA axis activity results in the release of cortisol from the adrenal glands to keep the body on high alert (Guilliams & Edwards, 2010). When the threat passes, cortisol levels fall. The parasympathetic nervous system then dampens the stress response. However, chronic activations of the SR, associated with perceived stress, can lead to a broad range of problems including impaired mental health (Russell & Lightman, 2019).

Nearly sixty years after the discovery of the “stress response” by Cannon, Herbert Benson, a cardiologist at Harvard Medical School, coined the term “Relaxation Response” (RR) in 1975. The RR is the biological polar opposite of the SR. He argued that the body is also capable of inducing a ‘*physiologic state of quietude*’ (Benson & Klipper, 1975, p. xvii). As discussed previously, the second component of the autonomic nervous system is the parasympathetic nervous system, which is responsible for the “Relaxation Response” (Benson & Klipper, 1975; Benson & Procto, 2011). Benson and Klipper (1975) proposed that regular elucidation of the Relaxation Response results in a dramatic decrease in heart rate, breathing rate, blood pressure (if elevated) and metabolic rate, preventing and compensating for the untoward

consequences of high stress. The RR is associated with a drop in oxygen consumption and a marked decrease in arterial blood lactate, a substance produced by the metabolism of skeletal muscles which is purported to be associated with anxiety (Dusek et al., 2008). There is some evidence that regular activation of the RR may provoke changes in expression of specific genes associated with health benefits in both short-term and long-term practitioners of relaxation techniques (Dusek et al., 2008). Triggering the RR can create an altered state of consciousness and changes in brain activity recorded on electroencephalogram, increasing alpha waves. Alpha waves that represent non-arousal, are slower and higher in amplitude as opposed to beta waves that represent arousal and are characteristics of a strongly engaged mind (Mankar et al., 2014). The RR can be evoked with a number of activities including relaxation practices, which aim at mental focusing ((Dusek et al., 2008). A deliberate mental focus on the breath, bodily sensations or pre-selected pleasant images in the relaxation techniques is perceived to interrupt the stress-provoking thought processes, leading to benefits of better mental and physical health (Benson & Proctor, 2011). A range of techniques such as hypnosis, progressive relaxation, and meditation, despite their apparent diversity, share the common underlying set of physiologic changes that comprise the relaxation response (Benson, 1989).

Edmond Jacobson (1899-1983) was highly influential in establishing a framework of therapeutic relaxation as a skill that could be learned, cultivated, and applied to prevent or alleviate tension linked to the strains of modern life (Nathoo, 2016). Jacobson (1934) claimed; *“It is physically impossible to be nervous (or tense) in any part of your body, if in that part you are completely relaxed”* (p. 43). He suggested thoughts and emotions cause muscle tension and that physically relaxing would alleviate both emotional and bodily tension. Practice of hypnosis is another approach to activation of the RR. Hypnosis is defined as a *“state of consciousness involving focused attention and*

*reduced peripheral awareness characterized by an enhanced capacity for response to suggestion*” (Elkins et al., 2015 p. 6). Hypnosis is considered as a useful complementary therapy which is based on psychotherapeutic techniques (Efremov, 2020) and is used for a range of therapeutic purposes and in childbirth. Similarly, guided imagery/visualisation by focusing the mind on a pleasant image using different senses is another relaxation method used for various reasons such as patients with chronic pain (Mecus et al., 2015) or to improve athletes’ performance, pain management, endurance, and self-confidence (Eddy & Mellalieu, 2003; Predoiu et al., 2020; Thelwell & Greenless, 2003). Deep breathing is a fundamental technique incorporated in various relaxation methods (Hayama & Inoue, 2012) such as visualisation and hypnosis, although it is also considered as a relaxation technique on its own. Improvement in mood and stress using deep breathing technique is supported by previous research (Perciavalle et al., 2017).

#### **1.4.2 Use of relaxation techniques in childbirth**

Similar to Jacobson, Grantly Dick-Read (1890-1959), a British obstetrician proposed that emotions such as fear, and anxiety create a state of physical tension in the body. He theorised that fear by causing tension and rigidity in the lower segment and outlet of the uterus during labour increases labour pain (Dick-Read, 1933; 2004). This is known as the theory of Fear -Tension-Pain cycle. Dick-Read (2004) suggested that if the anxiety could be reduced through education, birth could become a less painful, more positive, and healthy experience. During 1930s, he developed and introduced breathing techniques to prepare women for labour (Rankin et al., 2000).

Dick-Read (2004) suggested that relaxation is a way to break the Fear-Tension-Pain cycle. Nonetheless, Dick-Read’s theory was not widely accepted or applied in childbirth practices by his fellow obstetricians. In fact, he was side-lined by his professional

colleagues and never granted membership of the Royal College of Obstetricians and Gynaecologists (Thomas, 1997). Despite this, he gained widespread recognition by the National Childbirth Trust (NCT) (Thomas, 1997), a UK parent charity that provides antenatal and early parenthood education for prospective parents that was originally set up in 1956 by a network of laywomen and chaired by Dick-Read (Kitzinger, 1990). In line with Dick-Read's philosophy, the teaching of breathing and relaxation exercises in the antenatal period was a central component of NCT antenatal courses (Nathoo, 2016). Although Dick-Read stressed that his work was not related to hypnosis, others viewed the combination of relaxation exercises and suggestions as modifications of hypnotic techniques (Reid & Cohen, 1950). Indeed, the development of the Hypnobirthing method by Marie Mongan in the 1980s was inspired by Dick-Read's work (Mongan, 1998; 2005; 2016), although Bonica and Medonald (1990) suggest the origin of using hypnosis for childbirth could be traced to ancient Egyptian and Chinese societies. Hypnobirthing focuses on teaching the skills of deep relaxation, visualisation, and self-hypnosis (Varner, 2015). The major tenet of the Hypnobirthing philosophy is "*the belief that every woman has within her the power to call upon her natural maternal instinct to birth in joy and comfort in a manner that most mirrors nature*" (Mongan, 2005, p. 6).

Recent evidence suggests relaxation techniques such as self-hypnosis and visualisation techniques for childbirth are increasing in popularity across the world and in Britain. In national surveys 34% of women respondents using maternity services in England reported using techniques such as hypnosis and breathing during childbirth (Care Quality Commission, 2019). Similarly, a survey of 2400 women in the US revealed 25% of them had used techniques such as relaxation, visualisation, and hypnosis in labour (Declercq et al., 2013).

In the UK, ARE is mostly provided by the private sector in the form of popular Hypnobirthing courses (Gavin-Jones & Handford, 2016). These courses vary in length (with the shortest ones being six hours) and are delivered to expectant parents in one to one private or group sessions by trained Hypnobirthing teachers some of whom are health professionals. Despite recommendations being made in national and international guidelines and policies on supporting women to access relaxation techniques during labour (Bonanpace et al., 2018; NICE, 2017; Scottish Government, 2017; WHO, 2018), they lack direction on how, when and where women should acquire these skills. As such, education on the use of relaxation techniques is not usually offered as part of mainstream antenatal education in most NHS trusts or Health Boards in the UK and many other health services across the world. This limits the access to such education especially for those who cannot afford private Hypnobirthing courses.

Moreover, international guidelines as well as national guidelines and maternity policy documents appear to consider relaxation techniques mainly as a pain management option (NICE, 2017; Scottish Government, 2017; WHO, 2018) and the potential influence of relaxation practices on perinatal mental health remains unrecognised in such documents. It is well documented that perinatal stress presents a significant health issue (Department of Health, 2011; England N.H.S, 2016; WHO, 2008) and that the persistent high levels of stress hormones during pregnancy have detrimental effects not only on maternal health but on the offspring (Kenny et al., 2014). Studies suggest the practice of relaxation techniques (by activating the RR as the biological opposite of the SR) may protect the woman against high stress levels (Dusek et al., 2008), and its detrimental effects. Experiencing high stress levels during labour and birth is understood to be associated with negative childbirth experience and compromised mental health postnatally (Havizari et al., 2021). Hence, equipping women with

relaxation techniques as a self-care method may positively influence the childbirth experience and maternal mental health throughout the childbirth continuum. However, high-quality research in this important area is lacking (Buckley, 2015).

#### **1.4.3 Antenatal Relaxation Class (ARC); a local initiative**

In 2011, a single session Antenatal Relaxation Class (ARC) was introduced in a specialist maternity hospital in the North-East of Scotland with a birth rate around 5000 per annum. The class was first established in response to the increasing number of women seeking medical interventions such as elective caesarean section in the absence of clinical indicators, due to fear of childbirth. Over time, the popularity of ARC increased mainly through word of mouth and the class evolved into a one-off, three-hour session. Although attendance of women expressing anxiety or apprehension of childbirth is actively encouraged by their maternity care providers, the class is available to all women and their birth partners. The number of women attending ARC increased from approximately 70 in 2012 to around 800 women (per annum) in 2019. Most women who attend, are in third trimester of pregnancy. Midwives trained in relaxation techniques deliver the class to a maximum of 16 participants in each session. The length of the class was informed by the available resources, previous participants' feedback and evidence from previous research that demonstrated having two or three shorter sessions led to higher attrition rates in attendance (Cyna et al., 2013; Downe et al., 2015) and limited the intended effect of the class (Moore et al., 2015). It is important to note that ARC is not a part of routine antenatal classes and is supplementary to them. The content of ARC is underpinned by theoretical and empirical literature as well as the feedback collected from participants and practitioners through the service evaluation processes (Stevenson and Tabib 2021; Tabib, 2016; Tabib and Crowther, 2018). The class is guided by self-efficacy theory presented by Bandura (1977; 2010). Childbirth self-efficacy is defined as the belief in one's own capacity to cope with childbirth



(Lowe, 1993; 2000). Four origins for self-efficacy are suggested including (a) performance of accomplishments, (b) vicarious experiences (c) verbal persuasion, and (d) physiological/emotional status (Bandura, 1977; 2012). ARC aims to enable the participants to develop self-care behaviours through enhancing these four origins by:

- a) practising techniques of relaxation using different exercises,
- b) educating participants on the physiology of childbirth and positive birth stories,
- c) using empowering language, affirmations, and analogies,
- d) exploring physiological and emotional reactions to the performed exercises.

The class content has been described in more details in Appendix 1. The class and provided resources are free of charge for participants. Based on previous cost analysis studies on classes of a similar length and taught by midwives (Downe et al., 2015), ARC has an estimated cost of approximately £5.00 per participant to the NIIS.

Extra caution has been taken to standardise the class and achieve high consistency levels for ARC. Use of the standardised PowerPoint slides, relaxation scripts, videos for home practice and a handout aims to ensure a high-fidelity level. During the data collection time, ARC was facilitated by two midwives.

ARC was delivered as a face-to-face class in a conference room at the hospital between 2011 and 2020 and grew in popularity from around 60 participants per annum in 2011 to nearly 800 in 2019. A service evaluation report of the service (Tabib and Crowther 2018) was published in 2018 which is presented in Appendix 2. ARC was discontinued in March 2020 due to the Covid-19 pandemic and resumed as an online class in January 2021. Online ARC had the exact same format and contents as the face-to-face classes and was delivered via Cisco (<https://www.vc.scot.nhs.uk>), an online platform approved by NHS Grampian.

#### **1.4.3.1 Education for midwives facilitating ARC**

Between 2014 to 2019, over 90 midwives in NHS Grampian received training on the application of relaxation techniques in their practice (Tabib, 2016). The course for midwives included eight hours of face-to-face classes comprising four two-hour sessions delivered over a course of six to eight weeks to allow practice in between sessions. Some of these midwives received further training and supervision in order to deliver ARC. They were supervised for some classes to the point that the supervisor and the midwives themselves felt they were able to deliver the class competently.

#### **1.4.4 The researcher's background**

This section is part of a reflective approach to the research and intends to introduce the researcher's background particularly in relation to the research topic area. The researcher is a midwife with a background of working in different fields of maternity care as a community, hospital, independent, and research midwife, and since 2013 as a midwifery academic. Her interest in the topic, initially stemmed from her experience of implementing the principles of relaxation techniques in her personal life. This led to the idea of embedding such an approach in her midwifery practice, in clinical environments of midwifery-led and obstetric-led units, where she provided intrapartum care at the time. After undertaking relevant training, she became involved in childbirth education programmes. In 2013, she worked collaboratively with a colleague to design and facilitate antenatal relaxation classes in NHS Grampian, a Scottish NHS Health Board. Later, she provided training on relaxation techniques for other midwives. The training is now included in midwifery undergraduate curriculum at Robert Gordon University (Tabib, 2015). She facilitated ARC from 2013 to 2016, when the classes were handed over to other midwives trained in relaxation techniques. Her observations of women's

behaviour whilst providing intrapartum care, conversations with expectant parents during and after the relaxation classes, and birth stories shared by class attendees and birth practitioners led to further interest in the research topic. The researcher's professional experience of the phenomenon was the major drive for undertaking this research in the form of a doctoral study. It is important to highlight that during the current study she was not involved in the maternity care of the study participants or responsible for delivery of ARC.

### **1.5 Summary**

This chapter described the background and rationale for the topic along with research aim. It explained the physiology of stress and relaxation in relation to relaxation practices in childbirth, particularly in the context of the UK. The Antenatal Relaxation Class (ARC) utilised in this study was then introduced and the researcher's background including her affiliation with ARC was clarified. This chapter sets the scene for the following chapter which will present a review of the empirical literature in the field.

# Chapter 2 Literature Review

This chapter describes the process and findings of a review of the literature and a critique of the studies included. Finally, the rationale for undertaking the current study and selection of the research objectives is presented.

## **2.1 Formulation of the literature review questions**

As recommended by Gould (2008), a preliminary search of the literature was carried out (in February 2016) to identify the range of empirical literature on the topic, clarify the focus of the review questions and refine the search strategies, inclusion and exclusion criteria. Google Scholar and the literature databases CINAHL and PubMed were used for this search, using the key search terms of relaxation, hypnosis, visualisation, and childbirth. This initial search revealed that the majority of research in the field focused primarily on the effect of ARE<sup>4</sup> as a pain management method, although some studies attended to the self-reported psychological parameters and subjective childbirth experience in relation to ARE.

Drawing on the findings of this initial exploration of literature and the theoretical literature discussed in Chapter 1, a theoretical framework (as shown in Figure 2.1) was formulated, which helped clarifying the focus of review questions.

This theoretical framework suggests attending ARE, by equipping women with the skills to evoke the Relaxation Response (RR) (Benson, 1975), reduces stress related emotions in pregnancy, increases a woman's ability to cope with labour pain (based on fear-tension-pain theory suggested by Dick-Read (2004)) and therefore may reduce the possibility of choosing an epidural for labour pain. Epidural anaesthesia is understood to interfere with the physiological processes of childbirth and increase the occurrence of unexpected medical interventions (Anim-Somuah et al., 2011; Dahlen et al., 2013; Green & Baston, 2007; King, 1997), which are associated with negative childbirth

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<sup>4</sup> **ARE:** Antenatal Relaxation Education, in this thesis applies to any antenatal education programme that incorporates guided imagery/visualisation and/or hypnosis.

experience and compromised postnatal mental health (Fontein-Kuipers et al., 2018; Henriksen et al., 2017; Hosseini Tabaghdehi et al., 2020; Koster, et al., 2020). Hence, if by attending ARE epidural use and the occurrence of subsequent complications is reduced, ARE may positively influence childbirth experiences and postnatal mental health.



**Figure 2.1** Theoretical framework

Although not explicit in all studies, the theories included in this framework seem to have underpinned the majority of the research in the field. ‘Maternal psychological wellbeing (antenatally and postnatally)’, ‘subjective experience of labour and birth’, and ‘epidural use in childbirth’ were deemed to be relevant to this framework and informed the focus of the review questions.

Therefore, whilst the overarching aim of the literature review was to explore the existing empirical evidence regarding the ‘*influence of ARE*’ (antenatal education incorporating visualisation and/or hypnosis) on ‘*the outcomes relevant to maternal psychological wellbeing and childbirth experience*’, the literature review questions were formulated as:

1. What influence does attendance at ARE have on maternal psychological wellbeing?
2. What influence does attendance at ARE have on women’s subjective expectations/experiences of labour and birth?

### 3. What influence does attendance at ARE have on epidural use for childbirth?

#### **2.2 Literature review approach**

The review questions were broad as they aimed to explore the breadth of the literature, map and summarise the evidence and identify the knowledge gaps. As such a scoping review with narrative synthesis was considered to be the most appropriate approach (Arksey & O'Malley, 2005; Peters et al., 2020; Popay et al., 2006). Considering the breadth of the review questions, a scoping review allowed a more holistic and multidimensional view (Jesson et al., 2011), as opposed to a systematic review that is suitable for a focused question such as examining a particular intervention on a specific outcome measure (Peters et al., 2020). The scoping review process was guided by the scoping review framework (Arksey & O'Malley, 2005) and the enhancement proposed by Peters et al. (2020), and followed a systematic order informed by PRISMA-ScR (Scoping Review) checklist (Tricco et al., 2018).

#### **2.3 Selecting the inclusion and exclusion criteria**

Inclusion and exclusion criteria were developed using the PCC (Population, Concept, Context) acronym and in view of the types of previous studies in the field. The PCC acronym is used in scoping reviews as opposed to the PICO acronym (Population, Intervention, Comparison/Design and Outcomes (Richardson et al., 1995)) used in systematic reviews (Munn et al., 2018). For the present review, PCC were identified as follows:

##### *i. PCC*

###### *Participants*

The target population in this scoping review is the general population of women with low-risk pregnancy with no restriction on age ranges or parity.

### *Concept*

The review included all studies that employed hypnosis-based or/and guided imagery-based education and examined the effect of these interventions on maternal psychological wellbeing or/and subjective labour/birth experience, or/and the use of epidural for childbirth. If the antenatal education did not include guided imagery or hypnosis, the studies were excluded. In addition, the studies that had examined the effect of ARE on outcome measures irrelevant to the review questions were excluded. For example, studies examining the effect of ARE on hyperemesis gravidarum, termination of pregnancy, or pre-term labour were excluded.

### *Context*

This scoping review considered studies in which the integrated education was implemented during the antenatal period. All health care settings possible for maternity care and all geographical and cultural contexts were included. If the education was delivered during the postnatal period, the studies were excluded. The PCC for the present study is shown in Table 2.1.

**Table 2.1 PCC**

P (Population)	C (Concept)	C (Context)
Pregnant women with low-risk pregnancy	Influence of ARE (including <b>GI/hypnosis</b> ) on: <ol style="list-style-type: none"><li>Aspects of maternal <b>psychological wellbeing</b></li><li>Subjective <b>experience of labour/birth</b>.</li><li><b>Epidural use</b> and associated medical interventions.</li></ol>	ARE delivered during pregnancy in health care settings possible for maternity care and all geographical and cultural contexts in time span of 2000–2022.



## *ii. Types of previous studies in the field*

To capture the contemporary published and unpublished empirical research and to ensure inclusion of the prominent work undertaken in the field, studies conducted from January 2000 to March 2022 were included. No exclusion criteria were applied regarding the design employed in the selected studies as the review intended to achieve a multi-dimensional view using methodological triangulation (Coughlan et al., 2013). Therefore, all empirical research studies with a range of designs including qualitative, quantitative, and mixed methods were considered. Due to the inherent time and resource limits of a doctoral study, the studies were included only if the full article was available in English. Both primary and secondary empirical studies including systematic, meta-analysis and integrative reviews were included. The inclusion of secondary sources aimed to present the developing overview of the knowledge in the field over time. To narrow down the search and avoid generating an overwhelming amount of information, case study reports, study protocols, narrative reviews, instruction papers for practitioners, anecdotal informational and opinion-based articles were excluded from the review. The studies that did not examine the outcomes relevant to the review questions were excluded. Literature on the history of using relaxation in childbirth, theoretical literature, relevant national and international guidelines, and policy documents were excluded as they were discussed in Chapter 1. The use of critical appraisal tools for reporting the risk of bias is not generally recommended in scoping reviews, as the aim is to summarise the existing knowledge and identify gaps as opposed to drawing strong conclusions (Peters et al. 2020). However, as all included sources were empirical research, the relevant criteria of the pertinent CASP (Critical Appraisal Skills Programme) checklists were used for each study. This allowed assessing trustworthiness of the included studies and informed discussion on the

studies' strengths and limitations. A list of inclusion and exclusion criteria is provided in Table 2.2.

**Table 2.2** The inclusion and exclusion criteria for the studies

The studies were included if:
<ul style="list-style-type: none"> <li>○ Empirical research conducted between January 2000- March 2022</li> <li>○ Employed hypnosis-based or/and visualisation/guided imagery-based education</li> <li>○ The education was delivered during pregnancy</li> <li>○ Had any research design (except case study reports)</li> <li>○ Were primary and secondary research</li> <li>○ Full article was available in English</li> <li>○ Evaluated aspects of psychological wellbeing or subjective labour/birth experience or epidural use</li> <li>○ From all health care settings</li> <li>○ From all geographical and cultural contexts</li> <li>○ Published and unpublished (including MSc dissertations and PhD theses)</li> </ul>
The studies were excluded if:
<ul style="list-style-type: none"> <li>○ Conducted out with the selected time span</li> <li>○ Employed education that did not include hypnosis or guided imagery</li> <li>○ The education was delivered postnatally</li> <li>○ The full article was not available in English</li> <li>○ Case study reports</li> <li>○ Study protocols</li> <li>○ Anecdotal informational papers</li> <li>○ Narrative reviews</li> <li>○ Instruction papers for practitioners</li> <li>○ Opinion-based articles</li> <li>○ The literature on the history of using relaxation in childbirth</li> <li>○ Theoretical literature</li> <li>○ Guidelines and policy documents</li> <li>○ Assessed the outcomes that were not relevant to aspects of psychological wellbeing or subjective labour:birth experience or epidural use (e.g., the effect of ARE on hyperemesis gravidarum, termination of pregnancy, or pre-term labour)</li> </ul>

## **2.4 Literature search and screening methods**

As recommended by JBI methods (Peters et al., 2020), a three-step search strategy was utilized. First, the online databases including CINHAL, PubMed, AMED, MEDLINE, EMBASE, NHS Scotland knowledge network, The Cochrane Library, and ISI Web of Science were searched to identify research articles published in English. This initial search was followed by an analysis of the text words contained in the title and abstract of retrieved papers, and of the index terms used to describe the articles. A second search using all identified keywords was then undertaken across the included databases.

Thirdly, the reference lists of identified articles were hand searched to find additional sources. To ensure the most recent research was identified, monthly email alerts from CINAHAL, AMED, MEDLINE, and Google scholar were set up using Zetoc. Moreover, Midwifery journals such as MIDIRS, Women and Birth, and Midwifery were hand searched. In addition, British Library EThOS was searched to identify relevant unpublished doctoral theses. The search for the review took place in November 2019, and a further check in March 2022 identified six new studies published since the literature review was performed. The findings of these papers were included in the review. When information in the retrieved studies was unclear, the lead author was contacted for additional methodological information, although only a few responses were obtained. As recommended by McGowan (2016), designing, and refining the search had the input of a librarian to ensure accurate steps were taken. The key search terms using Boolean operators 'AND' and 'OR' and truncations (of asterisk) were used in the following combination: (antenatal OR pregnan\* OR prenatal OR childbirth) AND (imagery OR guided imagery OR visul?ation OR hypnosis OR hypnosos OR hypnotism OR hypnotherap\*). After setting the time (Jan 2000- Nov 2019) and language filters the initial search yielded a total of 875 studies. After reading the titles and abstracts, irrelevant studies were excluded, and duplicates were removed. The

remaining 362 papers combined with the studies identified from hand searching of the reference lists and journals constituted 444 studies that were examined against the inclusion and exclusion criteria. After removing the duplicates and studies that did not meet the inclusion criteria, 40 studies were included. No relevant unpublished paper was found in British Library EThOS. The study selection process is presented in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram (Page et al., 2020) in Figure 2.2.

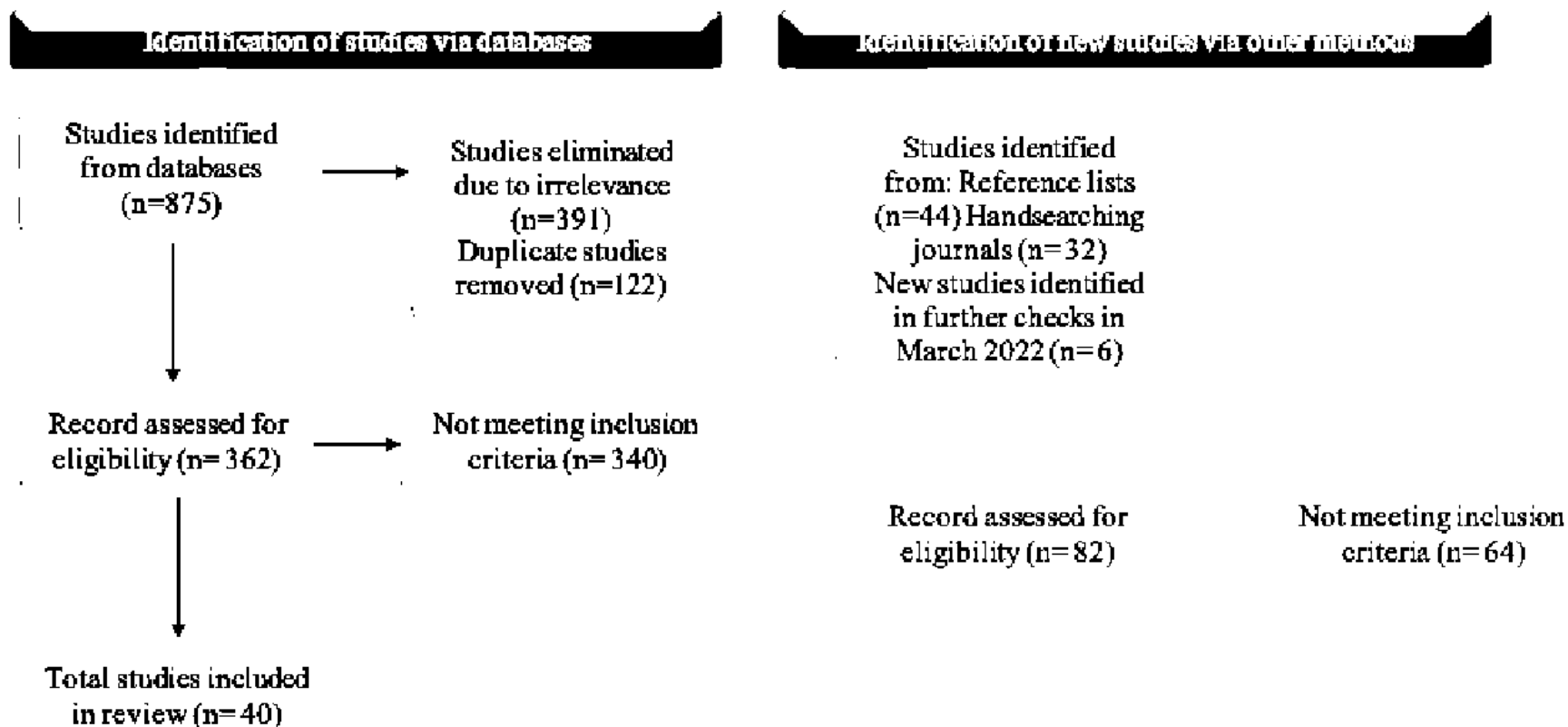


Figure 2.2. PRISMA Flow Diagram (Page et al., 2020)

## **2.5 Data analysis**

The way data is analysed in scoping reviews is largely dependent on the purpose of the review. The aim of the review was not only to summarise the evidence and provide an overview of what is known about the topic, but also to generate a new perspective by re-viewing the topic from a specific angle. Therefore, a narrative synthesis approach was adopted as an appropriate method for the review. The framework for narrative synthesis (Popay et al., 2006) was used as a systematic and trustworthy means of organising, describing, and interpreting the findings. The framework provides 19 tools and techniques that could be flexibly used based on the data that is being handled (Coughlan et al., 2013). The initial steps were to develop a theory of how and why ARE may work (Figure 2.1), and to develop a primary synthesis using tabulation (Table I, Appendix 3), where the extracted data could be organised, and textual descriptions could be added. Following this, the studies were grouped based on the outcomes they had addressed (Table II, Appendix 3), this allowed a comparison between the studies, finding commonalities and controversies within and across studies, identifying gaps and drawing conclusions for each outcome. Qualitative and quantitative data were triangulated, and comparisons were made between the two datasets. When presenting the findings, some of the outcomes that were perceived as closely related (e.g., sense of control during labour and childbirth experience) were merged (Table III, Appendix 3). The final element of narrative synthesis, as suggested by Popay et al. (2006), was to critically reflect on the review.

## 2.6 Findings

The review included data for 4646 women who had taken part in the included primary research studies. The included 40 papers comprised 7 secondary and 33 primary research papers (Table IV, Appendix 3). The primary research included 27 quantitative, 5 qualitative and 1 mixed-methods study. The included studies had a range of designs. The numbers of the studies with each design are presented in Table 2.3.

**Table 2.3** Designs of the studies included in the review

Primary research (33)	Quantitative (27)	Randomised Control Trials (15) Quasi-experimental (7) Pre, and post-test design (2) Cohort (1) Case control (1) Retrospective comparative (1)
	Mixed methods (1)	Convergent (1)
	Qualitative (5)	Descriptive phenomenology (2) Narrative (1) Qualitative (2)
Secondary research (7)	Cochrane Systematic Reviews (3) Systematic Reviews (2) Systematic Review, meta-analysis (1) Integrated Systematic mixed methods Review (1)	

The primary data were collected in the following 12 countries: Australia, Denmark, Germany, Greece, Iran, Malaysia, Norway, South Africa, Switzerland, Turkey, the USA, and the UK. In primary research studies, 10 papers included Guided imagery (GI)/visualisation, 2 included both GI and hypnosis, and the remaining 21 studies included hypnosis-based interventions. All studies had included general population of pregnant women with a low-risk pregnancy, with some studies focusing on groups of adolescent women (Flynn et al., 2016; Martin et al., 2001), women with an unplanned

pregnancy (Kordi et al., 2016) or African American women (Jallo et al., 2014; 2015). The qualitative studies reported the experience of between 6 (Abbasi et al., 2009) and 36 women (Jallo et al., 2015) and quantitative studies had diverse sample sizes between 27 (Beevi et al., 2019) to 1222 (Werner et al., 2013a; b). In the following sections, the key findings regarding each review question are presented, before discussing the strengths and limitations across the included studies. Afterwards, a summary of key findings is discussed in relation to the suggested theoretical framework (Figure 2.1), prior to reflecting on the review and discussing the rationale for the current study and selecting the research objectives.

### **2.6.1 Key findings**

- i. What influence does attendance at ARE have on perinatal psychological wellbeing?*

Review of the literature, in relation to this question, identified a number of self-reported psychological parameters that have been investigated for being influenced by ARE. These parameters included anxiety, stress, fear of childbirth, depression, mental wellbeing, and childbirth self-confidence.

#### *Anxiety*

Anxiety is an emotion characterized by feelings of tension, worried thoughts and physical symptoms like increased blood pressure and rapid heartbeat (Kazdin, 2000). A systematic review published in 2011 by Marc et al. assessed the benefits of a range of mind-body interventions including **GI** for preventing or treating women's anxiety and concluded that imagery may have a positive effect on anxiety during labour and in the immediate postpartum period. However, the conclusion was made based on the findings of only two relatively small RCTs ( $n = 39$  and  $n = 133$ ) that were available at the time.



Following this review, four published trials found antenatal education incorporating GI had a reducing effect on anxiety during pregnancy (Jallo et al., 2014; Khojasteh et al., 2016; Kordi et al., 2016; Nasiri et al., 2018).

These trials were all relatively small ( $n = 66-75$ ) and used different tools including DASS-21<sup>5</sup>, STAI<sup>6</sup> and PAQ<sup>7</sup> for measuring anxiety levels during pregnancy. None of these studies followed women in postpartum period to explore if such an effect was stable until after birth.

A small ( $n = 55$ ) RCT found that attending **hypnosis** sessions significantly reduced anxiety levels during pregnancy (Beevi et al., 2016) and postnatally (Beevi et al., 2019) compared with baseline. The DASS-21 as a validated tool was used in this study.

However, a high attrition rate (from 55 to 27) limited the results validity. Compared with these small RCTs, Downe et al. (2015) undertook a well-designed, large RCT ( $n = 608$ ) that showed women who received hypnosis, experienced less anxiety during childbirth (as reported 2 weeks post birth) than they had expected at baseline and compared to the control group. It is worth noting that the anxiety levels were measured using STAI and only at baseline and postnatally, but not after the intervention during pregnancy. These studies collectively indicate the positive effect of ARE on maternal anxiety which is supported by the limited available qualitative studies. Qualitative data suggest women felt their anxiety levels were significantly reduced after attending hypnosis training (Abbasi et al., 2009) and they used the learned techniques to manage feelings of anxiety during labour (Finlayson et al., 2015).

In contrast, three RCTs conducted by Cyna et al. (2013), Gedde-Dahl and Fors (2012), and Urech et al. (2010) that had used STAI, VAS<sup>8</sup>, and STAI respectively, did not

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<sup>5</sup> Depression, Anxiety, Stress Scale 21

<sup>6</sup> State and Trait Anxiety Inventory (STAI)

<sup>7</sup> Pregnancy related Anxiety Questionnaire

<sup>8</sup> Visual Analog Scale

support the positive effect of ARE on maternal anxiety. Whilst Cyna et al. (2013) was a well-designed and large RCT ( $n = 448$ ), the other two studies (Gedde-Dahl & Fors, 2012; Urech et al., 2010) were small ( $n = 54$  and  $39$ ). These RCTs found no significant improvement in anxiety levels of the intervention groups during pregnancy, labour or postnatally. However, in Cyna et al. (2013) study, less than 50% of participants completed the three hours of hypnosis training, Gedde-Dahl and Fors (2012) did not offer any educational session and comprised of only GI CDs and a booklet, and Urech et al. (2010) included a 10-minute session of GI and a CD for home practice. Hence, it is plausible to suggest that the engagement level and length of intervention may have influenced the degree of effect. Overall, although the qualitative and majority of quantitative evidence suggests the positive effect of ARE on antenatal anxiety, the small size of the undertaken trials, limits drawing strong conclusions. In addition, a paucity of evidence on the effect of ARE on postnatal anxiety is evident. Longitudinal studies are needed to provide evidence on the effect of ARE on maternal anxiety both antenatally and postnatally.

### *Stress*

Lazarus and Folkman (1984) defined stress as resulting from an imbalance between perceived external or internal demands and the perceived personal and social resources to deal with them. It is plausible to theorise that learning to evoke the Relaxation Response at will (via ARE), may enhance the perceived personal resources and reduce stress. A phenomenological study undertaken by Jallo et al. (2015) that examined the effect of a 12-week GI programme as a stress management technique to African American women reported that the programme helped women feel relaxed, calm, and less stressed. In line with this, a statistically significant reduction in stress levels was

demonstrated during pregnancy after participating in GI programmes (Flynn et al., 2016; Jallo et al., 2014; Kantziari et al., 2019; Kordi et al., 2016; Nasiri et al., 2018), and **hypnosis** training (Beevi et al., 2016), despite utilising different tools for data collection including DASS-21, PSM<sup>9</sup>, NRSS<sup>10</sup> and PSQ<sup>11</sup>. These studies were all small trials ( $n = 35-72$ ), which limits drawing strong conclusions. Except for one small RCT ( $n = 27$ ) conducted by Beevi et al. (2019) which did not show the reducing effect of hypnosis on stress at 2 months post birth, there is a lack of evidence regarding the influence of ARE on postpartum stress.

### *Fear of Childbirth (FOC)*

Fear of childbirth is defined as “*a strong anxiety which impairs their (the women’s) daily functioning and wellbeing*” (Areskog et al., 1981, p. 265). The qualitative accounts of women on their experiences of using **hypnosis**, indicates this intervention may reduce fear of childbirth (Abbasi et al., 2009; Finlayson et al., 2015; Mitchell, 2013).

*“I remember being a lot more worried and then after those sessions [self-hypnosis], I wasn’t as worried. Afterwards it was completely different but definitely it changed my thoughts towards it, it made me more...I don’t know...I wasn’t scared”.* (Finlayson et al. 2015, p. 4)

In accord with the qualitative evidence, the measurement of FOC using W-DEQ<sup>12</sup> (versions A&B used in pregnancy and postnatally respectively) as a validated tool, demonstrates the efficacy of hypnosis-based interventions for decreasing FOC during and after pregnancy in four studies conducted in Turkey (Atis & Rathfisch, 2018, Bulez

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<sup>9</sup> Psychology Stress Measure 9

<sup>10</sup> Numeric Rating Scale of Stress

<sup>11</sup> Perceived Stress Scale

<sup>12</sup> Wijma- Delivery Expectancy/Experience Questionnaire. Version A and B measure childbirth expectations and experiences in pregnancy and post birth respectively.

et al., 2018; Çankaya & Şimşek, 2021; Isbir et al., 2016). These studies had sample sizes of 51-116, were all comparative studies, and employed 12-16 hours of hypnosis-based interventions. They also had a number of limitations, for instance Isbir et al. (2016) who conducted a quasi-experimental study lacked randomisation and allowed participants to choose their group, which may have introduced selection bias which is generally identified as a threat to external validity (Frey, 2018). In Atis and Rathfisch (2018) study, 47 (of the initial 116 participants) were excluded after randomisation due to undergoing caesarean section, induction of labour or not receiving intrapartum support from the researcher. This increased the risk of bias by impacting intention-to-treat analysis. Intention-to-treat analysis requires inclusion of all participants who are randomized and allows drawing accurate conclusions regarding the effectiveness of an intervention (McCoy, 2017).

An Iranian study (Boryri et al., 2019) found a similar effect for **GI**, using Brislin's questionnaire in a quasi-experimental study, and suggested FOC significantly reduced in the GI group during pregnancy, but not in the control group, however, the post birth levels of FOC were not measured. Two large RCTs (Downe et al., 2015; Werner et al., 2013b) examined FOC in the UK and Denmark respectively. Werner et al. (2013b) did not report the effect of hypnosis on antenatal FOC but reported lower mean score of postnatal FOC in the hypnosis group compared with the control groups (using W-DEQ B), but this was statistically significant only in women who had spontaneous vaginal births. Downe et al. (2015) found a significant reduction in the actual experienced fear in labour (as reported post birth) compared to the expected fear during childbirth (measured at baseline) only in the hypnosis group. However, the latter study did not use a validated tool and a question regarding fear was included in a questionnaire along with questions on another 14 outcomes. More recently, Hosseini et al. (2018) in their

systematic review included some of the aforementioned studies and concluded hypnosis may reduce FOC. This was similar to the conclusion made by another systematic review that both GI and hypnosis may have reducing effects on anxieties and fears during pregnancy and childbirth (Birner & Grosse, 2021). Nonetheless, a paucity of evidence on the influence of ARE on antenatal and postnatal FOC, particularly in the context of western countries is still apparent.

### *Depression*

Depression is a serious mood disorder and those who suffer from depression experience persistent feelings of sadness and hopelessness and lose interest in activities they once enjoyed (Regier et al., 2013). The influence of GI and hypnosis-based interventions in preventing depression did not attract much attention until 2011, when a systematic review undertaken by Mare et al. reported the potentially positive effect of imagery on depression in the immediate postpartum period. However, this conclusion was drawn on the results of only one small RCT ( $n = 30$ ). The lack of studies on the effect of hypnosis on depression was highlighted in another systematic review (Sado et al., 2012).

However, since then, several studies have examined this outcome with variable results. Effectiveness of antenatal **hypnosis** training for reducing post-partum depression was reported by a longitudinal experimental study (Guse et al., 2006) at 2 and 10 weeks postpartum, and by a small RCT (Beevi et al., 2019) at 2 months postpartum. Likewise, Kantziari et al. (2019) and Nasiri et al. (2018) found a positive effect of **GI** on depression syndrome during pregnancy. However, in addition to the small sample size of these studies ( $n = 27- 66$ ), the high attrition rates in some of them (Beevi et al., 2019; Kantziari et al., 2019) limited the validity of the findings (Creswell & Creswell, 2018). Other studies did not confirm a significant effect for antenatal education comprising GI

on depression syndrome during pregnancy (Kordi et al. 2016) or postnatally (Levett et al., 2016a). Similarly, Beevi et al. (2016) and Cyna et al. (2013) did not find such positive effect for **hypnosis** during pregnancy or postnatally respectively. Considering that all these studies used the well-validated tools of EPDS<sup>13</sup> or/and DASS-21, the inconsistent findings could be potentially due to heterogeneous intervention designs. The interventions across these studies varied from one 20-minute group session to several one-to-one sessions throughout pregnancy. Overall, examining the influence of ARE on alleviating depressive symptoms remains inconclusive and requires further research.

### *Mental wellbeing*

Maternal mental or psychological wellbeing refers to a childbearing woman's emotional health and overall functioning (Huppert, 2009) and it involves not only the absence of illness, but the strive to feel and function positively (Ryff & Keyes, 1995). A range of data collection tools have been used to assess the impact of GI and hypnosis-based interventions on overall perinatal mental wellbeing. For example, Guse et al. (2006) in a small RCT ( $n = 46$ ) evaluated the effect of six sessions of prenatal **hypnosis** on postnatal psychological wellbeing using subscales of 10 different validated questionnaires (details in Table I, Appendix 3). The study found a significant improvement in all variables at two weeks postnatal, and a significant decrease in symptoms related to general psychopathology at 10 weeks postnatal. Conversely, a large RCT by Downe et al. (2015) who incorporated questions regarding satisfaction with life and mental wellbeing in baseline and postpartum questionnaires did not find such an effect for a brief (2 x 90-minute sessions) hypnosis programme.

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<sup>13</sup> Edinburgh Postnatal Depression Scale

Boryri et al. (2019), on the other hand, used the Oxford Happiness Questionnaire to evaluate the effect of **GI** on antenatal mental wellbeing and reported a significant improvement in the intervention group, but not in the control group. A lack of consensus on a tool for measuring overall perinatal mental wellbeing, and therefore lack of sufficient evidence on this important psychological outcome, is evident across the literature. The existing qualitative research does not explicitly provide evidence on this outcome either. This calls for future research to investigate the influence of ARE on this outcome both antenatally and postnatally, using a reliable and valid instrument.

#### *Childbirth self-confidence*

Lowc (1993) defines childbirth confidence as a woman's confidence in her ability to cope with labour. The concept of childbirth confidence appears to be a prominent theme in the qualitative literature in the field. After attending **hypnosis** sessions, women reported feeling more confident and empowered (Finlayson et al., 2015) and experienced a sense of control and confidence during labour and birth (Abbasi et al., 2009). Despite qualitative evidence highlighting the enhancement of a sense of confidence following attending ARE, there seems to be a paucity of quantitative evidence on this outcome. Only a small number of studies have attempted to quantitatively measure this concept in South Africa (Guse et al., 2006) and Turkey (Çankaya & Şimşek, 2021; Isbir et al., 2016). Guse et al. (2006) used Self-Confidence Scale and Generalized Self-Efficacy Scale (GSE), whilst Çankaya & Şimşek (2021) and Isbir et al. (2016) employed Childbirth Self-Efficacy Inventory (CBSEI) which is a widely used, well-validated instrument and is specific to childbirth. CBSEI is used during pregnancy to measure a woman's confidence in her own ability to cope with labour. Despite using different instruments, these studies collectively reported

effectiveness of hypnosis education on increasing childbirth self-confidence. Çankaya and Şimşek (2021), and Ishir et al. (2016) both used a similar hypnosis-based (group) antenatal education of 16 hours, and Guse et al. (2006) offered six one-to-one sessions of Hypnobirthing. Implementing lengthy and costly educational interventions in national health services, given the current resource constraints, is challenging, and evidence on the effect of shorter interventions particularly in the context of western countries is lacking.

ii. *What influence does attendance at ARE have on women's subjective expectations/experiences of labour and birth?*

Evidence from qualitative research indicated that women experienced feelings of control (Abbasi et al., 2009; Levett et al., 2016b; Mitchell, 2013), strength and alertness during their labour and birth (Abbasi et al., 2009) and that they would use learned relaxation and **hypnosis** techniques in any future pregnancy (Abbasi et al., 2009; Finlayson et al., 2015). Werner et al. (2013b) seems to be *'the first in the field that quantitatively assessed the influence of hypnosis on total childbirth experience'* (p. 278). This large and well-designed RCT used W-DEQ (versions A&B) to assess the childbirth expectations and experiences in a cohort of 1222 women. The study demonstrated after attending hypnosis training, women's expectations of the upcoming birth as well as their actual childbirth experiences were significantly improved, compared with the control group. In accord with Werner's findings (2013b), a cohort study of 213 women in Germany (Streibert et al., 2015) showed that after attending a hypnosis course, childbirth was emotionally more positively evaluated compared with baseline measures. The latter study was novel in examining the emotional outlook



towards birth and used the Osgood semantic differential score (Osgood et al., 1957) which is a validated questionnaire.

In studies that offered antenatal education incorporating **GI**, using valid tools, a significant increase in sense of control was shown during pregnancy (Kantziari et al., 2019) and labour (Levett et al., 2016a) in the experimental group only. Kantziari et al. (2019) undertook a small quasi experimental study ( $n = 63$ ) and used Health Locus of Control Scale during pregnancy, whereas Levett et al. (2016a) in a well-designed RCT ( $n = 176$ ) utilised Labour Agency Scale (LAS) within 72 hours following birth.

Increased feelings of control are known to be correlated with positive experiences of childbirth (Hosseini Tabaghdehi et al., 2020). Conversely, negative experiences of childbirth are reported to be associated with lack of control and are the predictors of Post-Traumatic Stress Disorder (PTSD) (Taheri et al., 2018). As such, Isbir et al. (2016) were novel in hypothesising that attending hypnosis-based interventions may reduce the occurrence of PTSD. This small quasi experimental study ( $n = 63$ ) used Impact of Event Scale-Revised (IES-R) as a validated tool and demonstrated that the occurrence of PTSD in the hypnosis group was significantly less than the control group following birth.

In contrast, Guse et al. (2006), and Cyna et al. (2013) did not find a difference between hypnosis and control groups in terms of childbirth experience. These studies, however, did not utilise validated questionnaires. Guse et al., (2006), selected items of Childbirth Perceptions Questionnaires and Cyna et al. (2013) measured childbirth experience as the number of mothers who felt their birth was a positive experience. These methodological differences may have played a role in these contradictory results. A lack of research on the effect of **GI** on childbirth experiences is evident in the literature. Two recent systematic reviews conducted by Catsaros and Wendland (2020) and Gueguen et al.

(2021) were novel in integrating qualitative and quantitative data when examining the effects of hypnosis-based interventions on women's childbirth experience. Both reviews suggested hypnosis can lead to a better childbirth experience overall. However, it is difficult to draw strong conclusions from a limited number of studies that have used a variety of measures for examining women's subjective labour and birth expectations/experiences following attending ARE. Conducting further research and consensus on use of a reliable and valid instrument such as W-DEQ in future research, may address this issue.

*iii. What influence does attendance at ARE have on use of epidural?*

The theoretical literature (Dick-Read, 2004) along with women's qualitative accounts (Abbasi et al., 2009; Finlayson et al., 2015; Levett et al., 2016b) suggest the practice of hypnosis or GI during labour by calming the emotions may reduce perceived labour pain and enhance coping abilities. Interestingly, measuring self-reported labour pain in quantitative studies, except for one study (Atis & Rathfisch, 2018), does not support this concept (Beevi et al., 2017; Cyna et al., 2013; Downe et al., 2015; Gedde-Dahl & Fors, 2012). Whilst Atis and Rathfisch (2018) used VAS as a validated tool, in the rest of these studies (Beevi et al., 2017; Cyna et al., 2013; Downe et al., 2015; Gedde-Dahl & Fors, 2012) Numeric Rating Scales (NRS 0-10) were utilised; through which women were asked to select a number from 0 (no pain) to 10 (worst pain imaginable). Carvalho and Cohen (2013) suggest NRS have not been well validated for labour pain and lack many characteristics of an ideal psychometric instrument in a labour setting. Moreover, labour pain is understood to be a complex phenomenon, and that the perceived levels of labour pain may not necessarily correlate with the maternal coping abilities (Whitburn

et al., 2019). The use of pharmaceutical pain relief including epidural anaesthesia may also indicate the levels of maternal coping abilities with labour pain.

Particularly, in the current climate of increasing obstetric interventions (Gibbons et al., 2010; WHO, 2015), ARE has attracted a lot of research interest as a pain management method with the potential to reduce the rate of unnecessary interventions. Hence, the primary focus of the large RCTs in the field has been on the effect of hypnosis on epidural use and associated clinical outcomes. The first large multi-centre RCT was conducted by Mehl-Madrona (2004) and showed that women participating in a comprehensive course of hypnosis (mean of 5 sessions) had significantly fewer epidural analgesia use, caesarean sections, induction and augmentation of labour. The employed intervention in the study appeared to be complex, not well-reported and included as many hypnosis and supportive psychotherapy sessions as desired. The insufficient reporting of the intervention details impacts the external validity of the findings (Albarqouni et al., 2018). This study was novel in exploring the relationship between psychological and clinical outcomes with regard to the intervention. The study showed that the high levels of anxiety, stress, fear, and depression (measured only at baseline) were predictors of complicated birth, but only in the control group and not in the hypnosis group. Mehl-Madrona (2004) concluded hypnosis may mitigate the adverse influence of negative maternal emotions on clinical outcomes of childbirth.

The findings on reducing the rate of complicated and operative births following hypnosis training were in line with a former small RCT (Martin et al., 2001) on 42 teenaged pregnant women. Similarly, VandeVusse et al. (2007) supported these findings by demonstrating that a course of five sessions of antenatal hypnosis resulted in

significantly less use of regional anaesthesia during labour. This study was not an RCT but an exploratory retrospective study that compared childbirth outcomes of 101 women in one obstetrician's caseload. The data were extracted from women's medical records. Participants in the intervention group were self-selected, potentially introducing selection bias to the study (Heckman, 2010). In both studies of Mehl-Madrona (2004) and VandeVusse et al. (2007), the hypnosis instructors accompanied women during labour. Providing support for application of hypnosis during labour may have mitigated the efficacy of the antenatal hypnosis education and played as a confounding variable in these studies. The first systematic review in the field (Smith et al., 2006), heavily influenced by the findings of Mehl-Madrona (2004), reported that hypnosis may reduce the need for epidural. Conversely, a small ( $n = 38$ ) RCT (Fisher et al., 2009) did not find any significant difference between the control and hypnosis groups in terms of epidural use or other clinical variables. The study methods, intervention characteristics and findings of some of selected outcomes were poorly reported, this may have introduced reporting bias (Bradley et al., 2020).

Between 2013 and 2015, three large RCTs (Cyna et al., 2013; Downe et al., 2015; Werner et al., 2013a) were conducted in Australia, England, and Denmark respectively to investigate the effect of a three-hour antenatal course of group self-hypnosis on epidural use as the primary outcome measure as well as other clinical outcomes. These RCTs were of high methodological quality and at low risk of bias due to their rigorous experimental design, randomisation, large sample size, providing a comprehensive reporting of the methods and the standardisation of the intervention. The intervention in these RCTs did not include support during labour. In contrast with the previous research, these RCTs did not demonstrate a significant reduction in epidural use or other

obstetric interventions in hypnosis groups compared with the control groups. It is not clear whether methodological differences between the studies, the extent of the hypnosis courses or the intrapartum support from a hypnosis instructor have contributed to these heterogeneous findings. A more recent Cochrane review (Madden et al. 2016) that included these three large RCTs, concluded that there is no clear evidence that hypnosis would reduce epidural use or influence other clinical outcome measures.

Only one study in the field investigated the effect of antenatal education incorporating **visualisation** on epidural use (Levett et al., 2016a). This study was an RCT with a sample size of 176 and had a rigorous experimental design. The study demonstrated that a two full-day course offering education on a toolkit of techniques (visualisation, breathing techniques, yoga postures, massage techniques, acupressure and facilitated partner support) significantly reduced epidural use, augmentation, caesarean section, and perineal trauma.

Overall, there is inconsistency in evidence showing the reducing effect of ARE on epidural use for labour pain. It remains unclear why such inconsistency exists across the literature and whether this is due to existence of unidentified confounding variables. Future research should strive to identify the factors that may mitigate the efficacy of ARE as a pain management method during labour.

### **2.6.2 Strengths and limitations across the included studies**

One strength was the **homogenous samples** across primary studies that had included healthy pregnant women with low-risk pregnancy. This increases the generalisability of the collective findings for this population, particularly if the findings are consistent. For instance, the relatively consistent findings regarding the reducing effect of ARE on

antenatal anxiety in diverse geographical areas could add to the reliability of the results (Lacey, 2006).

Further, the use of appropriate, **validated, and standardised questionnaires** in the majority of studies is another strength, as it increases the findings' reliability (Booth, 2006).

On the other hand, **heterogeneity in the interventions** across studies is a major limitation. The interventions varied in terms of length, extent, stage of pregnancy when they were delivered, and type of delivery. Whilst some were as brief as a 10-minute listening to a CD (Urech et al., 2010), others offered as many hypnosis sessions as required (Mehl-Madrona, 2004). In some studies, the intervention included one-to-one sessions (e.g., Guse et al., 2006; Mehl-Madrona, 2004; VandeVusse et al., 2007), whereas others offered group sessions (e.g., Cyna et al. 2013; Downe et al. 2015; Werner et al. 2013a). In some studies, the hypnosis instructor accompanied the women during labour (e.g., Abbasi et al., 2009; Isbir et al., 2016; Mehl-Madrona, 2004) and in one study the instructor was the obstetrician who made the intrapartum decisions (VandeVusse et al., 2007). Therefore, the shown efficacy may have been due to the intrapartum support rather than antenatal training. Failing to consider the important confounding factors may reduce the validity of the findings (Booth, 2006). The number of people facilitating the intervention in each study is another concept to consider. Except for one study (Downe et al., 2015), the interventions were facilitated by one or two instructors (when it was reported). This may impact the external generalisability, as the reported effect may be partly due to the characteristics of the facilitator/s (Creswell and Creswell, 2018).

Furthermore, the **diversity of tools** measuring a particular variable across the studies may prevent robust conclusions being drawn. Use of **self-report tools** is another limitation. Self-report bias may arise if participants do not provide answers that are fully correct (Booth, 2006).

Another major issue was the **lack of randomisation** which may introduce sampling bias by causing a difference at baseline between the intervention and control groups (Creswell & Creswell, 2018). In some studies, participants chose their group (Beevi et al., 2016; Isbir et al., 2016; Streibert et al., 2015; VandeVusse et al., 2007) or they could change their groups after randomisation (Guse et al., 2006; Kantziari et al., 2019). This may introduce self-selection bias as those who choose to be included in hypnosis groups may have a higher expectancy for benefit (Heckman, 2010). In addition, this may make the determination of causal relationships more difficult and impact the generalisability of the results (Braver & Bay, 1992). However, it should be acknowledged that in view of the type of intervention, the popularity of the education and its availability through the private sector, both randomisation and ensuring that the control group would not receive a similar education would be challenging.

Double **blinding** would be impossible in view of the type of intervention as women receiving hypnosis or GI cannot be blinded to the received education. However, blinding of the birth practitioners to the participants' group allocation in some RCTs (Cyna et al., 2013; Levett et al., 2016a; Martin et al., 2001; Werner et al., 2013a) was attempted. Although blinding is a critical methodologic feature of RCTs (Karanicolas et al., 2010), the likelihood of blinding the birth practitioners, who probably continuously observe women's behaviour during labour, is questionable.

Finally, the paucity of qualitative research across the literature exploring **expectant parents' perspective** on the influence of ARE is evident. Except for one study (Levett et al., 2016b), birth partners were not interviewed in the few published qualitative studies. Active engagement of partners in maternity care (and research) is known to have long-term benefits for the wellbeing of the mother, baby, and family unit (Steen et al., 2012; WIIO, 2007).

### **2.6.3 Summary of findings**

This section is presented in two parts including '*overarching findings*' and '*sectional findings*'. The overarching findings were recognised by zooming out from the literature and seeing the big picture of evidence in the field. The sectional findings, on the other hand, were identified by zooming in, in the literature and viewing the influence of ARE on various outcomes in more details.

#### *Overarching findings*

In reviewing the literature, a paucity of qualitative research in the field is evident. Therefore, perspectives of expectant parents on what emotions or aspects of childbirth experience are influenced by ARE remains unknown. Little is known about why and how any influence may occur. In addition, the factors that may mitigate the influence of ARE as an effective pain management method during labour remain unexplored. Finally, there is a lack of quantitative studies that have tested the hypotheses ingrained in the qualitative evidence.



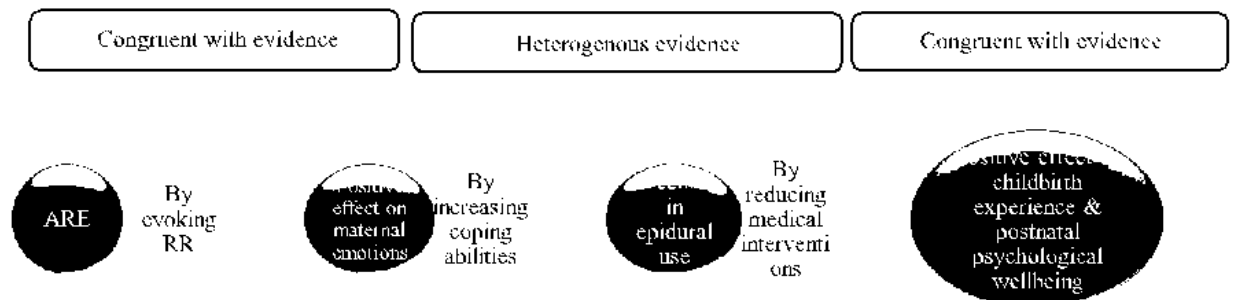
### *Sectional findings*

The findings of the review indicate that ARE may positively affect maternal stress and anxiety during pregnancy and labour, despite the effect on postnatal stress and anxiety remaining under investigated. The existent evidence regarding the impact of ARE on FOC and maternal self-confidence is promising, however, there is a paucity of data in the context of western countries. The evidence in relation to depression remains inconclusive and the lack of consensus on a single tool for measuring the overall perinatal mental health appears to have contributed to the lack of sufficient evidence on this important outcome. Similarly, the diversity of tools and methods used for measuring the overall expectations/experiences of labour and birth is evident, albeit the qualitative evidence indicating the potential positive effect of ARE on childbirth experience. Further, evidence on the effect of ARE on epidural use or any associated clinical outcomes remains inconclusive.

#### **2.6.4 Mapping the findings against the theoretical framework**

As shown in Figure 2.3, the review findings were mapped against the theoretical framework to provide a fuller picture of the phenomena in question and identify knowledge gaps in the field. The Figure shows that the existing empirical evidence is generally congruent with the theory in suggesting the overall positive effect of ARE on emotions during pregnancy. On the other hand, an abundance of literature, not particularly concerned with ARE, demonstrates the association of epidural use with unexpected medical interventions (Anim-Somuah et al., 2011; Dahlen et al., 2013; Green & Baston, 2007; King, 1997), as well as the association between these interventions and compromised childbirth experience and psychological wellbeing (Fontein-Kuipers et al., 2018; Henriksen et al., 2017; Hosseini Tabaghdehi et al., 2020;

Koster et al., 2020). Hence, empirical evidence is congruent with theoretical literature in showing that a reduction in epidural use may improve childbirth experience and postnatal psychological wellbeing. However, it remains unclear why the positive changes in maternal emotions during pregnancy did not lead to a clear and significant reduction in epidural use across the studies (as theoretical literature suggests).



**Figure 2.3** Mapping the empirical evidence against the theoretical framework

There is a lack of empirical evidence on the factors that may mitigate the effect of ARE as a pain management method. In addition, our understanding of the effect of ARE on postpartum psychological wellbeing and the processes through which such effect may occur remains limited. More importantly, the accuracy and completeness of this theoretical framework, which seems to have underpinned most of the research in the field, needs to be validated by in-depth exploration of experiences of childbearing women and their birth partners who share the experience with them.

### **2.7 Reflection on the review**

A strength of this review is that it has integrated the results derived from a range of research designs/methods, thus, offering a diverse perspective and methodological

triangulation of the evidence (Coughlan et al., 2013). Exploring the breadth of both qualitative and quantitative literature generated a more holistic picture of the existent knowledge on the topic. Mapping this picture against a framework grounded in theoretical literature then allowed identifying the knowledge gaps which informed the research aim, questions, and methodological design of the current study. Further, the review is novel in taking a psychological wellbeing perspective and including a wide range of psychological parameters as opposed to the previous systematic reviews that have either focused on ARE as a pain management method or have examined the efficacy of this intervention on a specific aspect of psychological wellbeing such as FOC.

The review has some limitations to note. First, the review may lack depth as an inherent limitation of scoping reviews is their focus on the breadth rather than depth of evidence on a particular topic (Tricco et al., 2016). In addition, a single reviewer may have introduced bias in collating and presenting the findings. A paucity of qualitative data on the topic and exclusion of non-English literature also may have limited the review findings. Finally, the low quality of some of the included studies may have impacted the trustworthiness of the present synthesis. However, it is important to note that the aim of a scoping review is not to draw robust conclusions, but rather to summarize and map out the existing evidence in order to identify the knowledge gaps (Peters et al., 2010).

## **2.8 Rationale for the study**

The '*overarching findings*' of the review indicated a paucity of qualitative research in the field is evident. Therefore, perspectives of expectant parents on what emotions or aspects of childbirth experiences are influenced by ARE remains unknown. Little is known about why and how any influence may occur, or what factors can mitigate the

influence of ARE as an effective pain management method during labour. These gaps in knowledge informed the objectives of the study that were to: a) identify the aspects of maternal psychological wellbeing and childbirth experiences that may be influenced by ARC, b) understand ‘why’ and ‘how’ any influence may occur, c) identify the factors that may mitigate the influence of ARC during labour and birth. Therefore, based on the study objectives the following research questions were formulated.

1. What are the aspects of maternal psychological wellbeing and childbirth experience that may be influenced by ARC<sup>14</sup>, from the participants’ perspectives?
2. ‘How’ and ‘why’ may any influence occur?
3. What are the contextual factors that may mitigate the influence of ARC during labour and birth?

These questions required a qualitative approach to enable gaining insight into participants’ experiences and perspectives. As such, a qualitative approach was deemed to be appropriate for Phase 1 of the study.

On the other hand, incongruity between the salient themes of the few existing qualitative studies and the selected outcome measures in quantitative enquiries on the topic is evident. Whilst the generalisability of qualitative findings remains unclear, the tested hypotheses in quantitative studies are grounded in the theoretical literature that has not yet been validated by qualitative evidence. Therefore, a meaningful communication between two datasets seems to be lacking. Thus, another objective of the study was to d) test the significance of any influence (as identified in Phase 1) in a

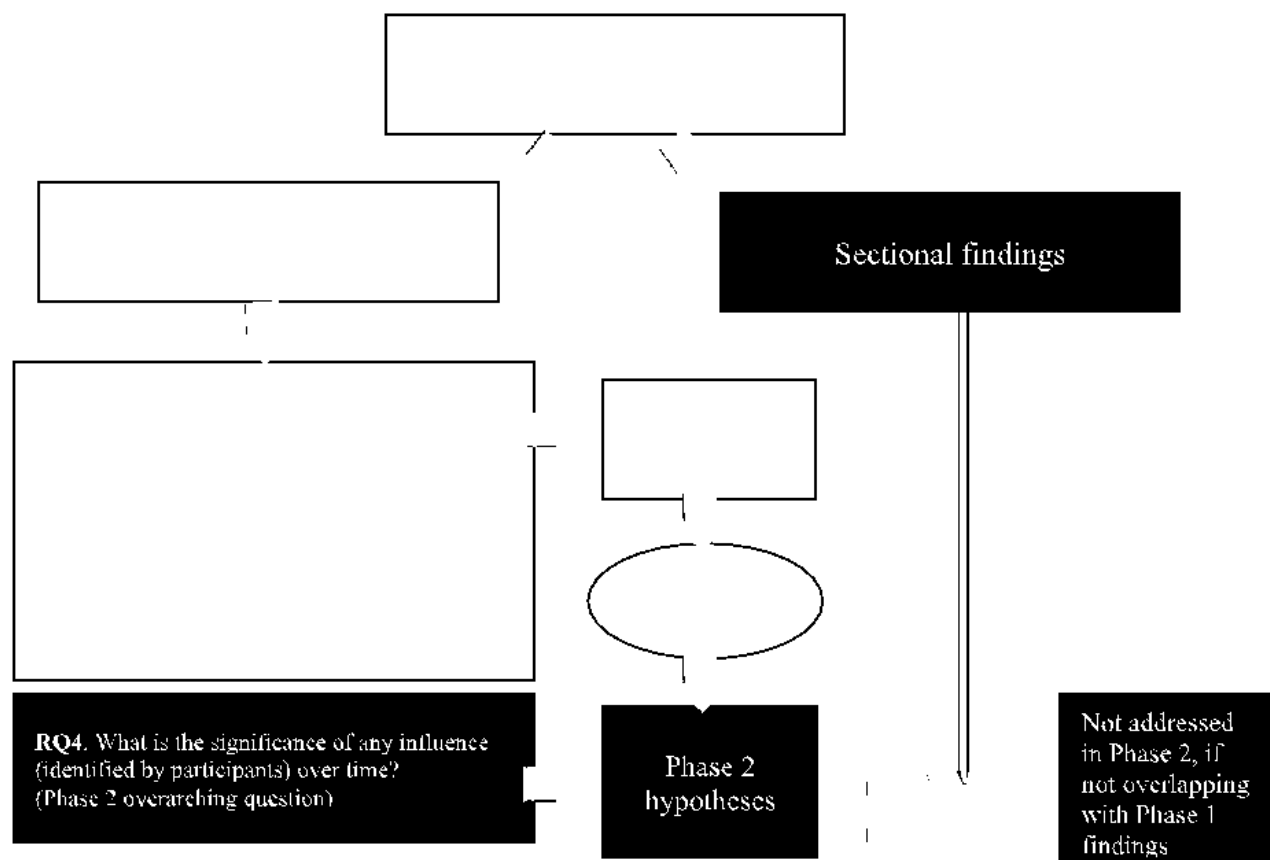
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<sup>14</sup> Antenatal Relaxation Class: A single 3-hour session comprising GT and hypnosis as described in Chapter 1.

larger sample via a follow up quantitative enquiry (Phase 2). In addition, the '*sectional findings*' of the review showed that little is known about whether the changes in maternal emotions after attending ARE would last until after the birth. Hence, the fourth research question was formulated as,

4. What is the significance of any influence (identified in Phase 1) over time (from pre-class to two weeks after class and to 4-8 weeks following birth)?

Whilst the latter question is the overarching research question for Phase 2, the hypotheses for this phase will be populated based on the findings of Phase 1 and in view of the '*sectional findings*' of the literature review (see Chapter 6). As shown in Figure 2.4, the identified gaps in '*sectional findings*' would influence formulation of Phase 2 hypotheses, **only if** they overlap with Phase 1 findings.



**Figure 2.4** Development of research questions based on the literature review findings

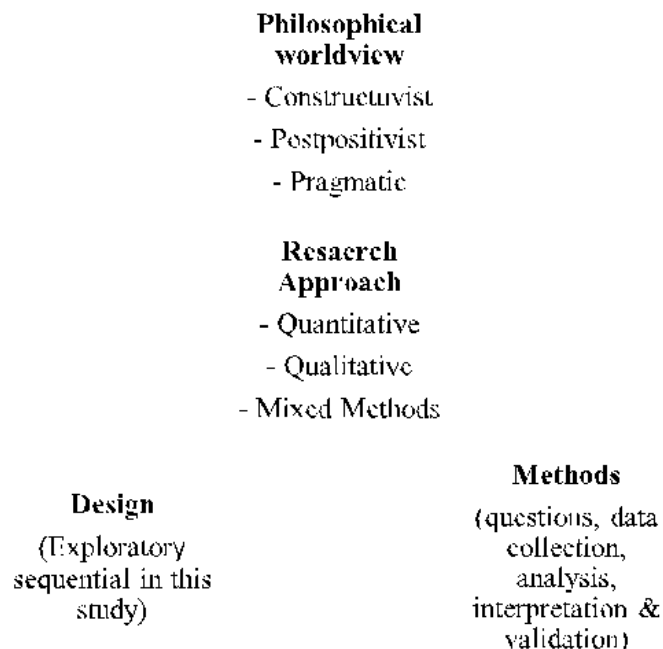
The generated research questions in this chapter informed the choice of a sequential mixed methods design for the study. This design will allow the exploration of participants' perspectives, before testing the significance on the findings over time in a follow up quantitative study.

# Chapter 3 Methodology

This chapter presents the research **approach** that was chosen to address the research aim and questions. It then provides an explanation of the **philosophical worldview** that was adopted by the researcher and a rationale for the selected **design** and methodological approaches.

### 3.1 Research Approach

Creswell (2014) defines the research approach as a '*plan to conduct research*' (p. 5) which involves **philosophical worldview**, research **design** and specific **methods**. As presented in Figure 3.1, these elements are interrelated, and all contribute to the research approach which tends to be qualitative, quantitative, or mixed methods (Creswell & Creswell, 2018).



**Figure 3.1** The interconnection of Worldview, Design and Research Methods  
(Adapted from Creswell and Creswell (2018))



After selecting the **methods, design, and approach** to the study, it is crucial to justify the choices by stating the **philosophical** stance, which informs them, to enable others to judge the reliability of the research process (Crotty, 2020). The research approach, its philosophical worldview and design are considered throughout this chapter to describe, explain, and justify the approach that was taken to answer the research questions set. The methods used within the study will be explained and justified in Chapters 4 and 6.

### **3.1.1 Choice of a mixed methods approach**

To address the research questions and gain a more complete understanding of the phenomena in question, it was recognised that both qualitative and quantitative methods were required. Therefore, a mixed methods approach was considered to be most appropriate for this study.

‘Mixed methods’ is a distinct approach that involves the integration of qualitative and quantitative research and data in a research study (Alexander, 2016; Creswell & Plano Clark, 2017; Silver & Lewins, 2014), optimising the “*chance of obtaining useful answers*” (Johnson & Onwuegbuzic, 2004, p.17- 18). Creswell and Plano Clark (2017) identified several classification systems of mixed-method strategies with a substantial amount of overlap of types existed in the typologies. Of the identified classification systems, Creswell and Creswell (2018) propose three basic mixed method designs including convergent parallel, explanatory sequential and exploratory sequential. Each design reflects different timing and intents as shown in Table 3.1.

**Table 3.1** Three basic mixed method study designs

Convergent (or parallel or concurrent) designs	Merge, compare, or relate the findings of qualitative and quantitative data and results	Concurrent qualitative and quantitative data collection and analysis
Explanatory sequential designs	Explain quantitative analysis through a qualitative follow-up	Quantitative analysis explained through a qualitative follow-up
Exploratory sequential designs	Test the finding of qualitative exploration through a quantitative follow-up	Qualitative data collection and analysis is followed up with quantitative data collection and analysis

(Adapted from Creswell and Creswell (2018))

The sequential, exploratory mixed methods design was used in this study as it was the most appropriate methodology to address the research questions. The sequential, exploratory design is described as:

*“... a design in which the researcher first begins by exploring with qualitative data and analysis, then builds a feature to be tested (e.g., a new survey...) and tests this feature in a quantitative phase”* (Creswell & Creswell, 2018, p. 224). In the present study, this method allowed exploring the phenomena in question in an initial qualitative study. Thereafter, based on the qualitative findings a survey was built which was used in a follow up quantitative study to test the qualitative findings’ validity in a larger sample.

### **3.2 The philosophical worldview for the study**

The overview and a range of philosophical worldviews are discussed prior to presenting the relevant worldviews to the current study.

### **3.2.1 Overview of philosophical worldviews**

Slife et al. (1995) suggest philosophical ideas remain largely hidden in research, however, they still influence the practice of research. Therefore, it is essential to make explicit the philosophical assumptions and ideas that the researcher espouses. The term worldview here is considered as “*all-encompassing ways of experiencing and thinking about the world, including beliefs about morals, values, and aesthetics*” (Morgan, 2007, P. 50). Other authors have used terms such as epistemologies and ontologies (Crotty, 2020), or paradigms (Lincoln et al., 2011) to describe this. The worldview is a general philosophical orientation about the world and the nature of research that a researcher brings to a study (Creswell & Creswell, 2018). The researcher’s worldview informs the research approach taken by the researcher and inevitably influences the direction, conduct and reporting of research (Creswell & Plano Clark, 2017). Guba and Lincoln (1994) highlight that no researcher should approach a research study without first being clear and explicit about their beliefs and values, as these are integral to their approach to research. Therefore, in the following sections different philosophical worldviews including the ones adopted in the current study are discussed.

### **3.2.2 Philosophical worldviews**

Creswell and Creswell (2018) highlight four main worldviews that are widely discussed in the literature: post-positivism, constructivism, transformative and pragmatism. Each of these worldviews have their own set of principal assumptions about how knowledge is constructed during the research process. It is essential that researchers are aware of their own ontological (what constitutes reality) and epistemological (theory, nature, and status of knowledge) perspectives, as these perspectives will shape the research process (Mason, 2017).

Traditionally, quantitative and qualitative research methods are viewed as drawing on different worldviews (Alexander, 2016). The mixed methods design employed in this study is depicted as drawing on the principles of two worldviews, a constructivist worldview in Phase 1 and a post-positivist worldview in Phase 2 (Creswell & Plano Clark, 2017).

First, the two worldviews of post-positivism and constructivism incorporated in this research will be presented in turn, to acknowledge how they informed the standpoint taken by the researcher, in each phase of this study. Lastly, a third pragmatic worldview as the overarching approach to this study will be discussed which allowed for elements of constructivism and post-positivism to be integrated into the approach of the inquiry.

### **3.2.3 Positivism and the post-positivist worldview**

A detailed account of the history and philosophical foundations of positivism is provided by Smith (1998). Smith explains that positivism emerged in the 16<sup>th</sup> and early 17<sup>th</sup> centuries, primarily from the work of two philosophers, Francis Bacon (1562-1626) and René Descartes (1596-1650). Bacon and Descartes are regarded as the ‘founder fathers of science’ in Western society. Bacon identified the key activity of science as demystifying existing false and irrational interpretations of the world and argued that the hidden ‘truth’ could only be revealed by a combination of careful empirical observation and logical enquiry. On the other hand, the ‘Cartesian vision’ of Descartes, involved the use of doubt and human reason as a critical tool and the source of truth. This drew a dividing line between mind and body to establish human consciousness as the centre of rationality with the principle of *cogito ergo sum* ‘I think, therefore I exist’ (Smith, 1998, p. 50). The scientific method shaped by Bacon and Descartes provided the framework for modern scientific knowledge in the natural and

social sciences, with the philosophy of much of social science involving attempts to understand the relationship between the observable evidence and the role of human reason.

It is critical to note that Bacon and Descartes' scientific method emerged in a world still largely governed by religious concerns and assumptions. The compatibility of these visions of science (as the search for truth) with the prevailing religious viewpoints at the time made them successful and they were gradually accommodated within social structures, leading to the emergence and construction of objective, scientific knowledge, in Western society.

The success of the scientific method was effectively demonstrated in scientific discoveries such as the work of Isaac Newton (1642-1727). This meant that by the late 17<sup>th</sup> and early 18<sup>th</sup> centuries, humans, and their integration of science, truth, and reason, were increasingly accepted as the source of knowledge and a scientific vision of society was constructed. In 19<sup>th</sup> century, Comte (1798-1857), the French philosopher sought to establish a new social doctrine based on science which he labelled 'positivism'. The positivist traditions, derived from scientific methods, assume that "*things can be studied as hard facts and relationship between these facts established as scientific laws*" (Smith, 1998, p. 77). For positivists, such laws have the status of truth and social phenomena can be investigated in the same way as natural objects. The stated aim of the positivist approach is to cleanse scientific knowledge of speculative thinking. All the existing sciences are, in some way, considered to be derived from positivism.

In 20<sup>th</sup> century, with a movement towards disciplinary specialisation in knowledge, particularly social scientists were becoming more cautious about what was possible to

claim before a statement acquired the status of truth leading to scientific knowledge becoming fragmented and compartmentalised. As a result, positivism was increasingly questioned and criticised. Karl Popper, an Austrian philosopher was credited with rescuing positivism from demise. He rejected induction as a scientific method and reconceptualised 'truth' as a matter of degree, rather than an absolute. He argued there is no way of being certain that the theories and assumptions we presently hold are true for all time (Smith, 1998). For post-positivists, falsification or disproving theories or hypotheses became the objective of science, rather than verification (Phillips & Burbules, 2000). Popper describes his approach as post-positivist that is recognised today as the basis of scientific inquiry (Smith, 1998).

Post-positivist is reductionistic, reducing the ideas into small sets to test, such as variables that comprise hypotheses. Thus, the accepted approach to research by positivists is to start the research with a theory that could be tested (Creswell & Creswell, 2018). Post-positivist worldview underpinned Phase 2 of the present study, where the aim was to test the generated hypothesis.

### **3.2.4 Constructivist worldview**

Guba (1990) viewed positivist and post-positivist worldviews as badly flawed and needed to be replaced. Hence, an alternative worldview to post-positivism was offered by Lincoln and Guba (1985), known as 'naturalistic inquiry'. This later became better known as constructivism or social constructivism and occasionally interpretivism (Morgan, 2007). Constructivism is typically seen as an approach to qualitative research (Creswell & Creswell, 2018). Constructivists believe that rather than there being a 'truth' waiting to be discovered by scientific inquiry, that there are multiple truths that exist in the world. They argue that individuals develop subjective meanings of their

experiences that are varied and multiple leading the researcher to look for the complexity of views rather than narrowing the meanings into a few ideas or categories (Creswell & Creswell, 2018). Rather than attempting to predict, control or transform the 'real world', constructivists aim to reconstruct it, at the "*only point at which it exists; in the mind of the constructors*" (Guba, 1990, p. 27). Rather than starting with a theory (as in post-positivism), researchers inductively develop a theory or pattern of meanings. These meanings are constructed as the individual engages with and interprets the world and that social and cultural perspectives shape the basis of such interpretation (Crotty, 2020). Thus, the constructivist researcher acknowledges the complexity of the world and seeks to understand the context of the participants. Therefore, in qualitative research open questions are used and the research process is largely inductive in that interpretation is grounded in the data (Ormston et al., 2014). Constructivism underpinned the initial qualitative research in the current study, where patterns of meanings were inductively developed from the data. The enquirers also interpret what they find in data based on their own experiences and background (Creswell & Creswell, 2018). Guba (1990) identifies subjective interaction between the researcher and participant as essential to "*unlocking the constructions of knowledge held in the minds of individuals*" (Guba, 1990, p. 26). In qualitative research employed by constructivists, knowledge is produced by exploring and understanding the social world of the people being studied, focusing on their meanings and interpretations shaped by their own personal histories.

While traditionally post-positivism has been associated with quantitative approaches to research, constructivism has typically been closely linked with qualitative approaches (Creswell & Plano Clark, 2017). Positivists and post-positivists argue that knowledge is acquired through a deduction view and see knowledge acquisition as a 'top-down'

process, whereby logically derived propositions or hypotheses are tested against observations. In contrast, the constructivism view holds that knowledge is based on induction, a 'bottom-up' process through which patterns are derived from observations of the world (Ormston et al., 2014).

### **3.2.5 Pragmatic worldview**

Historically, the worldview debate suggested that the differences between the post-positivist and constructive worldviews were irreconcilable, implying that researchers could only be aligned with one of them (Guba, 1990). Despite the worldview debate continuing for some researchers, others have embraced pragmatism as a suitable alternative worldview for mixed methods research.

Pragmatism derives from the work of 19<sup>th</sup> Century American philosophers, Charles Sanders Peirce, William James and John Dewey (Cherryholmes, 1992). This approach is concerned with what works and providing solutions to the problems (Patton, 1990). Rather than focusing on methods, researchers employ a combination of approaches to gain insight and understand a problem. The primary focus of pragmatism, as the philosophical underpinning for the mixed methods, is on the research problem in social science research and then using pluralistic approaches to derive knowledge about the problem (Morgan 2007; Patton 1990; Tashakkori & Teddlie, 2021).

According to the view of Cherryholmes (1992), Morgan (2007) and Creswell's (2014) views the theory of pragmatism is that:

Pragmatism as the underpinning worldview of mixed methods research is not committed to any one system of philosophy meaning that the enquirers draw liberally from both quantitative and qualitative assumptions. Pragmatic researchers have a



freedom of choice in selecting the methods, techniques and procedures and can look to many approaches for data collection and analysis that best meet the purpose of their research. Pragmatists agree that research always occurs in social, historical, and cultural contexts. For pragmatists, truth is what works at the time, believing that we should stop asking questions about reality and the laws of nature (Cherryholmes, 1992). Pragmatism worldview suited the current study which meant to select a range of methods and techniques for collecting and analysing the data to meet the study aim.

### **3.2.6 Mixed methods research and the pragmatic worldview**

Mixed methods research has been practiced since the 1950s but formally began in the late 1980s (McKim, 2017) and was linked to pragmatism by Tashakkori et al. (1998). Tashakkori and Teddlie (2021) argued against the traditional strong pressures on research methodology toward polarizing into a qualitative and quantitative dichotomy. They disputed that the pragmatist point of view rejects the forced choice between positivism/post-positivism and constructivism with regard to epistemology and methods (quantitative, qualitative). Pragmatism rejects an incompatibilist, either-or approach to worldview selection and embraces both points of view and supports the use of both qualitative and quantitative methods in research projects (Johnson & Gray, 2010). A pragmatic paradigm is therefore described as pluralistic and oriented towards what works and practice (Creswell & Plano Clark, 2017). Taking a pluralist position in mixed method to approach the same phenomenon is known as methodological triangulation (González-Díaz & Bustamante-Cabrera, 2021). It is suggested that methodological triangulation, by putting together insights from both qualitative and quantitative approaches, can produce a more comprehensive product (Johnson & Onwuegbuzie, 2004).

Mixed methods research underpinned by pragmatism offers a useful middle position philosophically and methodologically; it offers a practical and outcome-orientated method of enquiry that is based on action and leads to further action and elimination of doubt helping researchers better answer their research questions. Post-positivist, constructivist, and pragmatic paradigms influenced this study. The main principles embodied in these paradigms are presented in Table 3.2.

**Table 3.2** The main characteristics of the paradigmatic approaches that influenced the approach to this study

<b>Worldview components</b>	Constructivism	Post-positivism	Pragmatism
<b>Ontology</b>	Relativism: Multiple realities	Critical realism: Singular reality	Pluralism: Singular and multiple realities
<b>Epistemology</b>	Subjectivism	Modified objectivism	Inter-subjectivism
<b>Methodology</b>	Inductive: e.g., researchers start with participants' perspectives and generate themes/hypotheses	Deductive: e.g., researchers test a priori hypothesis	Abductive: e.g., researchers gather both qualitative and quantitative data and mix them
<b>Research outcomes characteristics</b>	Context	Generalisation	Transferability

(Adapted from Morgan, 2007; Creswell and Plano Clark, 2017)

### 3.2.7 The use of a pragmatic worldview in this study

The research questions should determine the choice of the research methods that are most appropriate to address those questions. While qualitative research emphasizes an

inductive–subjective–contextual approach, quantitative research emphasizes a deductive objective generalizing approach. The mixed methods research, on the other hand, offers an effective alternative that emphasises on the abductive–intersubjective–transferable aspects of research (Morgan, 2007). Mixed methods research underpinned by pragmatism seeks to transcend the distinction between knowledge that is either specific and context-dependent or universal and generalized (Morgan, 2007). The selected research objectives and questions for this study required a pragmatic approach, relying on a version of abductive reasoning that moves back and forth between induction and deduction, combining qualitative and quantitative methods in a sequential fashion (Ivankova et al., 2006),

As previously stated, the study sought to understand '*what aspects of maternal psychological wellbeing and childbirth experiences are influenced by ARC*', '*how, and why any influence may occur*' and '*what contextual factors may mitigate the influence of ARC during labour and birth*' from expectant parents' perspectives. Developing this understanding required exploring the subjective meanings of experiences, acknowledging complexity of the experiences, and seeking to understand the context of the participants (Creswell & Creswell, 2018; Ormston et al., 2014). To do so and to inductively develop patterns of meanings, using a constructivist worldview was ascertained to be essential.

However, the study also aimed to extend the qualitative results by examining their generalisability in a larger sample and '*testing the significance of any influence of ARC over time*'. Despite its strengths, constructivist research, is limited in generalising knowledge or making quantitative predictions (Queirós et al., 2017). In addition,

qualitative research is frequently criticised for being more easily influenced by the researcher's personal biases and idiosyncrasies (Noble & Smith, 2015), for this reason, the results may have less credibility with policy makers and funding bodies (Johnson & Onwuegbuzie, 2004). As such, a post-positivist worldview was adopted to address the final objective of the study too. It is suggested that insight provided by positivist research conducted through empirical tests may have a high-quality standard of validity and reliability and may be generalised to the large-scale of population (Johnson & Onwuegbuzie, 2004; Pham, 2018).

It was recognised that like constructivist worldview, the positivist paradigm on its own maintains some limitations, particularly in relation to the aims of this research. For example, adopting solely quantitative methods would have meant that the research theories used may not have reflected the local constituencies' understanding and experiences (Cohen et al., 2011). Furthermore, post-positivist research has been criticised for lack of detailed explanation of the causes and processes of a research phenomenon (Johnson & Onwuegbuzie, 2004) which was the primary focus of this study.

Selecting a mixed-method approach in this study allowed inductive results from the qualitative approach in phase 1 to serve as inputs to the deductive goals of the quantitative approach in phase 2. Therefore, while constructivism and post-positivism informed the two distinct phases, flexibility in their use was facilitated within the pragmatic paradigm.

### **3.3 Research design**

Methodology and methods are the key elements of the research design or plan of study. Research methodology is defined as the overarching approach to research and rationale

for the study and the methods selected. The methodology determines how each method is used to achieve the desired outcomes (Huberman & Miles, 2002). On the other hand, methods are the tools utilised in the research (Clough & Nutbrown, 2012). The role of methodology is to uncover and justify the decisions on selecting a particular method. Justification is made based on the notion of fitness for purpose. The method and process that could appropriately meet the research questions need to be selected. In addition, justification relates to the assumptions and theoretical perspective that a researcher brings to their work (Crotty, 2020). It is crucial to provide operational descriptions of the methods used for data collection and analyses as explicitly as possible (Crotty, 2020). Therefore, the rationale for the choice of research approach and design is explained in the following sections, however, the rationale and description of each method of data collection and analysis used in this study is presented in Chapters 4 and 6.

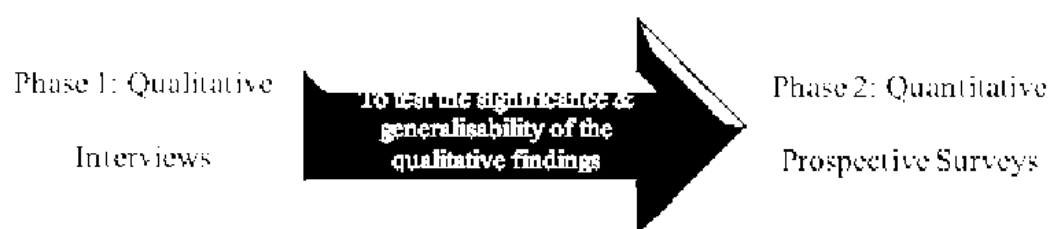
### **3.3.1 Sequential exploratory mixed-methods research**

The weakness or strength of methods relates directly to their aptness in serving the study purpose and obtaining useful answers to the study questions (Johnson & Onwuegbuzie, 2004; Sadelowski, 2000). The sequential, exploratory mixed methods design matched the study's objectives of identifying the elements of psychological wellbeing and childbirth experiences that were potentially influenced by ARC and allowed gauging the statistical significance and prevalence of such findings in a larger size sample over time (Morgan, 2013).

The initial qualitative study served the purpose of developing an understanding of the influence of ARC from the class participants' perspectives, whilst identifying how, why and through which processes this influence may occur. As valuable as this understanding is by itself, it may be limited when it comes to making reliable

predictions that could influence maternity service provision, as the conclusions drawn from this approach are perceived to be more easily influenced by the researcher's personal biases and idiosyncrasies (Creswell & Creswell, 2018). A follow-up quantitative approach that could test and validate the hypotheses generated from the qualitative findings, was considered to be complementary to the qualitative phase. The quantitative enquiries are seen as more objective due to the results being relatively independent of the researcher and providing precise quantitative numerical data. On the other hand, if the hypotheses under test in the quantitative research are not grounded in qualitative evidence, the measures used by the researcher may not reflect the participants' understandings or needs.

Therefore, the rationale behind employing a mixed methods as opposed to a mono-method in this study was to pragmatically collect multiple data using different strategies, approaches, and methods. This combination of methods was likely to result in complementary strengths and non-overlapping weaknesses of both paradigms (Brewer & Hunter, 1989). As a result, the product of the research is expected to be more comprehensive compared to a mono-method study. Figure 3.2 illustrates the rationale behind selecting a sequential exploratory mixed methods approach.



**Figure 3.2** The selected Exploratory Sequential Mixed Methods Design

Using different methodologies to approach the same phenomenon is known as methodological triangulation (Heesen et al., 2019). The process of methodological triangulation in mixed methods research can be generated in two ways including intra-method and inter-method (González-Díaz & Bustamante-Cabrera, 2021). In intra-method triangulation, different data collection techniques are used within one method (either qualitative or quantitative). On the other hand, in inter or between-method triangulation, the quantitative and qualitative results are triangulated as complementation. In both approaches, the intention of triangulation is to increase the reliability and validity of the data, conferring the desired robustness (González-Díaz & Bustamante-Cabrera, 2021). In the current study, inter-method triangulation was employed. The data in two phases were related in a sequential fashion, in which the results of the initial qualitative phase informed formulation of the hypotheses and research questions for the follow-up quantitative phase. In addition, results from both phases will be combined (in Discussion Chapter) to forge an overall account and provide a more comprehensive understanding of the phenomena in question.

### **3.3.2 Research questions in qualitative phase**

The research questions for qualitative phase were formulated as:

1. **What** aspects of psychological wellbeing and childbirth experience are influenced by ARC?
2. **How** (through which processes) and **why** does ARC influence psychological wellbeing and childbirth experience?
3. What **contextual factors** may mitigate the influence during labour and birth?

### 3.3.3 Methodological approach to the qualitative phase

The qualitative methods of data collection were informed by a constructivist worldview and a descriptive qualitative approach, to gain insight and explanations about the influence of ARC on childbirth experiences and maternal psychological wellbeing from the expectant parents' perspectives. Sandelowski (2000) presents qualitative description as a '*valuable method by itself*' (p. 335). She argues although no description is without interpretation; this method as opposed to other qualitative methods such as phenomenology, or grounded theory entails a kind of interpretation that is less interpretive and does not require researchers to move as far from or into their data. This approach does not require a conceptual, philosophical, or otherwise highly abstract framework for the rendering of data. Qualitative descriptive studies entail the presentation of the facts of the case in everyday language as opposed to the phenomenological, theoretical, ethnographic, or narrative descriptions where events are re-presented in other terms and researchers are obliged to put much more of their own interpretive spin, the spin that derives, in part, from these methodologies themselves. In qualitative descriptive studies, language is a vehicle of communication, not itself an interpretive structure that must be read (Sandelowski, 2000). This approach was compatible with the research questions that intended to obtain straight and minimally theorized or spun explanations about what genuinely mattered to the study participants. During the early stages of planning for the study, other qualitative approaches including phenomenology and grounded theory were considered for their appropriateness to the study. However, further exploration of them revealed they were less relevant to the study purpose. Phenomenological enquiries, irrespective of the type, aim to explore the experience of one **single** phenomenon among a group of participants who share the experience of that phenomenon (for example sense of relaxation among pregnant



women) (Van Manen, 2016), whereas this study was more complex than one phenomenon, endeavouring to explore the influence of one phenomenon (attending ARC) on other phenomena (pregnancy and childbirth experiences) and to investigate the participant's opinions, perceptions and views on such influence. Van Manen (2016) clearly states phenomenology is not to explore opinions, perceptions or attitudes. Similarly, grounded theory was not regarded an appropriate fit for this study due to its inclination to look for, and interpret data as, elements in a "*conditional/consequential matrix*" (Strauss & Corbin, 1998, p. 181) in order to generate theories. Although it was expected that some theories would emerge from the data, the study aim was not limited to constructing theories, but to openly explore and understand the relevant phenomena as they unfolded in their context. In addition, emergence of theories from the data in grounded theory design supports the researcher to have come from a more objective background and be less familiar with the field, whereas the research student was already immersed in the field (as explained in Chapter 1) prior to onset of the study. For a methodology to be regarded as appropriate, it should not only suit the research questions but also the researcher's worldview and background (Sandelowski, 2007).

#### **3.3.4 Research question in quantitative phase**

The objective of quantitative phase was to test the significance of any identified influence over time (pre-class, post-class, and post-birth). Hence, the research question for this phase was formulated as:

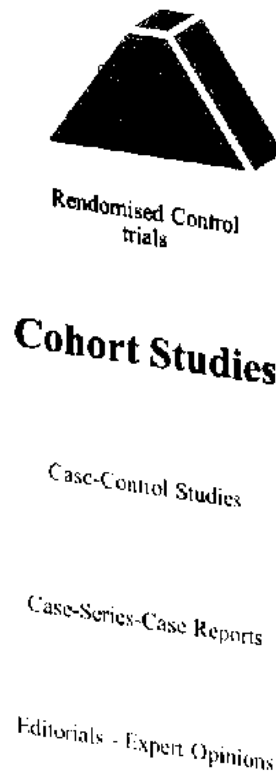
What is the **significance** of any influence of ARC **over time**?

Whilst this was the overarching question for the quantitative phase, the Phase 2 hypotheses and research questions were populated based on the results of the qualitative

phase, and in view of '*sectional findings*' of the literature review. These hypotheses and research questions for Phase 2 are presented in Chapter 6.

### **3.3.5 Methodological approach to quantitative phase**

An observational approach to the second phase of the study was used to test the hypotheses and questions developed from the findings of the qualitative phase and determine the significance of ARC's influence over time (McKenna et al., 2006). The purpose of an observational study is to examine the effect of the exposure (e.g., attending ARC) on the outcomes of interest (as determined by the findings of Phase 1) (Jepsen et al., 2004). The method used in this study was a prospective longitudinal cohort design using surveys which was influenced by the post-positivist worldview. Cohort studies as related to the hierarchy of evidence, rank below systematic reviews and randomised control trials, but higher than case-control, cross-sectional studies, and case series (Hammoudeh et al., 2018), as shown in Figure 3.3. Prospective cohort study is considered the gold standard among observational studies, as the researcher has control over data collection, methodology, and overall study set up (Hammoudeh et al., 2018). Barria (2018) suggests cohort studies are a good source of information when an experiment is not feasible. In this study, the feasibility of recruiting a control group and conducting an experimental study was considered out with the time and resource limits of a PhD study, particularly in view of the longitudinal pattern of the study that required longer-term engagement of the participants in the data collection process. Recruiting a control group who were motivated enough to complete surveys at three time points had been shown to be a challenge during the conduct of a previous study on the same population in the same setting (Ross, 2017).



**Figure 3.3** The traditional hierarchy of evidence

([https://flexiblelearning.auckland.ac.nz/philson/51\\_5.html](https://flexiblelearning.auckland.ac.nz/philson/51_5.html))

### **3.4 Summary**

This chapter has presented an outline of the research questions for phases 1 and 2, as well as the research approach and design that was chosen to address them. The philosophical assumptions underpinning the research design were examined, the methodological approaches to Phase 1 and Phase 2 were explained, and the rationale for these choices were discussed. Chapter 4 and Chapter 6 will present the rationale for the methods used in Phase 1 and Phase 2 respectively.

# Chapter 4 Phase 1

## Qualitative Methods

This chapter presents the research methods used within the qualitative phase of the study and the justification for selecting these methods. These methods included semi-structured in-depth interviews with women and their birth partners. A pilot prefaced the subsequent part of the qualitative study to inform the research process and increase its quality.

#### **4.1 Setting**

The study setting was a specialist maternity hospital in an NHS Health Board in North-East of Scotland with around 5,000 births per annum. The hospital serves a wide geographical area and provides a range of services for both low and high-risk pregnancies. The majority of antenatal care and the routine antenatal education is provided by community midwifery teams and referrals to specialist services are made when necessary. In terms of birthplace choices available in this Health Board, women can choose to give birth in an alongside Midwife's led unit or the obstetric-led unit within the hospital, in other stand-alone Midwife's units or at home. The setting was selected due to its existing provision of this single session of ARC. Two-weekly ARC sessions were held in a conference room at the hospital.

#### **4.2 Study participants**

This section provides details about the sampling approach, inclusion criteria and sample size.

##### **4.2.1 Sampling**

Parahoo (2014) suggests a nonprobability technique of purposive sampling as one of the best fits particularly for studies with qualitative description designs. Purposive sampling facilitates the selection of participants whose experiences are required for the study (Parahoo, 2014). To achieve the aim of this study, selecting a group of pregnant women

who met the inclusion criteria was essential. In addition, it was of paramount importance to seek perspectives from a range of participants to ensure the data were rich in amount, quality, and depth (Jones, 2002; Sandelowski, 1986; Smythe & Giddings, 2007). Therefore, purposive sampling with maximum variation was used to capture perspectives of a population of women that was as heterogeneous as possible in terms of age, ethnicity, educational attainment, and parity (Gerrish & Lacey, 2010). A pilot study carried out at early stages of the study revealed that the ARC attendees were predominantly well-educated primigravid women in their late 20s and 30s. This caused challenges particularly in recruiting women under 20 or those with lower educational attainment. Birth partners of the invited women were also invited to participate in the interviews.

#### **4.2.2 Inclusion criteria**

Inclusion criteria for women comprised:

- the ability to read, write and understand English
- being over the age of 16
- receiving midwifery led care at the point of recruitment
- attending ARC in the third trimester of pregnancy

Women were excluded if they

- had severe mental health problems requiring medication
- did not meet the inclusion criteria

Similarly, birth partners were included if they

- were aged over 16
- able to understand, read and write English

Birth partners were excluded if they did not meet the inclusion criteria.

Birth partners were invited to the study regardless of their participation in ARC, as the aim was to seek their perspectives on the influence of ARC on their partners' childbirth experience and psychological wellbeing.

The decision to include only English-speaking participants was made as the inclusion of non-English speaking participants would have required extra funding to enable use of interpretation services which was out with the available resources in a self-funded PhD. In addition, Temple and Young (2004) argue that translation of research interviews can create the potential for bias as the presence of the interpreter and the interpretation process itself could alter the dynamic of the interaction between the researcher and participants. Furthermore, ARC was available only in English, which did not facilitate attendance of non-English speaking women in the classes.

Throughout the design process, it was acknowledged that the experiences of all women were important. However, in view of the study's aim being to explore the influence of ARC on childbirth experience including the labour experience, opening the study up to women receiving obstetric-led care could have limited the number of women with the experience of labour, particularly in the current climate of increasing childbirth interventions. Nonetheless, if women's care pathway changed from midwife to obstetric led **after recruitment**; they were not excluded from the study. This approach provided insight into a range of childbirth experiences. Similarly, the inclusion of women with severe mental health disorders was deemed in conflict with the research aim, which was to explore the influence of ARC on a healthy population of pregnant women.

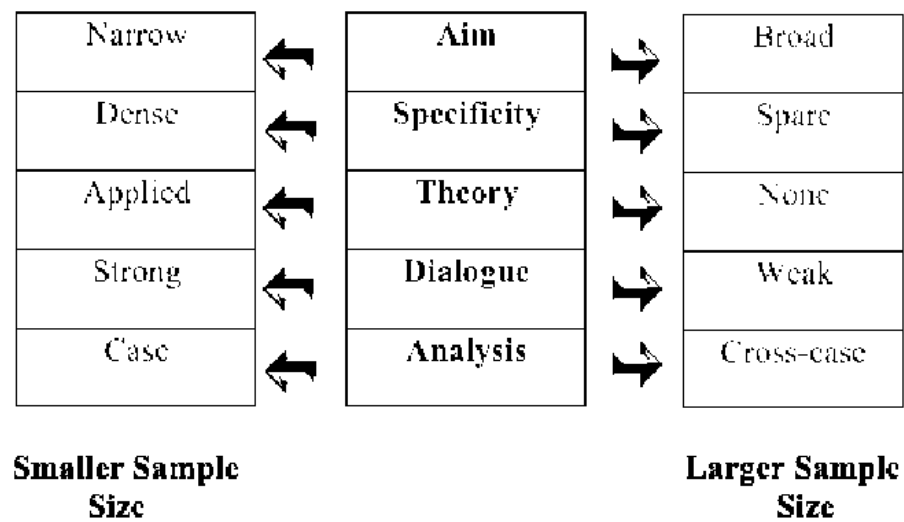
Women who had taken part in other types of childbirth preparation classes such as pregnancy yoga or hypnobirthing courses were not excluded. This was because both interview and survey questions, investigated participants' perspectives specifically on

*'the influence of attending ARC'*, not the effect of utilising relaxation techniques in general.

### **4.2.3 Sample size**

It is essential that the choice of sample size used in research studies are defended and it is clarified how sample size was determined to address the study aim and research questions (Bradshaw et al., 2017). Qualitative sample sizes tend to be small because of the emphasis on intensive contact with participants and the findings are not expected to be generalizable. An initial approximation of sample size is deemed to be necessary for planning. To determine the appropriate sample size in a qualitative design, the principle of "data saturation" has been acknowledged as an accepted standard (Glaser & Strauss, 1967). Data saturation can be considered to apply to the point where no new information emerges from the study participants during data collection (Guest et al., 2006). Nevertheless, Ironside (2006) argues that data saturation can never truly be reached due to the uniqueness of each individual's experience. According to Fawcett and Garity (2008), an adequate sample size is one that sufficiently answers the research questions. Hence, there is no fixed rule to establish the most appropriate sample size in qualitative research, instead several factors are suggested to be considered (LoBiondo-Wood & Haber, 2014). The sample size for the qualitative phase of the study was guided by the 'information power model' presented by Malterud et al. (2016) who suggest the size of sample that could offer sufficient 'information power' depends on the five factors of the study aim, sample specificity, use of established theory, quality of dialogue and analysis strategy (Figure 4.1).





**Figure 4.1** Information power-items and dimensions

(From Multerud et al., 2016)

The overarching aim of the study was broad which meant that recruiting a sample with highly specific characteristics was not required. This broad aim along with the study not being bound to a specific theory, the researcher being novice at undertaking research interviews (dialogue quality), and the exploratory nature (analysis) of the study, all indicated the need to recruit a larger sample in Phase 1 that could provide sufficient ‘information power’. It is worth noting the model was not a means of calculating a specific number (Malterud et al., 2016), but assisted with a systematic consideration of the factors influencing ‘information power’. The aim was to recruit an overall sample of between 14 to 18 women (and their birth partners).

## **4.3 Recruitment**

### **4.3.1 Women**

Women participants were recruited from those attending face-to face ARC. Women interested in attending ARC are registered on a database system in NHS Grampian computer system. After obtaining the necessary ethical approval, the midwives facilitating ARC accessed this database and Patient Management system (PMS) to identify eligible participants one week prior to class. The attempt was made to select a group of women who were diverse in terms of parity, age, educational background, and ethnicity. In total, 64 women from a wide range of age groups, ethnicities, educational backgrounds, and parity were identified as eligible and were invited to participate by the midwives facilitating ARC. An invitation package including a letter of invitation, Participant Information Sheet (PIS) and consent form (Appendix 5) for women and their birth partners was posted to the women along with a prepaid return envelope. The participants had the opportunity to contact the researcher if they wished to receive further information about the study prior to giving consent. In addition, the midwife facilitating ARC reminded women and their partners of the study at the end of the class. The researcher was also present at this point to answer any questions about the study. Women and birth partners who expressed an interest in taking part, were provided with written consent forms to sign and return to the researcher at a convenient time using a prepaid envelope or email.

The data for the pilot study was collected between November 2017- June 2018. Due to personal circumstances, there was a gap in the course of study from September 2018 to September 2019. Data collection for the qualitative phase took place between March and June 2020. Participants were asked to contact the researcher following birth so that a convenient interview time and location could be arranged. They were informed that

they would receive three reminder text messages at 3, 6, and 12 weeks following their expected date of delivery.

#### **4.3.2 Birth Partners**

As previously stated, the participant information sheet and consent form for birth partners (Appendix 5) were included in the invitation package sent to the women prior to attending ARC. Similar to women, birth partners had the opportunity to contact the researcher to ask any questions or seek further information about the study. They were invited to the study irrespective of their attendance at ARC, as the aim was to gain insights into their perspectives of ARC's influence on women's experiences during the childbirth continuum. The joint interviews, where women and their birth partners were interviewed jointly, were guided by the same topic guide as the individual interviews (Appendix 5).

#### **4.4 Data collection: semi-structured in-depth interviews**

Semi-structured in-depth interviews are viewed as the major source of information for qualitative researchers (DiCicco-Bloom & Crabtree, 2006). They are described as a *“powerful method for generating description and interpretation of people's social worlds and as such they are a core qualitative research method”* (Yeo et al., 2014, p. 178). As opposed to focus groups, these interviews can create a research space in which the interviewee feels more comfortable to provide a range of details and insights about the phenomenon in question (Morris, 2015). This type of interview requires an outline of topics and questions prepared by the researcher (Stuckey, 2013); however, the flow of interview has no rigid adherence and depends on how the participant responds to the questions. As such, they offer the researcher the flexibility to pose more enhanced questions than the initially drafted ones (Adhabi & Anozie, 2017). Individual interviews

(or joint interviews) accord the researcher enough time and flexibility to explore a phenomenon in more depth which conforms to the title 'in-depth interview'.

Furthermore, in-depth interviews are appropriate as the study seeks to gather detailed information and understand a more complete picture of what happened and why (Boyce & Neale, 2006). Therefore, semi-structured interviews were selected as the ideal data collection mechanism for the qualitative phase of this study as opposed to structured (during which wording, and order of questions are the same for each participant) or unstructured interviews (where the participants can freely discuss a list of relevant topics in any order) (Fielding & Thomas, 2016).

In terms of the interview timings, a review of the published literature showed that little research has been done to determine an optimal time for examining memories of childbirth or performing interviews following birth (Ayers et al., 2015; Waldenström, 2003). A comparison between women's narratives of their childbirth experiences shortly after birth and their narratives years later showed that memory lapses and confusion were minor (Simkin, 1992). The suggested time frame of interviewing women and their birth partners up to six months after birth, was therefore based on the potential convenience of the participants and their availability. It was also predicted that a six-month window would provide flexibility and allow families time to settle into their new roles and physically recover from the birth.

For interviewing couples, it was recognised both separate and joint interviews methods had limitations, and no method was perfect. For instance, in joint interviews one partner may silence the other which prevents giving equal voice to both partners or there is a risk of interview generating tension between the couple, thus breaching the researcher's commitment to non-maleficence (Zarhin, 2018). On the other hand, Bjørnholt and

Farstad (2014) argue that interviewing couples together has several advantages including solving the ethical problems of anonymity and consent among the couple, and results in the production of rich data. In joint interviews the two participants can corroborate or supplement each other's accounts. They can probe, challenge, correct each other and introduce fresh themes that can result in further disclosure and richer data (Bjørnholt & Farstad, 2014; Valentine, 1999). In addition, the existing literature indicates it is often more difficult to recruit men/fathers to separate interviews and that the joint interviews can save money and time for both the couple and the researcher (Bjørnholt & Farstad, 2014). Balancing the risks and benefits of joint interviews in relation to the study topic led to selection of joint interviews as the appropriate method for interviewing couples.

Overall, 17 women participated in the study of whom 8 took part in individual interviews and 9 were interviewed jointly with their birth partners. The first 7 interviews were face to face as per the initial research protocol. Due to the impact of Covid-19 pandemic, the latter 10 interviews were conducted via audio/video phone calls to adhere to the social distancing rules and Health Research Authority recommendations (HRA, 2020).

#### **4.4.1 Topic Guide**

All interview discussions including the individual and joint ones were guided by the same topic guide (Appendix 5). The topic guide was informed by the identified gaps in the literature and was further refined in view of the pilot study findings (see the details in section 5.6). Due to the time gap between recruitment (during pregnancy) and interviews (post-birth), the consent forms were revisited before the interview commenced. The participants were then invited to speak freely about their childbirth

experiences to ease them into the discussion and obtain a broad range of information about the context in which the experience unfolded. Such information included the events during labour and birth, the woman's feelings, thoughts, and coping behaviours as well as the influential environmental and social factors. Questions then focused on their experiences of attending ARC and how such experiences unfolded towards and during childbirth. In addition, a series of supplementary, follow up questions were used if and when necessary. When the participants brought up the concepts that were relevant to the research questions, the phrases such as 'can you tell me more about this?', 'what was going on in your head then?', 'in what way?', 'how did you know that?', 'how did that help?', 'what do you mean by this?' were used to allow a deeper exploration of the experiences. In joint interviews, the tendency was to ask the woman to speak about her experience first, before exploring the birth partner's perspectives on the event. However, posing the open questions about their shared experiences seemed to provide a common reflective space where arguments were co-developed. Their turn-taking and communication with each other meant that the emerged picture of the experiences became more nuanced and added to the richness of the data (Bjørnholt & Farstad, 2014). Towards the end of interviews, the final questions intended to provide the participants with an opportunity to summarise their contributions and bring discussions to a close (Spencer et al., 2003). Questions regarding women's demographic information were asked at the end of interview discussions. Considering that the focus of study was on '*maternal childbirth experience and psychological wellbeing*', birth partners were not required to give demographic details.

#### **4.4.2 Interview setting**

For the face-to face interviews, the participants could choose between the hospital, University, a public place, or their home as the interview setting. Of seven participants

who attended face-to-face interviews, five chose to be interviewed in their homes, one in a private room in the hospital and one in a private room at the University. As the rest of interviews (n = 10) took place during the Covid-19 pandemic, they were carried out via audio (2 interviews)/video (8 interviews) phone calls to adhere to social distancing restrictions. These participants were at their homes during the audio/video phone interviews. The interviews lasted between 40-60 minutes.

#### **4.5 Pilot study**

A pilot study was carried out in 2017/18, before collecting the data for the main study in 2020 (as due to personal reasons the research was on hold in between). The pilot study included three individual interviews with women and three joint interviews with couples, giving a total of six interviews. The findings of the pilot study were published in a journal article (Appendix 2). Piloting provides the qualitative researcher with a clear definition of the focus of the study (Frankland & Bloor, 1999) and has the potential to increase the quality of the research by informing subsequent parts of the research process (Malmqvist et al., 2019). Hence, the pilot study aimed to serve several purposes. First, it was important to test the feasibility of the study in terms of recruitment methods, time schedule and appropriateness of the topic guide questions. Secondly, it aimed to provide a primary identification of the potential data collection instruments for the follow-up quantitative phase. Lastly it allowed the researcher to address the potential challenges and limitations of the main study.

As a result of conducting the pilot study, the study recruitment methods were deemed to be feasible. The six-month time schedule for conducting interviews was perceived as convenient by the participants, although they all participated in the interviews within the first eight weeks post-birth. They stated this wider time window allowed them to settle

into their new roles as parents and reflect on their childbirth experience in a timely manner. The topic guide questions were refined, and the interview strategies were developed. For example, the sequence of the supplementary questions changed, and some questions were reframed to ease the flow of the interview discussion. For instance, in the initial topic guide the questions followed a chronological order, starting from the experience of the class, then exploring the influence of ARC on pregnancy and labour and birth respectively. The pilot demonstrated women's enthusiasm to describe their labour and birth experience first, whilst reflecting on the influence of ARC on such experience. Therefore, in the following interviews the participants were asked to freely share childbirth experiences first prior to posing questions regarding attending ARC or the influence of ARC on pregnancy.

Due to time constraints during the pilot study, the interviews were transcribed by a professional transcription service. Reflecting on the experience, it appeared that having the interviews transcribed professionally did not save time, as more time was required for familiarisation with the data. Braun and Clark (2006) argue that the time spent in transcription is not wasted, as it informs the early stages of analysis, and results in developing a more thorough understanding of data. Therefore, the decision was made for the researcher to transcribe the following interviews personally.

The pilot study also provided a primary prediction of the instruments for the quantitative phase. For instance, the participants frequently mentioned experiencing changes in emotions of fear and anxiety towards childbirth after attending ARC. Hence, Wijma- Delivery Expectancy/Experience Questionnaire (W-DEQ) and State and Trait Anxiety Instrument (STAI) were predicted to be potentially appropriate tools for Phase 2 of the study.



Finally, the pilot study revealed a potential limitation of the main study would be recruiting a representative sample, as the pilot sample was largely represented by white and highly educated women. In view of this, a more proactive approach was taken in the main study and more women from a diverse range of age, educational background, and ethnicity were actively approached, by midwives facilitating ARC, to participate in the study.

In addition, the pilot showed that of six women participants, two had taken part in private hypnobirthing classes too. The data, however, demonstrated these women were able to explicitly differentiate between the techniques learned during ARC and in these private classes. During the interviews, they specifically commented on the influence of ARC, rather than influence of utilising relaxation techniques in general. As such, the decision was made by the research team to not exclude women who had participated in other childbirth preparation education.

The changes implemented as the result of the pilot study were not considered substantial. Therefore, the data collected through the pilot interviews were combined with the final data for analysis. The same methodology, methods, and sample characteristics were used in the pilot and main study. Thabane et al. (2010) recommend including pilot studies with the main study upon the condition that the same methodology has been followed, as it could strengthen the findings of the research. Therefore, throughout the thesis, the information provided regarding Phase 1 applies to both the pilot and main qualitative study together.

#### **4.6 Data analysis**

Reflexive thematic analysis was the method of choice for analysing the data as it provides a systematic, rigorous, and transparent approach to data management, analysis,

and reporting. Thematic analysis (TA) is a method for systematically identifying and organising qualitative data into patterns of meanings or themes and offers clear guidelines and flexibility (Braun & Clarke, 2006). TA is a flexible, accessible, and useful method for examining the perspectives of different research participants, identifying the shared meanings (themes) as well as the nuances of the experience in each theme (Braun et al., 2014).

Braun and Clarke (2019) explain that there are several clusters of approaches to TA with different philosophical assumptions and procedural practices that reflect these assumptions. These approaches include coding reliability TA, codebook TA and reflexive TA. As opposed to coding reliability TA and codebook TA (which are more positivist and structured approaches), reflexive TA procedures reflect the values of a qualitative paradigm, centring researcher subjectivity, organic and recursive coding processes, and the importance of deep reflection on, and engagement with data (Braun & Clarke, 2019). Reflexive TA highlights the primacy of researcher's reflexivity as the generated themes are viewed as creative and interpretive stories about the data, produced at the intersection of the researcher's worldview, their analytic resources and skill, and the data themselves (Clarke et al., 2015). It appreciates that qualitative research is about meaning and meaning-making, and views such meanings as always context-bound, positioned and situated. As such, reflexive TA was regarded in harmony with the study purpose, the researcher's worldview, and background.

#### **4.6.1 Data management**

All interview discussions were digitally audio-recorded using a digital voice recorder (Sony ICD-PX370) and transcribed verbatim. The interviews were conducted and facilitated by the researcher. Field notes were made during and following each interview by the researcher which were considered during the analysis process. Following the

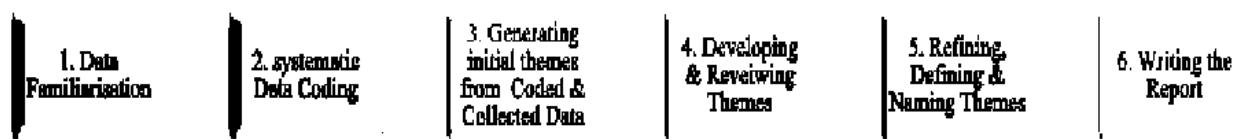
completion of data analysis of the pilot study, the researcher personally transcribed the audio recordings as transcription is regarded to be an important part of the data analysis process (Fielding & Thomas, 2016; Silver & Lewins, 2014). The transcripts were punctuated based on para-verbal cues such as pauses or changes in the voice tone and were annotated with regard to the field notes (Braun & Clarke, 2006). Transcription is an essential element of the data analysis, particularly when using an inductive approach, which is necessary for exploratory studies (Jebb et al., 2017; Stebbins, 2001). This inductive process began at the very first interview by taking field notes and continued during and after the data collection.

The decision was made to avoid using Computer Assisted Qualitative Data Analysis Software (CAQDAS). It was recognised that utilising such aids had both advantages and disadvantages, which should be weighed against the factors such as the study questions and aims as well as the researcher's sound judgement. Russel and Gregory (1993) claim the use of CAQDAS could be intellectually stifling and make it difficult to contextualise all of the data. The fact that the software creates nodes (containers) based on the recognised words could lead the researcher to try to fit the study with the software identified notes, thus distancing the researcher from the context of the data. This could have prevented effective and reflective data analysis particularly in view of the exploratory nature of the study (McLafferty & Farely, 2006). Ultimately, the researcher and the supervisory team felt, the accuracy and richness of the analysis had the primacy over saving time. To ensure the validity of the findings it was of paramount importance to see the contextual information and the bigger picture and avoid getting fixated on mere words.

The data were analysed using a thematic approach informed by Braun and Clark (2019). Throughout the thematic analysis processes, memos were taken to capture reflections

(Braun & Clark, 2019) which were an essential part of the analysis and informed coding decisions. It is critical to note that reflexive thematic analysis is not a linear process, but an iterative one, with shifting back and forth between the different phases (Braun & Clark, 2019).

The six phases of reflexive TA include: familiarisation; coding; generating initial themes; reviewing and developing themes; refining, defining and naming themes; and writing up, as presented in figure 4.2 (Braun & Clark, 2021).



**Figure 4.2** Six phases of reflexive thematic analysis

(Braun & Clarke, 2021)

However, qualitative analysis using reflexive TA progresses as a recursive and iterative process. It is important to acknowledge that interpretation of the data occurred throughout the process of data collection and analysis, not just afterwards during the data management and interpretation. Thus, in discussion with the study supervisors, it was decided that it would be helpful to keep a research diary in order to explore and underline potential presumptions and biases from the beginning. It was noted, prior to interviewing participants, that the researcher felt a potential bias and inclination to advocate for ARC. This was explored further in discussions with the supervisory team alongside the possible effects of it on the analysis. Therefore, it was important for the researcher to be open to and capture the more diverse and perhaps negative perceptions of ARC.

The key objectives of qualitative data analysis in this study were to explore the participants' perspectives in order to:

- Identify the aspects of maternal psychological wellbeing and childbirth experience that may be influenced by ARC, from their viewpoint.
- Understand 'how' and 'why' any influence may occur.
- Identify the contextual factors that may mitigate the influence during labour and birth.

#### **4.6.2 Familiarisation with data**

The researcher was actively immersed in the data by repeatedly listening to the audio recordings and reading the transcripts, whilst reflecting and taking memos to capture such reflections. Abrahamson (1983) describes such an approach as being "*immersed*" in the data and "*to identify dimensions or themes that appear meaningful to the producers of each message*" (p. 286). Braun and Clark (2019) suggest reflexive TA to be about the researcher's reflective and thoughtful engagement with the data and the analysis process, rather than following procedures '*correctly*' (p. 14). As recommended by Braun and Clark (2019) the researcher and her supervisors took a collaborative and reflexive approach to develop a richer and more nuanced reading of the data, rather than just seeking a consensus on meanings.

#### **4.6.3 Systematic data coding**

After familiarisation with data, the next step was to determine the type of coding method. Conducting exploratory research requires inductive (data-driven) coding which takes a bottom-up approach, constructing meanings based on the data as opposed to deductive (theory-driven) coding, which is a top-down method, where a code book is developed in view of the existing evidence in the field and prior to data collection in

order to guide the coding process (Creswell & Plano Clark, 2017). Thus, it was ascertained that the coding type for the study was required to be primarily inductive. Following familiarisation with the data, the transcripts were examined line-by-line against the research questions and the questions developed during the analysis process (Spencer et al., 2014). In view of the large volume of generated data, the researcher developed a checklist of questions to help maintain the focus of interpretation on the main research aims and questions (Figure 4.3).

**What questions am I asking of the data?**

1. How did participants 'feel' towards childbirth prior to attending ARC?
2. How did participants view the influence of ARC on their feeling towards childbirth?
3. What elements of ARC were considered as influential from participants' perspectives (if any) and why?
4. How did participants view the influence of ARC on their pregnancy?
5. How did participants view the influence of ARC on their experience of labour?
6. How did participants view the influence of ARC when experiencing obstetric interventions?
7. What contextual factors mitigated the use or and effectiveness of the learnt relaxation techniques (in ARC) during labour and birth and why?
8. What feelings and emotions or aspects of childbirth experience were influenced by ARC from participants' perspectives?

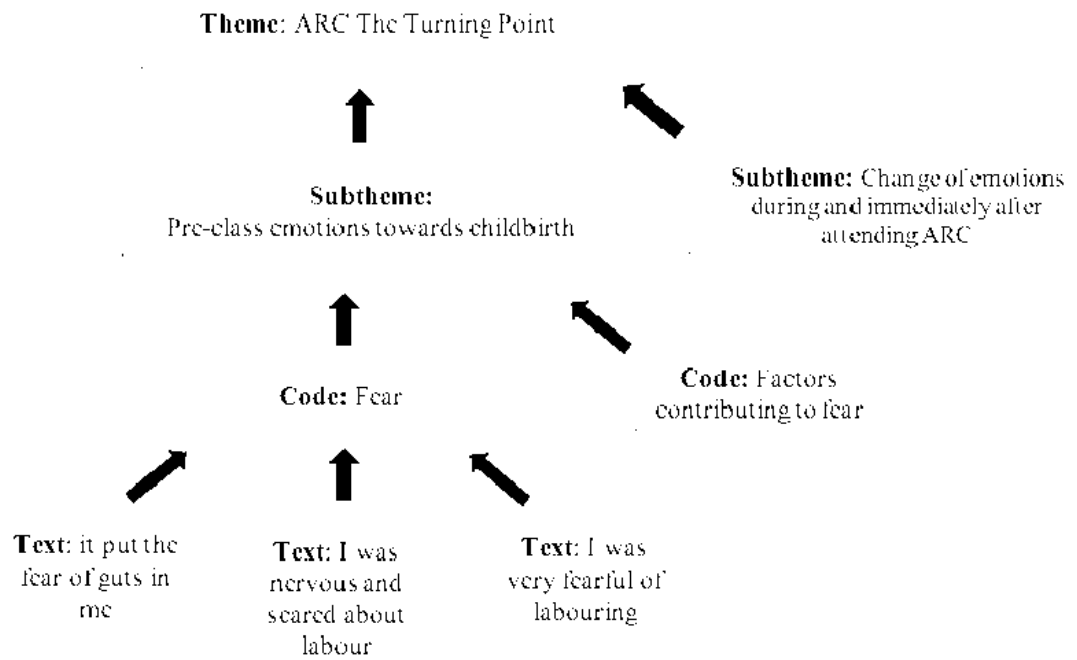
**Figure 4.3** Checklist questions for maintaining the focus of interpretation

The texts in the data that were of relevance to these key questions were identified as codes and were given a name to capture the essence of that text. This process was iterative and non-linear, meaning that the researcher moved back and forth between different interview transcripts to ensure no codes had been missed across the data set. When new meanings were recognised, the researcher moved back to the previously

coded data to further search them for that particular meaning. Initially, 98 codes were generated from the data, further analysis indicated some overlap in meaning, and a number of codes were merged together, reducing the number of overall codes to 36. To reduce researcher bias, the researcher and two of her supervisors independently coded the first two transcripts and compared codes. A high degree of consistency was achieved across the identified codes. A number of codes, perhaps due to the researcher's background, appeared to be the result of researcher's over-interpretation of the data which were rectified through the reflexive discussion with the supervisory team.

#### **4.6.4 Generating initial themes**

Moving between the overall data set and coded data, the relationship between the codes were examined and the codes that were more closely linked together were put together to form subthemes. Similarly, the evaluation of the dynamic between different subthemes resulted in construction of the initial themes. Drawing out schematic diagrams, mind maps and tables (Appendix 6) helped visualize the link between the themes (Silver & Lewins, 2014). To contextualise the process of coding and generating themes, an example of how coding led to the formation of subthemes and themes is provided in Figure 4.4.



**Figure 4.4** Formation of themes from subthemes and codes

To provide more insight into the process of generating themes the following example is provided. For example, all women participants raised the concept of fear related to childbirth, whether it was fear of the potential medical procedures, labour pain, or possible childbirth complications. As shown in Figure 4.4, the excerpts that presented such feelings across the data set were all coded as 'Fear', which referred to childbirth-related fear. The code of 'Fear' linked well with the code of 'Factors contributing to fear', as women provided rich data on the factors that initially led to feelings of fear towards childbirth. The combination of these two codes shaped the subtheme of '*Pre-class emotions toward childbirth*' that would encompass general emotions towards childbirth prior to attending ARC. This subtheme in combination with the theme comprising the '*Change of emotions during and immediately after attending ARC*' then led to the construction of the overarching theme of '*ARC: The Turning Point*' which



provides a narrative of how participants felt towards the childbirth, why they felt that way, and how and why such emotions changed as a result of attending ARC.

It is essential to reiterate that the theme generating process was a recursive and non-linear one. Snapshots of the qualitative data analysis process have been provided in Appendix 6.

#### **4.6.5 Developing and reviewing themes**

The preliminary themes and their relationships were repeatedly revisited, reflected on, and evolved over the course of several months to present one overarching meaningful story. Clarke (2017) acknowledges that coding and theme development require considerable analytic and interpretative work on the part of the researcher, requiring them to reflect on their assumptions and how these might shape and define the construction of the codes and themes. As such, it was of paramount importance that the researcher remained reflexive and cognisant of her potential bias.

#### **4.6.6 Refining, defining and naming Themes**

Through the on-going analysis, the specifics of each preliminary theme and their relationship to the overall narrative were defined. As such, each theme was clearly defined and the scope and contents of it were summarised. The following step was to name the themes in a manner that clearly and accurately represented the meaning of each theme. The terms '*ARC, the turning point*' (theme 1) was directly extracted from the data as the terms that conveyed the occurrence of a change were found in abundance in the data and explicitly represented what had been said. However, the terms '*Inner resource*' (theme 2) and '*Space for relaxation*' (theme 3) were selected by the research team to reflect the meanings that participants had expressed more implicitly. Regarding theme 2, participants stated they had used the learned relaxation techniques for a wide range of purposes.

However, when more prompting questions such as ‘can you tell me more about this?’, ‘what was going on in your head then?’, ‘how did that help?’, were asked, it was revealed that the ultimate aim of using the techniques was to access a particular relaxed state that was referred to as the ‘zone’ or the ‘mood’ (please find further details in Chapter 5). This state was interpreted by the research team as ‘an inner resource’ that they could tap into whenever needed. Finally, theme 3 was developed as the result of identifying the factors that were described as helping or hindering the use of the learned relaxation techniques during labour. Comparing these factors against the childbirth literature showed that they resonated with Joyce’s (2020) definition of birth space (please find further details in Chapter 5). Hence, the term ‘space for relaxation’ was selected as an appropriate term to name theme 3.

#### **4.6.7 Writing the report**

Sandelowski (2000; 2010) suggests no description is without interpretation and continues to argue that qualitative descriptive design is not atheoretical, but least ‘*theoretical*’ (Sandelowski, 2000, p. 337). She explains the analysis and interpretation of findings, when using this methodology, should remain ‘*data-near*’ (Sandelowski, 2010, p. 78). Throughout the analysis process, the researcher endeavoured to provide data-near, yet detailed and nuanced interpretive products. The themes and subthemes were named using participants’ words when such words could clearly illuminate their essence. To generate a meaningful and in-depth understanding of the phenomena in question, it was imperative to capture both semantic (explicit) and latent (implicit) meanings (Clarke & Braun, 2006). Capturing latent meanings involves reading into the subtext and assumptions underlying the data (Clarke 2017). For instance, participants repeatedly and explicitly referred to the concept of fear and anxiety (semantic meaning), whereas the concept of ‘the zone’ or ‘the mood’ tended to be used to implicitly describe

an altered state of consciousness that appeared hard to describe, thus probing questions were required to unravel such latent meanings. Finally, the researcher was required to articulate the main findings in the form of a story that could provide an illuminating description of the women and their partner's perspectives.

#### **4.7 Trustworthiness**

For qualitative research to be regarded as trustworthy, the processes of data analysis must be conducted in a precise, consistent, and exhaustive manner and disclosed transparently with enough detail to enable the reader to judge the credibility of the process (Nowell et al., 2017). Lincoln and Guba (1985) refined the concept of trustworthiness by introducing the four criteria of credibility, transferability, dependability, and confirmability, which are intended to mirror the criteria, used to judge 'rigour' in quantitative studies. These original, widely accepted, and easily recognised criteria have been selected to demonstrate trustworthiness in this study. These criteria will be briefly defined prior to describing the strategies adopted in this study to promote 'trustworthiness' in the research process, particularly the interpretation of the data and presentation of the findings. Table 4.1 presents the trustworthiness criteria and the strategies employed to achieve this.

**Table 4.1** Trustworthiness criteria for qualitative interpretations

<b>Credibility</b>	Prolonged engagement with the phenomena  Supervision team (and independent chair) provided external check on the research process.  Publications in peer-reviewed journals & presenting at conferences
<b>Transferability</b>	Thick descriptions (in-detail descriptions about the context to judge fitness with other settings)
<b>Dependability</b>	Audit trail demonstrating the rationale for the decisions made throughout the research process
<b>Confirmability</b>	Audit trail examining the research results

(Adapted from Schwandt et al., 2007)

#### **4.7.1 Credibility**

Credibility addresses the “fit” between respondents’ views and the researcher’s representation of them (Tobin & Begley, 2004). Utilising a range of strategies is suggested to add credibility to a qualitative study’s findings (Schwandt et al., 2007), these include prolonged engagement with the phenomena under question and respondents in the field, so that the researcher develops an in-depth understanding of the phenomena. Creswell and Creswell (2018) propose that the more experience a researcher has with participants in their settings, the more accurate will be the findings. As discussed in Chapter 1, the researcher was involved in designing ARC, conducting systematic audits and service evaluations of the classes, and facilitating ARC between

2013- 2016. Such prolonged engagement may increase the researcher's ability to identify elements of the topic that are significant. In addition, the researcher was responsible for developing and conducting the research study from conception to completion. This ensured prolonged and intensive engagement with the phenomena being investigated. A team of experienced researchers supervised and critiqued the design, rationale and conduct of the study as well as participating in the analysis and interpretation process. This provided a continuous, informal mechanism to challenge and test the researcher's reconstruction of the study's findings. Furthermore, an independent Panel Chair regularly monitored progress of the study, questioned the rationale of the decisions made and offered independent advice. Engagement of the researcher with the research community including publishing in peer-reviewed journals (Tabib & Crowther, 2018; Tabib et al. 2021) and presenting at national and international conferences (Appendix 2) provided further peer-review opportunities and promoted researcher reflexivity.

Member checking, where the participants are asked to test the accuracy of the results and resonance with their experiences, is advocated by Lincoln and Guba (1985) as a technique to enhance qualitative research trustworthiness. Use of member checking is based on the assumption that there is a truth of participants' experiences that can be accessed if the potential distorting effect of the researcher influence can be suspended (Smith & McGannon, 2018). As opposed to this assumption, reflexive TA is premised on the researcher never being a neutral conduit, simply conveying a directly accessed truth of participants' experiences (Braun & Clark, 2022). Braun and Clarke (2013) argue that understanding and representing peoples' experiences requires "*interpretive activity; this is always informed by our own assumptions, values and commitments*" (p. 285), concluding that member checking, therefore, cannot deliver objective knowledge

or provide a judgement tool on the research validity. Thus, member checking was not utilised in this study.

Credibility was also enhanced by the reflexivity of the researcher. Throughout the study, a reflexive diary was used to record and reflect on developing thoughts, understanding and experiences that influenced the research process (Koch, 2006). A second journal was also used to record the field notes and document the observations and experiences of the qualitative data collection and analysis processes.

#### **4.7.2 Transferability**

Transferability in qualitative research mirrors generalizability in quantitative enquiries and is concerned with how the findings can be transferred to other settings (Schwandt et al., 2007). The researcher cannot know the sites that may wish to transfer the findings; however, the researcher is responsible for providing rich descriptions of the original context of participants, so that those who seek to transfer the findings to their own site can judge transferability (Lincoln & Guba, 1985). Such descriptions have been provided in Chapters 1, 4 and 6 of the thesis. In addition, the study findings are presented as verbatim quotes taken directly from the research participants, this is believed to add to the authenticity of the findings as suggested by Walsh and Baker (2004).

#### **4.7.3 Dependability**

Dependability refers to the consistency and reliability of the research findings and the degree to which research procedures are documented, allowing the reader to audit and critique the research process (Polit and Beck, 2006; Sandelowski, 1986). To achieve dependability, researchers should ensure the research process is logical, traceable, and clearly documented (Tobin & Begley 2004). One way that a research study may demonstrate dependability is for its process to be audited (Koch, 2006). Providing

detailed descriptions of recruitment, data collection, analysis and interpretation processes in this study intended to provide an audit trail and enable the reader to judge the study dependability. For instance, providing descriptions on how the study themes were generated, developed, and named (in section 4.6.3) intended to enhance the study dependability.

#### **4.7.4 Confirmability**

Confirmability is concerned with establishing that the researcher's interpretations and findings are clearly derived from the data (Nowell et al., 2017). It requires the researcher to demonstrate how conclusions and interpretations have been reached (Tobin & Begley, 2004). The key point in confirmability is that the study should be auditable. A study and its findings are considered as auditable when another researcher with the same data, perspective, and situation could arrive at the same or comparable, but not contradictory, conclusions (Koch, 2006; Sandelowski, 1986). Including detailed descriptions on the reasons for methodological and analytical choices in this chapter intends to provide an audit trail and enable the reader to understand how and why these choices were made and how conclusions were reached (Koch, 2006; Walsh & Baker, 2004). The study audit trail was developed during the study in view of the records of the raw data, field notes, transcripts, and a reflexive journal. This audit trail helped the researcher to systemize, relate, cross reference data, and eased the reporting of the research process (Halpern, 1983). In addition, Guba and Lincoln (1989) advise that confirmability is established when credibility, transferability, and dependability are all achieved. Demonstrating how the study achieved credibility, transferability, and dependability in previous section aimed to increase the study confirmability.

#### **4.8 Reflexivity**

Reflexivity is essential as it allows a more rigorous approach, adds quality, offers enhanced credibility, trustworthiness, and limits bias in qualitative research (Berger, 2015). Reflexivity is viewed as the process of a continual and critical self-evaluation of the researcher's positionality as well as recognition of how this position may affect the research process and outcome (Bradbury-Jones, 2007; Guillemin & Gillam, 2004; Pillow, 2003; Stronach et al., 2007). Sandelowski (2010) argues all research entails interpretation and thus is influenced by researcher biases. Gadamer (1976) on the other hand argues that researcher bias is not only unavoidable, but necessary, as long as they are self-reflectively aware. Hence, reflexivity in qualitative research enhances the credibility of the findings by accounting for researcher values, beliefs, knowledge, and biases (Cutcliffe, 2003). In this study, several steps were taken to ensure researcher reflexivity. At the onset of the study and prior to data collection, the supervision team interviewed the researcher. The interview was digitally recorded and transcribed verbatim by the researcher to clarify her stance or pre-understandings of the phenomenon and examine such pre-understanding. This was important for the study trustworthiness particularly because of the researcher's experience as a practitioner and her prolonged engagement with the study area (as explained in Chapter 1). It was therefore vital that any bias was made explicit at this early stage. Starting a statement of positionality also intended to unpack the researcher's biases and form the basis from which a reflective account could be created. Using a detailed reflexive diary when collecting, analysing, and interpreting data ensured the researcher's thoughts were documented during these processes (Clancy, 2013). As the quality of research is also subject to the wise judgment and keen insight of the reader, developing a reflexive diary that could be used by the reader in conjunction with the research report



may add to the research's trustworthiness (Rollé, 2006). Therefore, reflective accounts taken from the reflexive diary are presented in Chapters 1 and 9.

Outcomes of the research are derived not only from the data but the researcher's interpretation of data. Thus, maintaining an awareness of the researcher's pre-understanding and the impact of this on the research outcomes, may promote a more open attitude, and encourage more clarifying questions to be asked, thus adding to the accuracy and credibility of the research findings (Hall & Callery, 2001). For example, one of the researcher's preconceptions was that visualisation and hypnosis techniques were the most widely used techniques in creating a trance state during the course of childbirth. During the interviews, the participants frequently and implicitly used the terms 'the zone' to describe the aim of using relaxation techniques during labour,

*'As soon as I felt it came on, that was when I got into the zone.'* (Charlotte)

The spontaneous interpretation of the researcher of the term '*the zone*' would have been 'a trance state' induced by visualization or hypnosis. had such assumption not been made explicit in advance. Such awareness of one's own perceptions, however, led to asking participants to explain what they meant by the term '*the zone*'. The responses revealed that despite the researcher's pre-understanding, breathing and body awareness techniques had played a more significant role and that '*the zone*' was an aware and alert state rather than a trance state.

*'...it's not about always falling asleep, it's not about that, so it's being alert at the same time....'* (Charlotte)

Recording experiences such as the one described above in the reflexive diary, helped the researcher to challenge her own assumptions, scrutinise her own position within the

research process and consider how this might impact data collection, analysis, and interpretation (Shaw, 2010). This approach was imperative to allow the findings and subsequent interpretations to develop inductively from the data.

#### **4.9 Ethical considerations**

The World Medical Association (WMA) Declaration of Helsinki (WMA, 2013) states that it is the duty of health professionals involved in research “*to protect the life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of personal information of research subjects*” (p. 2191). Adherence to the internationally recognised ethical and scientific quality standards aim to ensure that research participants are “*adequately protected*” and that the results of research studies are “*accepted as reliable*” (Medical Research Council (MRC), 2017, p10).

This study was conducted in accordance with the principles of Good Clinical Practice (GCP) listed in the National Institute for Health Research (NIHR), GCP reference guide (2016) and Data Protection Act (2018).

Having a clear rationale for conducting research studies and for the methods used, is the ethical obligation of health professionals involved in research (Webster et al., 2014).

The rationale for undertaking this study was explained in detail in Chapters 1 and 2. The importance of the identified problem in current practice, the underpinning theories suggested by theoretical literature (Chapter 1), and the gaps in the empirical literature (Chapter 2) justified the conduct of the study. Chapters 4 and 6 provide justifications for the methods that were used throughout the study. Furthermore, a paucity of evidence in such an important area of practice presented a professional obligation to the researcher.

## Researcher's education and experiences

To ensure the highest standards and protect participants from harm, it is essential that researchers receive appropriate ethics education, training, and qualifications (WMA, 2013). Hence, the researcher who had completed Good Clinical Practice (GCP) training in 2013, continued to take part in biennial GCP training (last updated in 2020). In addition, the researcher who is an experienced midwife, prior to commencement of this study, had acted as a research midwife, undertaking research studies in clinical practice. These had provided the researcher with a minimum standard of education and experience in research conduct. The academic supervision team ensured expert supervision of the researcher throughout all stages of the study.

### **4.9.1 Compliance with ethical principles**

To demonstrate clearly how the study addressed ethical considerations and complied with GCP requirements, the four ethical principles of Autonomy, Non-maleficence, Beneficence and Justice (Childress et al., 2005) were used as a framework.

#### *Autonomy- Informed Consent and voluntary participation*

Manning (2004) considers three components for informed consent: "*information sharing, promoting participant understanding and assurance of voluntariness*" (p. 43)

To effectively communicate with the participants in this study, easy-to-understand Participant Information Sheets (PIS) (Appendix 5) were provided. The PIS presented information about the study and what was involved if they chose to take part. If the participants expressed interest, a phone consultation or meeting was arranged to answer any questions or concerns regarding the study. In addition, the researcher was present at the beginning and end of the Antenatal Relaxation Class to answer the participants'

potential questions. In verbal communication, it was reiterated that participation was entirely voluntary, and they could withdraw from the study at any point prior to the completion of data collection in both phases of the study, should they wish, without giving a reason. It was also highlighted that taking part or refusal to take part in the research would not affect the care they received or their participation in ARC. Written consent was received prior to participation.

Due to the time gap between signing the consent form (around attending ARC, during pregnancy) and the interview (after birth), the researcher revisited the PIS with the participants prior to commencing the interview process to ensure the participant's consent was still valid.

The midwives facilitating ARC acted as 'gatekeepers' to contact the potential participants, send them the invitation letter along with PISs, consent forms. Therefore, only the participants who had agreed to participate by returning the signed consent forms were approached by the researcher. The participants in the study were given the option of receiving a summary of the study results (WMA, 2013) on completion of the thesis.

#### *Non-maleficence: "Do not harm"*

Non-maleficence principle requires the researchers to foresee the potential harms caused by participating in the research and to put preventative measures in place before conducting the research (Manning, 2004). It was acknowledged that reliving an experience of something as personal as childbirth could potentially cause discomfort and distress. Hence, a distress protocol was created (Appendix 5), in case participants experienced distress during interviews. Furthermore, the participants were informed that they were free not to answer any questions and to terminate the interview at any time, if

they became distressed. Women and birth partners participating in the study were informed that their General Practitioner (GP) would be notified of their participation in the study. Due to GP practices and perinatal mental health service not being available during weekends, no interviews were arranged on Friday afternoons or evenings. However, no participants were unduly distressed by their experiences or chose to discontinue the interview. On the contrary, several participants commented that they had appreciated the opportunity to reflect on and talk about their childbirth experiences. In addition, it was highlighted to the participants that if there were any areas of concern that indicated the participant or baby may require further support or care, the participants would be encouraged to contact their GP or/and perinatal mental health service and that their GP would be notified of this.

It is also imperative to highlight the researcher reflexivity was utilised as an active ethical process for minimising the potential for harm to participants as well as minimising bias in the research process. Reflection on the potential impact of such interactions on the research process enabled the researcher to plan strategies to address similar issues that may have arisen as the data collection continued. A summary account of the research's reflection on the research process will be presented in chapter 9.

Bloor et al. (2010) argue that qualitative research frequently involves extended personal contact with research participants in a range of research settings; which may expose the researcher to safety issues; therefore, considering the researcher's personal safety is of paramount importance. As it was anticipated that some of the interviews may take place in participant's homes, a personal safety protocol for the researcher was developed as part of ethics process (Appendix 5). The participants were informed that if they chose their home as the interview location, their home address and contact details would be

shared with a third party as part of the researcher's safety protocol. Nguyen et al. (2021) suggest that the qualitative researcher may experience some emotional distress during the data collection process. Therefore, it was anticipated that if the researcher experienced some emotional distress whilst conducting interviews, she would seek support from the counselling services available to the students and staff within the University.

### *Beneficence*

The principle of beneficence in research requires that health professionals not only prevent harm, but also provide benefits and balance benefits against risks and costs for the participants. Although participation in the study had no direct benefits to the participants, the comments during the interview process suggested they had valued the opportunity to reflect on and share their experiences. A number of participants attributed their motive to take part in the research to their altruistic feelings of an “*obligation to do good for others*” (Manning, 2004, p. 36). Some expressed that the interview and reflecting on their experiences of using the relaxation techniques had reminded them of the application of these techniques going forward as new parents. Other than the time commitment to the interviews, there was no anticipated costs for participation in the research. The time commitment was anticipated to be no longer than two hours. This information was openly shared with the participants through PIS and verbal communication.

### *Justice*

This principle relates to sharing the benefits and burdens of research fairly among different groups in the community (Manning, 2004). All groups in the community should have a right to take part and have their voices heard through research. This was

facilitated by using purposive sampling and actively seeking to recruit a group that was diverse and inclusive of under-represented groups (particularly in previous studies) such as birth partners and women from minority ethnic groups.

#### **4.9.2 Data management and storage: Protecting participants' confidentiality and anonymity**

To comply with Data Protection Act (2018), the stated stipulations in Edinburgh Napier's Information Security User Policy, and the research governance requirements of the NHS throughout the study, it was essential that the researcher familiarised herself with the legal and ethical responsibilities of handling and protecting data. The study protocols and PIS outlined the detail of the precautions that would be taken by the researcher to "*protect the privacy of participants and maintain confidentiality of their personal information*" (WMA, 2013, p. 2192). In Phase 1, the participants' confidentiality was protected by changing their names to pseudonyms they chose for themselves. This meant, the only identifiable information that was collected from participants was on the consent forms. The paper-based consent forms were then scanned, saved and password protected on a university computer system and were shredded as confidential waste. In Phase 1, the interviews were audio-recorded using an encrypted digital recording device. All audio recordings were deleted from the audio recording device once transcription and analysis were complete. In Phase 2, the personal information was collected electronically directly into Novi-survey hosted by Edinburgh Napier University. All electronic data were stored on a password protected, encrypted University computer system and backed up on the secure server of the University. Apart from the researcher and her supervisors no one had access to the participants' personal information. The researcher personally transcribed the majority of the interviews. Only

the first five interviews were transcribed by a professional transcriber who had signed a confidentiality agreement (Appendix 5). Although the transcriber did not have access to the participants' personal data, first names may have potentially been identifiable in the recorded audios.

As per Edinburgh Napier University guidance, the anonymised data will be stored securely for 10 years after completion of the study and will then be destroyed on the safe disposal of confidential waste. Any verbatim quotations from the data used in publications and reports will also use the pseudonyms to protect participants' confidentiality.

#### **4.9.3 Ethical approval**

The doctoral study was sponsored by Edinburgh Napier University and the ethical approval was obtained from by the Research Integrity Committee at Edinburgh Napier University, NHS National Research Ethics Service (NRES), and the NHS Grampian Research and Development (NHS R&D). Further details about ethical approval and the study amendments are presented in Appendix 8.

#### **4.9.4 Publication and dissemination of research findings**

Following receipt of a favourable ethical opinion on the proposed protocol (Appendix 4), a summary of the proposed research was published on the publicly accessible website of the Health Research Authority, together with the contact details of the researcher according to the requirements of WMA (2013) that requires all research studies involving human subjects to be registered in a publicly accessible database before recruitment of the first subject. In addition, the on-going findings of this research have been disseminated at national and international conferences and through two peer reviewed journal articles (Tabib & Crowther, 2018; Tabib et al., 2021) (Appendix 2),



with more publications planned which will adhere to accepted guidelines for ethical reporting (WMA, 2013). Where relevant, the source of funding for the research (Tolanthe Midwifery awards, 2020) was explicitly declared. Furthermore, the institutional affiliations and conflicts of interests of the researcher or co-authors were clearly stated in the publications (WMA, 2013). In addition, a summary of study findings was shared with the study participants who chose to receive one.

#### **4.9.5 Insurance cover**

In the PISs it was highlighted that in case of any concerns regarding the nature or conduct of the study, the participants could contact the researcher in the first instance and that if they remained unsatisfied, they could contact the Project Supervisor or the Chief Midwife at NHS Grampian. To ensure appropriate compensation for potential harm to participants as a result of participating in research (WMA, 2013), the University as the study sponsor provided insurance cover. Nevertheless, no concerns arose.

#### **4.10 Summary**

This chapter has presented the research methods of the qualitative phase, providing a detailed and elucidated account of the processes of data collection, analysis and interpretation. Further, the chapter included an outline of the importance of trustworthiness in qualitative inquiry and the steps taken to achieve a high standard of trustworthiness. concluded this section. The chapter concluded by showing how this study adhered to ethical principles and the requirements of Good Clinical Practice throughout the research process from designing to conduct, analysis and reporting the findings.

# Chapter 5 Phase 1

## Qualitative Findings

This chapter presents a description of the response rate and participants' characteristics prior to presenting the findings of the qualitative interviews with women and their birth partners. A summary of the findings will conclude the chapter.

## **5.1 Response rate**

In total, 64 women (and their birth partners) were invited to participate in the study of whom 39 gave consent. Ultimately, 17 responded to the text reminders following birth and took part in the interviews, giving a response rate of 26.5%. Nine birth partners (of women participants) attended the interviews, three of whom had attended ARC.

Two women contacted the researcher following the birth, nine responded to the first text reminder and the remaining five to the second text reminder. Subsequently, the researcher arranged a mutually convenient time and location for the interview to take place. The interviews took place between 2-8 weeks following birth, depending on the participants' preferences and circumstances. The recruitment target (14-18 women) was achieved, and 17 women participated in the study, of whom 8 took part in one-to-one interviews, and nine took part in joint interviews, where women and their birth partners were interviewed together. The data for all participants (including the pilot study participants) are included as no participants chose to withdraw from the study.

### **5.1.1 Characteristics of the sample**

The characteristics of the study participants and processes of care are presented in Table 5.1. The first six participants/couples in the table were interviewed during the pilot study. The identity of participants was protected by using a pseudonym they chose for themselves. Three women were multiparous, and the rest were primiparous. The women were aged between 26 and 41 years (Mean age 31.94, *SD* 3.76). Over the three-month period of recruitment, only two teenage women were identified and invited to the study,

neither of whom agreed to participate. The participants were from a range of ethnic groups including Asian (one), African (one), South American (one), mixed raced (one), white American (one), and white European (one) with the majority being white British (11). Most participants (60%) were educated to degree level or above. Five participants had attended private Hypnobirthing or yoga pregnancy classes. These participants were not excluded from the study as the interview questions were focused specifically on *the influence of attending ARC*, rather than the effect of relaxation techniques in general.

**Table 5.1 Phase 1: Anonymised characteristics of study participants and processes of care**

1	Lara & Frank	1 <sup>st</sup>	White British	MSc	Engineer	Married	32	Spontaneous onset Forceps Operating theatre	7	Epidural in theatre	No
2	Rosie	1 <sup>st</sup>	White British	MSc	School teacher	Married	33	Induction of labour C-Section Operating theatre	Not applicable	Epidural during labour	Yes (Hypnobirthing)
3	Louise & James	2 <sup>nd</sup>	White British	BSc	Housewife	Married	33	Spontaneous onset SVB Home birth	Not applicable	None	No
4	Charlotte & Amy (Charlotte's mother)	1 <sup>st</sup>	White British	BSc	Marketing	Married	34	Induction of labour/ Forceps Obstetric-led Unit	Not applicable	Entonox	No
5	Margaret	2 <sup>nd</sup>	White Polish	MSc	Charity manager	Married	32	Induction of labour/ SVB Labour ward	Not applicable	Entonox for one hour	No
6	Neave	1 <sup>st</sup>	White British	BSc	School teacher	Married	34	Induction of labour C- Section Operating theatre	Not applicable	Spinal in theatre	No
7	Zoe & James	1 <sup>st</sup>	Mixed raced Asian-British	MSc	Engineer	Married	28	Spontaneous onset SVB Home birth	Not applicable	None	Yes (Hypnobirthing)
8	Mavis & Robert	1 <sup>st</sup>	White British	College IIND	Document certifier	Engaged	32	Spontaneous onset Augmentation/ Forceps Obstetric-led Unit	6	Epidural when augmented	No
9	Liz & Jo	1st	White British	MSc	Senior accountant	Married	33	Elective C-Section Operating theatre	Not applicable	Spinal in theatre	No
10	Angela & Graham	2nd	White British	College HNC	Office manager	In relationship	38	Spontaneous onset SVB Obstetric-led Unit	4	Entonox & Morphine	Yes (Yoga)

Continued from the previous page

11	Sandra	1 <sup>st</sup>	African	MSc	Entrepreneur	Married	31	Induction of labour SVB Obstetric-led Unit	Not applicable	Entonox, Morphine, Epidural when transitioning	No
12	Summer & Hamish	1 <sup>st</sup>	White American	BSc	University admin	Married	27	Spontaneous onset SVB Homebirth	Not applicable	None	Yes (Yoga)
13	Emilia & Oliver	1 <sup>st</sup>	White British	PG diploma	Community developing officer	Married	28	Spontaneous onset SVB Midwives Unit	10	None	No
14	Louis	1 <sup>st</sup>	White British	PG degree	School teacher	Married	27	Induction of labour Emergency C-Section Operating theatre	Not applicable	Epidural in labour	No
15	Mary	1 <sup>st</sup>	Asian	PhD	Engineer	Married	41	Spontaneous onset Augmentation/ SVB Obstetric-led Unit	7	Entonox	Yes (Yoga)
16	Silvana	1 <sup>st</sup>	Brazil/ South American	BSc in engineering	Housewife	Married	32	Spontaneous onset Augmented/ Forceps Operating theatre	4	Entonox & Morphine in labour Epidural in theatre	No
17	Arlene	1 <sup>st</sup>	White British	HNC College	Nursery nurse	In relationship	28	Spontaneous onset SVB Midwives Unit	9	Entonox for one hour	No

NB) Abbreviations used in the table included HNC (Higher National Certificate), HND (Higher National Diploma), PG (Postgraduate), SVB (Spontaneous Vaginal Birth)

## 5.2 Findings

As shown in Table 5.2, three themes were generated during data analysis, namely:

*'ARC, the turning point', 'inner resource' and 'space for relaxation'.*

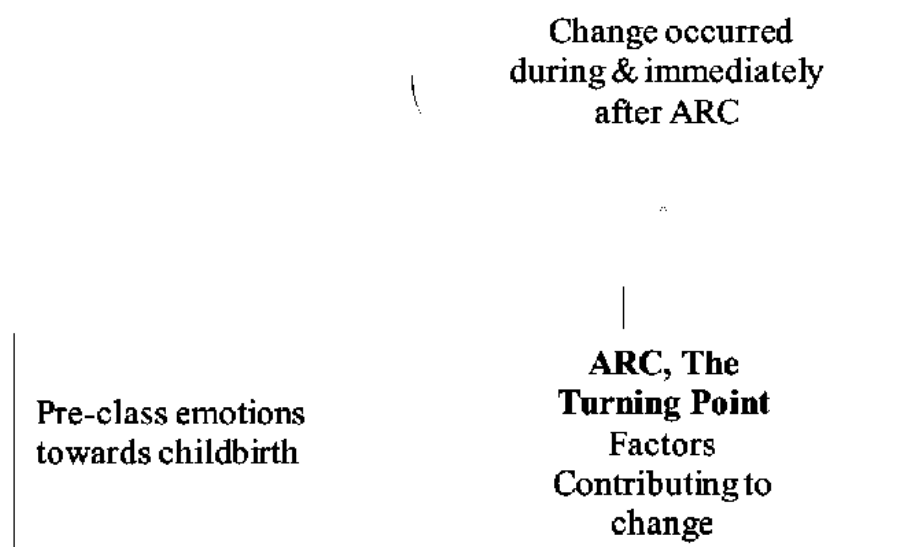
**Table 5.2** Phase 1: Themes and sub-themes

<b>1) ARC, The Turning Point</b>	Pre-class emotions towards childbirth Change occurred during & immediately after ARC Factors contributing to change
<b>2) Inner Resource</b>	Inner resource in pregnancy Inner resource in childbirth Inner resource beyond birth
<b>3) Space for relaxation during childbirth</b>	Physical environment Clinical picture Role of the midwife Role of the partner

### 5.2.1 Theme One – ARC; The Turning Point

*It definitely changed our mind.... such a turning point. (Zoe)*

ARC was most frequently described by the participants as the '*turning point*', where their feelings towards childbirth and the role oneself could play in it, were changed. For most women, their emotions of fear and anxiety around childbirth shifted towards positive feelings of confidence, preparedness, and excitement about childbirth. Women repeatedly compared their pre- and post-class emotions towards the upcoming birth and the factors that influenced this change. Therefore, in this section pre-class emotions towards childbirth are discussed, before describing the emotional changes that occurred during and immediately after ARC and the elements of the class that contributed to such changes. Figure 5.1 presents theme 1 and its subthemes.



**Figure 5.1** Theme 1: ARC, The Turning Point and its subthemes



### 5.2.1.1 Pre-class emotions towards childbirth

When describing their pre-class feelings towards childbirth and childbirth-related procedures, participants often expressed feelings of 'fear', particularly fear of childbirth pain and went on to describe the 'factors contributing to this fear'.

#### *Fear*

Childbirth related fear and anxiety was prevalent among the participants. Some expressed their fear and anxiety explicitly,

*"Before the class, I was scared and nervous about labour". (Mavis, Para zero (P0))*

Others stated that they had tried to avoid thinking about the upcoming birth.

*"... I was sort of, like, ignorance is bliss. I didn't think about it too much, quite deliberately". (Louis, P0)*

Women expressed a range of fears and anxieties including those around childbirth pain,

*"I was very anxious before... I knew it was painful and all that and I really worried about that". (Sandra, P0)*

The potential childbirth complications and medical interventions also caused anxiety,

*"I was advised that I will get an induction on my due date, which, to be honest, I dreaded". (Mary, P0)*

*"(I was) pretty terrified, I think all the way through my pregnancy. I thought the worst-case scenario for labour would be a section, I was quite scared of that".*

*(Louis, P0)*

A number of women expressed that they were afraid of the unknown.

*"I felt anxious, I would say, not knowing what you're going into". (Charlotte, P0)*

They were also afraid of their own behaviour during childbirth.

*"... the fear of how I would cope with it (childbirth) ...like, would I be screaming and swearing and throwing things at midwives?". (Louise, P1)*

### ***Factors contributing to fear***

Women indicated that their fears and anxieties were influenced by the societal views portrayed in the media, the negative birth stories narrated by friends and family, and the information presented by health professionals.

*"I just remember this scene in 'Friends' with like, Rachel pushing her baby out with her legs up and that seems to be the only image I have of giving birth and stuff". (Zoe, P0)*

Some avoided such images and narratives.

*"I avoided watching one born every minute". (Charlotte, P0)*

Stories shared by friends and family played a significantly negative impact on women's perceptions towards childbirth and how they viewed it, and these stories seemed to have more credibility.

*"I always thought, childbirth sounds horrendous ... friends tell me absolute horror stories, that does taint your idea, I suppose, and your perception of it." (Liz, P0)*

Jo, Liz's husband, confirms: *"Everybody tells you negative stories"*.

For some women the information provided during the antenatal visits or routine antenatal classes triggered the fear. Liz, a primiparous woman, whose pregnancy scan had indicated the large size of the baby explains:

*“So, we saw consultant and it was quite overwhelming, we were given a lot of information, mainly about shoulder dystocia, that put the fear of guts in me even though it was very, very rare.” (Liz, P0)*

Liz had similar feelings when she attended an antenatal class on labour and birth.

*“I did struggle with the antenatal class on labour. I just felt nauseous and felt fear, and I think at that point. I sort of thought, oh god, how am I going to do this?” (Liz, P0)*

#### **5.2.1.2 Changes occurred during and immediately after ARC**

Women expressed that their emotions towards childbirth underwent positive changes during and immediately after ARC. Whilst childbirth related fears and anxieties were alleviated, feelings of confidence increased. Enhanced knowledge and understanding of childbirth physiology, exposure to positive childbirth stories and the opportunity to practice the relaxation techniques were identified as contributing to this change.

##### ***Change of emotions – Fear/Anxiety - Confidence Seesaw***

Following the class, women reported feeling confident, equipped, empowered, and excited about the upcoming birth. Their confidence was identified as resulting in the alleviation of negative emotions of fear and anxiety. Hence, fear/anxiety and confidence in participants’ comments were portrayed as two sides of the same coin, a rise in one meant alleviation in the other. The participants described such changes in the experienced feelings as a *‘breakthrough’* or *‘turning point’* that occurred during the class.

*“It (ARC) just changed things. I definitely thought it was a breakthrough”.* (Liz, P0)

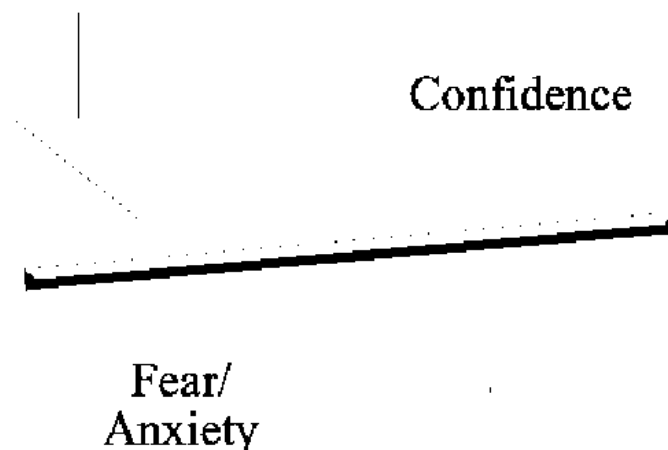
Women expressed that their emotions towards childbirth underwent positive changes during and immediately after ARC. Silvana said,

*"I called my mum to tell her that I felt very positive, really positive after the class."* (Silvana, P0)

They reported, fear and anxiety were eased whilst feelings of confidence and preparedness emerged.

*"It was that switch in mindset, (I realised) I was born to do this (childbirth), yeah, more confident, as opposed to seeing it like something to be feared...not be as scared and to like, have that realisation that this is normal. I left feeling quite empowered, quite excited for my birth, kind of I want to labour, I want to birth my child, I want to have that experience and I was looking forward to it. Strange thing to say. It just gave me the confidence and I felt it gave me the tools to be able to cope with labour."* (Louise, P1)

This effect is demonstrated in Figure 5.2.



**Figure 5.2** Fear- Confidence Seesaw

Neave felt, her attendance in ARC and her new understanding of childbirth physiology helped her to reduce the fear and feel more positive,

*"It helped me to put things kind of into perspective, just felt really relaxed and really positive about birth itself because I think I'd been quite apprehensive and trying not to think about it, but after the class I was feeling a lot more settled about it as if I had another resource I could use. It was something you could try, and you understood."* (Neave, P0)

The class was described as providing the tools for 'training the mind' by Charlotte,

*"I guess it was like training my mind ... The mind over matter thing. I felt anxious, I would say, not knowing what you're going into but, then after that relaxation I just felt, okay, this is something I can do, that's going to help, it made me think differently, and to approach it differently, in a more positive way."*

(Charlotte, P0)

This mental preparation seemed to include readiness for potential childbirth complications too.

*"Having attended the relaxation class, I felt reassured, I felt positive, and I felt equipped to give birth. I was given that confidence, kind of I was almost given a toolkit of how to mentally prepare myself for the birth, whatever scenario."* (Liz, P0)

### **5.2.1.3 Factors contributing to change**

The participants noted that three main factors had contributed to this change in perspective, namely: understanding of the childbirth physiology, the positive childbirth

stories shared in class, and the practice of techniques which provided experiential evidence for them.

### ***Understanding the childbirth physiology***

The included theory on the physiology of childbirth and its relationship with the relaxation response (Buckley 2015; Dick-Read 2004; Benson 1975/2011; Odent 1992) was depicted by the participants as one of the main contributors to the change in emotions. It is worth noting that some of ARC participants attended the class with no background information about the class content and a considerable number of them stated being sceptical about such practices due to considering the approach as 'alternative'.

*"I'm very pragmatic person and very, erm, task orientated so I always think about myself like, relaxation, meditation, this kind of techniques is not really for me ..., I, like I was sceptical." (Margaret, P1)*

The understanding of hormonal systems involved in childbirth, however, appeared to provide a 'big enough why' for engagement in the relaxation exercises.

*"I was a sceptic; I think the thing that just totally changed my mind was the start ... like the hormones involved ... that evidence-based background. It wasn't just, oh, if you sit and relax it's all going to be really nice and easy for you, because it's magic type thing. Because it was that evidence-base I was like, oh, okay, yeah, this does make sense." (Louise, P1)*

Some specifically referred to the Fear-Tension-Pain cycle described in ARC and considered such understanding as an influential factor in reducing anxiety.

*"In the class, they spoke a lot about the Fear-Tension-Pain cycle and how just to deal with that. So, you're not feeling so anxious about it." (Angela, P1)*

This understanding of physiology was expressed as a realisation, something that made sense and provided purpose and meaning to the challenges of childbirth.

*"... describing the whole human chemistry, the science behind that ... it's a cycle and it's all there for a purpose, it helped, because it gave me like, okay, I know what's going on, I know there is a purpose in it."* (Margaret, P1)

Understanding the physiological processes in the body during childbirth and that one could impact these processes seemed to alleviate childbirth-related fear and anxiety and gave rise to a sense of active participation in the process.

*"I came home with the knowledge of like oxytocin's releasing, or like the positive hormones, what are they called, endorphins, instead of being anxious, it was actually really effective. It was more the science part, I think, well, for me anyways. When I was in the class I was really chuffed, (to realise) the womb is a muscle, you know, just like knowing that was like liberating, like it's doing a function, the same thing as like extending your arm to pick up something, it's like actually doing work for you and there was something I could do to help it work was really good. I think that just, was quite a powerful thing in itself."* (Lara, P0)

The birth partners too, reported emergence of a new understanding that made sense to them, Louise's husband James said,

*"Listening throughout the whole class I kind of went, you know, it actually makes sense, I can understand the theory behind it and kind of really got quite into it.*

(James)

Although discussing the place of birth is not included in ARC, women who chose homebirth based their choice on their understanding of childbirth physiology, discussed

in the class. Louise reported her choice for a homebirth was influenced by the knowledge gained from ARC.

*"It was that something clicked, and it was just like, you know, this is normal, and this is not an illness, you know, like you go into hospital when you're ill ...when you need something fixed. This is nothing that needs to be fixed, this is natural, this is what I was born to do, essentially, you know, we're born to reproduce."* (Louise, P1)

Zoe and Summer, the two primiparous women who had opted for home birth stated that they had considered homebirth prior to attending ARC, however, the information given in class had committed them further to this choice.

It seems health professionals often fail to validate women's awareness that childbirth is a physiological event. The participants found it reassuring that the class was delivered by health professionals, who confirmed and validated their feelings and beliefs.

*"Having professionals having that point of view validates it for you, erm, and makes you go, oh yeah, okay, this is what I was thinking, as opposed to is it madness? is it right?"* (Louise, P1)

### ***Positive stories***

Women also appreciated and valued the positive birth stories narrated by previous ARC participants and the midwives.

*"It was good to hear other people's, you know, the stories within the slides of people's experiences."* (Arlene, P0)

Despite the negative stories usually shared by other women, the encouraging stories in class reminded them of the positive nature of the childbirth experience.



*"(I realised) people do have positive birth stories, you know, this is an amazing thing that you're going to be going through, overwhelming kind of message from the midwife (ARC facilitator); it doesn't all have to be horror stories, you're absolutely fine with the right toolkit, you know, you can have a positive birth experience."* (Liz, P0)

The stories created evidence and hope around the possibility of having a positive experience.

*"If people have done it, and I've practised, you know, then I should be okay."*  
(Sandra, P0)

### ***Practice of relaxation exercises***

Women found that putting the discussed theory into practice, in the form of relaxation exercises resulted in experiencing a deep state of relaxation, in other words, an altered state of consciousness. In this state, they felt calm, yet alert, and aware.

*"... to recognise like a deep state of relaxation. Being able to stop, reset yourself, you just feel so much calmer, but also so much more alert and aware."* (Zoe, P0)

This state was associated with reduced mind activity, relaxation in the body and a sense of being in the moment.

*"Quite a few deep breaths until I felt my sort of heart rate going down until I felt like I could fall asleep. Felt like I was able to empty my mind and just focus on the breathing and just be a part of that moment, it was so relaxing."* (Louis, P0)

Summer positively reflected on her ability to avoid fixating on thought streams,

*"I remember, I just relaxed really well throughout that exercise. There were thoughts floating in, but I didn't fixate on any of them and they just kind of came and they went."* (Summer, P0)

Angela described the state as 'being present within the body' and associated that with 'feeling good',

*"At the end when we did the meditation, and that was really beneficial as well. To calm my mind, and just to I don't know, enjoying my body at the time, be present within my body, it felt really good."* (Angela, P1)

This state was also defined as an unusual, heightened awareness of one's own body, coupled with alleviated worries.

*"It was an odd sensation to feel that you're totally relaxed, but you're not sleeping. I wasn't really thinking about anything, relaxed and aware of my bump, and my body. I wasn't really worrying, thinking about nothing other than how comfortable and relaxed I felt."* (Emilia, P0)

Liz associated this body relaxation and reduced mind activity with a lessened fear of labour pain.

*"The actual relaxation techniques and exercises that were done in the class were really, really useful, it was good to see, the techniques put in practice. Just letting go of the idea of pain, just allowing things to happen. Almost like turning it (the mind) off I suppose."* (Liz, P0)

Practice provided experiential evidence and led to confidence in their own ability to induce a relaxed state.

*"The fact that I'd practiced it (in class), that gave me a bit of confidence, I was like, okay, so I can do this."* (Sandra, P0)

To sum up, the combination of gaining an understanding of childbirth physiology, listening to positive birth stories, and experiencing a focused state of consciousness through relaxation exercises seemed to result in the recognition of an inner resource which was associated with a sense of positivity. Indeed, growth in confidence and

alleviation in childbirth-related fear and anxiety following the class is likely to have stemmed from this recognition.

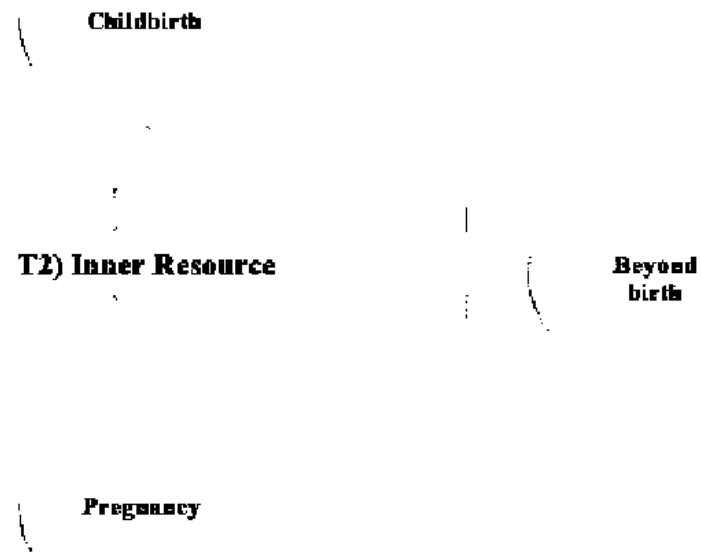
### **5.2.2 Theme Two: Inner Resource**

*I didn't have any tension in my body at all, I just felt like I could empty my mind and, let my body do what it needed to do. (Liz)*

Through the practice of the relaxation exercises in class, the participants experienced a deep sense of calmness, an altered state of consciousness. Women tended to implicitly refer to this state as '*the zone*' or '*the mood*'. A phenomenon that appeared to be difficult to describe explicitly and required further probing questions to unravel. This state was described as reduced habitual mind-activity and a sense of physical relaxation, a state which is not usually or naturally experienced during routine daily life.

Experiencing this state was interpreted as recognising an existing inner resource.

Tapping into this inner resource and stepping into an altered state of consciousness was deemed the ultimate aim of practicing the techniques during pregnancy, childbirth and beyond. This state was considered a respite that they could enter whenever needed whether it was for dealing with insomnia in pregnancy, coping with labour pain or managing stress as a new parent. Figure 5.3 presents theme 2 and its subthemes.



**Figure 5.3** Theme 2: Inner Resource and its subthemes

### **5.2.2.1 Inner resource: during pregnancy**

Practice of the learned relaxation techniques resulted in a range of benefits during pregnancy including reducing anxiety, controlling panic attacks, avoiding stress before undergoing medical procedures, and dealing with insomnia and physical pain. In addition, entering this state helped maternal-fetal bonding, and mental preparation for childbirth.

Frank pointed out the influence of practice on Lara’s **anxiety**,

*“When you were pregnant, when she was anxious that would really help, kind of calm you down. I just think you were really relaxed and chilled out by it all.”*

(Frank to Lara, P0)

Rosie who was struggling with regular **panic attacks** stated,

*“During my pregnancy because I was so anxious, it did make a big difference, probably within a week my panic attacks decreased from seven a week to one a week.” (Rosie, P0)*

Neave found the techniques beneficial for undergoing **blood tests**,

*“I’m not very good with blood and things like that, I had to use some techniques.”*  
(Neave, P0)

Several participants reported using the techniques for **managing insomnia**.

*“When I was pregnant and struggling with the sleep, I could lie in the bed and be tossing and turning for a good two hours and not fall back asleep again and then I would be going to work exhausted. But I was putting my headphones, listened to the relaxation track and every time I would wake up with my headphones in and I had fallen asleep.” (Liz, P0)*

Others found the practice beneficial for easing musculoskeletal **pain** during pregnancy,

*“I experienced quite a lot of back pain. So, I found myself using the breathing techniques for those, so there was probably about a week where I was solidly using those to try and get through that kind of pain.” (Emilia, P0)*

Oliver, Emilia’s husband, shared his observation of Emilia’s experience with back pain as,

*“Emilia was able to cope a lot more with lots of lower back pain, typically she would get worked up about that. Typically, you’d hear about it, the whole 24 hours of the day, but after (class) she just took it as, she was way more relaxed.”*  
(Oliver)

This state was associated with alleviation in anxiety and fear, insomnia, and physical pain, together with a rise in positive feelings and a sense of wellness.

*“You could just switch off and feel good about being pregnant, so it’s just a lovely experience.” (Angela, P1)*

Some perceived the practice as a way of communicating and **bonding** with the unborn child.

*“In the last weeks of pregnancy, I was really calm and when I was calm, she would move around a lot more. So, her movements showed she was calmer as well which was lovely to know, when I was stressed, she didn’t like it, so, it helped her as well, it gave me the time to just focus on myself and the little one.” (Neave, P0)*

Preparation for childbirth appeared to be one of the main motives for practice,

*“I listened to the relaxation track most days and just tried to get myself in a good kind of mental space before going in (the hospital). I just wanted to give myself the best chance of being relaxed and being in the best possible mental space I suppose for the procedure, and I really, really think it helped.” (Liz, P0)*

*“She enjoyed the class, after the relaxation class, she referred back to it a few times, she was reasonably calm.” (Graham, Liz’s husband)*

Despite using the techniques for a range of purposes, the ultimate intension was to tap into the inner resource to enter a particular state of calmness. Stepping into this state continued to be the key motive for the use of relaxation techniques during childbirth too.

#### **5.2.2.2 Inner resource: during childbirth**

All women stated they had used relaxation techniques during childbirth. The relaxation techniques were creatively applied for an array of purposes including handling the stress of medical procedures and obstetric interventions as well as management of labour pain.

They attributed their ability to cope with labour pain and to avoid pharmaceutical pain relief to their capability to take themselves to 'the zone' and rely on their inner resources. During childbirth, the application of techniques aimed to get them into an altered state of consciousness associated with feelings of control, calmness, and reduced pain. This state was described as allowing and trusting the body to do whatever it needed to do; gaining control by relinquishing control, in other words; transferring the control from the mind to the body. The participants collectively perceived their childbirth experiences as positive and commented on the influence of ARC on such experiences.

#### **5.2.2.2.i Coping with medical procedures and obstetric interventions**

Some women used the techniques to cope with medical procedures such as cannulation,

*"Ultimately, I used the relaxation for, like, simple things, like getting a cannula fitted, but that to me, made a huge difference."* (Rosie, P0)

Coping with procedures during operative birth was another purpose for using the techniques. Of 17 women, two (Neave and Liz, both primiparous) underwent caesarean section before experiencing labour. Both women explained how inducing a 'relaxation state' influenced their experience.

Liz who underwent a planned caesarean section, explained how the breathing techniques she used helped her to get into a particular mental state and cope with the epidural needle,

*"Another thing that I practiced and used when I was getting the epidural and I'm positive this is why I didn't feel any discomfort, was the breathing exercises. I didn't feel anything, and I am not good with needles. I can hardly get bloods and I do think a lot of that was just being in the right mental space, just letting go,*

*letting go of the idea of pain or the idea of discomfort. Just allowing things to happen, almost like turning it (the mind) off, I suppose it (breathing exercise) just helped me do that.” (Liz, P0)*

She continued to explain how quietening her mind through conscious breathing allowed trust in the body,

*“I kept speaking calmly, I kept breathing really deeply and I didn’t feel any discomfort at all. I didn’t have any tension in my body at all. I just felt like I could empty my mind to let my body do what it needed to do.” (Liz, P0)*

Neave, a prim with a history of fear of medical procedures, who had a caesarean section, described her thought process and the visualisation techniques she utilised when bleeding excessively in the operative theatre.

*“While the surgeons were trying to patch me up, I knew the calmer I can stay, the better I will be, the theory side of it. That was a split second in my head. My husband and I went on honeymoon to ... It was sort of a wildlife eco resort we stayed in a ... it was amazing, it was a sort of bamboo wooden hut, bungalow on stilts over a rice paddy field, so we overlooked the jungle, so kind of remembering all of that, that relaxing by the plunge pool ... That was what I pictured to keep myself calm.” (Neave, P0)*

Women experiencing childbirth complications and requiring medical interventions employed their learned skills when confronting stress-provoking situations to induce a sense of calmness and emotional safety.



### **5.2.2.2.ii Coping with labour pain**

The participants who experienced labour contractions (15 women), commonly applied relaxation techniques as a pain management method in labour. They attributed the application of the techniques to their understanding of childbirth physiology including Fear-Tension-Pain theory.

*"I'm aware if I tensed up, that's what makes pain worse, so, I was just still trying to relax."* (Charlotte, P0)

All those who had planned for home birth (3 women) succeeded in having uncomplicated childbirths at home. Women planning for hospital birth, whose labour started spontaneously at home (7 women) felt confident to spend some time at home and apply the learned relaxation techniques before seeking hospitalisation. Those undergoing induction of labour (5 women) seemed to be more likely to seek pharmaceutical pain relief including epidural (3 women), although, some managed without epidural (2 women). The experiences of using relaxation techniques as a pain management method during labour is examined for each of these groups separately in the following three sections.

#### ***Experience of labour pain in planned home birth***

Three women (Louise, para 1, Zoe and Summer both primiparous) had successful homebirth and did not require any pain relief.

James, Louise's husband, described his observation of Louise's use of relaxation techniques in labour as:

*"She would go, like eerily quiet, she just seemed to go down into herself. ... really shut out the world and focused on herself and she was so relaxed through the*

*labour and then towards the end of the contraction. She would kind of come back out of it again and then we'd just carried on chatting and then the next one would happen, and she would just disappear into this little, little bubble.” (James)*

Louise continued:

*“... at the peak of contraction (there was) no pain at all. It was almost like I was away in a dream or floating or something and then when the contractions started coming back down again, erm, easing off, it almost shocked me back into, oh, okay, and so I could feel the tail end of the pain of the contraction but, at the peak of the contraction I felt nothing, no pain... just focusing really hard on relaxing and my breaths really. I think that's why I didn't realise how far along I was. I was just really relaxed”. (Louise, P1)*

She gave birth before the midwife's arrival.

Zoe and James similarly highlighted how focusing on breathing and body relaxation helped her to cope with the labour,

*“The breathing was really, really good you know... I just got through it (labour) with breathing and relaxing.” (Zoe)*

James, Zoe's husband added,

*“You were so focused.” (James to Zoe)*

Conversely, Summer who had a short labour of around three hours, described her experience of the labour pain differently,

*‘It was more painful than I anticipated, if you'd asked me in the labour, I probably would have told you ten out of ten.’ (Summer, P0)*

However, despite the expressed level of pain and the availability of Entonox and Morphine injection at home, she did not ask for them. She continued:

*"I did not ask for anything else (pain relief). I just asked for quiet and silence. I definitely used the breathing throughout all of labour. Four counts in and then eight counts out... just tried to slow that down mainly while contractions were happening but sometimes did them in the break time as well."* (Summer, P0)

### ***Experience of labour pain in planned hospital birth with spontaneous onset of labour at home***

Seven women who had chosen the hospital as their birthplace and started labouring spontaneously at home, managed to stay at home and practised relaxation techniques until their labour was well established. When admitted to the hospital, this group of women managed to continue to work with the pain during labour. Three of these women required augmentation of labour of whom one reported she requested an epidural. The cervical dilatation of these women at the point of admission to hospital is demonstrated in Table 5.1. Although examining the childbirth physical outcomes or epidural rate is out with the scope of this study and not directly relevant to the study aim, the reciprocal relationship between women's coping abilities with labour pain and the psychological outcome of childbirth is well evidenced in the literature (Labor, 2008; Waldenström et al., 2004). Coping with labour pain led to feelings of achievement, pride, and satisfaction with one's own performance. These feelings were evident in women's comments. These women expressed feeling confident to stay at home during the early hours of labour.

*"When my waters broke, we didn't even phone the hospital. I felt quite okay about it all. I needed to like get into the mood ... I think all the relaxation worked; I'd like to think it paid off in getting me to that seven centimetre."* (Lara, P0)

When admitted to the hospital, these women all continued to apply relaxation techniques effectively.

Although Mary had a cervical dilatation of seven cm on arrival at the hospital, she was augmented due to slow progress of labour in the hospital. It took eight hours before she gave birth during which she managed to effectively cope with the contractions.

*"I found that if I focused on my breathing, the pain literally wouldn't go away, but it was very much easier to tolerate ... I got to the second stage, and after two hours of pushing with no gas, and only relying on my breathing, my little angel arrived into the world straight into my arms."* (Mary, P0)

Emilia a primiparous woman, who was admitted to the hospital in the second stage of labour described her experience of applying the techniques during labour,

*"I'm a bit of a drama queen, so the labour was uncharacteristic I think (laughing) in terms of how calm I was. I genuinely think the slowing down of my breath and checking myself and saying, 'okay, breathe slowly, breathe deeply' was what got me to the stage where I was fully dilated."* (Emilia, P0)

She continued to provide more insight into how she experienced the pain,

*"I didn't find the pain unbearable. I kind of said to Oliver (husband), just leave the bags in the car because they'll probably give me some pain relief and send me home till I'm a bit further. I was probably in labour for the majority of Monday not really realising how far along I was in labour. I think that being so aware of my breath was helping me manage the pain because it was giving me something else to think about. The midwife said, normally at this point, people have had a lot more pain relief".* (Emilia, P0)

Oliver agreed.

*"Emilia can get quite worked up. Yeah, but because she was going through that kind of techniques and stuff, I think that probably got her all throughout the night if it wasn't for that she wouldn't have probably been as relaxed about it all.*

(Oliver)

Coping with labour pain was repeatedly coupled with experiencing a sense of control.

Silvana said,

*"I can say that I could control myself. I could control the pain ... just in the end ... I had Morphine. It (the labour) was from 9am to 9pm."* (Silvana, P0)

The partners noticed such a sense of control too,

*"You were in control of it all."* (Frank to Lara)

Mavis eventually opted for epidural yet expressed feelings of satisfaction with the initial progress of labour without any pharmaceutical pain relief.

*"I managed to get to six centimetres on my own. I was on no gas and air, no pain relief, just Paracetamol at home. I was quite happy."* (Mavis, P0)

Those who only attended ARC during their second pregnancy compared their first and second experiences of labour pain. The benefit of having multiparous women in the study was that they could compare. Although two births are not the same, it is interesting to note that they attributed the difference to the use of relaxation techniques.

*"... the whole experience was so positive. I don't even know, pain, just the pain was there, but not nearly as bad as when I first gave birth. Throughout the breathing, I couldn't believe how much it did help with the pain. The first pregnancy the pain at the time seemed extreme 10 out of 10. This time, five."*

(Angela, P1)

Angela's partner had noted Angela's ability in managing the pain,

*"I think the breathing was the big thing, she seemed to be very much on the top of that, she was concentrating on that a lot."* (Graham)

### ***Experience of labour pain during induction of labour***

Women who underwent induction of labour, also reported applying the learned techniques during labour and birth, however, they were more likely to choose pharmaceutical pain relief compared with those having a spontaneous onset of labour. Entonox was the only means of pain management for Charlotte, a primiparous woman who underwent induction of labour, and had a forceps birth.

*"I really felt I got myself into the zone, went into a total, really focused, a calm kind of state. This helped me through, in a big way. I never ever felt the need to ask for anything stronger (than gas and air). As soon as I felt it came on, that was when I got into the zone. I think I could've coped with more; I do put it down to the breathing techniques and, you know, helping me relax. I'm not saying it wasn't sore cause it was sore, but I was prepared to take that pain."* (Charlotte, P0)

Conversely, Louis, Sandra and Rosie found the artificially stimulated contractions too strong. Louis stated,

*"... I was finding them (contractions) just excruciating. Really just really, really couldn't bear much more".* (Louis, P0)

Overall, although all participants indicated using the relaxation techniques during labour and birth, the effectiveness of the techniques as a pain management method seem to depend on the birth environment and the clinical picture to some extent. The home environment seems to be more conducive to the use and effectiveness of relaxation techniques for pain management. Long labours associated with induction of labour

process, and the intensity of medically stimulated uterine contractions may negatively influence women's ability to use their pain management skills.

#### **5.2.2.2.iii Positive perceptions of childbirth experience**

The participants collectively considered their childbirth experience as positive and noted how access to the inner resource through relaxation exercises influenced such an experience.

*"Having access to something so simple as breathing really made my labour the positive experience that it was. My birth experience changed as a result of coming to the class. I genuinely think that it made such positive difference."* (Emilia, P0)

The study participants had a range of childbirth outcomes from straightforward home births to emergency caesarean sections. Some experienced complications such as major blood loss in theatre, post-partum infection, and long hospital stays. Whilst for some labour started spontaneously, others needed to undergo induction of labour processes. Nevertheless, a positive childbirth experience was common among all participants, even when they had experienced challenging situations or been subject to clinical errors. It seemed they were trying to find something positive even amid negative situations and flip the negative experiences to positive ones.

Rosie who had three days of unsuccessful induction of labour, leading to an emergency caesarean section, and a long hospital stay due to a range of complications said,

*"We were in hospital for five days after she was born, she got out when she was six days old ... because of her temperature and then, my blood pressure wouldn't*

*regulate, and I kept on passing out and then I had an infection and then my bowels pretty much stopped working ...” (Rosie, P0)*

As well as experiencing a range of complications during childbirth, Rosie had experienced severe anxiety and panic attacks during pregnancy. That was why she had been referred to the mental health specialist midwife, but due to a long waiting list, the arranged appointment fell in her postnatal period, which she had cancelled after birth.

*“I cancelled my (appointment) with the mental health midwife, because I thought there was no point, I feel quite happy ... Ultimately, I used the relaxation for, like, simple things ... but that to me, made a huge difference ... regardless of the fact that I didn't make it to a birthing pool in a beautiful surrounding.” (Rosie, P0)*

When she was asked, ‘*what is your general feeling about all of this (the experienced challenges)?*’ She responded,

*“I'm not that fussed about it...” (Rosie, P0)*

Louise gave birth at home before the midwives’ arrival, yet considered the experience as positive,

*“... midwife arrived 10 minutes later... but, yeah, it was a great experience actually. Free birthing wasn't the plan. Don't regret doing it that way at all, the whole thing was quite surreal. I wonder how different my experience would be if I never went to relaxation classes, it definitely would be different; without a doubt it would've been very different. I probably wouldn't have had a home birth the second time.” (Louise, P1)*

Women undergoing childbirth complications or giving birth in the absence of health professionals (when unplanned) are reported to be at the higher risk of postnatal



psychological trauma (Furuta et al., 2016). However, this did not seem to be the case for the study participants.

The feeling of positivity and choosing to have a positive experience despite the experienced challenges was unusually high.

Charlotte, who underwent induction of labour and has an instrumental birth, provided further insight into this.

*“I see it as a wonderful experience, you know. I didn't want to look back on it and go 'oh, that was horrific' ... if I hadn't been (to the class), I wouldn't have been able to focus my mind and prepare myself for labour, the relaxation class, the way it made me think differently, and how to approach it (childbirth) differently, in a more positive way has certainly made a more positive experience.”* (Charlotte, P0)

When describing her childbirth experience, Neave, with a history of fear of medical procedures who had an unsuccessful induction of labour followed by a caesarean section and a major haemorrhage in theatre, stated,

*“Not all of it was positive ... It was difficult cause we went through a lot, but I feel quite pragmatic about it. It was something that happened, people helped me, and I helped myself with using different techniques and things like that, so, I feel I went through a lot to have her ... I think because we had so much that we could use and rely on. I feel like I've had a really positive experience from the start.”* (Neave, P0)

The participants expressed having an overall positive childbirth experience even when they had been subject to medical errors. Liz was recommended to undergo an elective caesarean section due the baby measuring large on the scan. She was told this was

necessary to avoid a potential shoulder dystocia. She describes her feelings and experience at the time.

*“For me, I have never had anything medical in my life. I’ve never been in a hospital, never had an operation ... and that’s why the water birth appealed to me so much because I didn’t want a particularly medical birth. So, the thought of going having operation was really overwhelming for me ... I sort of just tried to adjust my mind set and be really positive. I just really tried to be, you know, positive and I listened to the relaxation track most days and just tried to get myself in a good kind of mental space before going in. And actually, when it came around to the day itself, you know, I thought, I’m not going to sleep the night before, but I slept absolutely fine and woke up in the morning, you know, just ready to go and I mean, I think I was okay.”* (Liz, P0)

After the caesarean section the baby’s birth weight was within normal limits and a scanning error was identified. Liz said, *“Oh, eight pounds eight ounces. So she wasn’t that big.”*

Nevertheless, she described her childbirth experience as,

*“Although it wasn’t the way I’d imagined having the baby, I don’t think I would change it. It just blew me, a really positive experience, a big part of that has been the guidance and the materials from the class.”* (Liz, P0)

Liz’s partner, Jo added, *“It was absolutely fine. You know, it was quite calm.”* (Jo)

### **5.2.2.3 Inner resource: beyond birth**

The influence of recognising the inner resource was perceived to last beyond birth.

Some participants continued to apply the learned techniques innovatively beyond birth

for a range of purposes including overcoming the challenges of becoming a new parent, breastfeeding challenges, and managing stress. They recognised their ability to tap into the inner resource as a life skill that did not stop at birth.

#### **5.2.2.3.i Transitioning to parenthood**

The participants described their learning as more than the techniques, it was about adopting a more positive attitude, a more positive way of 'being'. Silvana shared how this attitude helped her cope with the early days following birth,

*"In the first weeks of my baby, the colic and then then the eczema that was severe. She was crying every day, every time. I just remembered (from the class) no; I need to be positive, and I was trying to be calm all the time and think positively."*  
(Silvana, P0)

The techniques became the tools to handle such challenges,

*"Once you have had your baby, you know, and things can get a bit hectic, I think it works post-birth as well, just to take five minutes to just relax."* (Arlene, P0)

Some participants noticed the positive effect of the relaxation audios on the new-born.

*"... I found the impact on her to be really interesting, it is noticeable, and family and friends have said it as well. She'd be crying, I've changed her, fed her, she's not cold or hot, had cuddles you know when you go through the check list and then you put that (relaxation audio) on, and it chills her out, she totally settles to (it)." (Neave, P0)*

The practice of relaxation techniques by the mother was also perceived to transfer to the baby,

*"Even now, actually, I breathe like slowly and deeply if she (baby) is maybe a bit fidgety when I'm breastfeeding ... to let her know that I'm relaxed to hopefully*

*bring it on her as well. So, she'll fall asleep, and I do think that has a positive impact on her.* (Emilia, P0)

The fathers too had creatively implemented the techniques in their parenting skills.

Hamish said,

*"I'll take him to the other room, and I think when he is physically on us, and because he knows, you know, my heartbeat my body, we'll just sit and while he's screaming, I'll do deep breathing that actually helps really quickly, he would calm down. I don't know if its scientific and probably is, but I think he can sense when you're more stressed or tense."* (Hamish)

#### **5.2.2.3.ii Breast feeding**

The participants perceived the learned skills helpful for dealing with breastfeeding challenges. Lara found the first days of breastfeeding quite challenging,

*"Breastfeeding has not been a walk in the park and things, having the knowledge of just, like, letting your shoulders relax and just chill out."* (Lara, P0)

Lara's husband, Frank pointed out how using the techniques was beneficial,

*"When the breastfeeding was kind of difficult to begin with, being quite sore, then it was the same, you know, if she was relaxed kind of felt more bearable. I think so it's kind of interesting, you know, still the same techniques, having to use them at some point."* (Frank)

Employing regular relaxation exercises throughout the day helped them with the exhaustion of being on a strict breastfeeding schedule,

*"When on like a three hourly feeding schedule for the first couple of weeks, we'd only be getting 40 minutes of sleep every three hours but that really never felt*

*(stressful) at all, we purposefully took time in the day to have relaxation.” (Zoe, P0)*

### **5.2.2.3.iii Managing stress**

The skills were identified as life skills that could be beneficial in any stressful situation.

*“I don't think it stops just with birth, I think like having that knowledge, yeah, and I'll be able, I'm sure I'll maybe even use it in my job, you know like when I have a day where it's really stressful or even now, I'm like, count to ten and do my breathing but, yeah, I think, it's actually a technique I'm glad I've learned and I'll have to keep it in my mind for using again.” (Zoe, P0)*

Women continued to use the techniques for a better-quality sleep,

*I've listened the videos again, like after birth, trying to have a nap and my brain is going a hundred miles an hour, I'm able to just like, I put it (audio) on and before I know it, I'm out like a light. (Lara, P0)*

To some, it was more than just using some techniques in pregnancy, it was a different way of *'looking at'* things.

*“Doing something that would help for a long time as well, not just for that period that I was pregnant, it's just another way of looking at things. It's kind of looking after people's mental health as well, so that's really important.” (Neave, P0)*

Some had innovatively integrated the brief relaxation techniques into their routine daily life.

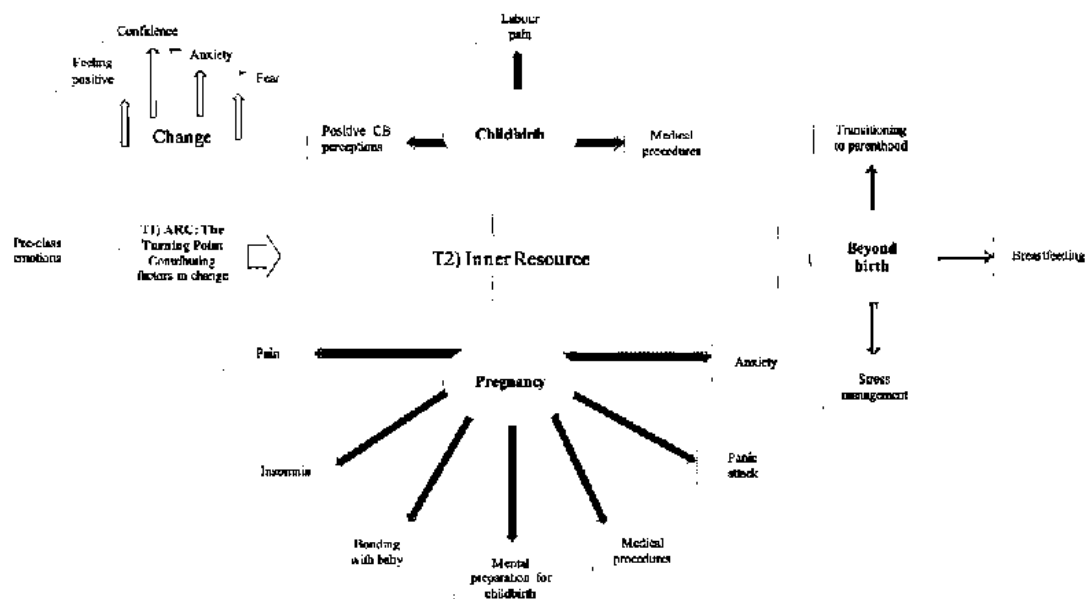
*“(I practice) every now and then. it's helpful to anyone I think, in any circumstances. Your mind's always running ahead of yourself. Then, I take five minutes, I don't actually close my eyes, I'm just doing a little bit of relaxation,*

*whilst I'm sitting having my coffee or watching TV, just doing the breathing, and not really thinking.” (Arlene, P0)*

Those birth partners, who attended ARC, commented on the influence of the learning on their own life and work. They described it as the ability to stop incessant thinking and the ability to reset oneself. James said.

*“I would never stop; I constantly have a list in my head of things that need done and same with my work at home. I never had the idea to stop. The only way I can describe it (use of relaxation) is like, I feel it in my chest ... you get that feeling of like fullness of lungs again ... it's like, in the middle of the day just being able to stop, reset yourself. And then after, you just feel so much calmer, but also so much more alert and aware of the decisions you're making, a lot more successful, your ability to break down the jobs that you have to do.” (James)*

Recognition of an inner resource that could be accessed for a range of purposes during pregnancy, childbirth and beyond was reported as the main result of attending ARC. A more detailed illustration of themes 1 and 2 is presented in Figure 5.4. Nevertheless, accessing this inner resource as an effective pain management approach during labour depended on a protected birth space that was conducive to the practice of relaxation techniques.



**Figure 5.4.** Detailed presentation of themes 1 and 2

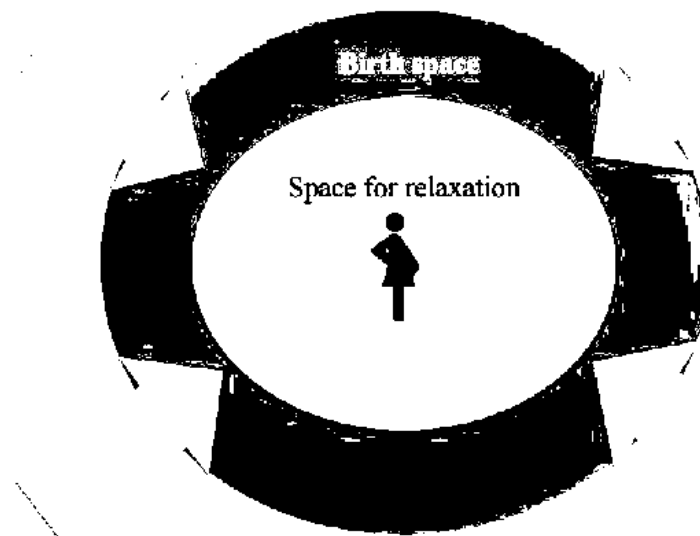
As shown in Figure 5.4, women attended ARC with their childbirth-related fears and anxieties influenced by societal views portrayed in the media, the negative birth stories narrated by friends and family, and the information presented by health professionals. The combination of theory on childbirth physiology, hearing the positive childbirth stories and the practice of relaxation exercises in the class made the **ARC a turning point (Theme 1)**, leading to recognition of an **inner resource (Theme 2)** that had implications during the pregnancy, childbirth and beyond.

- During pregnancy: Inner resource was utilised to handle anxiety, panic attacks, management of pain, insomnia, and stress of blood tests. Tapping into the inner resource was also perceived as facilitating bonding with the baby and mental preparation for childbirth.
- During childbirth: Inner resource was utilised to cope with medical procedures, obstetric interventions and labour pain. Accessing this inner resource may positively influence women's perceptions of their childbirth experiences.
- Beyond birth: After birth, inner resource continued to be utilised to overcome challenges of becoming new parents, breastfeeding challenges and to manage stress.

### 5.2.3 Theme 3: Space for Relaxation

*.. because there was so much going on in labour ward, I found it quite hard (to use the techniques), because we had so many (people) coming in and out of the room... it was just too overwhelming."*

It seems for women to be able to use the relaxation techniques as an effective coping mechanism for labour pain, a protected space for relaxation within the birth space is required (Figure 5.5). This space appears to be essential for both entering and remaining in 'the zone' particularly for long periods of time. Joyce (2020) defines labour/birth space as; '*encompassing the woman's physical surroundings, the people who are with her, and everything that happens or is done to her in that space*' (p. 26). The data identified the physical surroundings, birth attendants particularly the midwife and birth partner, and clinical picture as the main factors influencing the birth space and consequently the space for relaxation.



**Figure 5.5** Theme 3; Space for Relaxation and its subthemes



### 5.2.3.1 Physical surroundings

Physical surroundings such as lighting, privacy, or an environment that allowed freedom of movement were frequently highlighted as influential factors on women's ability to induce the sense of calmness.

Women frequently compared the home and hospital environments. Those who had homebirths, described the strategies they used to create a more relaxing environment at home.

*“ ... had a birthing pool. We had like a very relaxing kind of massage music, like exactly what used in class and then, I mean, it was dark in the room, and lavender.”* (Summer, P0)

This demonstrates the control that expectant parents have over their home environment compared with the clinical environment of the hospital. Mavis whose labour started at home and then spent some time in triage ward stated,

*“I used it at home more because in hospital was a bit harder, because of just the environment you're in ... it's a bit harder to do.”* (Mavis, P0)

She highlighted the lack of privacy in triage as a barrier,

*“sharing a room with other people, that was quite hard to relax because you were listening to other people, so it's kind of hard to relax in the triage.”* (Mavis, P0)

Louise who had a hospital birth for her first child and a homebirth for the second provided more insight by comparing these two environments,

*“You can distract yourself easier at home, just kind of potter on doing your own thing at home and, I do think if you're sitting waiting for each contraction (in hospital) going, come on, right, when's the next one, gosh, that's been, you know,*

*five minutes. I really want another one now, if you're sitting in hospital that's all you're doing, cause you're there to have a baby.*" (Louise, P1)

James (to Louise):

*'You were a lot, so much more focused (at home), so much more in control'.*

Another factor identified as influencing the sense of physical environment was having the freedom of movement. Being confined to the bed prevented the effective use of the relaxation techniques.

*"I wasn't really breathing properly when I was lying down in bed"*. (Lara, P0)

Charlotte described how her instinctive movements helped her get into the zone.

*"I was standing up as I was breathing out ... (then) kind of like squatting down and that was helping, it was an instinct, that's just how I felt, just going with my body I guess, and then the swaying just kind of eased the pain. It was just kind of helping because I was in 'the zone' as well so it was just kind of all of it."*

(Charlotte, P0)

### **5.2.3.2 Clinical picture**

The space for relaxation was also influenced by the procedures experienced by women such as induction of labour or other medical procedures. Rosie describes how the slow progress of labour, having to undergo a range of interventions and being closely monitored by several practitioners impacted her ability to induce the feeling of relaxation.

*"I was making no progress ... which I think was quite frustrating, every time they checked me it was quite soul-destroying cause nothing was happening. Because there was so much going on in labour ward, I found it quite hard (to practice the*

*techniques), because we had so many (people) coming in and out of the room ... it was just too overwhelming.” (Rosie, P0)*

Obstetric interventions such as induction of labour coupled with slow progress seem to be the barrier to the relaxation space and therefore effective use of relaxation techniques for managing the labour pain. Conversely, women undergoing caesarean section or obstetric emergencies managed to get themselves into ‘the zone’ in the medicalised and busy environment of the operating theatre and use relaxation techniques to cope with the stress of such procedures, as previously discussed. It is unclear whether the shorter length of such procedures compared with the long process of induction of labour was an influential factor.

#### **5.2.3.3 Role of the midwife**

Midwives’ presence, their influence on the physical surroundings, and their interactions with the woman during labour and birth were demonstrated to influence the women’s ability to cope with pain. For instance, those who had been restricted to the hospital bed as advised by the midwife, found it difficult to adapt their learned coping skills in labour.

Angela compared two different approaches to care she experienced during her two births,

*“From my first experience, (the midwife said) lie here, do this, do that, whereas this time was just more, what do you want, get up, move about, go into these positions, it made me so much more confident about giving birth.” (Angela, P1)*

She continued to explain how the midwife’s comment during her first birth led to feelings of fear,

*"I think when the pain started and they said, oh, this is just the beginning, I thought, oh my goodness ... I think from there, I just was scared."* (Angela, P1)

Sandra stated the midwife interrupting her focus, and instructing her to stay on the bed prevented her from utilising the relaxation techniques,

*"I think I stopped (use of the techniques) for a while, Yeah, because they kept interrupting me ... if someone like Gemma (the midwife facilitating ARC/pseudonym) had been my midwife, that would have been different. Someone who knows it and understands it, that would be like a game changer. But then you are talked to and you're interrupted. I was lying down, she said when she puts the hormone I had to lie down."* (Sandra, P0)

Conversely, Zoe, described how midwives supported her with the breathing techniques.

*"One or two times I was wobbly, probably breathing like quite fast, they were like, okay, calm down, just relax and they really got into it."* (Zoe, P0)

Mavis who found triage ward a challenging environment for use of relaxation techniques, suggested that being reminded of relaxation by the midwives may have been beneficial.

*"... more help with the relaxation (would have helped) in triage, because it was quite painful there, but there was no offer of pain relief or anything, not even just reminding you to breathe or anything like that."* (Mavis, P0)

Midwives' emotions seem to impact the birth space too. When the midwife arrived at Summer's home birth, she found Summer in advanced labour. This apparently led to the midwife's feelings of unpreparedness for birth and stress. Summer said,

*"From the perspective of relaxation, I would say they (midwives) did not help, their presence from a relaxation standpoint wasn't going to be helpful. I could sense their franticness. I remember when she was on the phone with the other*

*midwife, I wanted to say, please get out of the room, like, don't be on the phone in here.” (Summer, P0)*

In contrast, Emilia commented on the transmitting effect of the midwives’ calmness,

*“They (midwives) all seem very calm. So you kind of think to yourselves, it's obviously fine, they're not that concerned, there was no stressful at all.” (Emilia, P0)*

Louis compared approaches of two midwives providing care for her during labour.

*“She (1st midwife) didn't help me much in terms of keeping me focused, she didn't really engage in terms of helping with breathing. But the other midwife reminded me like, think of every contraction as a wave ... and that really helped actually, that was quite nice ... I'd sort of forgotten why I was actually in the hospital, she reminded me that there was a baby at the end of it.” (Louis, P0)*

On the other hand, the midwife’s suggestion on taking pain relief during the transitioning phase of labour, was perceived as adversely influencing the woman’s confidence in her own ability. Lara who had effectively used relaxation techniques throughout her labour said,

*“I just got to that point maybe in the transition, about 9 centimetres, she was like 'we've still got time to give you pain relief if you want it' and I took it and then everything just went slow motion, it was like dragging. I was like a bit annoyed at myself for almost like caving in.” (Lara, P0)*

The physical surroundings, clinical picture and midwives’ interactions with the woman together form the birth space. The midwives’ awareness of the importance of the birth space, and the influence of their own emotional state on this space may enhance their role as the space facilitators. The birth space is the context of the experience and the space for relaxation is a sub-section of the overall birth space as demonstrated in Figure

5.5. Therefore, such factors either directly or indirectly may enhance or reduce the positive influence of antenatal relaxation education on childbirth experiences.

#### **5.2.3.4 Role of the birth partner**

Support from the partners in applying the learned techniques particularly during childbirth and protecting the relaxation space appeared to be significant to the women. Those who were not accompanied by their partners in ARC, strived to share their learning from the class with them.

*“I made you read the booklet and I just tried to emphasise the importance. It was really important that he was calm and had the ability to make me calm.” (Liz to Jo)*

Liz acknowledged the importance of Jo’s ability to keep himself calm. The feelings are contagious (Hatfield et al., 1992) and partners by excerpting control over their own emotions can protect the birth space from stress. The partners’ comments revealed they too had a range of childbirth-related fears and anxieties including fear of the unknown and anxiety about medical procedures, or the mother and baby’s health. James expressed his fear of the unknown,

*“It’s like the fear of the unknown, you don’t know what to expect.” (James)*

Frank shared his fear about the use of forceps, which was exacerbated with the sight of the tool in the operating theatre,

*“I had this fear going before about the theatre and forceps. When I saw the forceps, I was like ‘oh my god’.” (Frank)*

Graham had concerns about the mother and child’s health during the childbirth process,

*"I definitely felt I was more concerned, concerned for Angela and then obviously for the baby." (Graham)*

Such comments highlight the importance of considering and investing in the birth partners' emotional status, to enhance both their wellbeing and that of women.

Both women and partners commented on the potential influence of attending ARC on the role that partners could play during childbirth. The partners who had attended ARC felt the class had reduced their fear towards childbirth and helped them feel calm and confident in providing a relaxing space throughout labour and birth.

Unfortunately, the birth partners were neither invited nor encouraged to attend ARC.

*"I actually wasn't invited to the relaxation class. I thought it was just for the mothers." (Graham)*

This could be due to the high demand for ARC and limited available spaces. Of nine interviewed partners only three had attended ARC. Some partners despite not attending ARC, managed to remind women to use the techniques during labour,

*"I told my partner about it. When I came back from the class. I had a discussion with him beforehand and said, you know, when I start having contractions, can you help me through this and help me through the breathing? and that's what he did." (Mavis, P0)*

Despite this, women suggested the partners' attendance in class could have better prepared them for childbirth and their supporting role.

*"I tried to explain everything to him. He learned a lot. But maybe it's different if you actually experience it yourself. I could pass him all the information, but maybe he could have been better." (Silvana, P0)*

Partners who had not attended the class, commented they had felt nervous during the childbirth process.

*"I was nervous, it wasn't nice to see Angela in pain."* (Graham)

Rosie describes the childbirth experience of her partner as traumatic,

*"He doesn't like blood, so I think being in theatre for him was very overwhelming ... (and then) being left with baby for ages he says was like the most traumatic bit."*

(Rosie, P0)

These partners did not seem to feel actively engaged with the childbirth process.

*"I didn't feel like I could do very much. I just did feel hopeless and helpless to be fair. You feel you're really there more as an observer than as anything."*

(Graham)

Neither did they appear able to protect the space for relaxation. Sandra states,

*"He kept asking me questions and interrupting me, my husband kept asking me 'how are you doing?' if he had done it (had attended ARC), then we could have done it together."* (Sandra, P0)

A difference in partners' attitudes and how they experienced the labour was noticeable between those who did and did not attend ARC. The three partners who had participated in ARC expressed *feeling confident in providing a calm space* and support throughout the labour.

*"It (ARC) gave me I think, a lot of confidence, I was confident that she would be able to do that. I think if we hadn't talked through it, I may have just tried random things, but because of the class we had talked through, this is actually what you wanted, and what's more helpful."* (Hamish)

The education seems to have *alleviated their fears*, helping them to *maintain a calmer state* during the childbirth,



*"I was never feeling panicked, like I say, the whole way through, knowing why this is happening. Yeah, it just made the whole situation so much more relaxed rather than looking at the red lights." (James, Zoe's husband)*

Zoe explained how James's participation contributed to her birth experience.

*"... because he had been involved in the classes and stuff as well. He was like, remember your breathing ... it was really, really helpful." (Zoe, P0)*

Their knowledge and skills in providing unobstructive support shone throughout the comments. Summer commented,

*"Your encouragement was pretty much just like an audible breath." (Summer to Hamish)*

Hamish responded,

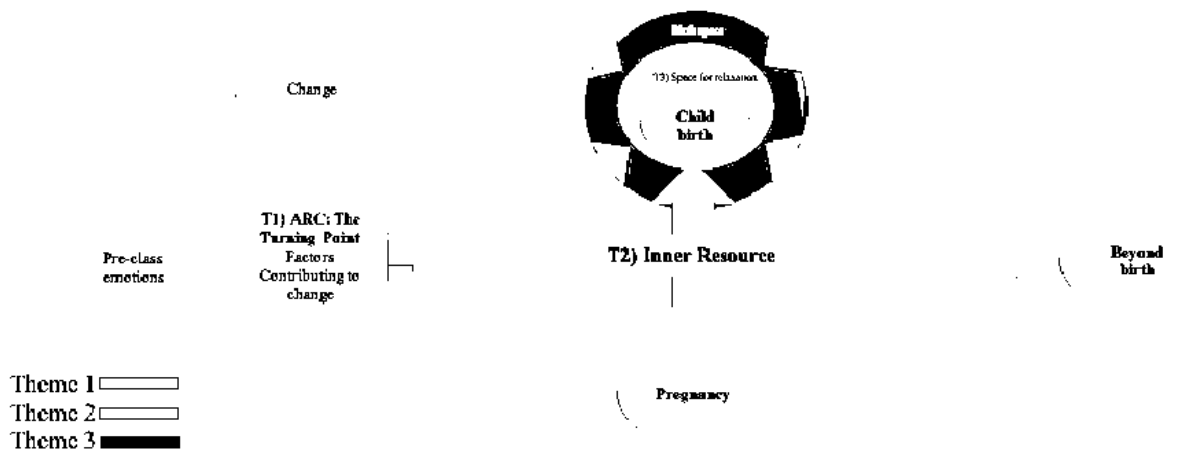
*"I felt (I was) helpful by sort of mirroring the deep breathing exercises, that helped her to do that on her own without me needing to necessarily say anything or disrupt her in the midst of one of her contractions." (Hamish)*

He continued,

*"ARC helped me figure out in the moment, how I make this a more relaxed setting for Summer and to know that would be the most important aspect of being a partner." (Hamish)*

Nevertheless, it is important to take into consideration that the three couples who attended ARC together, differed from the others by choosing a homebirth, which is not a common choice. In addition, they had taken a proactive attitude to attending the class together. It is unclear if this attitude had brought those partners to the class, or the class contributed to their feeling of confidence during childbirth or perhaps there was a reciprocal relationship between these two. In contrast, those partners who did not attend ARC, expressed more anxiety during the childbirth process and less confidence to be

actively engaged and provide support. Further research is needed to better understand how partners' engagement in antenatal relaxation education may impact the role they can play during the childbirth. Figure 5.6 provides a visual presentation of relationship between the generated themes and subthemes.



**Figure 5.6** The relationship between themes and sub-themes

The Figure shows women considered ARC as a turning point (T1) where their pre-class emotions (childbirth-related fears and anxieties) underwent positive changes during and immediately after ARC. They identified understanding the childbirth physiology, positive stories, and practice of relaxation exercises in class as contributing to such change. ARC also led to recognition of an inner resource (T2) which had a range of implications during pregnancy, childbirth and beyond. Using the inner resource during labour as an effective pain management strategy, however, required a particular space for relaxation (T3). This space was a sub-section of the birth space that could be influenced by the woman's physical environment, the clinical picture, the role of the midwife and birth partners.

### 5.3 Summary

An overwhelmingly recurring concept was the change that occurred during and immediately after attendance at ARC. This change involved an increase in feeling positive and confident towards childbirth as well as a marked reduction of childbirth-related fear and anxiety. ARC was reported to influence how the participants perceived childbirth and their attitude towards it. The factors contributing to such change were reported to be the increased understanding of childbirth physiology, the positive stories narrated in class and experiencing a deep sense of calmness through the practice of relaxation techniques in class. The emergence of an inner resource was recognised through practice, which motivated further practice of relaxation techniques to access this resource for a range of purposes during pregnancy, childbirth and beyond. During labour and birth, ARC techniques were used to cope with labour pain and medical procedures. The participants, despite having a range of childbirth outcomes, universally reflected on their childbirth experiences positively, identifying ARC as a contributing factor to such experiences. Nevertheless, use of the learned relaxation techniques as an effective pain management strategy during labour appeared to require a space that was supportive of such practices. This space could be influenced by the physical surroundings, clinical picture and birth attendants including midwives and birth partners.

Phase 1 aimed to provide an in-depth understanding of women's experience of attending ARC and their subsequent childbirth experiences, whilst also generating hypotheses and more specific research questions that could be examined in the following quantitative phase. The next chapter clarifies how Phase 2 hypotheses and research questions were built on Phase 1 findings.

# Chapter 6 Phase 2

## Quantitative Methods

This chapter describes the research methods used within the quantitative phase of the study and the rationale for selecting these methods. Details will be provided about the longitudinal survey that was conducted with women pre-class, post-class, and post-birth.

### **6.1 Development of hypotheses and specific research questions for Phase 2**

Phase 2 builds on Phase 1 and its objective is to test the significance of any influence of ARC (as identified in Phase 1) in a larger sample and over time. Phase 1 findings and the knowledge gaps identified in the literature review formed the basis for developing **three hypotheses** and **four research questions** for Phase 2. A prospective longitudinal cohort study using surveys was selected as the method of choice for Phase 2. In this section, the rationale for the development of these hypotheses and questions is explained.

The literature review showed a lack of evidence regarding the influence of ARE on postnatal anxiety, fear of childbirth in the context of western countries, and overall perinatal mental health using a reliable and validated tool.

In Phase 1, ARC was identified as '*a turning point*' leading to a reduction in feelings of childbirth related fear and anxiety, whilst increasing a sense of positivity; which was maintained during pregnancy, childbirth and beyond. This finding along with the knowledge gaps identified in the literature review led to the development of the first hypothesis that,

*'There will be an improvement in mental wellbeing and a reduction in childbirth fear and anxiety, between pre-class, post-class, and post-birth (H1)'*.

Whilst there is a paucity of evidence on the impact of ARE on maternal self-confidence in the context of western countries including the UK, Phase 1 findings suggested

attending ARC enhanced women's confidence in their own ability to cope with childbirth. Therefore, the second hypothesis was generated that,

*'There will be an improvement in feelings of confidence in one's own ability to cope with childbirth between pre-class and post-class (H2)'*.

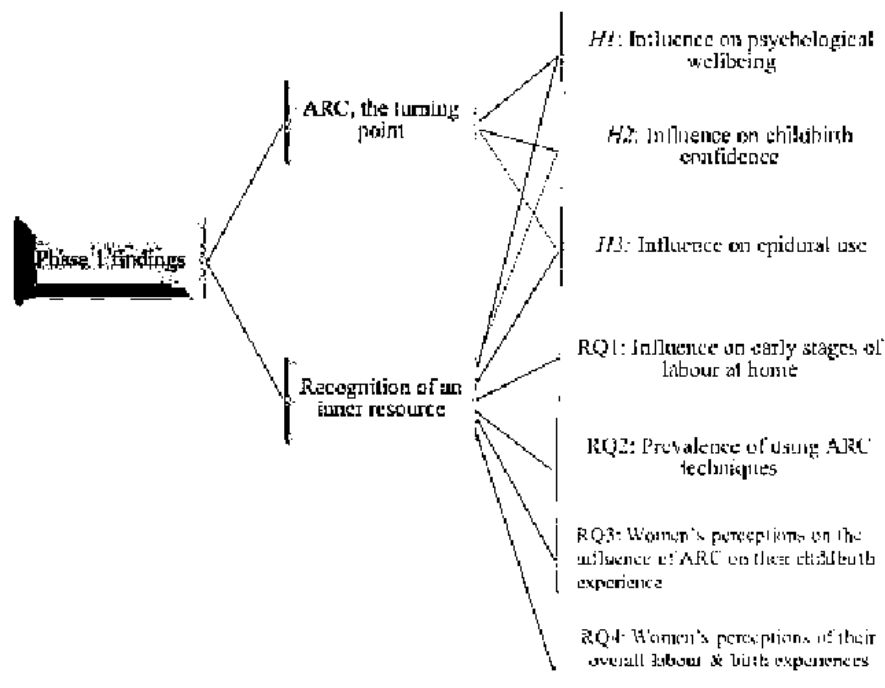
Although, the evidence on the effect of ARE on epidural use remains inconclusive, Phase 1 findings indicated that increased confidence may impact women's intended and actual use of epidural for labour. Hence, the third hypothesis was development that,

*'There will be a strong association between time (pre-class, post-class, and post-birth) and intended/actual use of epidural for labour (H3)'*.

In addition, the theme of *'recognition of an inner resource'* in Phase 1 formed the foundation for four research questions (RQs) in Phase 2. These questions included:

1. *Do 'women attending ARC whose labour starts spontaneously', stay at home during early labour and seek hospitalization in established labour? (RQ1)*
2. *Do women attending ARC widely use the ARC techniques? (RQ2)*
3. *Do women attending ARC perceive the influence of ARC on their pregnancy, labour and birth experiences as positive? (RQ3)*
4. *Do women attending ARC perceive their overall labour and birth experiences as positive? (RQ4)*

Figure 6.1 provides a visual presentation of the development of Phase 2 hypotheses and research questions based on Phase 1 findings.



**Figure 6.1.** Development of Phase 2 hypotheses and research questions based on Phase 1 findings

## 6.2 Setting

In view of social distancing restrictions, all face-to-face antenatal education classes were prohibited during the time of Phase 2 of the study. Those recruited had participated in the online Antenatal Relaxation Classes (ARC), as both recruitment and data collection for Phase 2 were undertaken within Covid-19 pandemic period. The online delivery of ARC facilitated the recruitment of women from both urban and rural areas who may have not been able to take part in ARC had it been face to face, due to distance. This allowed inclusion of a more diverse sample, from a wide range of socioeconomical backgrounds.

### **6.3 Study participants**

This section provides details about the sampling approach, inclusion criteria and sample size.

#### **6.3.1 Sampling**

A convenience sampling strategy was used to recruit a consecutive sample of pregnant women who met the inclusion criteria. Convenience sampling is a type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility and availability at a given time, or the willingness to participate are included for the purpose of the study (Lewis-Beck et al., 2003). The consecutive sample provided a sampling frame that consisted of all women who satisfied the study inclusion criteria. Those who agreed to take part in the study were recruited.

#### **6.3.2 Inclusion criteria**

The target population was women who:

- were aged 16 years and over.
- were able to read, write and understand English.
- attended ARC in the third trimester of pregnancy.

Women were excluded if they had significant mental illness requiring medication or if they did not meet the inclusion criteria.

Unlike Phase 1, receiving midwifery led care was not a requirement for this Phase as it intended to investigate the influence of ARC in a greater sample over time, regardless of their care pathway.



The questions regarding the entry criteria were incorporated at the beginning of the baseline (pre-class) online survey (Appendix 7), only those who met the inclusion criteria could therefore proceed to complete the survey.

### **6.3.3 Sample size**

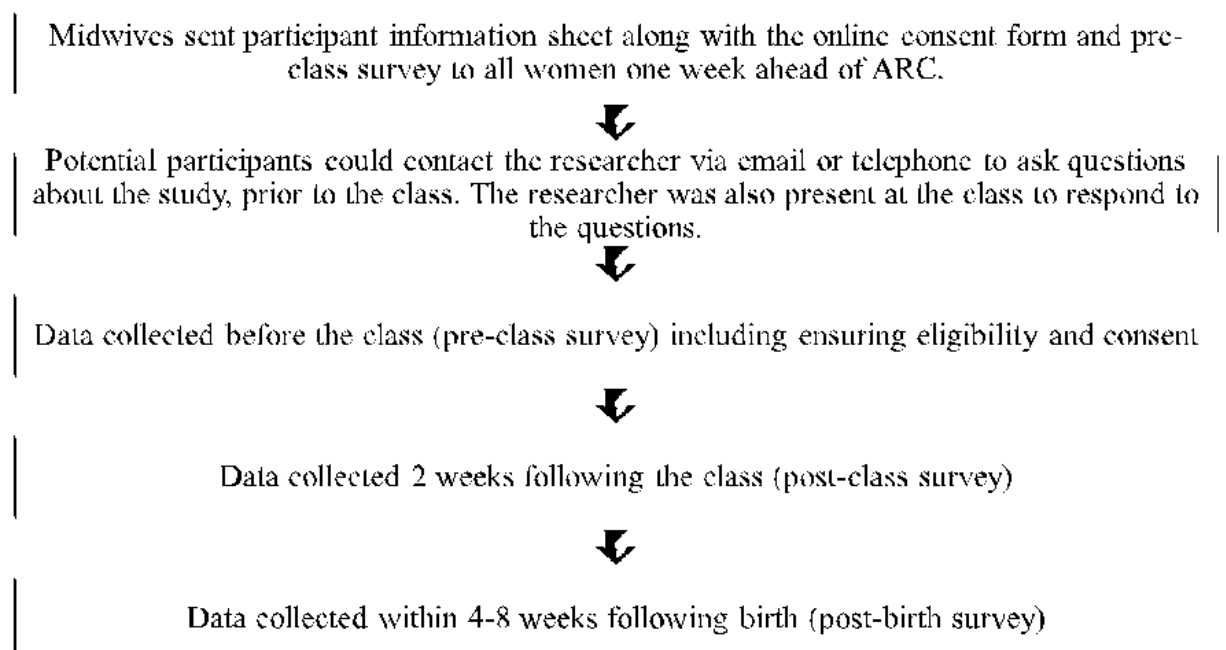
Power calculations using G\*Power 3.0.10 indicated a sample size of 57 was required to detect treatment effects, assuming power = 0.95, significance set to 0.05, and an effect size of  $d = 0.4$  based on similar research (Ross et al., 2017). Considering the attrition rate of 50% from a previous study on the same population in the same setting a total number of 114 was estimated to be sufficient. A consecutive sample of 243 women attending ARC were invited to participate in Phase 2.

### **6.4 Recruitment**

Recruitment took place over a five-month period from January to June 2021. Women were recruited from those attending online ARC. Following the pandemic and all face-to-face antenatal education classes including ARC being halted (from March 2020), ARC was resumed in an online format using a platform approved by NHS Grampian, known as Cisco (<https://www.vc.scot.nhs.uk>) from January 2021. In view of the pandemic, the decision was made for all correspondence with women to be online.

After obtaining the necessary ethical approval for phase 2, one week prior to the classes, the midwives facilitating ARC identified all women on the ARC waiting list on the relevant NHS Grampian database system and emailed them the invitation, participant information sheet (PIS) and the link to the baseline (pre-class) survey (Appendix 7). The consent form and questions regarding inclusion criteria were incorporated in the baseline survey and only those who provided consent and met the inclusion criteria could proceed to complete the survey.

In the PIS, the participants were invited to contact the researcher via phone or email if they wished to ask further questions about the study. In addition, the researcher was present at the class to explain what the research entailed and answer questions prior to the class. The baseline questionnaires were completed either before attending the online classes or at the beginning of the session prior to the delivery of the class content. Two weeks following the class, the post-class survey was sent to the participants via email. If the survey was not completed after three days, a text reminder was sent. Post-birth questionnaires were emailed to women four weeks following their expected date of delivery. When no response was received, a maximum of two other reminder text messages, which included the link to the online survey, were sent at 6 and 8 weeks after their expected date of delivery. If women did not respond after 8 weeks following their expected date of delivery, it was assumed that they had opted to withdraw from the study and therefore, no further contacts were made. Figure 6.2. shows a flow chart of the stages of data collection.



**Figure 6.2.** Flow chart of recruitment and data collection in phase 2

## **6.5 Examining the hypotheses and research questions**

The independent variable for the quantitative phase was time (baseline/pre-class, post-class, and post-birth) and the dependent variables were mental wellbeing, fear of childbirth (FOC), state and trait anxiety, childbirth self-efficacy, and intended/actual use of epidural for labour. Using a longitudinal approach, the outcomes of interest were planned to be measured and compared at baseline (pre-class), two weeks post-class and four to eight weeks post-birth (where relevant) in a cohort of women who had attended ARC. Comparing self-efficacy before and after the class intended to ascertain whether ARC could positively influence their confidence towards childbirth, whereas comparing mental wellbeing, fear of childbirth, anxiety levels and intended/actual use of epidural pre-class, post-class and post-birth aimed to examine the potential changes in these parameters over time. Validated instruments were selected to test *H1* and *H2*, and Study Specific Questionnaires (SSQ) were developed for testing *H3* as well as examining Phase 2 research questions (RQs).

## **6.6 Development of the data collection tool**

A combination of well-validated instruments and a SSQ were developed for collecting the data. The surveys were hosted via the Novi Survey System (<https://novisurvey.net>). The initial pages of the survey website asked questions regarding eligibility and included a consent form. The developed surveys (pre-class, post-class, and post-birth) are available in Appendix 7. Table 6.1. presents the selection of the measurement tools and the time points for data collection.

**Table 6.1.** Selection of measurement tools in Phase 2

<b>H1)</b> There will be an improvement in mental health and reduction in childbirth fear and anxiety, between pre-class, post-class and post-birth.	<ul style="list-style-type: none"> <li>○ WEMWBS (Mental Wellbeing)</li> <li>○ STAI-6 (State &amp; Trait anxiety)</li> <li>○ W-DEQ (Fear of Childbirth)</li> </ul>	Pre-class, post-class, and post-birth
<b>H2)</b> There will be an improvement in feeling of confidence in one's own ability to cope with childbirth between pre-class and post-class.	CBSEI (Childbirth Self-Efficacy including Outcome Expectancy & Self-Efficacy Expectancy)	Pre-class and post-class
<b>H3)</b> There will be a strong association between time and intended/actual use of epidural during labour.	A multiple-choice question regarding the intended/actual use of epidural in labour (included in SSQ)	Pre-class, post-class, and post-birth
<b>RQ1)</b> Do 'women attending ARC whose labour starts spontaneously', stay at home during early labour and seek hospitalization in established labour?	<ul style="list-style-type: none"> <li>○ A question regarding cervical dilatation (in cm) on arrival to the hospital (included in SSQ)</li> <li>○ A question regarding the number of hours they spent at home during labour (included in SSQ)</li> </ul>	Post-birth
<b>RQ2)</b> Do women attending ARC widely use the ARC techniques?	A binary (Yes/No) question on use of the techniques taught in ARC (included in SSQ)	Post-class and post-birth
<b>RQ3)</b> Do women attending ARC perceive the influence of ARC on their pregnancy, labour and birth experiences as positive?	<ul style="list-style-type: none"> <li>○ Likert scale questions on the influence of ARC on experiences of pregnancy, labour, and birth (included in SSQ)</li> </ul>	Post-class and post-birth
<b>RQ4)</b> Do women attending ARC perceive their overall labour and birth experiences as positive?	<ul style="list-style-type: none"> <li>○ Open-ended questions (included in SSQ)</li> </ul> Likert scale question on the overall experience of labour and birth (included in SSQ)	Post-birth

NB) The used abbreviations include WEMWBS (Warwick-Edinburgh Mental Wellbeing Scale), STAI-6 (State and Trait Anxiety Inventory with 6 items), W-DEQ (Wijma- Delivery Expectancy/ Experience Questionnaire), CBSEI (Childbirth Self-Efficacy Inventory), and SSQ (Study Specific Questionnaire).

### 6.6.1 Validated instruments

Following the selection of the instruments to be used, the authors and publishers of the validated instruments were contacted and permissions for use were received prior to commencing data collection. Correspondence with the authors was particularly beneficial in receiving the most up-to-date versions of the instruments, the instructions on the administration and analysis of each questionnaire.

To test *H1*, the Warwick Edinburgh Mental Well-Being Scale (WEMWBS), Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ), and the Six-item State-Trait Anxiety Inventory (STAI-6) were selected for data collection.

**WEMWBS:** This is a measure covering subjective well-being and psychological functioning that includes 14 positively worded items related to feelings and functioning (Stewart-Brown et al., 2011; Tennant et al., 2007). The scale is scored by summing responses to each item answered on a 1 to 5 Likert scale. WEMWBS showed good content validity and Cronbach's alpha was measured in both student and general populations with scores of 0.89 and 0.91, respectively (Tennant et al., 2007). The minimum scale score is 14 and the maximum is 70, with a higher score indicating a higher level of mental wellbeing. The scale has been used as a tool for monitoring mental wellbeing at the population level with no ceiling effects. WEMWBS has a mean score of 51.0 in general population samples in the UK with a standard deviation of 7 (Tennant et al., 2007). It has also been used for pregnant women population in several studies (Ross, 2017; Rennie, 2016). Median overall scores of WEMWBS were reported to be 54.0 (48.0-60.0) in a sample of 492 pregnant women in England (Ginja et al., 2018). The scale is not designed to identify individuals with exceptionally high or low positive mental health, so no 'cut off' has been developed (Stewart-Brown & Janmohamed, 2008).

**W-DEQ:** The W-DEQ (Wijma et al., 1998), version A (W-DEQ A) and version B (W-DEQ B) are used to measure fear of childbirth (FOC). This instrument is a well-validated tool with Cronbach's alpha of 0.92 (Carlsson et al., 2015). W-DEQ A measures fear, confidence, and expectations concerning the upcoming childbirth in pregnancy and W-DEQ B evaluates the same aspects of the actual childbirth experience after birth (Wijma et al., 1998). Both versions A and B include 33 items with items ranging from 0 (extremely) to 5 (not at all). The maximum score is 165 and minimum score is zero. The cut-off points beyond 85 is considered to indicate severe FOC (Carlsson et al., 2015; Wijma et al., 1998). In this study, versions A was used at pre-class and post-class, and version B was used at post-birth.

**STAI-6:** The full-form STAI (Spielberger et al., 1983) consists of 40 statements describing various emotional states, twenty of these statements require the subjects to describe their emotional reactions in terms of anxiety at a particular moment or period in time (state anxiety). The other 20 items require the subjects to describe how they generally feel, and their general response to situations perceived as threatening (trait anxiety). Statements are scored on a 4-point scale of increasing intensity, from not at all to very much so (with scores of 1–4 respectively). The STAI is a reliable and valid self-report measure that can be used in pregnant women (Grant et al., 2008). The Cronbach's alpha analyses for these measurements for state and trait anxiety are high; at least 0.92 for both scales (Bogaerts et al., 2013). Considering the study intention on measuring a variety of parameters, to avoid introducing an exhaustive number of questions, a six-item short form of STAI (Marteau & Bekker, 1992) was employed. Acceptable reliability and validity of the short form of instrument among the population of pregnant women has been obtained and it produced scores similar to those obtained using the full form (Marteau & Bekker, 1992). Although a threshold point for high anxiety has not

been properly defined, most studies consider a score above 40 (or 12 in 6-item STAI) as being highly anxious (Grant et al., 2008).

For testing *H2*, the Childbirth Self-Efficacy Inventory (CBSEI) was selected to collect data.

**CBSEI:** This Inventory developed by Lowe (1993) is a positively worded, self-report instrument including 62-items in its original form which assesses self-efficacy expectancy and outcome expectancy in the first stage and second stage of labour based on Bandura's self-efficacy theory (Bandura, 1977). Self-efficacy expectancy is a personal conviction about one's ability to successfully perform required behaviours in a given situation, and outcome expectancy is the belief that a given behaviour will lead to a given outcome (Bandura, 2009). The instrument is shown to be a reliable and valid instrument with high internal consistency with Cronbach's alpha of 0.90 (Carlsson et al., 2015). It has been used in multiple studies for pregnant women population (Bastani et al., 2005; Drummond & Rickwood, 1997; IP et al., 2009). In this study, the first part of CBSEI which comprises of two sub-scales of self-efficacy expectancy and outcome expectancy for the first stage of labour was used, with 15 elements each. The items on the scales range from 1 to 10. Higher scores indicate a higher degree of CBSE with maximum scores being set to 150.

### **6.6.2 Study Specific Questionnaires (SSQ)**

The baseline (pre-class) SSQ consisted of questions to test participants' eligibility for the study and to collect basic demographics including parity, age, ethnicity, educational attainment, employment status, marital status, and gestational age. Questions regarding gestational age and postnatal weeks were also included in post-class and post-birth SSQs respectively. In addition, questions on mode and place of birth were included to allow a comparison between the expectations and actual experiences of mode and place of birth. Comparing the mode and place of birth that women expected to have (at pre-class and

post-class), with the actual mode and place of birth they experienced (at post-birth) aimed to facilitate understanding of the context of childbirth experiences and inform interpretation of the results regarding RQ4.

The SSQ also aimed to examine *H3* and the four research questions in Phase 2.

To test *H3*, at pre-class (SSQ1) and post-class (SSQ2), the participants were asked whether they would choose epidural anaesthesia as a pain relief method for labour. At post-birth (SSQ3), they were asked if they had actually used epidural for labour pain. Four options were considered for pre-class and post-class, including 'yes', 'no', 'maybe' and 'not applicable', whereas at post-birth survey the options consisted of 'yes', 'no', and 'not applicable'. Before performing the statistical analysis, the responses of 'not applicable' were considered as irrelevant and therefore disregarded. The options 'yes' and 'maybe' (at pre-class and post-class) were merged to one category to generate comparable measures at all three time points.

To examine RQ1, the participants were asked in SSQ3 about the number of hours they had spent at home during labour and the cervical dilatation (in cm) on arrival at the hospital.

To assess RQ2, the participants were asked a binary (Yes/No) question in SSQ2 and SSQ3 on whether they had used the techniques during pregnancy, labour, and birth.

To investigate RQ3 and RQ4, Likert Scale questions were incorporated in SSQ2 and SSQ3, asking women about the influence of ARC on their childbirth experience as well as their perceptions on the quality of their overall labour and birth experience. These Likert scale questions included five choices ranging from 'very negatively' to 'very positively'. In addition, two open-ended questions were embedded in SSQ2 and SSQ3



to collect participants' qualitative accounts on their perceptions of the influence of ARC. Except for these two questions, all questions in the surveys were closed questions (asking the participants to select one of the provided choices). The open-ended questions were:

1. Can you, in your own words, briefly tell us in what way the class has influenced you, if any? (Included in post-class survey)
2. Can you, in your own words, briefly tell us how the relaxation class influenced your experiences of pregnancy and/ or childbirth, if any? (Included in post-birth survey)

### **6.6.3 Pilot testing of the online surveys**

Due to the longitudinal nature of the study and the potential time gap between recruitment (around 28 weeks of gestation) and completion of post-birth survey (around 4-8 weeks post-birth), conducting a pilot study with current participants of ARC could have led to several months of delay in initiating phase 2. Therefore, the online surveys were piloted on five former participants of ARC who had already given birth. The midwives facilitating ARC randomly selected a group of 12 former ARC participants from the class register for the period between January and March 2020, who had consented to be contacted after birth for service evaluation purposes. The study aim was described via email and these women were asked if they were willing to test the online surveys. Five women responded and agreed to test the surveys. The aim was to ensure the accessibility and readability of the surveys. It was essential to ensure all components of the surveys were clear and that the time required for the completion of surveys was not unreasonably long. These women completed all three surveys, namely pre-class, post-class and post-birth and were consulted afterwards. The women's feedback on the surveys led to some minor modifications, for example some terms were further defined in the questionnaires or the sequence of the questions in the Study Specific Questionnaires was altered. In addition, the pilot study demonstrated that women took between 10 and 15 minutes to

complete the surveys, which was considered as appropriate. The data collected in this pilot testing was not included in the main data, as women completed all three surveys (pre-class, post-class, and post-birth) simultaneously, several months after birth.

### **6.7 Data collection**

The data were collected using self-report online surveys at three time points as displayed in Figure 6.2. The timing of collecting data two weeks post-class was deemed appropriate as it gave a two-week opportunity for practising the taught techniques. The timing of collecting data at baseline and post-birth was selected in view of Wijma et al., (1998) recommendations. Although it was preferable to collect the data from all women at exactly four weeks post-birth, it was predicted that a 4-week window (between 4 to 8 weeks after birth) could reduce the attrition rate by providing flexibility and time for women to settle into their roles as new mothers. Data collection in Phase 1, where all participants attended interviews in this timeframe, demonstrated the suitability of this timeframe for women to engage with the research.

### **6.8 Data analysis**

Prior to creating a data set for Statistics Package for the Social Sciences (SPSS), decisions were made on defining and labelling each variable, and assigning numerical codes to each of possible responses.

The data (except the responses to the open questions) were exported from the Novi Online Survey package to SPSS and analysed using IBM SPSS Statistics Version 25 (SPSS, 2017). Checks were performed to ensure that responses in Novi Survey corresponded with response coding values in the SPSS data set. The data were also checked for any missing values and for convergence with raw data and original survey responses on Novi Survey. Thereafter, descriptive statistics were conducted on the data to ascertain sample characteristics and address the generated hypotheses and research questions.

Both parametric and non-parametric tests were used. One-way repeated measures analysis of variance (ANOVA) was used to test for differences in mean scores measured on the same scale over time. ANOVA was used to measure the within group variance and analyse the effect of time (pre-class, post-class, and post-birth) on FOC, state and trait anxiety and mental wellbeing. In the case of WEMWBS, three outliers (extreme scores) were identified by SPSS using explore procedure and were removed prior to carrying out ANOVA. An outlier is a score that lies far away from other scores, and including outliers decreases statistical power as they increase the variability in data (Pallant, 2020).

Bonferroni adjustment to the alpha level 0.05 was made for the comparisons taken place via one-way measured ANOVA. Post-hoc comparisons were used to explore the differences between the measures at different time points. Post-hoc comparisons were carried out to prevent the possibility of Type 1 error which is rejecting the null hypothesis when it is actually true (Pallant, 2020).

Since CBSE was only being measured at two time points, paired samples t-test was carried out to analyse the difference between CBSE at pre-class and post-class. Statistical significance was defined as  $p < 0.05$ .

To determine the relationship between categorical variables such as intended/actual use of epidural and time (pre-class, post-class, and post-birth), Chi square test for independence was used in SPSS.

To analyse the qualitative responses to the two open-ended questions, codebook thematic analysis approach (Braun & Clarke, 2019) was used. The codebook was taken from Phase 1 findings as the aim was to assess whether Phase 1 findings were generalisable in the larger sample size, recruited in Phase 2. The process of managing these qualitative data was facilitated through use of NVivo 20, qualitative data analysis software (QSR International Pty Ltd, 2020). Both the codebook and texts from the

surveys were entered into NVivo. The codes, subthemes and themes were created as nodes. Following this, each response was considered line by line and labelled using one or more of the nodes. This process of coding meant that all relevant segments of data were highlighted and categorised in the codebook, demonstrating the number of references made to each code. The colour highlighting function in NVivo provided excellent visualisation of this process, identifying the data that remained not coded. No new codes emerged from the remaining data.

## **6.9 Ethical considerations in Phase 2**

This section first explains how the research adhered to the four ethical principles of autonomy, non-maleficence, beneficence, and justice. Thereafter, the measures that were put in place to protect participants' confidentiality and anonymity are discussed.

### *Autonomy- Informed consent and voluntary participation*

Participant Information Sheets (PIS) (Appendix 7) were provided which presented information about the study. If the participants expressed interest, a phone consultation was arranged to answer any questions or concerns regarding the study. In addition, the researcher was present at the beginning and end of the Antenatal Relaxation Class to answer the participants' potential questions. In view of the longitudinal nature of Phase 2, it was decided that the collected data up to the point of withdrawal would be excluded if the participants chose so. It was also highlighted that taking part or refusal to take part in the research would not affect the care they received or their participation in ARC. Electronic consent was received prior to participation. The midwives facilitating ARC sent the invitation letter along with PIS, and the pre-class survey to all women on the class register. Finally, those who took part in the study were given the option of receiving a summary of the study results (WMA, 2013) on completion of the thesis.

### *Non-maleficence: "Do not harm"*

The appropriate measures were put in place to protect the participants from the potential harms caused by participating in the research. As the selected standardised questionnaires are not used for clinical diagnosis, no threshold was considered to indicate the need for referral to health professionals. However, in case of any concerns regarding the participants' wellbeing based on the information provided in the questionnaires, the women were encouraged to contact their GP. During data collection period, five women were contacted and encouraged to contact their GP, based on the information they had provided.

### *Beneficence*

It was made clear in PIS that participating in the study had no direct benefits to the participants. Other than the time commitment (of maximum two hours) to completing the surveys, there was no anticipated costs for participation in the research. This information was openly shared with the participants through PIS and verbal communication.

### *Justice*

Inviting all women taking part in ARC to the study provided an equal opportunity to participate and have their voices heard in the research.

### *Data management and storage: Protecting participants' confidentiality and anonymity*

The study protocols and PISs outlined the detail of the precautions that would be taken by the researcher to "*protect the privacy of participants and maintain confidentiality of their personal information*" (WMA, 2013, p. 2192). The personal information was

collected electronically directly into Novi-survey hosted by Edinburgh Napier University. All electronic data were stored on a password protected, encrypted University computer system and backed up on the secure server of the University. Apart from the researcher and her supervisors no one had access to the participants' personal information. As per Edinburgh Napier University guidance, the anonymised data will be stored securely for 10 years after completion of the study and will then be destroyed on the safe disposal of confidential waste.

### **6.10 Summary**

This chapter has presented the research methods for the quantitative phase of the study, providing a detailed account of the processes of data collection and analysis. In addition, the ethical considerations in Phase 2 were discussed. The next chapter presents Phase 2 results.

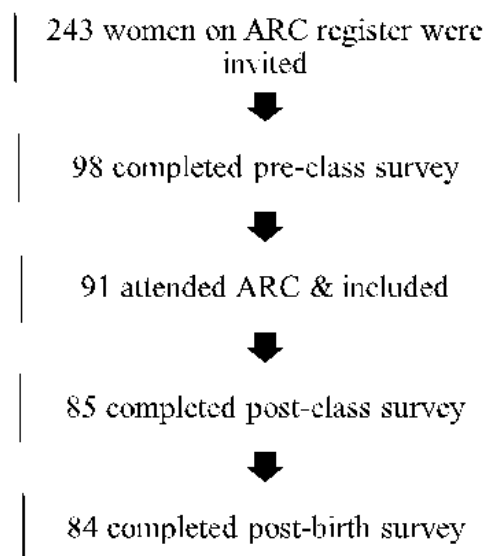
# Chapter 7 Phase 2

## Quantitative Results

This chapter presents the findings of the quantitative phase, which aimed to examine the generated hypotheses and research questions in a larger sample and over time. A description of the response rate and sample characteristics precedes the presentation of the research findings.

### 7.1 Response rate

As shown in Figure 7.1, all women on the ARC waiting list between January and June 2021 (243 women) were invited to take part in the study. Ninety-eight women (40.32%) completed the pre-class (baseline) survey, seven of these women, however, did not attend ARC and were excluded from the study. Of the 91 participants who completed the pre-class survey, eighty-five (93.4%) returned the post-class survey and 84 (92.4%) completed the post-birth survey, leading to an attrition rate of 6.6% for post-class and 7.6% for post-birth. Due to occasional missing data for outcome measures, sample sizes varied slightly in the conducted statistical analyses.



**Figure 7.1** Flowchart of the response rate



### 7.1.1 Characteristics of the sample

Age, gestational age (or postnatal weeks), parity, ethnicity, marital status, educational attainment, and employment status of the participants are presented in this section.

Participants' age ranged from 21 to 41 years ( $M = 31.00$ ,  $SD = 3.6$ ). As presented in Table 7.1, mean gestation was 31.7 weeks ( $SD = 3.2$ ) at pre-class, 34.00 weeks ( $SD = 3.3$ ) at post-class and 5.00 weeks postnatal ( $SD = 2.4$ ) at post-birth.

**Table 7.1** Mean age, gestational age, and postnatal weeks at pre-class, post-class, and post-birth

Age	31 (3.6)
Pre-class gestational age (weeks)	31.7 (3.2)
Post-class gestational age (weeks)	34 (3.3)
Post-birth postnatal weeks	5 (2.4)

As shown in Table 7.2, the participants were predominantly primigravida ( $n = 78$ , 85.7%) and from a range of ethnicities with the majority ( $n = 70$ , 76.9%) being white British. A large proportion of the participants were either married ( $n = 56$ , 61.5%) or co-habiting ( $n = 29$ , 32.9%) with the remaining ( $n = 6$ , 6.6%) identifying themselves as single. In terms of educational attainment, this varied from secondary school to doctorate with 79.1% ( $n = 72$ ) being educated to first level degree of higher education or higher. Most participants ( $n = 76$ , 83.3%) were in full time employment, whilst 7.7% ( $n = 7$ ) were in part time employment and the rest were unemployed, students, or others.

**Table 7.2** Demographic characteristics

<b>Previous births</b>		
	No previous birth	78 (85.7%)
	One previous birth	11 (12.1%)
	Two or more previous birth	2 (2.2%)
<b>Ethnicity</b>		
	White British	70 (76.9%)
	Other white	10 (10%)
	Black	0 (0%)
	Asian	7 (7.7%)
	Mixed	3 (3.3%)
	Others	1 (1.1%)
<b>Marital status</b>		
	Married	56 (61.5%)
	Domestic partnership	29 (31.9%)
	Single	6 (6.6%)
<b>Educational attainment</b>		
	Secondary school	4 (4.4%)
	College (IINS/IIND)	15 (16.5%)
	Degree	39 (42.9%)
	Master's degree	25 (27.5%)
	Doctorate	3 (3.3%)
	Others	5 (5.5%)
<b>Employment</b>		
	Full-time	76 (83.5%)
	Part-time	7 (7.7%)
	Unemployed	5 (5.5%)
	Student	1 (1.1%)
	Others	2 (2.2%)

## 7.2 Findings

The findings pertinent to the influence of ARC on maternal psychological parameters are presented first, prior to discussing the influence of ARC on childbirth expectations and experiences.

### 7.2.1 Influence of ARC on maternal psychological parameters

This section presents the findings pertinent to the changes in mental wellbeing, fear of childbirth (FOC), state and trait anxiety (*III*), and childbirth self-efficacy (*II2*) over time.

#### 7.2.1.1 Hypothesis 1

*“There will be an improvement in mental wellbeing and reduction in FOC and anxiety, between pre-class, post-class, and post-birth.”*

This hypothesis examines the difference in mental wellbeing, FOC, and state and trait anxiety over time.

**Table 7.3** Mean (*SD*) for mental wellbeing, FOC, and state and trait anxiety over time

<b>Mental wellbeing</b>	50.36 (7.96)	53.43 (6.58)	52.86 (6.81)
<b>Fear of childbirth</b>	62.19 (20.87)	47.89 (21.04)	46.92 (27.19)
<b>State anxiety</b>	12.43 (3.79)	10.43 (3.37)	9.70 (3.37)
<b>Trait anxiety</b>	13.06 (3.54)	11.49 (3.31)	11.59 (3.42)

#### *Mental Wellbeing*

As shown in Table 7.3, the mean score for mental wellbeing increased from 50.36 (*SD* = 7.96) at pre-class to 53.43 (*SD* = 6.58) post-class and 52.86 (*SD* = 6.81) post-birth.

The changes in mean scores indicate an improvement in mental wellbeing post-class which was sustained until post-birth.

Results from a one-way repeated measures ANOVA, following the removal of 3 outliers, indicated that time (pre-class, post-class, and post-birth) had a significant effect on mental wellbeing, Wilks Lambda = 0.73,  $F(2, 72) = 12.32$ ,  $p < 0.001$ , multivariate partial Eta squared = 0.26 (indicating a large effect size). Further post hoc analysis with Bonferroni indicated that there was a significant increase in mental wellbeing between pre-class and post-class ( $p = .000$ ), and between pre-class and post-birth ( $p = .01$ ).

#### *Fear of Childbirth*

As shown in Table 7.3, the mean score for fear of childbirth decreased from 62.19 ( $SD = 20.87$ ) at pre-class to 47.89 ( $SD = 21.04$ ) post-class and 46.92 ( $SD = 27.19$ ) post-birth. Results from a One-way repeated measures ANOVA indicated that time (pre-class, post-class, and post-birth) had a significant effect on fear of childbirth, Wilks Lambda = 0.55,  $F(2, 72) = 27.79$ ,  $p < 0.001$ , multivariate partial Eta squared = 0.44 (indicating a large effect size). Post hoc analysis with Bonferroni indicated that there was a significant decrease in fear of childbirth between pre-class and post-class ( $p < 0.001$ ) and between pre-class and post-birth ( $p < 0.001$ ).

#### *State Anxiety*

As shown in Table 7.3, the mean score for state anxiety decreased from 12.43 ( $SD = 3.79$ ) at pre-class to 10.43 ( $SD = 3.37$ ) post-class and 9.70 ( $SD = 3.37$ ) post-birth. Results from a One-way repeated measures ANOVA indicated that time (pre-class, post-class, and post-birth) had a significant effect on State Anxiety, Wilks Lambda = 0.60,  $F(2, 72) = 22.17$ ,  $p < 0.001$ , multivariate partial Eta squared = 0.39 (indicating a large effect size). Post hoc analysis with Bonferroni indicated that there was a

significant decrease in state anxiety between pre-class and post-class ( $p < 0.001$ ) and between pre-class and post-birth ( $p < 0.001$ ).

#### *Trait Anxiety*

As shown in Table 7.3, the mean score for trait anxiety decreased from 13.06 ( $SD = 3.54$ ) at pre-class to 11.49 ( $SD = 3.3$ ) post-class and 11.59 ( $SD = 3.42$ ) post-birth.

Results from a One-way repeated measures ANOVA indicated that time (pre-class, post-class, and post-birth) had a significant effect on trait anxiety, Wilks Lambda = 0.70,  $F(2, 72) = 14.24$ ,  $p < 0.001$ , multivariate partial Eta squared = 0.29 (indicating a large effect size). Post hoc analysis with Bonferroni indicated that there was a significant decrease in trait anxiety between pre-class and post-class ( $p < 0.001$ ) and between pre-class and post-birth ( $p = 0.002$ ).

The results indicate that Hypothesis 1 is supported, as there is a significant effect of time on mental wellbeing, fear of childbirth, and state and trait anxiety. There was a significant improvement in mental wellbeing post-class together with a significant reduction in fear of childbirth, and state and trait anxiety. The improvements on these measures were maintained and results indicated a significant difference between pre-class and post-birth, no significant differences, however, were found between post-class and post-birth measures. This suggests the initial improvement is maintained and stabilises over time. Appendix 9 includes the graphs that illustrate the changes in mean scores of the selected psychological parameters for hypothesis 1, over time.

#### **7.2.1.2 Hypothesis 2**

*“There will be an improvement in women’s confidence in their own ability to cope with childbirth between pre-class and post-class.”*

This hypothesis examines the difference between childbirth self-efficacy expectancy (a belief about one's ability to successfully conduct herself during labour) and outcome-expectancy (a belief about the behaviour that could be useful during labour) (Carlsson et al., 2015), before and after attending ARC.

**Table 7.4** Mean (*SD*) for self-efficacy expectancy and outcome expectancy pre-class and post-class

<b>Self-Efficacy Expectancy</b>	84.63 (28.29)	110.56 (23.36)	< 0.00
<b>Outcome Efficacy</b>	127.00 (19.30)	129.58 (19.66)	0.135

#### *Childbirth Self- Efficacy Expectancy*

As shown in Table 7.4, results from a paired-sample *t*-test indicated that participants reported significantly higher mean scores of self-efficacy expectancy (*Mean* = 110.56, *SD* = 23.36) post-class than those reported pre-class (*Mean* = 84.63, *SD* = 28.29),  $t(77) = 9.44, p < .001$ , Hedges'  $g = 1.6$  (indicating a large effect size).

#### *Childbirth Outcome Expectancy*

As shown in Table 7.4, results from a paired-sample *t*-test indicated no statically significant difference between the mean scores of outcome expectancy at pre-class (*Mean* = 127.00, *SD* = 19.30) and post-class (*Mean* = 129.58, *SD* = 19.66);  $t(78) = -1.51, p = 0.135$ , Hedges'  $g = 0.17$  (indicating a small effect size).

Results indicate that hypothesis 2 has been partially supported, as there is a significant difference on self-efficacy expectancy between pre-class and post-class, but not on outcome expectancy. This indicates that women's self-efficacy expectancy, namely the

belief in one's ability to be in control during labour increased post-class. Outcome efficacy which measures the belief about the behaviour that could be useful during labour, however, appears to remain stable.

## 7.2.2 Influence of ARC on childbirth expectations and experiences

In this section, the findings regarding intended/actual use of epidural for labour (I13), women's coping behaviour with spontaneous onset of labour at home (RQ1), the prevalence of use of ARC techniques (RQ2), women's perceptions of the influence of ARC (RQ3) and their overall labour and birth experience (RQ4) are presented. When presenting the findings regarding overall labour and birth experiences (RQ4), the *expected* and *actual* 'mode and place of birth' are compared to clarify the context of these experiences.

### 7.2.2.1 Hypothesis 3

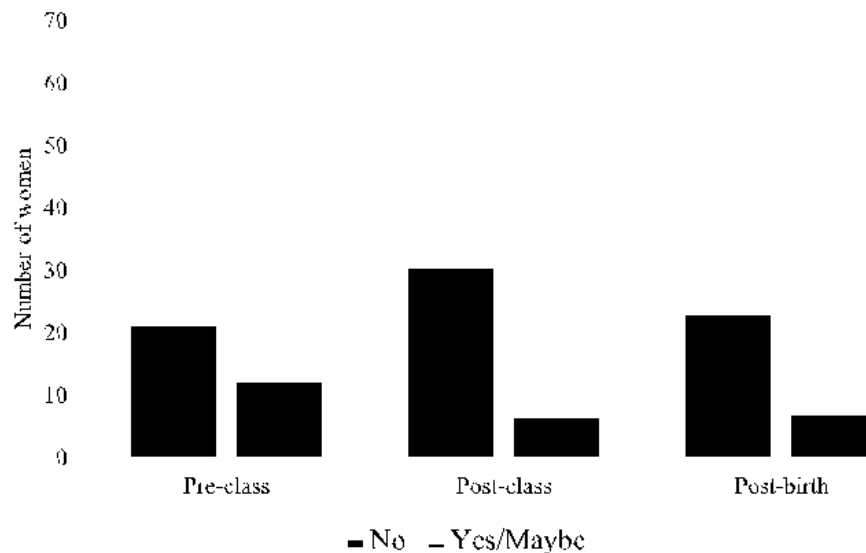
*"There will be a relationship between time and intended/actual use of epidural for labour."*

This hypothesis examines the relationship between intended/actual use of epidural for labour and time (pre-class, post-class, and post-birth).

**Table 7.5** Intended/actual use of epidural for labour

	Pre-class n (%)	Post-class n (%)	Post-birth n (%)
<b>No</b>	40 (44.4%)	58 (68.2%)	44 (55.7%)
<b>Yes/maybe</b>	46 (50.5 %)	25 (29.4%)	26 (32.9%)

As shown in Table 7.5, 44.4% ( $n = 40$ ) of women *did not intend* to use epidural during labour at pre-class, this however, increased to 68.2% ( $n = 58$ ) at post-class. At post-birth, 55.7% ( $n = 44$ ) reported they *did not use* epidural for labour. Nonetheless, some of these women eventually received an epidural or spinal anaesthesia as required for undergoing an operative birth. Further, whilst 50.5% ( $n = 46$ ) *intended to either use epidural or were unsure* about their intention pre-class, this reduced to 29.4% ( $n = 25$ ) post-class. At post-birth, 32.9% ( $n = 26$ ) reported the actual use of epidural for labour. A Chi square test of independence was conducted between time and intention/actual use of epidural for labour which showed a statistically significant association between these two variables  $X^2(2, N = 91) = 0.20, p = .007$ , Cramer's  $v = 0.57$  (indicating a large effect size). Women were less likely to 'choose using an epidural' post-class and 'actually use' an epidural during labour, compared with pre-class, therefore, hypothesis 3 is supported. Figure 7.2 presents a visual comparison between intended/actual use of epidural for labour over time.



**Figure 7.2** Intended versus actual use of epidural for labour



Examining the data regarding hypothesis 3, also revealed a strong relationship between Induction of Labour (IOL) and epidural use for labour. Whilst 60.7% ( $n = 17$ ) of women undergoing IOL used epidural, the percentage of women with spontaneous onset of labour who used epidural was 21.4% ( $n = 9$ ). A Chi square test of independence conducted between the 'type of onset of labour' and 'epidural use for labour' showed a statistically significant association between these two variables  $\chi^2(1, N = 70) = 11.106$ ,  $p = .001$ . As shown in Table 7.6, women were less likely to use epidural for labour if their labour started spontaneously compared with those undergoing IOL.

**Table 7.6** Epidural use in induced labour versus spontaneous labour

Yes	60.7% ( $n = 17$ )	21.4% ( $n = 9$ )
No	39.3% ( $n = 11$ )	78.6% ( $n = 33$ )

#### 7.2.2.2 Research question 1

*“Do women attending ARC whose labour starts spontaneously, stay at home during early labour and seek hospitalization in established labour?”*

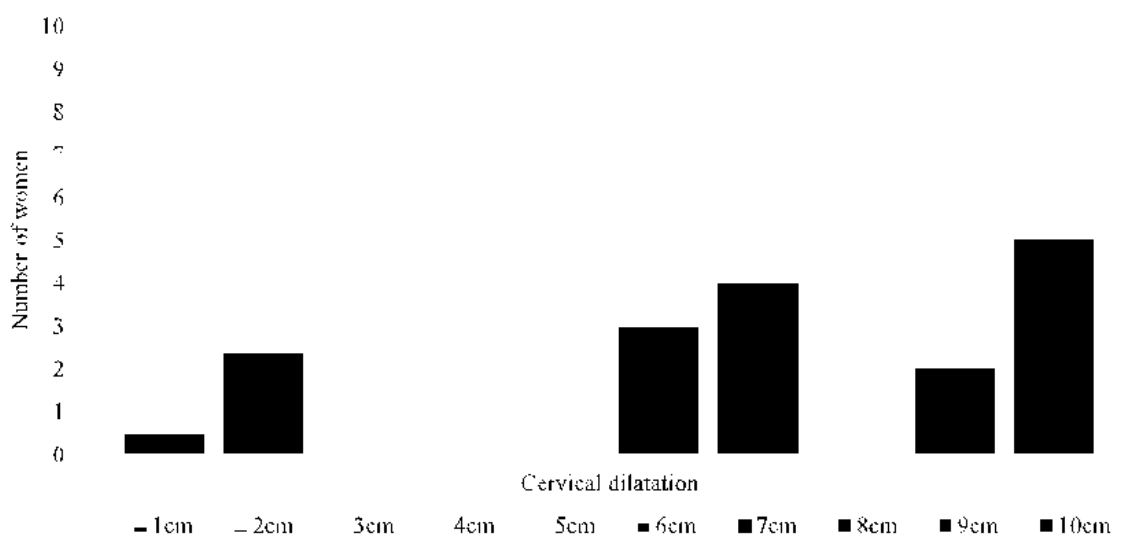
This question examines the length of time spent at home during labour and the stage of labour when women sought hospitalisation for birth. Of 84 women who returned post-birth surveys, 44 (55.7%) had spontaneous onset of labour at home. The remaining participants had either a planned caesarean section or their labour was induced. For women with spontaneous onset of labour, the mean time spent at home in labour was 13.7 hours (median = 7.5 hours). As shown in Figure 7.3, 28 (63.6%) of those with spontaneous onset of labour arrived at hospital in established labour. NICE guidelines

define established labour as experiencing *'regular painful contractions and progressive cervical dilatation from 4 cm'* (NICE, 2017).



**Figure 7.3** Women's stage of labour on arrival at hospital

The majority of these women were primigravids ( $n = 38, 84.4\%$ ) with the remaining ( $n = 6, 13.6\%$ ) being multiparous. The mean cervical dilatation for this group of women on admission to the hospital was 4.86 cm ( $SD = 2.66$ ) with 5 (11%) of them being admitted to the hospital with a fully dilated cervix (10 cm). Figure 7.4 presents the frequency of different cervical dilatations on admission for this group.

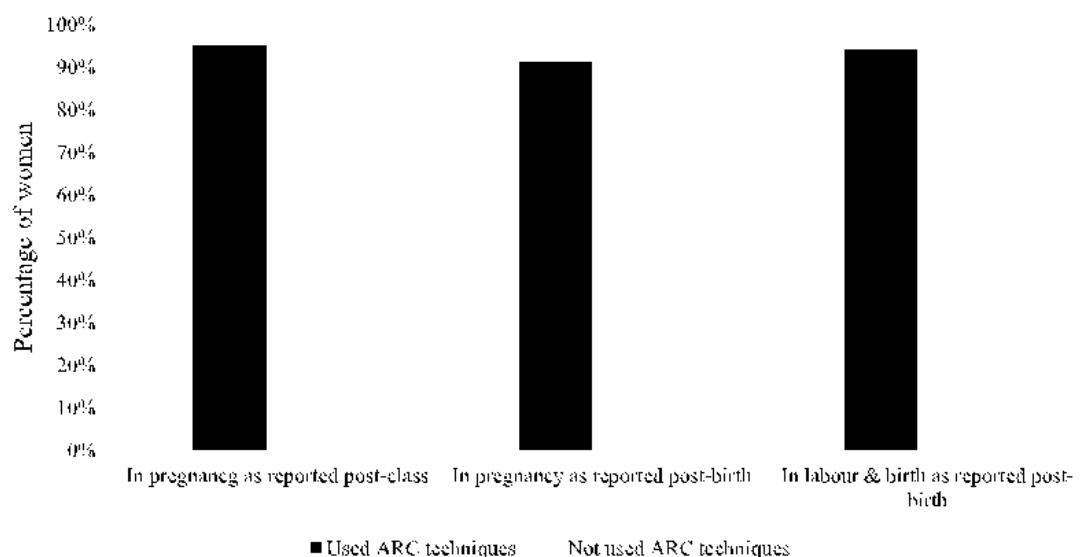


**Figure 7.4** Cervical dilatations on arrival at hospital

### 7.2.2.3 Research question 2

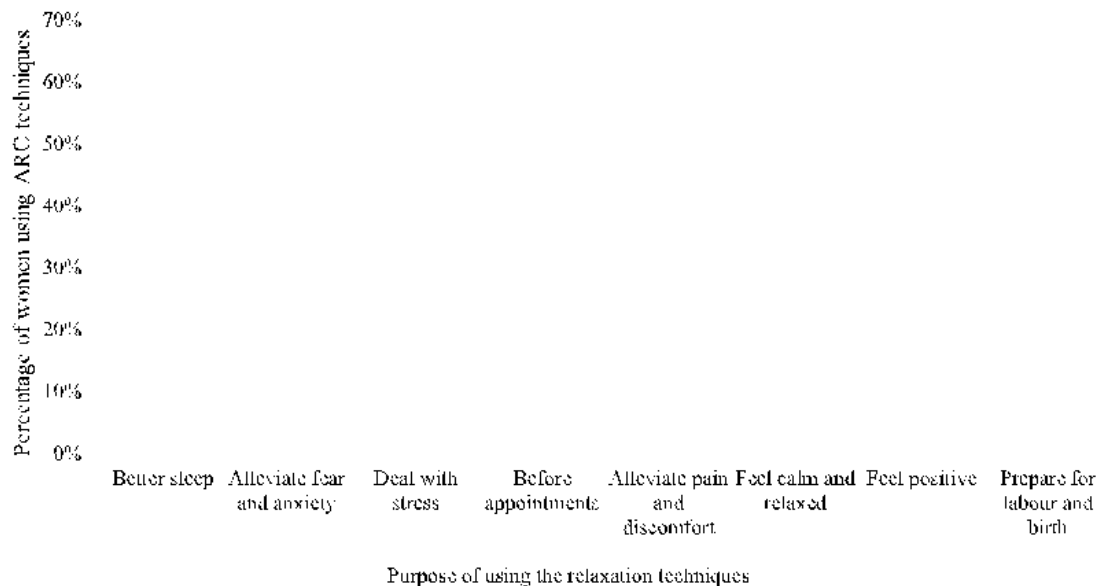
*“Do women attending ARC widely use the ARC techniques?”*

As shown in Figure 7.5, 95.2% ( $n = 80$ ) of participants reported using relaxation techniques in pregnancy at post-class and 90.5% ( $n = 76$ ) reported using the techniques during pregnancy when asked post-birth. Of the 84 women who returned post-birth surveys, 94.0% ( $n = 79$ ) reported using techniques during labour and/or birth. All women (100%) who had experienced labour (89.3%,  $n = 75$ ) reported using the techniques in labour. The remaining 10.7% did not experience labour due to having planned caesarean sections of whom 6% ( $n = 5$ ) did not use the techniques during their operative birth.



**Figure 7.5** Percentage of women using ARC techniques in pregnancy, labour and birth

As displayed in Figure 7.6, after birth participants reported using the relaxation techniques during pregnancy for a wide range of purposes. Feeling calm and relaxed (61.9%), feeling positive (46.4%) and preparation for labour (61.9%) were the most popular purposes for using the techniques in pregnancy.



**Figure 7.6** Percentage and purpose of using relaxation techniques in pregnancy

As shown in Table 7.7, women had used a range of relaxation techniques during labour and birth, with breathing techniques being the most used technique, used by 88% of women ( $n = 73$ ). Following ‘breathing techniques’, ‘being upright and mobile’ and ‘positive affirmations’ were reported respectively as the second (55.4%,  $n = 46$ ) and third (51.8%,  $n = 43$ ) most frequently used techniques.

**Table 7.7** Type of the techniques used during labour and birth

<b>Breathing techniques and focusing on breath</b>	73 (88%)
<b>Counting up or down</b>	17 (20.5%)
<b>Visualisation</b>	26 (31.3%)
<b>Positive affirmations</b>	43 (51.8%)
<b>Hypnosis</b>	1 (1.2%)
<b>Being upright and mobile</b>	46 (55.4%)
<b>Listening to music</b>	29 (34.9%)
<b>Immersion in water</b>	21 (25.3%)
<b>Massage</b>	15 (18.1%)

### 7.2.2.4 Research question 3

*“Do women attending ARC perceive the influence of ARC on their pregnancy, labour and birth experiences as positive?”*

As shown in Table 7.8, 97.6% ( $n = 82$ ) of women perceived the influence of ARC on their experience of pregnancy as either ‘positive’ (63.1%,  $n = 53$ ) or ‘very positive’ (34.5%,  $n = 29$ ). Over eighty-four percent ( $n = 71$ ) of them perceived the influence of ARC on their labour and birth experience as ‘positive’ (56.0%,  $n = 47$ ) or ‘very positive’ (28.6%,  $n = 24$ ), whilst 15.5 % ( $n = 13$ ) felt attending ARC had ‘no influence’ on their labour and birth experience. None of participants reported ARC as having a ‘negative’ or ‘very negative’ influence on either their pregnancy or labour and birth.

**Table 7.8** Influence of ARC on experiences of pregnancy, labour and birth

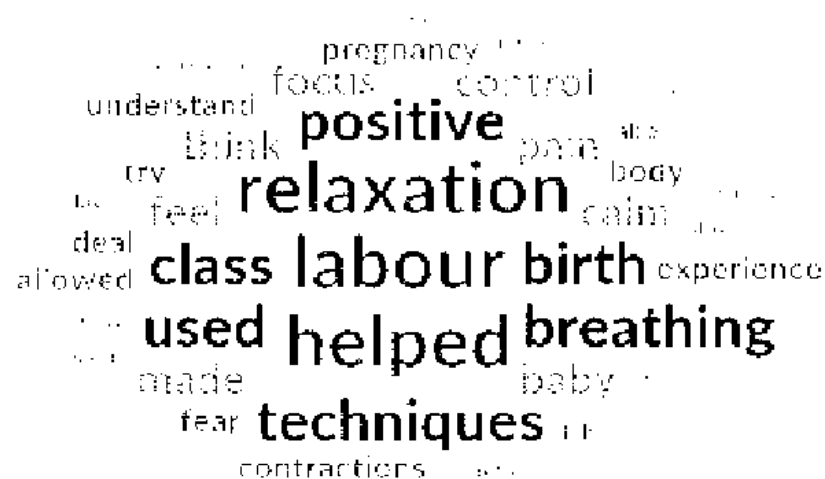
<b>Very negative</b>	0	0
<b>Negative</b>	0	0
<b>No influence</b>	2 (2.4%)	13 (15.5%)
<b>Positive</b>	53 (63.1%)	47 (56.0%)
<b>Very positive</b>	29 (34.5%)	24 (28.6%)
<b>Total</b>	84 (100%)	84 (100%)

#### *Women’s qualitative accounts about the influence of ARC on their childbirth experiences*

The participants’ responses to two open-ended questions included in the survey provided qualitative accounts on the influence of ARC. Through responding to these questions participants could freely express their perception of the influence of ARC on their pregnancy, labour and birth experiences. Comparing these qualitative accounts against a coding table taken from Phase 1 findings (as explained in Chapter 6),

generated 194 references to the pre-organised codes, categories, sub-themes, and themes (Appendix 9). Similar to the findings of Phase 1, Phase 2 participants frequently reported that attending ARC and particularly understanding childbirth physiology had reduced their feelings of fear and anxiety whilst leading to feeling more confident, calm and positive. Participants reported the positive influence of ARC on their pregnancy and childbirth, highlighting how use of the learned techniques influenced their experience of labour pain and medical procedures as well as helping them have positive perceptions of their childbirth experiences.

Figure 7.7 presents a word cloud populated in NVivo demonstrating the most frequently repeated words in the qualitative data which appear to resonate with Phase 1 findings.



**Figure 7.7** NVivo word cloud of the top 40 words in qualitative accounts

#### **7.2.2.5 Research question 4**

*“Do women attending ARC perceive their overall labour and birth experience as positive?”*

As illustrated in Figure 7.8, 73.8% ( $n = 62$ ) of those who returned the post-birth survey, perceived their overall labour and birth experience as 'positive' or 'very positive', 9.5% ( $n = 8$ ) expressed having overall negative experiences and 16.7% ( $n = 14$ ) perceived their experience as 'neither positive nor negative'. It is worth noting that none of the participants reported having a 'very negative' labour or birth experience.



**Figure 7.8** Women's overall experiences of labour and birth

However, women's positive perceptions on their labour and birth experiences need to be interpreted in view of the high discrepancies between their childbirth expectations and actual experiences. Discrepancies between women's childbirth expectations and experiences are predictors of negative birth experiences (Hosseini Tabaghdehi et al., 2020; Koster et al., 2020).

As shown in Table 7.9, women's expectations regarding the mode and place of birth remained relatively stable from pre-class to post-class, with an increase being noted in planned home birth (from 3.3% to 7.1%). However, a significant disparity ( $p = .000$ ) between the expectations (reported post-class) and experiences (reported post-birth) was identified. Despite the majority of women expecting to give birth spontaneously ( $n = 75$ , 88.2%) in the midwife led units ( $n = 54$ , 63.6%), at post-class, only around one third of

these women reported meeting their expectations in terms of mode ( $n = 28$ , 33.3%) and place ( $n = 23$ , 27.4%) of birth.

**Table 7.9** Intended and actual mode and place of birth

<b>Mode of birth</b>			
Spontaneous Vaginal Birth (SVB)	79 (86.8%)	75 (88.2%)	28 (33.3%)
C-Section	2 (2.5%)	3 (3.5%)	33 (39.3%)
Unsure	10 (11%)	7 (8.2%)	-----
Assisted birth (via Forceps/Ventous)	-----	-----	23 (27.4%)
<b>Place of birth</b>			
Midwife's led unit (alongside & stand-alone)	58 (63.7%)	54 (63.6%)	14 (16.7%)
Home	3 (3.3%)	6 (7.1%)	2 (2.4%)
Labour ward	11 (12.1%)	9 (10.6%)	21 (25%)
Theatre	3 (3.3%)	3 (3.5%)	46 (54.8%)
Not sure	14 (15.4%)	10 (11.8%)	-----
Others	2 (2.2%)	3 (3.5%)	1 (1.2%)

To conclude, whilst around two third of women did not meet their expectations in terms of mode and place of birth, only 9.5% perceived their overall labour and birth experience as 'negative' and no one reported having a 'very negative' experience.

### 7.3 Summary

Results of Phase 2 suggest attending ARC has a positive influence on maternal psychological wellbeing by reducing FOC, anxiety and increasing mental wellbeing and women's confidence in their own ability to cope with labour. Post-birth measurement of the psychological parameters indicated the occurred changes were maintained post-birth. Furthermore, the results suggest the intended and actual use of epidural for labour



reduced significantly following attending ARC. A large proportion of women whose labour initiated spontaneously at home, arrived at the hospital in established labour. The participants widely used the taught relaxation techniques in ARC during their pregnancy, labour and birth. They generally perceived the influence of ARC as 'positive' or 'very positive' on their pregnancy, as well as labour and birth experiences. Even though most women did not meet their expectations in terms of the mode and place of birth, the majority perceived their overall childbirth experience as 'positive' or 'very positive'. Overall, Phase 2 findings indicate the influences of ARC, as identified in Phase 1, were significant over time in a larger sample. Table 7.10 presents a summary list of Phase 1 and Phase 2 key findings. Further interpretation of these findings in the context of the wider literature will be presented in the next chapter.

**Table 7.10** Phase 1 and Phase 2 key findings

<p>ARC was viewed as a turning point, where maternal confidence and mental wellbeing were enhanced, whilst FOC and anxiety declined. These changes were shown to be significant and were sustained until after the birth.</p>
<p>Understanding of the '<i>childbirth physiology</i>', narrated '<i>positive childbirth stories</i>', and '<i>recognition of an inner resource through practice</i>' in class were the main factors contributing to change of emotions and attitudes towards childbirth.</p>
<p>Rates of intended and actual use of epidural for labour (at post-class and post-birth) were significantly lower than the reported rate at pre-class.</p>
<p>Accessing the recognised '<i>inner resource</i>' was the aim of practising relaxation techniques.</p>
<p>Relaxation techniques were widely used during pregnancy (95.2%) for a range of purposes and the influence was perceived as positive by majority (97.6%).</p>
<p>When labour started spontaneously at home, women felt confident to stay home during early labour and majority (63.7%) sought hospitalisation when in established labour.</p>
<p>Relaxation techniques were widely used during labour and birth (94.0%) for a range of purposes including coping with labour pain and obstetric procedures/interventions with the influence being perceived as positive by majority (84.5%).</p>
<p>For women to be able to use the relaxation techniques as an effective coping mechanism for labour pain, a protected birth space (encompassing the physical surroundings, birth attendants and clinical picture) was required.</p>
<p>IOL was considered as interrupting the relaxation space and having a significant impact on rate of epidural use for labour.</p>
<p>Despite most women not meeting their childbirth expectations in terms of place and mode of birth, only 9.5% described their overall childbirth experience as 'negative' and no woman perceived their childbirth experience as 'very negative'.</p>

# Chapter 8 Discussion and Conclusion

In this chapter, the qualitative and quantitative findings are combined to draw overall inferences. Whilst the initial qualitative study identified '*what aspects of maternal psychological wellbeing and childbirth experience were influenced by ARC*', the follow up quantitative study tested the statistical significance of such influence over time. Therefore, the two datasets are compared, and cross checked to respond the question of, '*What aspects of maternal psychological wellbeing and childbirth experience were influenced by ARC?*'. To explain '*how*' and '*why*' any influence may occur, and to identify '*the contextual factors*' that may mitigate the influence of ARC during labour and birth only the qualitative findings are utilised. The study, by providing a more in-depth understanding of the latter questions, makes a unique contribution to the field. In addition, this exploratory study brings new insight to this area by examining the psychological parameters and the aspects of childbirth experience that mattered to women and were identified by them and their birth partners.

The chapter discusses the findings of the study in the context of the wider theoretical, empirical, and philosophical literature. A summary of the key findings precedes a detailed discussion of findings in the context of existing evidence. The strengths and limitations of the study are discussed prior to presenting the study conclusion. Finally, the recommendations for practice, education, research, and policy are made.

## **8.1 Summary of the key findings**

### ***What aspects of maternal psychological wellbeing were influenced by ARC and how?***

Women suggested that increased confidence in their own ability to cope with childbirth occurred following attending ARC. The rise in confidence reduced their childbirth-related fears and anxieties whilst enhancing their feelings of positivity. Testing the childbirth self-efficacy showed a significant increase after the class. Similarly, the

findings indicated significant improvements in fear of childbirth, state and trait anxiety and mental wellbeing after class that were sustained over time, until after the birth.

***Why did ARC influence maternal psychological wellbeing?***

A combination of '*understanding of the childbirth physiology*', '*hearing positive birth stories*', and learning '*relaxation techniques*' in ARC were identified by participants as the main factors contributing to a change in their emotions towards childbirth.

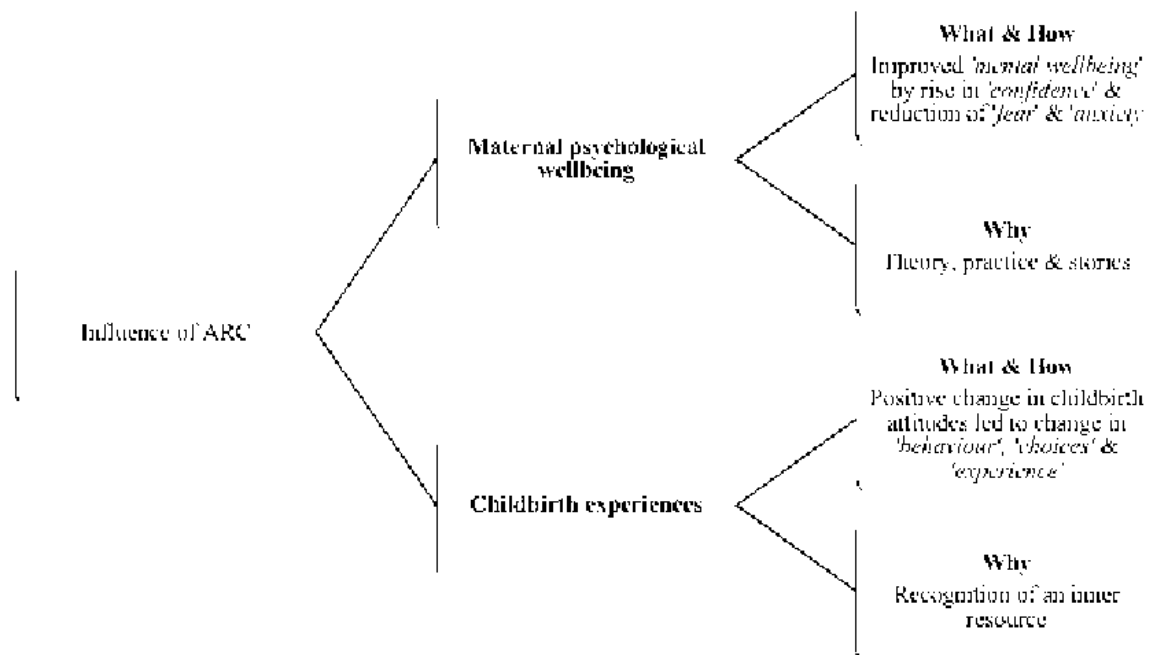
***What aspects of childbirth experience were influenced by ARC and how?***

Following attending ARC, a positive change in attitude towards childbirth was reported by participants. This change motivated women's self-care behaviour throughout pregnancy and childbirth whilst influencing the childbirth choices they made, and their overall childbirth experiences. They widely utilised the learned techniques as a self-care behaviour during pregnancy, early labour at home, and for coping with labour pain and medical procedures/interventions. A change in perceptions towards childbirth and labour pain appeared to lead to enhanced coping abilities. Phase 2 findings showed a significant decline in women's choice of epidural and their actual use of epidural for labour. Most women in Phase 2, despite not meeting their childbirth expectations, perceived their overall labour and birth experiences as positive. Women attributed having positive childbirth experiences to their positive attitudes towards childbirth, which were influenced by ARC content.

***Why did ARC influence childbirth experiences?***

Experiencing an Altered State of Consciousness (ASC) as an inducible and health-enhancing state, through relaxation exercises, along with understanding the physiology and listening to positive birth stories led to positive changes in women's attitude towards

childbirth. Entering an ASC was the primary aim of relaxation practices during pregnancy, labour, and birth. It was the recognition of this state followed by a change in childbirth attitude that led to the influence of ARC on childbirth experience. Figure 8.1 presents outlines of the ARC influence.



**Figure 8.1** Outlines of the ARC influence

***What contextual factors mitigated the influence of ARC during labour and birth?***

Women’s ability to use relaxation techniques as an effective pain management method depended on the birth space. To actively induce and remain in the ASC as a state associated with reduced pain depended on the physical environment, interactions with birth attendants and the clinical picture of the experience.

## **8.2 Discussion of key findings and existing evidence**

This section draws on all the data from this study. The qualitative data identified the 'aspects of maternal psychological wellbeing and childbirth experience' that were influenced by ARC, whilst the quantitative data tested the significance of such influence over time. An insight on 'how' and 'why' any influence may occur, and 'the contextual factors' that may mitigate the influence of ARC during labour and birth, was provided by the qualitative accounts.

### **8.2.1 The influence of ARC on maternal psychological wellbeing**

*What aspects of maternal psychological wellbeing were influenced by ARC and how?*

The study findings indicated confidence towards childbirth was increased after attending ARC, which was associated with a decline in childbirth related fears and anxieties, and enhanced feelings of positivity.

#### *i. Childbirth self-efficacy*

Participants commented the class changed how they viewed childbirth and the role they could play in it. The meaning of childbirth changed from something to be feared or ignored to a process that one could actively engage with and influence. In Phase 1, women reported looking forward to and being excited about childbirth after attending ARC. An increase in feelings of confidence was the hallmark of the qualitative accounts.

This finding was supported in Phase 2 as women showed a significant increase in childbirth self-efficacy expectancy scores between baseline and post-class, but not in childbirth outcome expectancy. According to Bandura (2009), self-efficacy expectancy is a personal conviction about one's ability to successfully perform required behaviours

in a given situation, and outcome expectancy is the belief that a given behaviour will lead to a given outcome. In the current study, women were already scoring highly on outcome expectancy at baseline. This meant that they already had strong beliefs that their coping behaviours during labour would produce desired outcomes. Since they were already scoring highly, the lack of change over time is not surprising. At baseline, however, they were not confident that they could perform these behaviours during labour. Bandura (2009) argues that people can believe that a certain behaviour will produce a desired outcome (outcome expectancy), but if they think that they cannot perform that behaviour (self-efficacy expectancy), high outcome expectancy may not influence their behaviour. Attending ARC, however, led to an increase in women's beliefs about their ability to cope with childbirth.

Whilst existent qualitative research in the literature is consistent in suggesting the positive influence of ARE<sup>15</sup> on women's confidence in their own birthing abilities, quantitative research examining the effect of ARE on childbirth self-efficacy is lacking. The two comparative studies that reported the effect of ARE on self-efficacy (Çankaya & Şimşek, 2021; Isbir et al., 2016) were both conducted in Turkey and used a similar educational intervention of 16 hours which included theory of childbirth physiology and relaxation techniques. Both studies found a significantly greater increase in childbirth self-efficacy expectancy and outcome expectancy levels in intervention groups compared with routine care. Whilst the increase in self-efficacy expectancy levels in these studies supports the findings of the current study, their report of significant improvement in outcome expectancy levels is in contrast with the present study findings. The baseline outcome expectancy mean scores in these studies were similar to

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<sup>15</sup> Antenatal Relaxation Education: defined as the antenatal education that comprises visualisation/ guided imagery and/or hypnosis.



those in the current study. It is plausible that the difference in length or content of the education (16 hours versus 3 hours) has played a role in the differing results.

### *ii. Fear and Anxiety*

The qualitative findings indicated that participants experienced a decline in childbirth related fears and anxieties during and immediately after ARC because of increased confidence in their own ability to cope with childbirth. A significant reduction in mean scores of FOC, and state and trait anxiety in Phase 2, occurred following attendance at ARC, which remained stable over time, until after the birth.

The reducing influence of ARE on fear has been shown in previous qualitative research (Abbasi et al., 2009; Finlayson et al., 2015; Levett et al., 2016b; Tabib & Crowther, 2018; Tabib et al., 2021). Comparative research measuring influence of ARE on FOC (using W-DEQ) has also shown a greater reduction in FOC over time compared to control groups (Atis & Rathfisch, 2018; Bülez et al., 2018; Çankaya & Şimşek, 2021; Isbir et al. 2016). However, all these quantitative studies were carried out in Turkey. The only study in the context of the UK was an RCT conducted by Downe et al. (2015) that compared the expected fear of labour (measured at baseline) with the actual levels reported 2 weeks postnatal. The results demonstrated a significant reduction in fear levels following ARE. However, a well-validated tool such as W-DEQ was not used to measure FOC in this study. Evidence on the influence of ARE on FOC in the context of western countries is lacking. Thus, findings of the present study add new knowledge to this under-investigated area in a UK context.

The reduced levels of state and trait anxiety at post-class in the present study is congruent with most findings of previous studies showing the effectiveness of ARE in reducing anxiety levels (Beevi et al. 2016; Beevi et al., 2019; Sahour et al., 2019; Kantziari et al., 2017; Kordi et al., 2014; Jallo et al., 2009). However, Cyna et al.

(2013), and Gedde-Dahl and Fors (2012) did not find any significant reduction in state and trait anxiety after hypnosis training in their RCTs. Cyna et al. (2013) had a 50% attrition rate and Gedde-Dahl and Fors (2012) offered self-administering hypnosis via CDs and a booklet, so the engagement of participants with the education, and the length and type of delivery may impact the effectiveness of ARE on reducing anxiety.

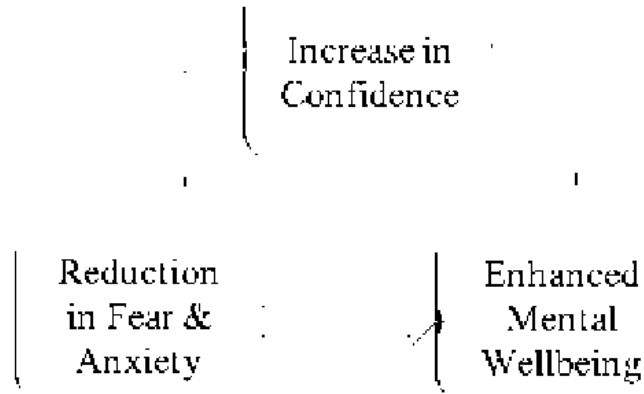
### *iii. Mental wellbeing*

Participants in this study reported feelings of positivity and wellness after the class. This finding was tested by measuring levels of mental wellbeing in Phase 2, which showed a significant improvement in post-class mean scores compared with baseline. The improved levels were sustained over time, until after the birth. It is plausible that prevalent use of the relaxation techniques along with highly positive perceptions of their effect, shown in both phases of the study, have played a role in the stability of these findings over time. Women explained that the primary aim of relaxation practices was to access an altered state of consciousness which was associated with a reduction in anxiety and fear, together with a rise in the positive feelings and a sense of wellness. The current study findings bring new insight to this area of research, which has previously appeared to be more focused on assessing the influence of ARE on reducing negative emotions such as anxiety.

### *iv. The processes involved in the influence on maternal psychological wellbeing*

This section aims to explain 'how' the influence on maternal psychological wellbeing may have occurred from the participants' perspectives. As shown in Figure 8.2, the qualitative findings of the current study suggested that it was the increase in confidence

that led to reduced fear/anxiety and that the combination of enhanced confidence and reduced fear/anxiety was associated with improved mental wellbeing.



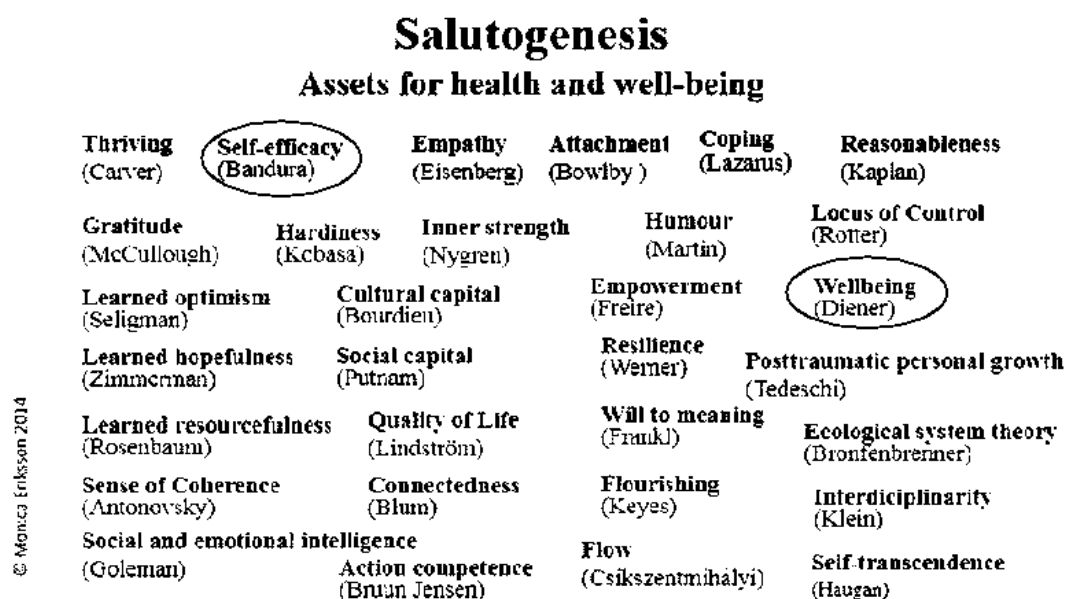
**Figure 8.2.** Relationship between confidence, fear/anxiety, and mental wellbeing

Such a relationship is supported by the literature that is not specifically concerned with the influence of ARE (Beebe et al., 2007; Carlsson et al., 2015; Lowe, 2000; Salomonsson et al., 2013). A correlation between women's self-efficacy and positive dimensions of wellbeing during pregnancy is suggested, as those with higher self-efficacy will feel more in control and have a reduced stress response (Bandura, 1982; Bandura et al., 1977; Nicrop et al., 2008).

Gaining a more comprehensive understanding of this relationship may have significant implications for future research and practice. If childbirth self-efficacy is such a prominent factor in maternal psychological wellbeing, as the findings of current study suggest, the focus of future practice and research should indeed be on promoting and examining this positive psychological parameter. Currently, evidence on the influence of ARE on self-efficacy is scant, particularly in western countries. The focus of existing research in the field appears to be mostly on reducing negative emotions such as fear/anxiety and their symptoms. Such focus indeed stems from the prevailing

pathogenesis paradigm ingrained in medical and health sciences. This paradigm seeks to identify origins of disease and risk factors (Mittlemark et al., 2022).

As opposed to pathogenesis, salutogenesis focuses attention on the study of the origins of and assets for health. Antonovsky (1979) introduced the salutogenesis paradigm as the theory of health promotion. Adopting a salutogenesis orientation and focusing attention on positive psychological conceptions such as self-efficacy and mental wellbeing may inevitably lead to prevention and alleviation of high levels of negative emotions. As shown in Image 9.1 self-efficacy and wellbeing are two of the positive health conceptions covered by the salutogenesis umbrella (Eriksson & Lindström, 2010).



**Image 8.1** Self-efficacy and Wellbeing covered under salutogenesis umbrella

Caption (Reproduced with permission from Folkhälsan Research Center, Lindström and Eriksson, 2010; Eriksson 2014). Available via license: [CC BY-NC-ND 3.0](https://creativecommons.org/licenses/by-nc-nd/3.0/)

*Why did ARC influence maternal psychological wellbeing?*

This study found a change in women's emotions towards childbirth was attributed to '*understanding of the childbirth physiology*', '*hearing positive birth stories*', and the '*relaxation techniques and practices*' in class that together provided knowledge and experiential evidence.

Learning and understanding the theory of childbirth physiology was educational for women and its delivery by midwives made it credible. Further, this theory resonated with their innate knowledge; it made sense. This supports existing research findings that once women understand the childbirth process and physiology, it can have a reducing effect on their fear and anxiety (Abbasi et al., 2009; Finlayson et al., 2015; Tabib et al., 2021), and an enabling effect on implementation of the learned skills (Levett et al., 2016b).

The positive birth stories shared in ARC provided evidence and hope of the possibility of having a positive experience. Generally, vicarious experiences are suggested to be influential in reducing fear in pregnant women (Stoll & Hall, 2013) and have the potential to change their beliefs (Davis-Floyd, 1992). When information about one's own performance is minimal (e.g., in nulliparous women), the personal efficacy is measured against the performance of others and if the shared birth experience is positive, a similar experience is likely to be sought (Livo & Ruitz, 1986). However, there is a paucity of evidence on the influence of birth stories in the context of ARE.

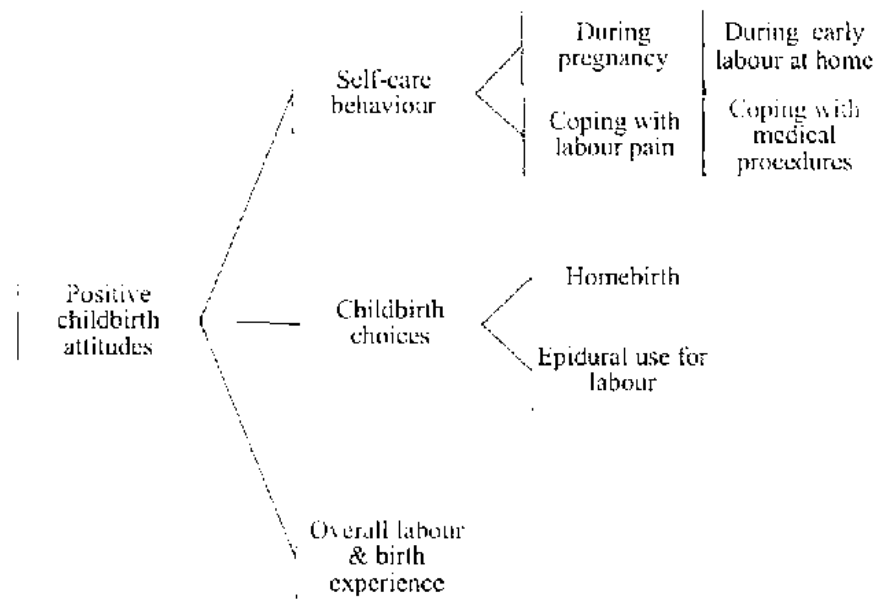
Direct experience of relaxation practices in ARC, provided experiential evidence for the discussed theory as participants experienced the ability to induce a focused and altered state of consciousness (ASC). This ASC was marked by reduced mind activity and

relaxation in the body, coupled with alleviated worries and an enhanced sense of confidence and wellbeing. This state was considered as an inner resource. This state has been noted implicitly in previous research, for example, Finlayson et al. (2015) reported how practice of self-hypnosis enabled women to generate a 'hypnotic state' that became both a source of strength and a place of refuge to manage feelings of anxiety. Nevertheless, the ontological meaning of such experience seems to remain unexplored. In the current study, participants suggested that accessing this state (to various extents) was indeed the primary aim of relaxation practices that resulted in a range of health benefits throughout pregnancy, labour, and birth. The concept of ASC will be discussed later in this chapter.

### **8.2.2 The influence of ARC on childbirth experience**

*What aspects of childbirth experience were influenced by ARC and how?*

Following attending ARC, and in line with the reported improved psychological wellbeing, women reported a change of attitudes towards childbirth. They described their learning of ARC as more than the techniques; it was about a more positive way of *'being'* and *'looking at things'*. This change of outlook resulted in *'looking forward to'* and *'being excited about'* childbirth and motivated women's self-care behaviour throughout pregnancy and childbirth, influenced the childbirth choices they made and their overall labour and birth experiences. Figure 9.3 shows how ARC influenced childbirth experiences through changing childbirth attitudes.



**Figure 8.3** Influence of ARC on childbirth experiences

*i. Self-care behaviour*

In both phases of the study, women reported wide and creative use of relaxation techniques as a self-care behaviour during pregnancy for a range of stress-related purposes. This is significant, considering the adverse effects of antenatal maternal stress on the mental and physical health of the mother and the unborn infant (Kenny et al., 2014). This self-care behaviour continued to be the case in labour too. Most women, in Phases 1 and 2, whose labour started spontaneously felt confident to spend a considerable amount of time at home and apply the learned relaxation techniques until their labour was well established<sup>16</sup>. The majority of these women arrived at the hospital in active labour, with some being admitted in second stage of labour. According to qualitative accounts, this led to positive feelings of achievement, pride, and satisfaction

<sup>16</sup> NICE guidelines define established labour as experiencing 'regular painful contractions and progressive cervical dilatation from 4 cm' (NICE, 2017).

with one's own performance. Positive childbirth experiences are reported to be significantly correlated with post-partum mental health (Havizari et al., 2021). This may partially explain the elevated levels of postnatal mental wellbeing in the study participants in Phase 2.

The influence of ARE on delaying admission has not been explored in previous research. The only evidence on this variable relates to a previously reported service evaluation of ARC (Tabib & Crowther, 2018) and a more recent audit of birth outcomes for 93 ARC participants via NHS computerised documentations (Stevenson & Tabib, 2020), which reported similar findings to those of the current study. The audit demonstrated 74% of those with spontaneous onset of labour were admitted sought hospitalisation when having a cervical dilatation of 4 cm or over. This finding may have significant implications for both women and maternity services. Indeed, previous research shows delaying admission in medically low-risk, term women until active labour is associated with a considerable reduction in obstetric interventions such as augmentation, epidural use, instrumental birth, caesarean section, and maternal deaths (Chuma et al., 2019; Rota et al., 2018; Tilden et al., 2015) as well as cost savings of \$694 million annually in the United States (Tilden et al., 2015).

All women who had experienced labour in both phases of the study, whether their labour was induced or started spontaneously, reported using relaxation techniques for managing labour pain. This concept will be discussed further when examining women's choices regarding epidural use.

The study findings indicated that women used relaxation techniques not only for labour pain but also when undergoing stress provoking medical procedures and interventions.



Evidence suggests women undergoing complicated or operative childbirth are often at greater risk of having negative childbirth experiences (Karlström et al., 2011; Waldenström et al., 2004). However, the influence of ARE on experiences of these women remains unexplored in the literature. The findings of the current study indicate that utilising relaxation practices in complicated childbirth may protect women from negative emotions and experiences often associated with medical interventions. This finding may have significant care management implications for these women.

### *ii. Childbirth choices*

A change of attitudes towards childbirth and one's own role in it, influenced the childbirth choices women made. For example, in Phase 1 women who had chosen a homebirth, expressed that their choice was influenced by the class. In Phase 2, the number of women opting for homebirth doubled post-class compared with baseline. This is interesting, as choices on place of birth are not discussed during ARC. Women stated understanding childbirth as a natural process and as an innate ability contributed to their choices. This highlights how inclusion of the theory of childbirth physiology in antenatal education may enhance women's confidence in their birthing abilities and inform their choices.

Another choice influenced by attending ARC was use of epidural anaesthesia for labour. Phase 2 findings indicated a significant decline in intended use of epidural for labour after class as well as a significant drop in actual use of it during labour compared with the intended use at baseline. Whilst evidence suggests FOC is associated with an increase in women's choice of epidural during labour (Sitras et al., 2017), self-efficacy beliefs have been found to reduce perceptions of labour pain (Larsen et al., 2001; Stockman & Altmaier, 2001) and likelihood of using epidural analgesia (Carlsson et al,

2015). Hence, it is conceivable that positive changes in self-efficacy expectancy and FOC, may have influenced women's perceptions of labour pain and their choice of epidural use. Further research is required in this area.

The significance of this finding is that the use of epidural in labour may have an impact on both childbirth outcomes and experiences. Women who do not receive an epidural usually have shorter labour and a greater chance for a physiological birth (Zondag et al., 2016). On the other hand, prolonged labour, augmentation of labour and instrumental births often associated with epidurals are all identified as factors related to negative childbirth experiences (Hosseini Tabaghdehi et al., 2020). Therefore, avoiding epidural use in labour could potentially have a positive influence on women's childbirth experiences. Phase 1 findings suggested the ability to cope with labour pain and avoid the use of pharmaceutical pain relief was linked to feelings of achievement and satisfaction with one's own performance, even for those who eventually had epidural or underwent operative births. This is consistent with the literature that suggests the confidence women gain from coping with labour pain is associated with a positive childbirth experience (McCrea et al., 2000).

### *iii. Overall labour and birth experiences*

Participants identified the positive changes in their attitudes and outlook towards childbirth as an influential factor on how they perceived their overall childbirth experience. Wijma et al. (1998) suggest a woman's childbirth self-efficacy and expectations are very relevant to how she will experience and behave when facing the challenges of childbirth. In Phase 1, all women expressed having an overall positive childbirth experience. Similarly, in Phase 2 most women perceived their overall labour and birth experience as '*positive*' or '*very positive*', with a minority reporting a

'negative' experience, and none reporting it as a 'very negative' experience. The percentage of women reporting a negative childbirth experience in the literature varies from 7% to 33.3% (Chabbert et al., 2021). As such, the reported rate of 9.5% in the current study seems to be at the lower end of this spectrum.

However, it is important to interpret these findings in the context of participants' childbirth expectations and outcomes. The high rate of medical interventions among women who participated in Phase 2 meant most women did not meet their childbirth expectations and underwent unexpected medical interventions. Unexpected medical interventions and discrepancies between women's childbirth expectations and what they actually experience play a profound role in the occurrence of negative birth experiences (Fontein-Kuipers et al., 2018; Henriksen et al., 2017; Hosseini Tabaghdehi et al., 2020; Koster et al., 2020). Given that most women in the current study did not meet their expectations, a high rate of negative childbirth experiences was expected. Women who had experienced unexpected medical interventions attributed their positive childbirth experiences to their positive outlook and 'choosing' to have a positive experience even when facing adversities. They described their learning of ARC as more than the techniques; it was about a more positive way of '*being*' and '*looking at things*'.

Previous research supports women's high satisfaction with their birth experience following attending antenatal hypnosis training (Abbasi et al., 2009; Werner et al., 2013b), however, little is known about '*why*' this may be the case. Finlayson et al. (2015) suggests that it is likely that reduced anxiety and increased confidence about labour and birth will lead to a more satisfying birth experience. The present study's findings suggest that positive psychological changes compounded with acquiring a positive outlook toward childbirth may explain this phenomenon.

In addition, previous research in the field appears to be more focused on experiences of women who had spontaneous vaginal birth. The evidence on experiences of those who do not meet their expectations is scant in the literature. It is imperative to explore experiences of these women, even more so in view of the increasing rate of operative births internationally. As such, the findings of the current research have contributed to addressing this gap in the current knowledge.

### *Why did ARC influence childbirth experiences?*

Women suggested understanding the physiological processes of childbirth and relaxation, along with experiencing an altered state of consciousness (ASC), through relaxation exercises motivated wide practice of the learned techniques. Accessing this ASC as an inducible health-enhancing state was perceived to influence childbirth experiences by contributing to a range of health benefits throughout pregnancy and childbirth. A high rate of using relaxation techniques during pregnancy and childbirth was shown and the influence was regarded as positive by women. Women stated that stepping into an ASC was the ultimate aim of practicing the techniques. This state was considered a respite that they could enter whenever needed whether it was for dealing with insomnia in pregnancy, coping with labour pain or obstetric interventions. This state was described by women as a deep sense of calmness associated with reduced mind activity and a sense of physical relaxation, a state which is not naturally experienced during routine daily life. Women's description of this ASC resonates with that of the Relaxation Response, the biological polar opposite of the Stress Response, defined as '*an inducible, physiologic state of quietude*' (Benson & Klipper, 1975, p xvii). Relaxation exercises are perceived to stimulate the Relaxation Response (Benson

& Proctor, 2011; Dusek et al., 2008) marked with dominance of the parasympathetic nervous system (Manocha, 2000), release of oxytocin in the brain (Ito et al., 2019), and a decrease in arterial blood lactate, a substance associated with anxiety (Dusek et al., 2008). Therefore, activation of the Relaxation Response can have health-enhancing effects and ease a range of stress related ailments. Women in the present study commented they had used the techniques for a range of physical and psychological ailments during pregnancy including back pain, insomnia, and panic attacks.

All women, in both phases of the study, who had experienced labour, reported using relaxation techniques during labour. Similar to practice during pregnancy, entering an ASC, referred to as '*the zone*' was described to be the aim of practice in labour. Experiencing this ASC during labour was viewed as a state where the mind handed control to the body, and was associated with feelings of control, calmness, and reduced pain. In the literature, it has been reported that during physiological and undisturbed childbirth women may naturally experience entering an ASC, a psycho-physical state of focus (Dahan, 2021) with its characteristics being heightened senses and change in the perceptions of time and space (Dixon et al., 2014; Olza et al., 2018; Stenglin & Foureur, 2013). This ASC is proposed to be associated with physiological changes including peaks in endogenous oxytocin (Uvnäs Moberg et al., 2019) which increases feelings of calmness (Dahan, 2020), activates the parasympathetic system (Davis, 2017), decreases fear and stress levels, and induces pain relief (Uvnäs Moberg, 2014). Olza et al. (2020) suggest this ASC experienced during physiological childbirth may well be the hallmark of birth in humans, enhancing physiological and psychological experiences of childbirth.

Interestingly, the description of a naturally occurring ASC provided by the contemporary childbirth literature appears to be identical to that of Relaxation Response

as suggested by Benson and Klipper (1975) and similar to the description of *'the zone'* provided by the study participants. Women stated they used the relaxation techniques in order to get into *'the zone'* during labour and/or birth.

This raises a question that may have significant implications for future practice and research:

*“Could women learn to actively induce an ASC, similar to the ASC experienced during an undisturbed and physiological childbirth, regardless of their mode of birth?”*

This question appears to remain an unresearched area in the literature. Findings of the current study indicate attending ARC may have provided women with the knowledge and skills required to deliberately induce an ASC, even in absence of physiological childbirth. When undergoing medical procedures and interventions, women used relaxation techniques. Women described taking themselves into *'the zone'* during a planned caesarean section or in the midst of an obstetric emergency, managing to induce a deep state of calmness, an emotional respite in the high-tech environment of the operating theatre. The neurobiological processes of an ASC during childbirth are known to be responsible for transformative psychological experiences of childbirth and a positive transition to motherhood (Davis, 2017, Hoekzema et al., 2017). Hence, it is plausible to assume that inducing an ASC particularly during unexpected medical interventions may protect women against negative childbirth experiences often associated with these interventions.

### **8.2.3 The contextual factors mitigating the influence of ARC during labour and birth**

Although the findings indicated a decline in intended and actual use of epidural for labour after attending ARC, data suggested that women's ability to use relaxation techniques as an effective pain management method, depended on the birth space. To actively induce and remain in the ASC, as a state associated with reduced pain, depended on the physical environment, interactions with birth attendants and the clinical picture of the experience.

Particularly in clinical settings, midwives' influence on the physical surroundings, and their interactions with the woman had the potential to either facilitate or interrupt the women's ability to enter and remain in an ASC. Information on the significance of an ASC in childbirth or the practices that could promote this state currently is not included in mainstream midwifery education. Whilst having more knowledge of such practices can increase practitioners' confidence in supporting women using the relevant techniques, over half of birth practitioners report having minimal or no knowledge of such practices (McAllister et al., 2017).

Further, Phase 1 findings indicated the significance of birth partners' role in protecting the relaxation space during childbirth, and that attending ARC had positively influenced partners' confidence in playing this role. This is in line with previous studies suggesting that partners' participation in antenatal education affects their involvement during labour (Ferguson et al., 2013).

Moreover, the medical procedures/interventions experienced by women such as induction of labour were identified as other space interrupters. influencing their ability to remain in '*the zone*'. It was demonstrated that induction of labour was significantly

associated with an increase in using epidural during labour compared with spontaneous onset of labour.

The concept of 'birth space' may be the missing piece in the previous research concerned with the effect of ARE on reducing epidural rate and obstetric interventions. It is plausible that overlooking the impact of 'birth space' in the previous research has played a role in the heterogeneous findings. It appears when the hypnosis instructor was present during labour (Mehl-Madrona, 2004; VandeVusse et al., 2007), or the birth partner was trained to provide support with use of the techniques (Levett et al., 2016a), ARE led to a significant decline in epidural use and medical interventions. It is plausible that these birth attendants were able to protect the 'birth space' from interruptions, which was not the case in studies limited to antenatal classes with no planned support during labour (Cyna et al., 2013; Downe et al., 2015; Werner et al., 2013a).

Use of epidural has been the focus and primary outcome measure of the large RCTs in the field (Cyna et al., 2013; Downe et al., 2015; Werner et al., 2013a). However, evidence on the influence of ARE on women's intended use of epidural is lacking. Measuring the epidural rate as a binary (yes/no) variable does not show the difference between choosing and receiving the epidural for pain management during labour or requiring it for an operative birth. This reductionist approach does not allow the exploration of women's choices of epidural, their coping abilities with or their experiences of labour pain. Research should examine what is important for women to increase the probability of a positive experience. The current study findings suggest the stage of labour, and the reason an epidural is administered, does matter to women and influences how they reflect on their experience. Women who avoided epidural for a part or all of their labour, despite receiving one eventually, expressed satisfaction and pride



with their own performance which could positively influence their post-partum mental wellbeing.

#### **8.2.4 Mapping the study findings against the theoretical framework**

Figure 8.4 provides a visual presentation of mapping the study findings against the theoretical framework (presented in the Literature Review Chapter). As shown in figure 9.4, attending ARC by equipping women with the skills to evoke the Relaxation Response, positively influenced maternal emotions during pregnancy, increased women's coping abilities. Phase 2 findings also confirmed a significant decline in intended and actual use of epidural in labour. However, this reduction in use of epidural during labour did not translate in a reduction in overall rate of epidural use for both labour and birth. Most women participants in Phase 2 underwent operative births and required the epidural or spinal anaesthesia for birth. Therefore, women's coping abilities with labour pain is not the only determining factor in epidural use, and the intrapartum clinical decisions (as a part of birth space) play a major role on the overall epidural rate and other clinical outcomes. This seems to be a major confounding factor that was perhaps neglected in previous research.

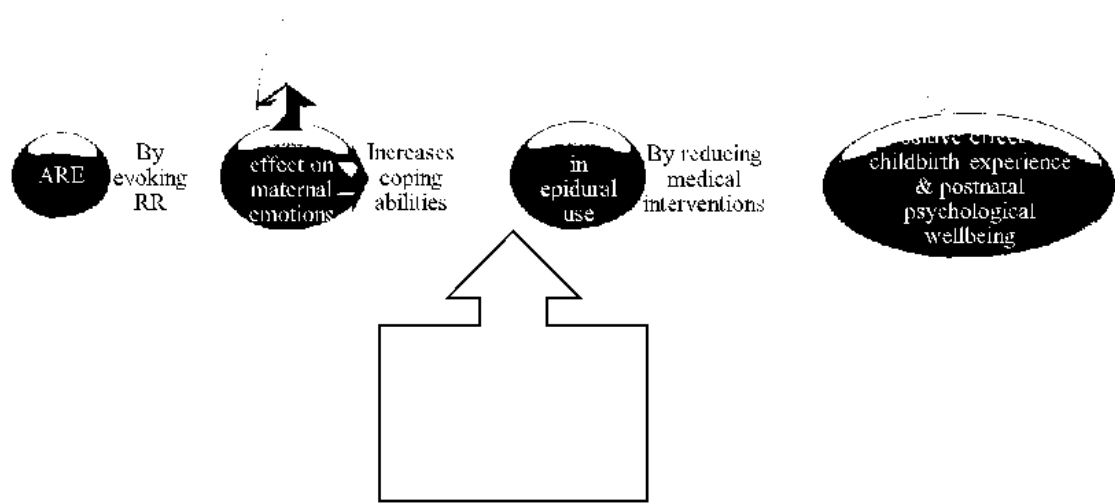


Figure 8.4 Mapping the study findings against the theoretical framework

In addition, the study findings suggest alternative mechanisms for the influence of ARC on childbirth experience and postpartum psychological wellbeing (other than what is suggested by theoretical literature). Women reported developing a positive outlook in pregnancy, and perceiving their own performance during labour as positive, led to positive emotions after birth (for some, irrespective of their mode of birth or use of epidural). This was also reflected in improved levels of FOC, state and trait anxiety and mental wellbeing postnatally, compared with pre-class levels.

### 8.2.5 Summary of Discussion

This discussion has examined the study's findings in relation to the contextual literature. The discussion has shown how the current research by exploring, identifying, and then examining the psychological parameters and aspects of childbirth experience that were important to women, brings new insight in the area. It has also shown how asking new questions on 'how' and 'why' any influence may occur or 'what contextual factors' may

mitigate the influence during labour and birth, has provided a more comprehensive understanding of the topic area. This is the first exploratory mixed method study in the field, which means the hypotheses and questions were grounded in the qualitative evidence, not theoretical literature, or the researcher's interest. It was this approach that enabled the emergence of novel insights such as identifying self-efficacy as the core conception in maternal psychological wellbeing. This is important in setting the direction for future research and practice in the area. Furthermore, developing an understanding of the notion of an ASC was the result of the exploratory approach. Contextualising this finding in the existing literature led to further understanding the psycho-physiological characteristics of an ASC as a health generating state. A state that could be self-induced to engender feelings of emotional safety and protect women from negative emotions and experiences. Adding such understanding into the debate may contribute to a shift in paradigm from the current prevailing technocratic childbirth to a salutogenic one that recognises, promotes, and protects an ASC as a health enhancing state during childbirth continuum.

### **8.3 Strengths and limitations**

#### **8.3.1 Strengths**

Previous mixed method studies in the field have taken an explanatory approach, meaning that the measurements for the initial quantitative parts were chosen by the researchers and interviews followed to explain the quantitative findings. This innovative study has approached this topic from a new direction. The psychological parameters and the aspects of childbirth that were examined quantitatively were the ones that mattered to participants and were identified by them, not by the researcher. To increase the probability of positive experiences, research should examine what is important for participants. No other studies were identified by the researcher, that had explored the topic in this way, meaning that the findings are unique. Further, using a mixed methods

approach added to the validity of findings as it allowed testing the significance of the qualitative findings in a larger sample.

The study is unique in exploring 'how' and 'why' ARE may influence psychological wellbeing and childbirth experience. It is also unique in trying to identify the contextual factors that may mitigate the influence of ARE during labour and birth. In the qualitative phase, these questions were actively pursued to clarify the processes through which any influence may take place, the phenomena that may result in any influence and the factors altering the influence. Previous qualitative studies in the field seem to have neglected these important questions. This approach to the current study allowed the emergence of a fuller and more in-depth understanding of the phenomena in question and the processes involved.

The research seems to be the first study assessing the influence of ARE on mental wellbeing (via WEMWBS), as no other studies were identified by the researcher reporting this. It is also the first study in the UK to examine the influence of ARE on fear of childbirth (using W-DEQ) and self-efficacy.

The study is unique in providing rich data on a wide range of childbirth experiences including that of women undergoing childbirth complications and operative births. No other studies were identified by the researcher that had provided insight into the influence of ARE on childbirth experiences of these women. This new insight also enhances our understanding of how women's learning from ARE could be materialised in the realities of contemporary maternity services and practices.

Participants in this study were diverse in terms of age, ethnicity, educational attainments, parity, employment, and marital status, which increased the study's

external validity (Rambaree, 2007). In addition, the high retention rate in the quantitative phase allowed drawing valid conclusions. Retention of study participants is vital to ensure the power and internal validity of longitudinal research and a high attrition rate can introduce substantial biases to statistical inferences (Abshire et al., 2017).

Birth partners are under-represented in previous research in the field, particularly in the context of the UK NHS maternity services. Only one Australian study was found that had conducted interviews with birth partners (Levette et al., 2016b) to examine the influence of education on childbirth experience. Therefore, the study is the first in the UK to directly interview birth partners of women attending ARE and explore their views on the topic. The study is also unique in demonstrating the influence of an online ARE. A paucity of evidence on the influence of online antenatal relaxation education in the literature is evident.

Finally, the study is the first one in the field that investigates the influence of a single antenatal relaxation class. Delivering the education as a single session as opposed to multiple sessions prevents attrition and may facilitate delivery of the education as intended. Previous studies have included multiple sessions or more extensive programmes that may impact feasibility of the service delivery in the national health systems including NHS maternity services. The high-fidelity level and low cost of ARC, along with its delivery by midwives may facilitate replicability of it in other settings for the future research.

### **8.3.2 Limitations**

Evidence generated by the study due to its observational design can only establish correlation between attending ARC and the reported changes, and not causality (Barria, 2018). To examine causal relationships well-designed RCTs are needed to compare the changes over time between the intervention and control groups.

There are a number of factors limiting the generalisability of the findings. Firstly, it is possible that the findings may be subject to volunteer bias, given that participants volunteered to participate in the study. A response rate of 26.5% in Phase 1 and 40.3% in Phase 2 indicates that only the views of a fraction of ARC participants are reflected in this study and the perspectives of those who did not take part in the study may have been different. Particularly, in Phase 1 less than half of the women who had volunteered to participate in the interviews responded to post-birth text reminders. It is plausible to assume women who responded and took part in the interviews have been those who had benefitted more from ARC. Secondly, the study was carried out in one area of Scotland, which may not be representative of Scotland or the UK. This may limit the transferability and generalisability of the findings to other areas.

There is a potential that some of the positive findings of the study have been influenced by Hawthorne effect. Hawthorne effect refers to study participants' alteration of behaviour due to awareness of being studied (Chiesa & Hobbs, 2008).

As a consequence of the COVID-19 pandemic, the method of delivery of the class changed from face to face in Phase 1 to online classes in Phase 2. Despite the content of the class remaining the same, this unavoidable change in delivery method may have influenced the fidelity of the class and therefore the internal validity of the study (Siedlecki, 2018).

The measures used in phase 2 were all self-reported and therefore subjective and more open to bias compared with the measures reported via clinical observations or clinical notes. However, Haeffel and Howard (2010) argue that self-report measures are not inherently inferior to more objective measures and that the validity of a measure depends on how well it does its job.

#### **8.4 Conclusion**

This exploratory study has made a unique contribution to the field by addressing the gaps in the existing knowledge. The study identified ‘the aspects of psychological wellbeing and childbirth experience’ that were influenced by attending ARC, from participants’ perspectives. It also provided novel insights into ‘how’ and ‘why’ such influence occurred and identified the ‘contextual factors’ that may mitigate the influence during labour and birth. In addition, the study expanded our understanding by examining the generalisability of the findings as well as their significance over time. The main findings are that attending a single and low-cost antenatal relaxation class in the context of the UK NHS maternity services is associated with increased maternal self-efficacy expectancy, reduced fear of childbirth and state and trait anxiety, as well as improved mental wellbeing. These changes were shown to be significant and lasted over time, until after the birth. The findings indicated a positive change in attitudes towards childbirth occurred after attendance at ARC, which motivated wide use of relaxation techniques as a self-care behaviour, and positively influenced women’s childbirth choices and experiences. One of the childbirth choices that was influenced by attending ARC was women’s intended and actual use of epidural for labour. The rate of intended and actual epidural use for labour was significantly reduced after the class. The study findings, however, suggest that women’s ability to use relaxation techniques, as an effective pain management method during labour, may depend on the ‘birth space’ which encompasses the physical environment, interactions with birth attendants and the

clinical picture of the experience. This finding makes a unique contribution to the existing literature and indicates that future research in the field should be designed in view of the mitigating effect of the 'birth space'. This finding suggests that to combat the increasing rate of the unnecessary obstetric interventions, more complex educational interventions that include childbirth practitioners and address the prevailing technocratic childbirth practices are needed. Integrating education for birth practitioners on neurohormonal and psychophysiological processes of childbirth as understood by the contemporary literature, along with practical skills to positively influence these processes, may enhance their ability to provide a birth space that facilitates and protects an altered state of consciousness as the hallmark of childbirth. This approach may indeed contribute to a model of childbirth care that is based on salutogenic and health promotion perspectives.

## **8.5 Recommendations**

### **8.5.1 Recommendations for practice and education**

- i. The implementation of education comprising theory of childbirth physiology and relaxation practices into routine antenatal education or the midwives' discussion with expectant parents should be considered. This education is associated with improved maternal psychological wellbeing and experiences of pregnancy and childbirth.
- ii. The engagement of birth partners in Antenatal Relaxation Education should be actively encouraged as they may have a crucial role in supporting women in the use of the learned techniques. The education may also have a positive influence on the birth partners' experience of childbirth and the role they can play in it, as well as their role as new parents.



- iii. Providing education on physiology of relaxation, relaxation techniques and the importance of the birth space for birth practitioners is recommended as it may enhance their skills at supporting women to enter and remain in an altered state of consciousness during childbirth, even in medicalised environment of obstetric-led unit and operating theatre. This may have a significant influence on the quality of childbirth experiences and perinatal mental health.
- iv. The implementation of education on physiology of stress and relaxation in relation to childbirth, relaxation techniques and the importance of the birth space in undergraduate curricula of birth practitioners should be considered.
- v. To facilitate the use of relaxation techniques as an effective pain management method during labour, reduce epidural rate and the subsequent medical interventions, a collective approach by the maternity services is required. A maternity service that recognises the significance of an altered state of consciousness in childbirth as a health promoting state will promote this state through education, will protect it during childbirth by creating a birth space and employing practices that are conducive to experiencing this state. This approach may promote maternal psychological wellbeing and childbirth experiences.

#### **8.5.2 Recommendations for research**

- i. Future research on the topic area should focus on more salutogenic approaches, measuring not only negative emotions such as fear, anxiety, and stress but also the positive psychological concepts including self-efficacy and mental wellbeing. The focus of future health promoting educational interventions should indeed be on enhancing the positive psychological outcomes, as a

reduction in negative emotions will be an inevitable consequence of such change.

- ii. Large, multicentre and well-designed RCTs in the field are needed to examine causal relationship between ARE and changes in maternal psychological wellbeing and childbirth experiences. The present study due to its methodological limitations could only establish association between these variables.
- iii. Considering magnitude and health consequences of FOC and anxiety among childbearing women, conducting further research that investigates the influence of ARE on women with high levels of FOC and anxiety is recommended.
- iv. The long-term impact of ARE on mental health of the mother and child remains an unexplored area. Comparative research in the field is needed to examine whether attending ARE has this impact. The findings of such research may have significant resource and financial implications for health and social services. Considering benefit-cost analysis in such research is recommended.
- v. In view of the increasing rate of unnecessary obstetric interventions internationally, further well-designed RCTs with complex interventions that include ARE along with education on relaxation techniques and physiology for maternity teams are needed to examine the efficacy of these more complex interventions on the rate of epidural use and medical interventions. The educational intervention in the previous large-size RCTs included three hours of hypnosis training. It seems the significant impact of birth space on women's

ability to apply the techniques as an effective pain management method have been neglected in these RCTs.

- vi. Investigating the relationships between the selected outcome measures in the ARE- related research may expand our understanding of the processes involved and result in the design of more sophisticated educational interventions. The current study could have further examined the statistical relationships between different outcome measures in Phase 2, for example relationship between fear and intention to use epidural. However, as such investigations would have not directly addressed the present research aim, the decision was made in collaboration with the supervisory team to examine and present these relationships as a separate study in the future.

### **8.5.3 Recommendations for policy**

- i. Investment in ARE as a preventative and health-promoting educational programme for all women has potential to be cost saving and therefore is recommended. Improvement of perinatal mental health may have significant short and long-term cost savings for health and social services. In addition, this educational programme by equipping expectant parents with self-care skills may reduce health services utilisation during pregnancy, labour and birth and contribute to efficient health care delivery, especially in the context of the current financial pressures on health services.
- ii. Recommendations on inclusion of ARE in routine antenatal education and birth practitioners' continuous professional development and undergraduate programmes should be considered. National and international guidelines

recommend that support should be provided for women who choose to use relaxation techniques during childbirth (NICE, 2017; WHO, 2018). However, there is a lack of recommendations on when and where women should learn these techniques or how practitioners should acquire the essential skills for supporting women with the use of these techniques.

# Chapter 9 Reflection

This chapter presents the researcher's reflection on the research process. The influence of the researchers on the research process especially in qualitative research is widely accepted. To enhance rigour, researchers should be reflexive about how their data are collected, interpreted and the part they play in this (Berger, 2015; Richards, 2020).

Chapters 1 and 4 included sections relevant to the researcher's reflexivity. The following personal account will complement those sections by explaining the impact the researcher may have had on the research process and outcomes as well as the impact of the research on the researcher. This personal account will be written in the first person.

### **9.1 My impact on the research process**

I think 'bracketing out' my personal feelings or previous experiences on the research topic was not possible, nor was it beneficial. I believe when the researcher is also an experienced practitioner in the research area s/he is more likely to ask the right questions that would address the blind spots of the existing knowledge. My previous prolonged engagement with the research topic helped me to ask questions that prompted more in-depth responses to what had been under-investigated in previous research. However, the previous assumptions (even though they might be based on experience) may also become a source of bias if they remain unexamined. In this case, the researcher may unconsciously seek the findings that s/he is expecting to find rather than searching for new knowledge. Therefore, to minimise the researcher's bias, it was crucial to ensure I was aware of my preconceived ideas at the onset and throughout the study. A range of strategies were employed from 'being interviewed by my supervisors at start of the study' to 'working closely with my supervisors' and 'keeping a reflective diary' in order to increase my awareness of instances of bias.

Keeping a reflective diary was a useful tool for reflection on my thoughts, assumptions, and actions as well as the rationale behind them throughout the research process. I

started the diary by outlining my motive for undertaking the research and my preunderstanding of the topic, as summarised here.

I embarked on this research study because I realised the importance of women's emotional states during pregnancy and childbirth. In my midwifery practice when providing intrapartum care, I had witnessed many women entering their labour in an utter state of fear or despair and that how these emotions unfolded in their childbirth experiences and outcomes. Later, my involvement in antenatal education opened my eyes further on the reality that there was a paucity of services focused on mental and emotional preparation of women for childbirth. I realised the focus of routine NIIS childbirth preparation classes was to provide information, and not so much equipping women with practical skills and self-help tools. Engagement in the development of ARC based on the participants' ongoing feedback meant being exposed to an overwhelming volume of anecdotal evidence narrated by childbearing women, their birth partners and practitioners providing care for them. This anecdotal evidence ignited my interest to understand the influence of such education in more detail through the systematic processes of research. I felt this was the right thing to do as it could contribute to the development of future evidence-based services aimed at promoting perinatal mental wellbeing. At the outset of the study, I summarised my knowledge of the topic as follows:

- We know that many women experience emotional stress towards childbirth.
- We know that there is a paucity of services aimed at reducing this emotional stress.
- We know that women who have provided feedback following attending ARC seem to reflect on the class and their following childbirth experience positively (this was understood through service evaluation).

But the scale of the influence remains unknown, it is not clear what emotions or aspects of childbirth experience are influenced by engagement in the class, or what elements of the class contribute to its influence. We do not know whether the stated influence is limited to those who respond to the evaluation forms sent postnatally. As stated before, particularly due to my engagement with the service, it was important to be self-aware of the pre-assumptions. For example, it was recorded in reflective diary that I had assumed that learning relaxation techniques would influence childbirth experience and post-partum mental wellbeing mainly through reducing the need for epidural and the resultant obstetric interventions. I had little idea about how the class may contribute to the experiences of those who did not experience labour. That was why one of the inclusion criteria for women in Phase 1, was 'to be on green (midwife-led) pathway and planning for a spontaneous vaginal birth'. However, those who underwent childbirth interventions such as induction of labour or planned caesarean sections after recruitment in the study were not excluded. Gaining insight into the experience of these women was an unexpected finding and one which shows how the project and findings were developed from the research questions and the data, rather than from my own preconceived ideas.

While it was important not to let my pre-understandings determine the direction that the research took, sometimes it was reflection on my previous understanding of the topic area that led to the richness of the study data. For instance, I knew there was a paucity of knowledge in qualitative research on what is experienced by women during relaxation practices. During the interviews, women tended to point out to this experience implicitly and briefly as 'the zone', as this experience appeared to be hard to describe. In this case, my previous understanding led me to ask prompting questions such as 'can you tell me more about this?', 'what was going on in your head then?',



'how did that help?', and 'what do you mean by this?'. It was responses to these questions that revealed the characteristics and details of the experience of relaxation practices. This example shows that previous knowledge was sometimes important for influencing the direction that the research study took.

## **9.2 Impact of the research on me**

As well as reflecting on the effect I may have had on the research process, I feel it is equally important to reflect on the effect of the research project on me. Particularly the birth stories that challenged my pre-assumptions were the ones that influenced me the most. As a clinician, for years I had assumed that women who managed to avoid pharmaceutical pain management methods during labour are more likely to reflect on their childbirth as an empowering experience compared with those who do use for example epidural and subsequently undergo operative birth. Mavis's story challenged this long-held assumption of mine. She was a primiparous woman who opted for epidural anaesthesia in labour and gave birth via forceps. However, she expressed pride and satisfaction with her own coping abilities stating, *"I managed to get to six centimetres on my own. I was on no gas and air, no pain relief, just Paracetamol at home. I was quite happy"* (Mavis, P0). I started to see how women's reflections on the role they have played in their childbirth would shape their experiences rather than the clinical outcomes. This story also helped me reflect on the only relevant study carried out in the UK. Whilst SHIP trial (Downe et al., 2015) concluded self-hypnosis training did not significantly reduce epidural use or other medical interventions, the qualitative accounts of the study participants (Finlayson et al., 2015) reported contrary findings as women found the training to be beneficial during labour and birth. Finlayson et al. (2015) concluded that perhaps outcomes chosen for the trial were not those that were most important for women's sense of wellbeing. This reflection on my assumption, data and previous research highlighted to me how important it is to listen attentively to what

matters to 'them', rather than what 'I or we think' is important. This was an important lesson to me as a midwife and a novice researcher, as I progress forwards in my career.

These short reflections demonstrate how I have related to the data and how my previous understanding and experience around the topic area has affected my on-going approach to the study and my interpretation of it. It has also been shown how the process of reflexivity helped me to be aware of and minimise the potential for researcher's bias.

To conclude this reflection, I must admit undertaking a doctoral study, whilst working full-time and in the midst of a global pandemic has been challenging. I have undoubtedly spent a lot of time outside my comfort zone, believing that the discomfort would be worth it in the end. Embarking on a doctoral study has certainly been a daunting yet amazing experience. The study has given me the opportunity to answer the questions that may otherwise have been neglected. The research project has been a unique and highly valuable learning experience, and I hope that I have done justice to it by allowing the unique voices and stories of the participants to be heard.

## References

- Abbasi, M., Ghazi, F., Barlow-Harrison, A., Sheikvatan, M., & Mohammadyari, F. (2009). The effect of hypnosis on pain relief during labor and childbirth in Iranian pregnant women. *Intl. Journal of Clinical and Experimental Hypnosis*, 57(2), 174-183.
- Abrahamson, M. (1983). *Social research methods*. Prentice Hall.
- Abshire, M., Dinglas, V. D., Cajita, M. I. A., Eakin, M. N., Needham, D. M., & Himmelfarb, C. D. (2017). Participant retention practices in longitudinal clinical research studies with high retention rates. *BMC Medical Research Methodology*, 17(1), 1-10.
- Act, D. P. (2018). No title. *C.12.2018*,
- Adhabi, E., & Anozie, C. B. (2017). Literature review for the type of interview in qualitative research. *International Journal of Education*, 9(3), 86-97.
- Albarqouni, L., Glasziou, P., & Hoffmann, T. (2018). Completeness of the reporting of evidence-based practice educational interventions: A review. *Medical Education*, 52(2), 161-170.
- Alder, J., Breiting, G., Granado, C., Fornaro, I., Bitzer, J., Hösli, I., & Urech, C. (2011). Antenatal psychobiological predictors of psychological response to childbirth. *Journal of the American Psychiatric Nurses Association*, 17(6), 417-425.
- Alder, J., Fink, N., Bitzer, J., Hösli, I., & Holzgreve, W. (2007). Depression and anxiety during pregnancy: a risk factor for obstetric, fetal and neonatal outcome? A critical review of the literature. *The Journal of Maternal-Fetal & Neonatal Medicine*, 20(3), 189-209.
- Alexander, V. D. (2016). Analysing visual materials. In N. Gilbert, & P. Stoneman, (Eds.), *Researching social life*. (pp.501-518). Sage.
- Anim-Somuah, M., Smyth, R. M., & Jones, L. (2011). Epidural versus non-epidural or no analgesia in labour. *Cochrane Database of Systematic Reviews*, (12)
- Areskog, B., Uddenberg, N., & Kjessler, B. (1981). Fear of childbirth in late pregnancy. *Gynecologic and Obstetric investigation*, 12(5), 262-266.
- Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32.

- Atis, F. Y., & Rathfisch, G. (2018). The effect of hypnobirthing training given in the antenatal period on birth pain and fear. *Complementary Therapies in Clinical Practice, 33*, 77-84.
- Ayers, S., Radoš, S. N., & Balouch, S. (2015). Narratives of traumatic birth: Quality and changes over time. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(3), 234.
- Bandura, A. (2009). *Cultivate self-efficacy for personal and organizational effectiveness*. <https://bibliotecadigital.mineduc.cl/bitstream/handle/20.500.12365/17336/16%20Cultivate%20selfefficacy%20for%20personal%20and%20organizational%20effectiveness..pdf?sequence=1>
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122.
- Bandura, A. (2009). Cultivate self-efficacy for personal and organizational effectiveness.
- Bandura, A. (2010). Self-efficacy. The Corsini encyclopedia of psychology. *John Wiley & Sons, Inc. Doi, 10*(9780470479216). 1-3.
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*(1), 9-44.
- Barria, R.M. ed. (2018). *Cohort Studies in Health Sciences*. IntechOpen.
- Bastani, F., Hidarnia, A., Kazemnejad, A., Vafaci, M., & Kashanian, M. (2005). A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *Journal of Midwifery & Women's Health, 50*(4), e36-e40.
- Bauer, A., Parsonage, M., Knapp, M., Iemmi, V., Adelaja, B., & Hogg, S. (2014). The costs of perinatal mental health problems. *London: Centre for Mental Health and London School of Economics, 44*.
- Beebe, K. R., Lee, K. A., Carrieri-Kohlman, V., & Humphreys, J. (2007). The effects of childbirth self-efficacy and anxiety during pregnancy on prehospitalization labor. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 36*(5), 410-418.
- Beevi, Z., Low, W. Y., & Hassan, J. (2016). Impact of hypnosis intervention in alleviating psychological and physical symptoms during pregnancy. *American Journal of Clinical Hypnosis, 58*(4), 368-382.

- Beevi, Z., Low, W. Y., & Hassan, J. (2017). The effectiveness of hypnosis intervention for labor: an experimental study. *American Journal of Clinical Hypnosis*, 60(2), 172-191.
- Beevi, Z., Low, W. Y., & Hassan, J. (2019). The effectiveness of hypnosis intervention in alleviating postpartum psychological symptoms. *American Journal of Clinical Hypnosis*, 61(4), 409-425.
- Bell, A. F., & Andersson, E. (2016). The birth experience and women's postnatal depression: A systematic review. *Midwifery*, 39, 112-123.
- Benson, H. (1989). Hypnosis and the relaxation response. *Gastroenterology*, 96(6), 1609-1611.
- Benson, H., & Klipper, M. Z. (1975). *The relaxation response*. Morrow New York.
- Benson, H., & Proctor, W. (2011). *Relaxation revolution: The science and genetics of mind body healing*. Simon and Schuster.
- Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research*, 15(2), 219-234.
- Betrán, A. P., Torloni, M. R., Zhang, J., & Gülmezoglu, A. M. (2016). WHO statement on caesarean section rates. *Bjog*, 123(5), 667.
- Birner, C., & Grosse, G. (2021). Systematic Review on the Efficacy of Interventions for Fear of Childbirth, Anxiety and Fear in Pregnant Women.
- Bjørnholt, M., & Farstad, G. R. (2014). 'Am I rambling?' on the advantages of interviewing couples together. *Qualitative Research*, 14(1), 3-19.
- Bloor, M., Fincham, B., & Sampson, H. (2010). Unprepared for the worst: Risks of harm for qualitative researchers. *Methodological Innovations Online*, 5(1), 45-55.
- Bogaerts, A., Devlieger, R., Nuyts, E., Witters, I., Gyselaers, W., & Van den Bergh, B. (2013). Effects of lifestyle intervention in obese pregnant women on gestational weight gain and mental health: a randomized controlled trial. *International Journal of Obesity*, 37(6), 814-821.
- Bonapace, J., Gagné, G., Chaillet, N., Gagnon, R., Hébert, E., & Buckley, S. (2018). No. 355-physiologic basis of pain in labour and delivery: an evidence-based approach to its management. *Journal of Obstetrics and Gynaecology Canada*, 40(2), 227-245.
- Bonica, J.J. & Medonald, J.S. (1990). The pain of childbirth. In J. J. Bonica (Ed.). *The management of pain*. (2nd ed. 1313-43). Lea & Febiger.
- Booth, A. (2006). Critical Appraisal of the Evidence. In K. Gerrish and A. Lacey (Eds.), *The Research Process in Nursing*. (5th ed., pp.107-120). Blackwell.

- Boryri, T., Navidian, A., & Marghzari, N. (2019). Comparison of the effect of muscle relaxation and guided imagery on happiness and fear of childbirth in primiparous women admitted to health care centers. *International Journal of Women's Health and Reproduction Sciences*, 7(4), 490-495.
- Bourne, V. (2017). *Starting out in methods and statistics for psychology: a hands-on guide to doing research*. Oxford University Press.
- Boyce, C., & Neale, P. (2006). Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input.
- Bradbury-Jones, C. (2007). Enhancing rigour in qualitative health research: exploring subjectivity through Peshkin's I's. *Journal of Advanced Nursing*, 59(3), 290-298.
- Bradley, S. II., DeVito, N. J., Lloyd, K. E., Richards, G. C., Rombey, T., Wayant, C., & Gill, P. J. (2020). Reducing bias and improving transparency in medical research: a critical overview of the problems, progress and suggested next steps. *Journal of the Royal Society of Medicine*, 113(11), 433-443.
- Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global qualitative nursing research*, 4, 2333393617742282.
- Braun, V., Clarke, V., & Terry, G. (2014). No title. *Thematic Analysis. Qual Res Clin Health Psychol: 95-114*,
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. sage.
- Clarke, V., Braun, V., & Hayfield, N. (2015). Thematic analysis. *Qualitative psychology: A practical guide to research methods*, 222, 248.
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597.
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328-352.
- Braun, V., & Clarke, V. (2022). Toward good practice in thematic analysis: Avoiding common problems and be (com) ing a knowing researcher. *International Journal of Transgender Health*, 1-6.
- Braver, S. L., & Bay, R. C. (1992). Assessing and compensating for self-selection bias (non-representativeness) of the family research sample. *Journal of Marriage and the Family*, 925-939.
- Brewer, J., & Hunter, A. (1989). *Multimethod research: A synthesis of styles*. Sage Publications, Inc.

- Buckley, S. J. (2015). Executive summary of hormonal physiology of childbearing: evidence and implications for women, babies, and maternity care. *The Journal of Perinatal Education*, 24(3), 145-153.
- Büleç, A., Turfan, E. Ç, & SOĞUKPINAR, N. (2018). Evaluation of the effect of hypnobirthing education during antenatal period on fear of childbirth. *The European Research Journal*, 5(2), 350-354.
- Çankaya, S., & Şimşek, B. (2021). Effects of antenatal education on fear of birth, depression, anxiety, childbirth self-efficacy, and mode of delivery in primiparous pregnant women: A prospective randomized controlled study. *Clinical Nursing Research*, 30(6), 818-829.
- Caparros-Gonzalez, R. A., & Alderdice, F. (2020). The COVID-19 pandemic and perinatal mental health. *Journal of Reproductive and Infant Psychology*, 38(3), 223-225.
- Care Quality Commission. (2019). *2018 survey of women's experiences of maternity care*. [https://www.cqc.org.uk/sites/default/files/20190129\\_mat18\\_outliers.pdf](https://www.cqc.org.uk/sites/default/files/20190129_mat18_outliers.pdf)
- Carlsson, M., Ziegert, K., & Nissen, E. (2015). The relationship between childbirth self-efficacy and aspects of well-being, birth interventions and birth outcomes. *Midwifery*, 31(10), 1000-1007.
- Carvalho, B. and Cohen, S.E., 2013. Measuring the labor pain experience: delivery still far off. *International journal of obstetric anaesthesia*, 22(1), pp.6-9.
- Catsaros, S., & Wendland, J. (2020). Hypnosis-based interventions during pregnancy and childbirth and their impact on women's childbirth experience: A systematic review. *Midwifery*, 84, 102666.
- Chabbert, M., Panagiotou, D., & Wendland, J. (2021). Predictive factors of women's subjective perception of childbirth experience: a systematic review of the literature. *Journal of Reproductive and Infant Psychology*, 39(1), 43-66.
- Cherryholmes, C. H. (1992). Notes on pragmatism and scientific realism. *Educational Researcher*, 21(6), 13-17.
- Chiesa, M., & Hobbs, S. (2008). Making sense of social research: How useful is the Hawthorne Effect?. *European Journal of Social Psychology*, 38(1), 67-74.
- Childress, J. F., Meslin, E. M., & Shapiro, H. T. (2005). *Belmont revisited: Ethical principles for research with human subjects*. Georgetown University Press.
- Chuma, C., Kihunrwa, A., Matovelo, D., & Mahendeka, M. (2014). Labour management and Obstetric outcomes among pregnant women admitted in latent phase compared to active phase of labour at Bugando Medical Centre in Tanzania. *BMC Pregnancy and Childbirth*, 14(1), 1-5.

- Clarke, V. (2017, December 9). *What is thematic analysis?* [video]. YouTube.  
[https://www.youtube.com/results?search\\_query=thematic+analysis+clarke+2017](https://www.youtube.com/results?search_query=thematic+analysis+clarke+2017)
- Clancy, M. (2013). Is reflexivity the key to minimising problems of interpretation in phenomenological research? *Nurse Researcher*, 20(6)
- Clarke, V., Braun, V., & Hayfield, N. (2015). Thematic analysis. *Qualitative Psychology: A Practical Guide to Research Methods*, 222, 248.
- Clough, P., & Nutbrown, C. (2012). *A Student's Guide to Methodology*. Sage.
- Cohen, L., Manion, L., & Morrison, K. (2011). Planning educational research. *Research methods in education*.
- Cohen, L.S., & Nonaes, R.M. (2005). *Mood and Anxiety Disorders during Pregnancy and postpartum*. Review in psychiatry. American Psychiatric Publishing.
- Coughlan, M., Cronin, P., & Ryan, F. (2013). *Doing a Literature Review in Nursing, Health and Social Care*: SAGE Publications.
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research*. Sage publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Crotty, M. (2020). *The foundations of social research: Meaning and perspective in the research process*. Routledge.
- Cutcliffe, J. R. (2003). Reconsidering reflexivity: Introducing the case for intellectual entrepreneurship. *Qualitative Health Research*, 13(1), 136-148.
- Cyna, A. M., Crowther, C. A., Robinson, J. S., Andrew, M. I., Antoniou, G., & Baghurst, P. (2013). Hypnosis antenatal training for childbirth: a randomised controlled trial. *BJOG: An International Journal of Obstetrics & Gynaecology*, 120(10), 1248-1259.
- Dahan, O. (2020). Birthing consciousness as a case of adaptive altered state of consciousness associated with transient hypofrontality. *Perspectives on Psychological Science*, 15(3), 794-808.
- Dahan, O. (2021). Obstetrics at odds with evolution: The consequences of interrupting adaptive birthing consciousness. *New Ideas in Psychology*, 63, 100903.
- Dahlen, H. G., Schmied, V., Dennis, C., & Thornton, C. (2013). Rates of obstetric intervention during birth and selected maternal and perinatal outcomes for low risk women born in Australia compared to those born overseas. *BMC Pregnancy and Childbirth*, 13(1), 1-9.
- Davis, L. (2017). Biobehavioural aspects of parenting. In: J. Rankin (Ed.). *Physiology in Childbearing*, (4<sup>th</sup> ed, pp.597-603). Elsevier.



- Declercq, E. R., Sakala, C., Corry, M. P., Applebaum, S., & Herrlich, A. (2013). Listening to mothersSM III. *New Mothers Speak Out*, 2013.
- Department of Health. (2011). *No health without mental health: a cross-government mental health outcomes strategy for people of all ages*. Department of Health.
- DiCiccio-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education*, 40(4), 314-321.
- Dick-Read, G. (1933). *Natural Childbirth*. William Heinemann.
- Dick-Read, G. (2004). *Childbirth without fear: the principles and practice of natural childbirth*. Pinter & Martin Publishers.
- Ding, X., Wu, Y., Xu, S., Zhu, R., Jia, X., Zhang, S., Huang, K., Zhu, P., Hao, J., & Tao, F. (2014). Maternal anxiety during pregnancy and adverse birth outcomes: a systematic review and meta-analysis of prospective cohort studies. *Journal of Affective Disorders*, 159, 103-110.
- Dixon, L., Skinner, J., & Foureur, M. (2014). The emotional journey of labour—Women's perspectives of the experience of labour moving towards birth. *Midwifery*, 30(3), 371-377.
- Downe, S., Finlayson, K., Melvin, C., Spiby, H., Ali, S., Diggle, P., Gyte, G., Hinder, S., Miller, V., & Slade, P. (2015). Self-hypnosis for intrapartum pain management in pregnant nulliparous women: a randomised controlled trial of clinical effectiveness. *BJOG: An International Journal of Obstetrics & Gynaecology*, 122(9), 1226-1234.
- Drummond, J., & Rickwood, D. (1997). Childbirth confidence: validating the childbirth self-efficacy inventory (CBSEI) in an Australian sample. *Journal of Advanced Nursing*, 26(3), 613-622.
- Dusek, J. A., Otu, H. H., Wohlhueter, A. L., Bhasin, M., Zerbini, L. F., Joseph, M. G., Benson, H., & Libermann, T. A. (2008). Genomic counter-stress changes induced by the relaxation response. *PloS One*, 3(7), e2576.
- Eddy, K. A., & Mellalieu, S. D. (2003). Mental imagery in athletes with visual impairments. *Adapted Physical Activity Quarterly*, 20(4), 347-368.
- Efremov, A. (2020). Some aspects of the use of Hypnotherapy and Dehypnosis for the remission of psychosomatic diseases. *Journal of Advanced Pharmacy Education & Research* | Oct-Dec, 10(4), 159.
- Elkins, G. R., Barabasz, A. F., Council, J. R., & Spiegel, D. (2015). Advancing research and practice: The revised APA Division 30 definition of hypnosis. *American Journal of Clinical Hypnosis*, 57(4), 378-385.

- England N.H.S. (2016). *The five year forward view for mental health. A report from the independent Mental Health Taskforce to the NHS in England*. NHS England.
- Eriksson, M., & Lindström, B. (2010). Bringing it all together: The salutogenic response to some of the most pertinent public health dilemmas. *Health assets in a global context* (pp. 339-351). Springer.
- Everly, G. S., & Lating, J. M. (2019). Measurement of the human stress response. *A clinical guide to the treatment of the human stress response* (pp. 129-157). Springer.
- Fawcett, J., & Garity, J. (2008). *Evaluating research for evidence-based nursing practice*. FA Davis.
- 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.
- Fielding, J. & Thomas, H. (2016). Qualitative Interviewing. In N. Gilbert. & P. Stoneman. (Eds.) *Researching Social Life*. (pp. 281-300). Sage.
- Finlayson, K., Downe, S., Hinder, S., Carr, H., Spiby, H., & Whorwell, P. (2015). Unexpected consequences: women's experiences of a self-hypnosis intervention to help with pain relief during labour. *BMC Pregnancy and Childbirth*, 15(1), 1-9.
- Fisher, B., Esplin, S., Stoddard, G., & Silver, R. (2009). 125: Randomized controlled trial of hypnobirthing versus standard childbirth classes: patient satisfaction and attitudes towards labor. *American Journal of Obstetrics & Gynecology*, 201(6), S61-S62.
- Flynn, T. A., Jones, B. A., & Ausderau, K. K. (2016). Guided imagery and stress in pregnant adolescents. *The American Journal of Occupational Therapy*, 70(5), 7005220020p1-7005220020p7.
- Fontein-Kuipers, Y., Koster, D., Romijn, C., Sakko, E., Stam, C., Steenhuis, N., de Vries, D., & van Willigen, I. (2018). I-POEMS: listening to the voices of women with a traumatic birth experience. *Journal of Psychology and Cognition*, 3(2), 29-36.
- Frankland, J., & Bloor, M. (1999). Some issues arising in the systematic analysis of focus group materials. *Developing Focus Group Research: Politics, Theory and Practice*, 144-155.
- Frey, B. (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781506326139
- Furuta, M., Sandall, J., Cooper, D., & Bick, D. (2016). Predictors of birth-related post-traumatic stress symptoms: secondary analysis of a cohort study. *Archives of Women's Mental Health*, 19(6), 987-999.

- Gadamer, H. (2008). *Philosophical hermeneutics*. Univ of California Press.
- Gavin-Jones, T., & Handford, S. (2016). *Hypnobirth: Evidence, practice and support for birth professionals*. Routledge.
- Gedde-Dahl, M., & Fors, E. A. (2012). Impact of self-administered relaxation and guided imagery techniques during final trimester and birth. *Complementary Therapies in Clinical Practice*, 18(1), 60-65.
- Gerrish, K. and Lacey, A. (2010). Disseminating Research Findings. In: K. Gerrish and A. Lacey (Eds.). *The research process in nursing*. (6th ed, 475-487). Wiley-Blackwell.
- Gibbons, L., Belizán, J. M., Lauer, J. A., Betrán, A. P., Merialdi, M., & Althabe, F. (2010). The global numbers and costs of additionally needed and unnecessary caesarean sections performed per year: overuse as a barrier to universal coverage. *World Health Report*, 30(1), 1-31.
- Ginja, S., Coad, J., Bailey, E., Kendall, S., Goodenough, T., Nightingale, S., Smiddy, J., Day, C., Deave, T., & Lingam, R. (2018). Associations between social support, mental wellbeing, self-efficacy and technology use in first-time antenatal women: data from the BaBBLcS cohort study. *BMC Pregnancy and Childbirth*, 18(1), 1-11.
- Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Chicago: Aldine Publishing, c1967.
- Goleman, D. (1996). *Emotional intelligence: Why it can matter more than IQ*. Bloomsbury Publishing.
- González-Díaz, R. R., & Bustamante-Cabrera, G. I. (2021). Predictive sequential research design to study complex social phenomena. *Entropy*, 23(5), 627.
- Gould, D. (2008). Undertaking a research project: guidance for nursing students. *Nursing Standard (through 2013)*, 22(50), 48.
- Grant, K., McMahon, C., & Austin, M. (2008). Maternal anxiety during the transition to parenthood: a prospective study. *Journal of Affective Disorders*, 108(1-2), 101-111.
- Green, J. M., & Baston, H. A. (2007). Have women become more willing to accept obstetric interventions and does this relate to mode of birth? Data from a prospective study. *Birth*, 34(1), 6-13.
- Grigoriadis, S., Graves, L., Peer, M., Mamisashvili, L., Tomlinson, G., Vigod, S. N., Dennis, C., Steiner, M., Brown, C., & Cheung, A. (2018). Maternal anxiety during pregnancy and the association with adverse perinatal outcomes: systematic review and meta-analysis. *The Journal of Clinical Psychiatry*, 79(5), 813.
- Guba, E.G., ed. (1990). *The paradigm dialog*. Sage.

- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research*, 2(163-194), 105.
- Gueguen, J., Huas, C., Orri, M., & Falissard, B. (2021). Hypnosis for labour and childbirth: A meta-integration of qualitative and quantitative studies. *Complementary Therapies in Clinical Practice*, 43, 101380.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.
- Guillemin, M., & Gillam, L. (2004). Ethics, reflexivity, and "ethically important moments" in research. *Qualitative Inquiry*, 10(2), 261-280.
- Guilliams, T. G., & Edwards, L. (2010). Chronic stress and the HPA axis. *The Standard*, 9(2), 1-12.
- Guse, T., Wissing, M., & Hartman, W. (2006). The effect of a prenatal hypnotherapeutic programme on postnatal maternal psychological well-being. *Journal of Reproductive and Infant Psychology*, 24(02), 163-177.
- Haefel, G. J., & Howard, G. S. (2010). Self-report: Psychology's four-letter word. *The American Journal of Psychology*, 123(2), 181-188.
- Hall, W. A., & Callery, P. (2001). Enhancing the rigor of grounded theory: Incorporating reflexivity and relationality. *Qualitative Health Research*, 11(2), 257-272.
- Halpern, E. S. (1983). No title. *Auditing Naturalistic Inquiries: The Development and Application of a Model*,
- Hammoudeh, S., Gadelhaq, W., & Janahi, I. (2018). *Prospective cohort studies in medical research*. IntechOpen.
- Harvard., 2018. *Understanding the Stress Response*. Harvard Medical School: Harvard Health Publishing. <http://www.health.harvard.edu/staying-healthy/understanding-the-stress-response>
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1992). Primitive emotional contagion.
- Havizari, S., Ghanbari-Homaie, S., Eyvazzadeh, O., & Mirghafourvand, M. (2021). Childbirth experience, maternal functioning and mental health: how are they related? *Journal of Reproductive and Infant Psychology*, , 1-13.
- Hayama, Y., & Inoue, T. (2012). Complementary Therapies in Clinical Practice The effects of deep breathing on 'tension e anxiety'and fatigue in cancer patients undergoing adjuvant chemotherapy. *Complementary Therapies in Clinical Practice*, 18(2), 94-98.
- Health Research Authority (HRA). (2020). *Making changes to a research study to manage the impact of COVID-19*. NHS HRA. <https://www.hra.nhs.uk/covid-19-research/covid-19-guidance-sponsors-sites-and-researchers/>

- Heckman, J. J. (2010). Selection bias and self-selection. In *Microeconometrics* (pp. 242-266). Palgrave Macmillan, London.
- Heesen, R., Bright, L. K., & Zucker, A. (2019). Vindicating methodological triangulation. *Synthese*, *196*(8), 3067-3081
- Henriksen, L., Grimsrud, E., Schei, B., Lukasse, M., & Bidens Study Group. (2017). Factors related to a negative birth experience—a mixed methods study. *Midwifery*, *51*, 33-39.
- Hockzema, E., Barba-Müller, E., Pozzobon, C., Picado, M., Lucco, F., García-García, D., Soliva, J. C., Tobeña, A., Desco, M., & Crone, E. A. (2017). Pregnancy leads to long-lasting changes in human brain structure. *Nature Neuroscience*, *20*(2), 287-296.
- Hosseini Tabaghdehi, M., Kolahdozan, S., Keramat, A., Shahhossein, Z., Moosazadeh, M., & Motaghi, Z. (2020). Prevalence and factors affecting the negative childbirth experiences: a systematic review. *The Journal of Maternal-Fetal & Neonatal Medicine*, *33*(22), 3849-3856.
- Hosseini, V. M., Nazarzadeh, M., & Jahanfar, S. (2018). Interventions for reducing fear of childbirth: A systematic review and meta-analysis of clinical trials. *Women and Birth*, *31*(4), 254-262.
- Howard, L. M., Molyneaux, E., Dennis, C., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775-1788.
- Huberman, M., & Miles, M. B. (2002). *The qualitative researcher's companion*. Sage.
- Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-being*, *1*(2), 137-164.
- Ip, W., Tang, C. S., & Goggins, W. B. (2009). An educational intervention to improve women's ability to cope with childbirth. *Journal of Clinical Nursing*, *18*(15), 2125-2135.
- Ironside, P. M. (2006). Using narrative pedagogy: learning and practising interpretive thinking. *Journal of Advanced Nursing*, *55*(4), 478-486.
- İsbir, G. G., İnci, F., Önal, H., & Yıldız, P. D. (2016). The effects of antenatal education on fear of childbirth, maternal self-efficacy and post-traumatic stress disorder (PTSD) symptoms following childbirth: an experimental study. *Applied Nursing Research*, *32*, 227-232.
- Ito, E., Shima, R., & Yoshioka, T. (2019). A novel role of oxytocin: Oxytocin-induced well-being in humans. *Biophysics and Physicobiology*, *16*, 132-139.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, *18*(1), 3-20.

- Jacobson, E. (1934). *You must Relax. A Practical Method of Reducing the Strains of Modern Living*, New York and London (Whittlesey House McGraw-Hill Book Company) 1934.
- Jallo, N., Ruiz, R. J., Elswick, R. K., & French, E. (2014). Guided imagery for stress and symptom management in pregnant African American women. *Evidence-Based Complementary and Alternative Medicine*, 2014
- Jallo, N., Salyer, J., Ruiz, R. J., & French, E. (2015). Perceptions of guided imagery for stress management in pregnant African American women. *Archives of Psychiatric Nursing*, 29(4), 249-254.
- Jebb, A. T., Parrigon, S., & Woo, S. E. (2017). Exploratory data analysis as a foundation of inductive research. *Human Resource Management Review*, 27(2), 265-276.
- Jepsen, P., Johnsen, S. P., Gillman, M. W., & Sørensen, H. T. (2004). Interpretation of observational studies. *Heart*, 90(8), 956-960.
- Jesson, J., Matheson, L., & Lacey, F. M. (2011). Doing your literature review: Traditional and systematic techniques.
- Johnson, B., & Gray, R. (2010). A history of philosophical and theoretical issues for mixed methods research. *Sage Handbook of Mixed Methods in Social and Behavioral Research*, 2, 69-94.
- Jones, S. R. (2002). (Re) writing the word: Methodological strategies and issues in qualitative research. *Journal of College Student Development*,
- Joyce, S. (2020). Re-naming the 'birth environment' an architect's view. *The Practising Midwife*. 24(1). 23-28.
- Kantziari, M. A., Nikolettos, N., Sivvas, T., Bakoula, C. T., Chrousos, G. P., & Darviri, C. (2019). Stress management during the second trimester of pregnancy. *International Journal of Stress Management*, 26(1), 102.
- Karanicolas, P. J., Farrokhyar, F., & Bhandari, M. (2010). Blinding: who, what, when, why, how? *Canadian Journal of Surgery*, 53(5), 345.
- Karlström, A., Nystedt, A., & Hildingsson, I. (2011). A comparative study of the experience of childbirth between women who preferred and had a caesarean section and women who preferred and had a vaginal birth. *Sexual & Reproductive Healthcare*, 2(3), 93-99.
- Kazdin, A. E. (2000). *Encyclopedia of psychology* (Vol. 2, pp. 10517-106). American Psychological Association (Ed.). Washington, DC: American Psychological Association.

- Kenny, L. C., Everard, C., & Khashan, A. S. (2014). Maternal Stress and in Utero Programming. *Hormones, Intrauterine Health and Programming* (pp. 41-55). Springer.
- Khojasteh, F., Rezaee, N., Safarzadeh, A., Sahlabadi, R., & Shahrakipoor, M. (2016). Comparison of the effects of massage therapy and guided imagery on anxiety of nulliparous women during pregnancy. *Depression, 13*(8), 1-7.
- King, T. (1997). Epidural anesthesia in labor benefits versus risks. *Journal of Nurse-Midwifery, 42*(5), 377-388.
- Kitzinger, J. (1990). Strategies of the early childbirth movement: A case study of the National Childbirth Trust. *The Politics of Maternity Care: Services for Childbearing Women in Twentieth-Century Britain, ,* 61-91.
- Knight, M., et al. (2021). *Saving Lives, Improving Mothers' Care-Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2017-19*. National Perinatal Epidemiology Unit, University of Oxford.
- Koch, T. (2006). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing, 53*(1), 91-100. doi: 10.1111/j.1365- 2648.2006.03681.x
- Kordi, M., Fasanghari, M., Asgharipour, N., & Esmaily, H. (2016). Effect of guided imagery on maternal fetal attachment in nulliparous women with unplanned pregnancy. *Journal of Midwifery and Reproductive Health, 4*(4), 723-731.
- Koster, D., Romijn, C., Sakko, E., Stam, C., Steenhuis, N., de Vries, D., van Willigen, I., & Fontein-Kuipers, Y. (2020). Traumatic childbirth experiences: Practice-based implications for maternity care professionals from the woman's perspective. *Scandinavian Journal of Caring Sciences, 34*(3), 792-799.
- Labor, S., & Maguire, S. (2008). The pain of labour. *Reviews in Pain, 2*(2), 15-19.
- Lacey, A. (2006). The Research Process. In K. Gerrish & A. Lacey (Eds.), *The Research Process in Nursing*. (5th ed., pp.16-30). Blackwell.
- Larsen, K. F., O'Hara, M. W., Brewer, K. K., & Wenzel, A. (2001). A prospective study of self-efficacy expectancies and labour pain. *Journal of Reproductive and Infant Psychology, 19*(3), 203-214.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Levett, K. M., Smith, C. A., Bensoussan, A., & Dahlen, H. G. (2016a). The complementary therapies for labour and birth study making sense of labour and birth—experiences of women, partners and midwives of a complementary medicine antenatal education course. *Midwifery, 40*, 124-131.

- Levell, K. M., Smith, C. A., Bensoussan, A., & Dahlen, H. G. (2016b). Complementary therapies for labour and birth study: a randomised controlled trial of antenatal integrative medicine for pain management in labour. *BMJ Open*, *6*(7), e010691.
- Lewis-Beck, M., Bryman, A. F., & Liao, T. F. (2003). *The Sage encyclopedia of social science research methods*. Sage Publications.
- Lincoln, Y. G., & Guba, E. (1985). Naturalistic Inquiry. London, Sage Publications.
- Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage Handbook of Qualitative Research*, *4*(2), 97-128.
- Livo, N. J., & Rietz, S. A. (1986). *Storytelling: Process and practice*. Littleton, Colo.: Libraries Unlimited.
- LoBiondo-Wood, G., & Haber, J. (2014). *Nursing research-e-book: methods and critical appraisal for evidence-based practice*. Elsevier Health Sciences.
- Lowe, N. K. (1993). Maternal confidence for labor: Development of the childbirth self-efficacy inventory. *Research in Nursing & Health*, *16*(2), 141-149.
- Lowe, N. K. (2000). Self-efficacy for labor and childbirth fears in nulliparous pregnant women. *Journal of Psychosomatic Obstetrics & Gynecology*, *21*(4), 219-224.
- Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R., & Almqvist, F. (2001). Longitudinal study of maternal depressive symptoms and child well-being. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(12), 1367-1374.
- Madden, K., Middleton, P., Cyna, A. M., Matthewson, M., & Jones, L. (2016). Hypnosis for pain management during labour and childbirth. *Cochrane Database of Systematic Reviews*, (5)
- Malmqvist, J., Hellberg, K., Möllås, G., Rose, R., & Shevlin, M. (2019). Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *International Journal of Qualitative Methods*, *18*, 1609406919878341.
- Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: guided by information power. *Qualitative Health Research*, *26*(13), 1753-1760.
- Mankar, R., Bawane, P., Landge, T., Dalal, P., & Gour, V. (2014). Brain wave sensing. Paper presented at the *2014 Annual IEEE India Conference (INDICON)*, 1-5.
- Manning, D. (2004). What are the ethical considerations? In T. Lavender, G. Edwards & Z. Alfrevic, (Eds.), *Demystifying qualitative research in pregnancy and childbirth*. (35-47). MA Healthcare Ltd.



- Manocha, R. (2000). Why meditation?. *Australian Family Physician*, 29(12), 1135-1138.
- Marc, I., Toureche, N., Ernst, E., Hodnett, F. D., Blanchet, C., Dodin, S., & Njoya, M. M. (2011). Mind-body interventions during pregnancy for preventing or treating women's anxiety. *Cochrane Database of Systematic Reviews*, (7)
- Marteau, T. M., & Bekker, II. (1992). The development of a six-item short-form of the state scale of the Spielberger State—Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology*, 31(3), 301-306.
- Martin, A. A., Schauble, P. G., Rai, S. H., & Whit Jr, R. (2001). Effects of hypnosis on the labor processes and birth outcomes of pregnant adolescents. *Journal of Family Practice*, 50(5), 441.
- Mason, J. (2017). *Qualitative researching*. sage.
- McAllister, S., Coxon, K., Murrells, T., & Sandall, J. (2017). Healthcare professionals' attitudes, knowledge and self-efficacy levels regarding the use of self-hypnosis in childbirth: A prospective questionnaire survey. *Midwifery*, 47, 8-14.
- McCarty, R. (2016). The fight-or-flight response: A cornerstone of stress research. *Stress: Concepts, cognition, emotion, and behavior* (pp. 33-37). Elsevier.
- McCoy C. E. (2017). Understanding the Intention-to-treat Principle in Randomized Controlled Trials. *The western journal of emergency medicine*, 18(6), 1075–1078. <https://doi.org/10.5811/westjem.2017.8.35985>
- McCrea, H., Wright, M. E., & Stringer, M. (2000). Psychosocial factors influencing personal control in pain relief. *International Journal of Nursing Studies*, 37(6), 493-503.
- McDougall, L., Campbell, O., & Wendy, G. W. (2016). Maternal Health An Executive Summary for The Lancet's Series "Every woman, every newborn, everywhere has the right to good quality care.". *The Lancet*, 388(8)
- McEwen, B. S., & Gianaros, P. J. (2010). Central role of the brain in stress and adaptation: links to socioeconomic status, health, and disease. *Annals of the New York Academy of Sciences*, 1186(1), 190-222.
- McGowan, J., Sampson, M., Salzwedel, D. M., Cogo, E., Foerster, V., & Lefebvre, C. (2016). PRESS peer review of electronic search strategies: 2015 guideline statement. *Journal of Clinical Epidemiology*, 75, 40-46.
- McKenna, H., Hasson, F. and Keeney, S. (2006). Surveys. In K. Gerrish & A. Lacey (Eds.), *The Research Process in Nursing*. (5<sup>th</sup> ed, pp. 260-274). Blackwell.
- McKim, C. A. (2017). The value of mixed methods research: A mixed methods study. *Journal of Mixed Methods Research*, 11(2), 202-222.

- McLafferty, E., & Farley, A. H. (2006). Analysing qualitative research data using computer software. *Nursing Times*, 102(24), 34-36.
- Medical Research Council (MRC). (2017). *MRC Guidelines for Management of Global Health Trials*. Medical Research Council.
- Mecus, M., Nijs, J., Vanderheiden, T., Baert, I., Descheemacker, F., & Struyf, F. (2015). The effect of relaxation therapy on autonomic functioning, symptoms and daily functioning, in patients with chronic fatigue syndrome or fibromyalgia: a systematic review. *Clinical Rehabilitation*, 29(3), 221-233.
- Mehl-Madrona, L. E. (2004). Hypnosis to facilitate uncomplicated birth. *American Journal of Clinical Hypnosis*, 46(4), 299-312.
- Mitchell, M. (2013). Women's use of complementary and alternative medicine in pregnancy: a journey to normal birth. *British Journal of Midwifery*, 21(2), 100-106.
- Mittelmark, M. B., Bauer, G. F., Vaandrager, L., Pelikan, J. M., Sagy, S., Eriksson, M., Lindström, B., & Meier Magistretti, C. (2022). *The handbook of salutogenesis*.
- Moberg, K. U. (2014). *Oxytocin: the biological guide to motherhood*. Praeclarus Press, LLC.
- Mongan, M. F. (2005). *HypnoBirthing The Mongan Method*. Communications, Inc. Deerfield Beach, Florida,
- Mongan, M. (2016). *HypnoBirthing: the Mongan method*. Souvenir Press Limited.
- Mongan, M. F. (1998). *HypnoBirthing: A celebration of life*. Concord: NH Rivertree Publishing,
- Moore, G. F., Audrey, S., Barker, M., Bond, L., Bonell, C., Hardeman, W., Moore, L., O’Cathain, A., Tinali, T., & Wight, D. (2015). Process evaluation of complex interventions: Medical Research Council guidance. *Bmj*, 350
- Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research*, 1(1), 48-76.
- Morgan, D. L. (2013). *Integrating qualitative and quantitative methods: A pragmatic approach*. Sage publications.
- Morris, A. (2015). *A practical introduction to in-depth interviewing*. Sage.
- Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*, 18(1), 1-7.
- Nasiri, S., Akbari, H., Tagharrobi, L., & Tabatabaee, A. S. (2018). The effect of progressive muscle relaxation and guided imagery on stress, anxiety, and

- depression of pregnant women referred to health centers. *Journal of Education and Health Promotion*, 7
- Nathoo, A. (2016). Initiating therapeutic relaxation in Britain: a twentieth-century strategy for health and wellbeing. *Palgrave Communications*, 2(1), 1-10.
- National Collaborating Centre for Mental Health. (2018). The perinatal mental health care pathways. *London: NHS England*,
- National Institute for Health and Care Excellence (NICE). (2017). *Intrapartum care for healthy women and babies*. NICE.
- National Institute for Health and Care Excellence (NICE). (2020). *Antenatal and postnatal mental health: clinical management and service guidance*. NICE.
- Nguyen, M., Goldsamt, L., Mazibuko, N., Zondo, S., & Fielding-Miller, R. (2021). Emotional distress among frontline research staff. *Social Science & Medicine*, 281, 114101.
- NHS Education for Scotland. (2019). *Perinatal Mental Health CURRICULAR FRAMEWORK: Curricular Framework, A framework for maternal and infant mental health*. <https://learn.nes.nhs.scot/10382/perinatal-mental-health-curricular-framework>
- Nierop, A., Wirtz, P. H., Bratsikas, A., Zimmermann, R., & Ehlert, U. (2008). Stress-buffering effects of psychosocial resources on physiological and psychological stress response in pregnant women. *Biological Psychology*, 78(3), 261-268.
- Noble, II., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing*, 18(2), 34-35.
- Noordzij, M., Tripepi, G., Dekker, F. W., Zoccali, C., Tanck, M. W., & Jager, K. J. (2010). Sample size calculations: basic principles and common pitfalls. *Nephrology Dialysis Transplantation*, 25(5), 1388-1393.
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1609406917733847.
- O'Connor, T. G., Heron, J., Glover, V., & Alspac Study Team. (2002). Antenatal anxiety predicts child behavioral/emotional problems independently of postnatal depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(12), 1470-1477.
- Odent, M. (1992). *The nature of birth and breast-feeding*. Bergin & Garvey Westport CT.
- Olza, I., Leahy-Warren, P., Benyamini, Y., Kazmierczak, M., Karlsdottir, S. I., Spyridou, A., Crespo-Mirasol, E., Takács, L., Hall, P. J., & Murphy, M. (2018).

- Women's psychological experiences of physiological childbirth: a meta-synthesis. *BMJ Open*, 8(10), e020347.
- Olza, I., Uvnas-Moberg, K., Ekström-Bergström, A., Leahy-Warren, P., Karlsdottir, S. I., Nieuwenhuijze, M., Villarrea, S., Hadjigeorgiou, E., Kazmierczak, M., & Spyridou, A. (2020). Birth as a neuro-psycho-social event: An integrative model of maternal experiences and their relation to neurohormonal events during childbirth. *PLoS One*, 15(7), e0230992.
- Ormston, R., Spencer, L., Barnard, M., & Snape, D. (2014). The Foundations of Qualitative Research. In J. Ritchie, J. Lewis, C.M. Nicholls & R. Ormston (Eds.). *Qualitative Research Practice*. (1-26). Sage.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning* (No. 47). University of Illinois press.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic reviews*, 10(1), 1-11.
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.
- Parahoo, K. (2014). *Nursing research: principles, process and issues*. Macmillan International Higher Education.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications, inc.
- Perciavalle, V., Blandini, M., Fecarotta, P., Buscemi, A., Di Corrado, D., Bertolo, L., Fichera, F., & Coco, M. (2017). The role of deep breathing on stress. *Neurological Sciences*, 38(3), 451-458.
- Peters, M. D., Godfrey, C., McInerney, P., Munn, Z., Tricco, A. C., & Khalil, H. (2020). Chapter 11: scoping reviews (2020 version). *JBI Manual for Evidence Synthesis*. *JBI*, 2020
- Pham, L. T. M. (2018). Qualitative approach to research a review of advantages and disadvantages of three paradigms: Positivism, interpretivism and critical inquiry. *University of Adelaide*.
- Phillips, D. C., Phillips, D. C., & Burbules, N. C. (2000). *Postpositivism and educational research*. Rowman & Littlefield.
- Pillow, W. (2003). Confession, catharsis, or cure? Rethinking the uses of reflexivity as methodological power in qualitative research. *International Journal of Qualitative Studies in Education*, 16(2), 175-196.

- Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health, 29*(5), 489-497.
- Polit, D., & Beck, C. (2020). *Study guide for essentials of nursing research: appraising evidence for nursing practice*. Lippincott Williams & Wilkins.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., & Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *A Product from the ESRC Methods Programme Version, 1*(1), b92.
- Predoiu, R., Predoiu, A., Mitache, G., Firanescu, M., Cosma, G., Dinuta, G., & Bucuroiu, R. A. (2020). Visualisation techniques in sport—the mental road map for success. *Physical Education, Sport and Kinetotherapy Journal, 59*(3), 245-256.
- Public Health England. (2019). *Guidance 4. Perinatal Mental Health*. <https://www.gov.uk/government/publications/better-mental-health-jsna-toolkit/4-perinatal-mental-health>
- QSR International Pty Ltd. (2020). *NVivo*. <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>
- Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European Journal of Education Studies*,
- Rambaree, K. (2007). Bringing Rigour in qualitative social research: the use of a CAQDAS. *University of Mauritius Research Journal, 13*, 1-16.
- Ramchandani, P. G., Stein, A., O'connor, T. G., Heron, J., Murray, L., & Evans, J. (2008). Depression in men in the postnatal period and later child psychopathology: a population cohort study. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(4), 390-398.
- Rankin, J., Hillan, E. M., & Mutrie, N. (2000). An historical overview of physical activity and childbirth. *British Journal of Midwifery, 8*(12), 761-764.
- Regier, D. A., Kuhl, E. A., & Kupfer, D. J. (2013). The DSM-5: Classification and criteria changes. *World psychiatry, 12*(2), 92-98.
- Reid, D. E., & Cohen, M. E. (1950). Evaluation of present day trends in obstetrics. *Journal of the American Medical Association, 142*(9), 615-623.
- Rennie, A.M. (2016). *Psychological wellbeing following miscarriage from a salutogenic perspective*. [PhD thesis]. The Robert Gordon University.
- Richards, L. (2020). *Handling qualitative data: A practical guide*. Sage.

- Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: a key to evidence-based decisions. *Acp J Club*, 123(3), A12-A13.
- Robbie, D. (1992). Birth as an American rite of passage. *Berkeley & London, University of California Press. DAVIS-FLOYD Robbie Et Carolyn SARGENT (Éds) (1997), Childbirth and Authoritative Knowledge. Cross-Cultural Perspectives, Berkeley and Los Angeles, University of California Press. DAVIS-FLOYD Robbie Et Al , 25-41.*
- Rolfé, G. (2006). Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of Advanced Nursing*, 53(3), 304-310.
- Ross, V. (2017). *Evaluating effectiveness of antenatal cognitive behavioural based treatment for anxiety and stress*. [PDP thesis]. The University of Edinburgh.
- Rota, A., Antolini, L., Colciago, E., Nespoli, A., Borrelli, S. E., & Fumagalli, S. (2018). Timing of hospital admission in labour: latent versus active phase, mode of birth and intrapartum interventions. A correlational study. *Women and Birth*, 31(4), 313-318.
- Russell, G., & Lightman, S. (2019). The human stress response. *Nature Reviews Endocrinology*, 15(9), 525-534.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719.
- Sado, M., Ota, E., Stiekley, A., & Mori, R. (2012). Hypnosis during pregnancy, childbirth, and the postnatal period for preventing postnatal depression. *Cochrane Database of Systematic Reviews*, (6).
- Sahour, A., Fakhri, M. K., & Pourasghar, M. (2019). Investigating the effect of hypnotherapy on reducing anxiety and pain during labor. *BRAIN.Broad Research in Artificial Intelligence and Neuroscience*, 10(3), 25-33.
- Salomonsson, B., Berterö, C., & Alchagen, S. (2013). Self-efficacy in pregnant women with severe fear of childbirth. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42(2), 191-202.
- Sandelowski, M. (1986). The problem of rigor in qualitative research. *Advances in Nursing Science*,
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334-340.
- Sandelowski, M. (2007). Words that should be seen but not written. *Research in Nursing & Health*, 30(2), 129-130.
- Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing & Health*, 33(1), 77-84.

- Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, 2007(114), 11-25.
- Scottish Government (2017). The Best Start: A Five Year Forward Plan for Maternity and Neonatal Care in Scotland. Scottish Government.
- Shaw, R. (2010). Embedding reflexivity within experiential qualitative psychology. *Qualitative Research in Psychology*, 7(3), 233-243.
- Siedlecki, S. L. (2018). Research intervention fidelity: Tips to improve internal validity of your intervention studies. *Clinical Nurse Specialist*, 32(1), 12-14.
- Silver, C., & Lewins, A. (2014). *Using software in qualitative research: A step-by-step guide*. Sage.
- Silverman, D. (2015). *Interpreting qualitative data*. Sage.
- Simkin, P. (1992). Just another day in a woman's life? Part 11: Nature and consistency of women's long-term memories of their first birth experiences. *Birth*, 19(2), 64-81.
- Sitras, V., Šaltytė Benth, J., & Eberhard-Gran, M. (2017). Obstetric and psychological characteristics of women choosing epidural analgesia during labour: A cohort study. *PloS One*, 12(10), e0186564.
- Slife, B. D., Williams, R. N., & Williams, R. N. (1995). *What's behind the research?: Discovering hidden assumptions in the behavioral sciences*. Sage.
- Smith, C. A., Collins, C. T., Cyna, A. M., & Crowther, C. A. (2006). Complementary and alternative therapies for pain management in labour. *Cochrane Database of Systematic Reviews*, (4)
- Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International review of sport and exercise psychology*, 11(1), 101-121.
- Smith, M. J. (1998). *Social science in question: towards a postdisciplinary framework*. Sage.
- Smythe, L., & Giddings, L. S. (2007). From experience to definition: addressing the question 'what is qualitative research?'. *Nursing Praxis in New Zealand*, 23(1)
- Spencer, L., Ritchie, J., & O'Connor, W. (2003). Analysis: practices, principles and processes. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, 199, 218.
- Spielberger, C.D., Gorsuch, R.L., Lushene, P.R., Vagg, P.R., Jacobs, A.G. (1983). *Manual for the State-Trait Anxiety Inventory STAI (form Y)*. Consulting Psychologists Press, Inc.

- SPSS, I. (2017). No title. *IBM Corp. Released, Statistics for Windows, Version 25.0.* Armonk, NY: IBM Corp.
- Stebbins, R. A. (2001). *Exploratory research in the social sciences.* Sage.
- Steen M, Downe S, Bamford N et al (2012) Not patient and not visitor: A metasynthesis fathers' encounters with pregnancy, birth and maternity care. *Midwifery* 28(4): 362–71. doi: 10.1016/j.midw.2011.06.009
- Stenglin, M., & Foureur, M. (2013). Designing out the Fear Cascade to increase the likelihood of normal birth. *Midwifery*, 8(29), 819-825.
- Stevenson, G. and Tabib, M. (2020). *An audit of electronic maternity records for the participants of Antenatal Relaxation Classes (2019 data).* [Unpublished raw data].
- Stewart-Brown, S. L., Platt, S., Tennant, A., Maheswaran, H., Parkinson, J., Weich, S., Tennant, R., Taggart, F., & Clarke, A. (2011). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a valid and reliable tool for measuring mental well-being in diverse populations and projects. *J Epidemiol Community Health*, 65(Suppl 2), A38-A39.
- Stewart-Brown, S., & Janmohamed, K. (2008). Warwick-Edinburgh mental well-being scale. *User Guide. Version, 1*
- Stockman, A. F., & Altmaier, E. M. (2001). Relation of self-efficacy to reported pain and pain medication usage during labor. *Journal of Clinical Psychology in Medical Settings*, 8(3), 161-166.
- Stoll, K., & Hall, W. (2013). Vicarious birth experiences and childbirth fear: Does it matter how young Canadian women learn about birth. *J Perinat Educ*, 22(4), 226-233.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques.*
- Streibert, L. A., Reinhard, J., Yuan, J., Schiermeier, S., & Louwen, F. (2015). Clinical study: change in outlook towards birth after a midwife led antenatal education programme versus hypnoreflexogenous self-hypnosis training for childbirth. *Geburtshilfe Und Frauenheilkunde*, 75(11), 1161-1166.
- Stronach, I., Garratt, D., Pearce, C., & Piper, H. (2007). Reflexivity, the picturing of selves, the forging of method. *Qualitative Inquiry*, 13(2), 179-203.
- Stuckey, H. L. (2013). Three types of interviews: Qualitative research methods in social health. *Journal of Social Health and Diabetes*, 1(02), 56.
- Tabib, M. (2015). *Offering relaxation workshops to midwifery students: does it make any difference?.* [Unpublished PGCert Essay]. The Robert Gordon University.



- Tabib, M. (2016). *A Service Evaluation of Relaxation Training for Midwives*. [Unpublished data].
- Tabib, M., & Crowther, S. (2018). Service evaluation of relaxation workshops for pregnant women. *The Journal of Perinatal Education*, 27(1), 10-19.
- Tabib, M., Humphrey, T., Forbes-McKay, K., & Lau, A. (2021). Expectant parents' perspectives on the influence of a single antenatal relaxation class: A qualitative study. *Complementary Therapies in Clinical Practice*, 43, 101341.
- Taheri, M., Takian, A., Taghizadeh, Z., Jafari, N., & Sarafraz, N. (2018). Creating a positive perception of childbirth experience: systematic review and meta-analysis of prenatal and intrapartum interventions. *Reproductive Health*, 15(1), 1-13.
- Tashakkori, A., Teddlie, C., & Teddlie, C. B. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. sage.
- Tashakkori, A., & Teddlie, C. (2021). *Sage handbook of mixed methods in social & behavioral research*. SAGE publications.
- Temple, B., & Young, A. (2004). Qualitative research and translation dilemmas. *Qualitative Research*, 4(2), 161-178.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 1-13.
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., ... & Goldsmith, C. II. (2010). A tutorial on pilot studies: the what, why and how. *BMC medical research methodology*, 10(1), 1-10.
- Thelwell, R. C., & Greenlees, I. A. (2003). Developing competitive endurance performance using mental skills training. *The Sport Psychologist*, 17(3), 318-337.
- Thomas, M. (1997). *Post-war mothers: childbirth letters to Grantly Dick-Read, 1946-1956*. University Rochester Press.
- Tilden, E. L., Lee, V. R., Allen, A. J., Griffin, E. E., & Caughey, A. B. (2015). Cost-effectiveness analysis of latent versus active labor hospital admission for medically low-risk, term women. *Birth*, 42(3), 219-226.
- Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, 48(4), 388-396.
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K., Colquhoun, H., Kastner, M., Levac, D., Ng, C., Sharpe, J. P., & Wilson, K. (2016). A scoping review on the conduct and reporting of scoping reviews. *BMC Medical Research Methodology*, 16(1), 1-10.

- Triceo, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D., Horsley, T., & Weeks, L. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467-473.
- Urech, C., Fink, N. S., Hoesli, I., Wilhelm, F. H., Bitzer, J., & Alder, J. (2010). Effects of relaxation on psychobiological wellbeing during pregnancy: a randomized controlled trial. *Psychoneuroendocrinology*, *35*(9), 1348-1355.
- Uvnäs-Moberg, K., Ekström-Bergström, A., Berg, M., Buckley, S., Pajalic, Z., Hadjigeorgiou, E., Kotłowska, A., Lengler, L., Kielbratowska, B., & Leon-Larios, F. (2019). Maternal plasma levels of oxytocin during physiological childbirth—a systematic review with implications for uterine contractions and central actions of oxytocin. *BMC Pregnancy and Childbirth*, *19*(1), 1-17.
- Valentine, G. (1999). Doing household research: interviewing couples together and apart. *Area*, *31*(1), 67-74.
- Van Manen, M. (2016). *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing*. Routledge.
- VandeVusse, L., Irland, J., Berner, M. A., Fuller, S., & Adams, D. (2007). Hypnosis for childbirth: A retrospective comparative analysis of outcomes in one obstetrician's practice. *American Journal of Clinical Hypnosis*, *50*(2), 109-119.
- Varner, C. A. (2015). Comparison of the Bradley Method and HypnoBirthing Childbirth Education Classes. *The Journal of Perinatal Education*, *24*(2), 128-136.
- Waldenström, U. (2003). Women's memory of childbirth at two months and one year after the birth. *Birth*, *30*(4), 248-254.
- Waldenström, U., Hildingsson, I., Rubertsson, C., & Rådestad, I. (2004). A negative birth experience: prevalence and risk factors in a national sample. *Birth*, *31*(1), 17-27.
- Walsh, D., & Baker, L. (2004). How to collect qualitative data. *Demystifying Qualitative Research in Pregnancy and Childbirth*, , 63-86.
- Webster, S., Lewis, J., & Brown, A. (2014). Ethical considerations in qualitative research. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, *2*, 77-110.
- Werner, A., Uldbjerg, N., Zachariae, R., Rosen, G., & Nohr, E. A. (2013a). Self-hypnosis for coping with labour pain: a randomised controlled trial. *BJOG: An International Journal of Obstetrics & Gynaecology*, *120*(3), 346-353.
- Werner, A., Uldbjerg, N., Zachariae, R., Wu, C. S., & Nohr, E. A. (2013b). Antenatal hypnosis training and childbirth experience: a randomized controlled trial. *Birth*, *40*(4), 272-280.

- Whitburn, L. Y., Jones, L. E., Davey, M., & McDonald, S. (2019). The nature of labour pain: An updated review of the literature. *Women and Birth*, 32(1), 28-38.
- Wijma, K., Wijma, B., & Zar, M. (1998). Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics & Gynaecology*, 19(2), 84-97.
- World Health Organization (2007) *Fatherhood and health outcomes in Europe*. [www.euro.who.int/\\_\\_data/assets/pdf\\_file/0017/69011/E91129.pdf](http://www.euro.who.int/__data/assets/pdf_file/0017/69011/E91129.pdf) (accessed 9 April 2015)
- World Health Organization (WHO). (2008). Maternal mental health and child health and development in low and middle income countries: report of the meeting, Geneva, Switzerland, 30 January-1 February, 2008.
- World Health Organization. (2015). *WHO mhGAP Guideline Update*. Geneva. World Health Organization
- World Health Organization. (2018). *WHO recommendations on intrapartum care for a positive childbirth experience*. World Health Organization.
- World Medical Association (WMA) (2013). World medical association declaration of helsinki: Ethical principles for medical research involving human subjects, *JAMA*, 310(20), 2191-2194.
- Yeo, A., Legard, R., Keegan, J., Ward, K., McNaughton Nicholls, C., & Lewis, J. (2014). 'In-depth Interviews'. In: J. Ritchie, et al. (Eds). *Qualitative Research Practice*. (pp. 177-210). Sage.
- Zarhin, D. (2018). Conducting joint interviews with couples: Ethical and methodological challenges. *Qualitative health research*, 28(5), 844-854.
- Zondag, D. C., Gross, M. M., Grylka-Baeschlin, S., Poat, A., & Petersen, A. (2016). The dynamics of epidural and opioid analgesia during labour. *Archives of gynecology and obstetrics*, 294(5), 967-977.

## **Appendix I. ARC content**

The Antenatal Relaxation Class (ARC) has four parts:

### *Part one: Theory (60 minutes)*

At the beginning of the class, the participants are welcomed and encouraged to share their expectations of the session. Then, the midwife facilitating the session provides a comprehensive explanation of the physiology of stress, discussing the SR versus RR and how these responses relate to the experience of pain during labour. Based on the theoretical literature, the role of oxytocin, endorphins, and adrenaline during childbirth, and how the use of relaxation techniques can modulate the balance between these hormones are explained. This section is underpinned by theories of Fear-Tension-Pain (Dick-Read, 2004) and physiological/hormonal processes in childbirth (Buckley, 2015; Odent, 1992; Uvnäs-Moberg, 2014). Animated PowerPoint slides, group activities and discussions are used to further engage the participants with the discussed theory.

### *Part Two: Positive birth stories (30 minutes)*

A 14-minute video is used to share a collection of previous participants' experiences of using relaxation techniques during pregnancy, labour, and birth. These real-life stories have been collected through the service evaluation process. This activity is followed by a short break, prior to discussing participants' reflections on the video.

### *Part Three: Relaxation Exercises (60 minutes)*

Four relaxation exercises, including a conscious breathing exercise (10 minutes), a visualisation exercise (10 minutes), hypnosis (30 minutes) and relaxation in labour (10 minutes) are practised using standard scripts. These exercises build on each other and intend to facilitate experiencing the relaxation response several times. During the

conscious breathing exercise, participants are guided to focus on their breathing, their body sensations and at the end on the baby to encourage bonding with the unborn child. The second exercise combines conscious breathing and visualisation, focusing on an image of their own choice that is meaningful and relaxing to that individual. The participants are encouraged to use their senses to make the image as real as possible and are reassured that whatever they imagine, or feel is appropriate.

The third exercise is a light six-staged hypnosis consisting of conscious breathing, body scanning, counting down, visualisation, positive affirmations, and counting up. During this longer exercise, a deeper state of relaxation is usually experienced.

In the next exercise, use of relaxation during labour is rehearsed. Conscious breathing, body scanning, visualisation, and positive affirmations are utilised in a scenario-based practice to demonstrate how in the short episodes between contractions the RR could be elucidated.

At this stage, the participants are encouraged to reflect on their experiences of the exercises and ask any questions they may have. This part of the class ends with introducing two brief on-the-go relaxation techniques that can be regularly used during daily life.

#### *Part Four: Top tips on labour (30 minutes)*

A range of strategies including the importance of dim lighting, use of calming music, massage, gentle touch, immersion in water, mobilisation, and upright positions during labour are discussed and top tips for the birth partners are explained using PowerPoint slides. In addition, different stages of labour, as well as the benefits and potential side effects of epidural anaesthesia, are briefly discussed. The importance of self-led practice of the learned techniques is highlighted and a handout and videos for home practice are provided. The handout includes the key points of the session, instruction on self-

relaxation, top tips for birth partners, positions in labour and birth and 18 positive affirmations. To facilitate home practice, the participants are provided with access to the four online audio recordings and a handout. The outline of ARC is the following Table.

<b>Class outlines</b>
<p><b>Part 1 (60 min)</b></p> <ul style="list-style-type: none"> <li>-Overview and objectives of the class</li> <li>-Introduction to Fear-Tension-Pain theory, physiology of SR versus RR, and hormonal systems in childbirth</li> </ul>
<p><b>Part 2 (30 min)</b></p> <ul style="list-style-type: none"> <li>-Positive birth stories collected from previous ARC participants, followed by a group discussion</li> </ul>
<p><b>Part 3 (60 min)</b></p> <ul style="list-style-type: none"> <li>-Practising four relaxation exercises including breathing, visualisation, hypnosis, and relaxation in labour</li> </ul>
<p><b>Part 4 (30 min)</b></p> <ul style="list-style-type: none"> <li>-Tips on the strategies that could contribute to a sense of relaxation and control during childbirth including mobilisation, positions, music, low lighting, water immersion, gentle massage, and partner's support</li> <li>- Benefits &amp; side effects of epidural</li> <li>- The learning points are summarised and the importance of regular practice at home is highlighted.</li> <li>- Handouts and audios are provided for further practice at home.</li> </ul>

#### Outline of the antenatal relaxation class (ARC)

## Appendix 2. Relevant publications and Awards

### Publications

Tabib, M., & Humphrey, T. (2022). Bringing presence to the intrapartum experience. In S. Crowther & L. Davis. (Eds). *Mindfulness in the Birth Sphere* (pp. 130-146). Routledge.

Tabib, M., Humphrey, T., Forbes-McKay, K., Hollins-Martin, C.J., & MacVicar, S., (2022, September 12-14). "A Different Way of Being" The Influence of a Single Antenatal Relaxation Class on Maternal Psychological Wellbeing and Childbirth Experience; An Exploratory Sequential Mix-Method Study. [Poster]. *The Normal Labour & Birth Conference*. Aarhus, Denmark.

Tabib, M., Humphrey, T., Forbes-McKay, K., Hollins-Martin, C.J., & MacVicar, S., (2022, April 11). A Different Way of Being. *The British Psychological Society Conference*. Aberdeen, UK.

Tabib, M., Humphrey, T., Forbes-McKay, K., & Lau, A. (2021). Expectant parents' perspectives on the influence of a single antenatal relaxation class: A qualitative study. *Journal of Complementary Therapies in Clinical Practice*. 43, 101341.

Tabib, M., (2019, September 24). Antenatal Relaxation Classes (ARC) at NHS Maternity Services. *Royal College of Midwives annual conference*. Manchester. UK.

Tabib, M., & Crowther, S. A., (2018). Service Evaluation of Relaxation Workshops for Pregnant Women. *Journal of Perinatal Education*. 26 (4), 10-19

Tabib, M., Humphrey, T., Forbes-McKay, K., & Law, A. (2018, June 23). The influence of on childbirth experiences and maternal psychological wellbeing: a mixed-methods study. *The European Doctoral Conference in Nursing Science*. Maastricht, Netherlands.

Tabib, M., et al. (2017, October 3). Relaxation Workshops for Women, partners and Midwives, an Educational Initiative. [Poster]. *International Normal Labour & Birth Conference*. Cumbria. UK.

Tabib, M., (2017, May 31). 'A journey of a thousand miles; from RCTs to Qualitative methods' *Robert Gordon University Post Graduate Research Seminar*. Aberdeen, UK.

Tabib, M., (2016). A Reflection on offering relaxation techniques; promoting women's choices. *The Practicing Midwife*, 20 (2), 1-4

## **Awards**

2020) Short listed for Royal College of Midwives Award: In recognition of excellence in maternity care and innovation

2020) Iolanthe Midwifery Award (The Iolanthe Midwifery Trust): In recognition of research and improving local maternity services

2020) Finalist in Innovation Accelerator Programme (Robert Gordon University)

2020) Semi-finalist in Converge challenge (Heriot-Watt University)

2019) Innovation Award (Scotland Maternity & Midwifery Festival): For outstanding contribution to maternity and midwifery services



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## Service Evaluation of Relaxation Workshops for Pregnant Women

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### ABSTRACT

This article reports a service evaluation of “antenatal education on physiology of childbirth and relaxation.” A service evaluation was carried out during group class discussion, immediately after the workshops, and following birth. Identified themes in the collected data were (a) *my own relaxation*, (b) *confident and not afraid*, (c) *proud of myself*, (d) *unexpected and feeling in control*, and (e) *support*. Overall, women creatively customized the learned skills and reported feelings of pride and confidence. They reported feeling able to apply relaxation techniques when unexpected situations arise. Support and encouragement from partners and midwives were also valued by women. The evaluation demonstrates the efficacy of designing antenatal education that includes education on physiology of normal birth and relaxation training.

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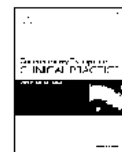
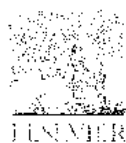
*The Journal of Perinatal Education*, 27(1), <http://dx.doi.org/10.1891/1058-1243.27.1.10>

*Keywords:* relaxation, antenatal education, labor, birth

### INTRODUCTION

It is not uncommon for pregnant women to experience some degree of anxiety and fear related to childbirth. It has been reported that up to 20% of women experience considerable childbirth fear (Salomonsson, Berteru, & Alehagen, 2013). This is of concern because fear can influence childbirth outcomes. For example, fear of childbirth (FOC) has been connected with increasing obstetric interventions and is one of the most common reasons for requesting a cesarean (Handelzalts et al., 2012; Kringsland, Daltveit, & Møller, 2009). FOC has also been reported as a predictor for psychological trauma and a risk factor for negative birth experience (Cheung, Ip, & Chan, 2007; Keogh, Ayers, &

Francis, 2002; Nilsson & Lundgren, 2009; Söet, Brack, & DiIorio, 2003; Waldenström, Hildingsson, & Ryding, 2006). Emergent evidence over the last two decades has found a link between women's perception of control during childbirth and feelings of satisfaction with the experience (Cheung et al., 2007; Christiaens & Bracke, 2007; Flinn, Schmied, Wilkes, & Jackson, 2010; Oweis, 2009). It would appear that women's sense of control in childbirth is linked with positive feelings such as satisfaction, empowerment, and sense of achievement (O'Hare & Fallon, 2011). There is a need to address FOC proactively if psychosocial and physiological outcomes are to be optimized. Antenatal classes incorporating education on the physiology of birth, and relaxation techniques



## Expectant parents' perspectives on the influence of a single antenatal relaxation class: A qualitative study

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### ARTICLE INFO

**Keywords:**  
Antenatal education  
Relaxation  
Women  
Partners  
Childbirth

### ABSTRACT

**Aim:** This study explores the perspectives of expectant parents on the influence of a single antenatal class incorporating education on childbirth, physiology and relaxation techniques.

**Method:** The data for this qualitative descriptive study were collected via in-depth interviews with six women and three birth partners.

**Findings:** An enhanced understanding of childbirth physiology formed a 'different way' of thinking about childbirth, 'inspired and motivated' the execution of the learnt relaxation techniques which led to a 'deep sense of calmness' associated with increased confidence and reduced fear. However, reaching such sense of calmness during childbirth required a 'space for relaxation' which was influenced by birth attendants. An overarching theme of 'a positive outlook' towards childbirth was identified.

**Conclusion:** Including education on childbirth physiology and a range of relaxation techniques may reduce fear, empower prospective parents and positively influence their experiences of pregnancy and childbirth.

### 1. Introduction

Previous research has focused on antenatal relaxation education as a pain management method for childbirth and investigated its impact on processes of care such as assisted birth and caesarean section with the primary outcome measure being epidural use. Cochrane reviews, however, fail to show a clear reduction in epidural use or caesarean section following relaxation classes [1,2].

Conversely, research investigating the influence of such interventions on childbirth experiences and maternal psychological well-being, consistently demonstrate a positive influence [3–9]. Indeed, evidence from randomised control trials (RCTs), consistently suggest that antenatal relaxation training can alleviate fear and anxiety [4,7, 10], whilst enhancing feelings of agency and childbirth self-efficacy (Ip et al., 2009, [9]). These results are congruent with the findings of the few qualitative studies that have been conducted, where women consistently report feeling calmer, less fearful and anxious about the upcoming birth [11–13]. Indeed, an increased sense of confidence and agency as well as satisfaction with childbirth experience are the most common themes reported.

Despite these positive findings, the length and complexity of the employed interventions in some studies is a barrier in implementing them in routine care due to the cost, time and resources required. On the other hand, the interventions that included multiple brief sessions (three 1-h sessions or two 90-min sessions), were negatively influenced by high attrition rates. For example [14], reported, 'only a minority of women attended all sessions'. These limitations may explain why, despite the evidence on positive influence, relaxation classes are not included in routine antenatal education in NHS maternity services in the UK and many other countries.

A recent service evaluation [15] of a single 3 h relaxation class offered as an initiative at a Scottish NHS Board, examined the experiences of 503 women attendees. This was the first published paper exploring the influence of a single relaxation session on childbirth experiences. Consistent with previous research, the study demonstrated that participants of this single class felt more confident and less fearful towards and during childbirth. In addition, feedback collected from around 2000 participants via anonymous evaluation forms demonstrated that all of them found the class useful and would recommend it to others [16]. However, it is still unclear how and why this occurs, or what

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### Appendix 3. Literature review documents

**Table I. A summary of included sources in a chronological order**

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 1 Martin et al., 2001  USA	Evaluate how childbirth preparation incorporating hypnotic techniques affects the labour processes and birth outcomes of pregnant adolescents.	N=42 teenaged pregnant women	Quantitative: RCT  <u>OCs:</u> Complicated deliveries, surgical procedures, and length of hospital stay. <u>Detailed OCs:</u> Medication use (Pitocin, anaesthetic, and postpartum medication), complications (fell into 36 categories) and surgical intervention during delivery, and length of hospital stay for mothers and neonatal intensive care unit (NICU) admission for the infants.	Significantly less numbers of complicated deliveries, surgical procedures, and length of hospital stay.  Although consistently fewer patients in the hypnosis group used less anaesthesia, Pitocin or postpartum medication and fewer had infants admitted to the NICU but <b>statistically non-significant.</b>	Childbirth preparation including hypnosis starting between 20 & 24 weeks, 4 individual sessions in 8 weeks. CG received supporting counselling.  No prompting occurred during the labour and delivery process.	Anaesthesia & clinical outcomes	(Single practitioners blinded)

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 2 Mehl-Madrona, 2004  USA	Determine if perinatal hypnosis could facilitate uncomplicated birth (defined as need for caesareans, induction, and augmentation of labour with oxytocin, fetal distress, and low Apgar scores)	N=520 primiparous and multiparous women with low-risk pregnancy	Mixed methods including an RCT <u>Primary OCs:</u> Epidural and analgesia use, caesareans, induction, and augmentation of labour with oxytocin, fetal distress, and low Apgar scores <u>Other measured variables &amp; Tools:</u> At baseline anxiety (Taylor Manifest Anxiety Scale), <i>Stress (Holmes and Rahe Stress Scale)</i> , Depression (Beck Depression Inventory) & Fear (grading system of interview data) were measured to establish their relationship with occurrence of complicated birth.	<u>Primary OCs</u> The hypnosis group had significantly fewer epidural analgesia use, caesareans, induction, and augmentation of labour with oxytocin <u>Other measured variables:</u> Fear, Anxiety, Stress & Depression in pregnancy (baseline) were associated with rise in complicated birth (medical interventions) in CG, but not in EG. Hypnosis appeared to mitigate the association. The emotional state variables were not measured after intervention.	Hypnosis & supportive psychotherapy: as many sessions as desired (mean of 5 sessions), by a therapist during 1st or 2nd trimester & Hypnosis instructor attended the births.	Epidural use & associated clinical OCs	The Largest RCT by the time. Psychological variables were not the OCs, but just measured at the baseline to investigate their association with medical interventions in relation to the intervention. The intervention being very complex and not well-reported may prevent replicability of it in other settings. Unclear definition of the intervention. Blinding of practitioners: not reported. It is unclear whether the sessions were one to one or group sessions. The qualification of the person providing the sessions is unclear. No standard, validated instrument used for measuring fear.

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Study 3  Smith et al., 2006	Investigate effect of alternative therapies (including hypnosis) for pain management in labour on maternal and perinatal morbidity	N=729 primiparous and multiparous women (in trials pertinent to hypnosis)	Quantitative: Cochrane systematic review Including 5 RCTs (1969-2004) <u>Primary OCs</u> -Maternal satisfaction or maternal emotional experience with pain management in labour.  -Use of pharmacological pain relief in labour.	A decreased need for pharmacological pain relief and epidural analgesia in women allocated to a hypnosis group compared to a control group. Maternal satisfaction with pain management in labour may be greater among women using hypnosis. Other promising benefits from hypnosis appear to be an increased incidence of vaginal birth, and a reduced use of oxytocin augmentation.	Heterogenous interventions, however all included antenatal hypnosis.	Epidural use & associated clinical OCs. Satisfaction with pain management in labour	The first Cochrane review in the field

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Study 4 Guse et al., 2006  South Africa	Develop and evaluate a hypnotherapeutic programme, with the focus being the promotion of the (postnatal) psychological well-being and strengths of first-time mothers.	N 46 primiparous women	Quantitative: pre-post-follow-up two-group design (EG & CG)  Data collected pre training first, and 2 <sup>nd</sup> and 3 <sup>rd</sup> set of data collection occurred at 2 weeks and 2 months post birth.  <u>OCs:</u> self-confidence, aspects of mental wellbeing  Depression  <u>Tools:</u> Maternal Self-Confidence Scale, Psychological well-being (Self-Confidence Scale), a subscale of the Childbirth Attitudes Questionnaire, EPDS, Satisfaction with Life Scale (SWLS), Sense of Coherence Scale (SOC), and Generalized Self-Efficacy Scale (GSE) and Childbirth Perceptions Questionnaire	<b>At two weeks</b> postpartum, experimental group exhibited a significant improvement on all variables, except perception of labour and delivery.  <b>At ten weeks</b> postpartum experimental group still exhibited a significant decrease in symptoms of depression as well as symptoms related to general psychopathology, compared to prenatal evaluation.  No significant difference between EG & CG in the perception of labour and delivery at two months postpartum.	Hypnotherapeutic programme: 6 individual sessions between 24-38 weeks of gestation.	Psychological well-being Self-confidence Depression	Participants were randomly assigned but then some for social reasons changed their group.

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<p>Study 5</p> <p>VandeVusse et al., 2007</p> <p>USA</p>	<p>Compare childbirth outcomes between two groups of women who elected antenatal hypnosis and those who did not.</p>	<p>N= 101 primiparous and multiparous women with low-risk pregnancy</p>	<p>Quantitative: A retrospective comparative study (data collected from perinatal medical records) <u>OCs:</u> Analgesia and anaesthesia use.</p>	<p>Hypnosis preparation resulted in significantly less use of sedatives, analgesia, and regional anaesthesia during labour with no significant differences in most of the other maternal outcome measures.</p>	<p>Hypnosis: a 5-class series of individual or group sessions by one obstetrician who also attended birth and made the intrapartum management decisions</p> <p>Timing of intervention: not reported.</p>	<p>Epidural</p>	<p>Random selection of the control group to match the intervention group Selection bias as EG chose hypnosis The researchers who reviewed the records were not involved in the direct care of participants Attendance of the obstetrician (teaching the hypnosis sessions) in labour who also made the intrapartum management decisions.</p>

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Study 6 Abbasi et al., 2009  Iran	Describe the effect of hypnosis on pain relief during labour and childbirth	N=6 pregnant multiparous women	Qualitative: descriptive phenomenology <u>Tool:</u> -Post-birth in-depth interviews	-Increased satisfaction, control, and confidence - Reduced fear, anxiety & labour pain -Shorter labour (mean: 4.5 hrs), reduced tiredness & increased alertness during labour - Changing pain into pressure	Hypnosis: an average of six one-to one sessions per woman by a hypnosis instructor and attendance of the instructor during labour.	Satisfaction, control and confidence, fear, anxiety & labour pain	The authors were contacted for clarification regarding the availability of pain relief methods during labour. Extensive intervention/ attendance of instructor in labour.
Study 7 Fisher et al., 2009  USA	Determine if a hypnobirthing course positively affects patients' satisfaction with childbirth experience and caregivers and reduces anxiety associated with labour.	N=38 women interested in childbirth preparation courses Parity: not reported	Quantitative: prospective RCT <u>OCs:</u> Anxiety levels assessed over time (no tools stated)	FG perceived a greater ability to cope during labour after completion of the course, however after delivery they recalled relatively poorer intrapartum coping skills (P<0.02) No differences among groups regarding route of delivery, birthweight, Apgar scores, or intrapartum and postpartum epidural and analgesic use.	Hypnobirthing course  No reports regarding length or delivery method	Perceptions on coping with childbirth Intrapartum coping skills Epidural & analgesia use Birth mode	Only a very brief article available (less than a page) Methods and intervention insufficiently reported: influenced robustness The OCs stated in aims were not reported in results.



<b>Study, Authors, Year, Country</b>	<b>Research Aim</b>	<b>Sample size &amp; characteristics</b>	<b>Design</b> Outcome measures, data collection tools that relate to the review questions	<b>Key findings –</b> that relate to the review questions	<b>Type &amp; length of intervention</b>	<b>Core concepts addressed</b>	<b>Comments</b>
Study 8 Urech et al., 2010  Switzerland	Compare the immediate effects of two active and one passive 10-min relaxation technique on perceived and physiological indicators of relaxation.	N= 39 Primigravida and nulliparous women	Quantitative: RCT 3 arms: progressive muscle relaxation, GI, Passive relaxation (10' quiet sitting) <u>OC &amp; Tool</u> State anxiety (STAI-S) between 32-34 weeks of gestation	State anxiety decreased equally in 3 groups with no significant difference.	10 minutes of GI CD and headphones, & CD at home	State anxiety	Small sample size  Brief intervention 10 min Groups similar at the baseline
Study 9 Marc et al., 2011	Assess the benefits of mind-body interventions (including GI) during pregnancy for preventing or treating women's anxiety and influencing perinatal outcomes.	N=556 women 8 RCTs of which 3 included GI	Quantitative: Cochrane Systematic Reviews (8 RCTs)	Compared with usual care, imagery may have a positive effect on anxiety during labour. Another study showed that imagery had a positive effect on anxiety and depression in the immediate postpartum period.	A range of mind-body interventions including GI	Anxiety	The conclusion was made based on the findings of only two small RCTs

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<p>Study 10</p> <p>Gedde-Dahl &amp; Fors, 2012</p> <p>Norway</p>	<p>Test if and how self-administered practice of relaxation techniques, positive affirmation and guided imagery, in the final part of pregnancy had an impact on giving birth.</p>	<p>N= 54 nulliparous women</p>	<p>Quantitative: RCT <u>OCs:</u></p> <p>At baseline: Anxiety (STAI-S/T) Depression (Becks Depression Inventory), &amp; mean pain last week (NRS)</p> <p>During labour: Pain at Different stages (NRES) &amp; Anxiety (Visual Analog Scale).</p> <p>One day after delivery: Wellbeing (Edmonton Scale or ESAS), pain (NRES)&amp; Anxiety (Visual Analog Scale), Childbirth complications and anaesthesia/analgesic use.</p>	<p>A significantly better score on total Wellbeing (one day post birth)</p> <p>No significant difference in other outcome measures including anxiety, pain, and anaesthesia/analgesic was found.</p>	<p>GI, relaxation techniques &amp; positive affirmations: only CDs &amp; a booklet in 3<sup>rd</sup> semester</p>	<p>Wellbeing, anxiety, pain, and anaesthesia/analgesic</p>	<p>Inclusion criteria, participants' characteristics (in terms of being low or high risk) not reported.</p> <p>Wellbeing was measured only post birth and not at baseline</p> <p>Blinding of birth practitioners was not attempted.</p> <p>Tools for anxiety measures differed between baseline, during labour and one day post birth.</p>

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Study 11  Sado et al., 2012	Assess the effect of hypnosis for preventing postnatal depression compared with usual antenatal, intranatal, or postnatal care.	N= 63 women Included 1 trial (Harmon, Hyan & Tyre, 1990)	Quantitative: Cochrane systematic review (1 RCT)	There was one included study (involving 63 women). However, as it did not include the outcomes of interest, no data were available for analysis for this review.  Authors concluded, there was no evidence available from randomised controlled trials to assess the effectiveness of hypnosis during pregnancy, childbirth, and the postnatal period for preventing postnatal depression.	Hypnosis	Depression (Psychological wellbeing)	Indicated the need for further research to examine effects of hypnosis during the perinatal period in preventing postnatal depression.

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Study 12 Mitchell, 2013  UK	Gain insight into the experiences of women who use CAM in pregnancy and to explore the contribution CAM made to their pregnancy and childbirth journey.	N=14 non-pregnant women with experience of using CAM in pregnancy) out of whom 4 women had used hypnosis	Qualitative: narrative study	CAM has a positive transformational effect on women's experience of pregnancy and childbirth.	A range of CAM including hypnosis The education not described as women had pursued different private hypnosis courses	<u>Key words re hypnosis:</u> Calmness & control during labour Different outlook Reducing FOC Positive birth experience Skills for life	Interviewed non-pregnant women who had used hypnosis, and a range of other CAMs. Only the data regarding hypnosis was extracted for the review. Details of the received education not reported. Inclusion & exclusion criteria not defined.
Study 13 Werner et al., 2013a  Denmark	Estimate epidural analgesia during childbirth after a short antenatal course in self-hypnosis.	N=1222 healthy nulliparous women	Quantitative: RCT 3-arm group design (intervention, active comparison & control groups: Active comparison group: 3x1 hr relaxation and mindfulness and audio recordings, Control Group: routine care) <u>OC:</u> use of epidural anaesthesia	No difference in use of epidural anaesthesia was found between groups.	Hypnosis: 3x 1-hr sessions and 4 audio recordings in 3 <sup>rd</sup> trimester	Epidural use	The authors suggested the negative results could be due to insufficient design of the intervention (due to limited financial resources for childbirth preparation).  Blinding of the birth practitioners was attempted.

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Study 14  Werner et al., 2013b  Denmark	Explore whether a brief intervention in the form of an antenatal course in self-hypnosis to ease childbirth could improve the childbirth experience.	N 1222 healthy nulliparous women	Quantitative: RCT 3-arm group design (intervention, active comparison & control groups: Active comparison group: 3x1 hr relaxation and mindfulness and audio recordings, Control Group: routine care) <u>OCs:</u> Fear, confidence, and expectations concerning the upcoming childbirth and the same aspects of the actual childbirth experience (W-DEQ A & B). Influence of hypnosis on childbirth expectations and experiences (at post-training & 6 weeks post birth)	Positive change of childbirth expectations immediately after the course reported (p<.01) Changes in antenatal FOC not reported. Better childbirth experience in hypnosis group compared with the other two groups. The tendency toward a better childbirth experience in the hypnosis group was also seen in subgroup analyses for mode of delivery and for levels of fear. hypnosis group reported a statistically significantly greater change in attitude than did the relaxation group (CG were not asked). Lower mean score of FOC in hypnosis group (but only statically significant in the subgroup of those with vaginal birth and spontaneous birth) The Relations between Expectations of the Childbirth and the Childbirth Experience were significantly stronger in hypnosis group compared with other two groups.	Hypnosis: 3 x 1-hr sessions and 4 audio recordings in 3 <sup>rd</sup> trimester	Fear of childbirth Childbirth expectations & experience	Changes in antenatal fear not reported.

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Study 15 Cyna et al., 2013  Australia	Determine the use of pharmacologic analgesia during childbirth when antenatal hypnosis is added to standard care (HATCH trial)	N=448 nulliparous and multiparous women with low-risk pregnancy	Quantitative: RCT 3-arm group design G1: hypnosis, G2: only CD, G3: control <u>Primary OC:</u> use of pharmacologic analgesia during childbirth. <u>Secondary OCs:</u> Mode of birth, other clinical outcomes, labour pain (NRS 0-10). Depression (EPDS), Anxiety (STAT) Maternal perceptions of the birth experience including, 'Birth as a positive experience', & 'Birth better than expected'.	Antenatal group hypnosis did not reduce the use of pharmacologic analgesia during childbirth. There was no significant difference between groups in terms of all other clinical or psychological outcomes. The women in the FG were more likely to state that they would use hypnosis in future pregnancies.	Hypnosis: 3 x 1-hr group sessions and 4 CDs in 3 <sup>rd</sup> trimester	Epidural use Mode of birth/ augmentation  A range of psychological & experience parameters	High (50%) attrition rate in completion of the intervention treatment. Blinding of the birth practitioners was attempted.

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Study 16 Jallo et al., 2014  USA	Evaluate the efficacy of a guided imagery intervention for stress reduction in pregnant African American women beginning early in the second trimester <b>(during pregnancy)</b>	N= 72 African American women (primiparous and multiparous)	Quantitative: prospective longitudinal RCT <u>OCs:</u> Stress & Anxiety <u>Tools:</u> State-Trait Anxiety Inventory (STAT), Numeric Rating Scale of Stress (NRSS) Measures were completed at baseline, 8 and 12 weeks later, also, completed a daily stress scale.	Significant differences in perceived stress daily scores, and anxiety were found at week 8 (but not week 12) were found between intervention and control groups.	A 12-week GI including a CD with 4 recorded 20- min tracks designed and sequenced to influence study variables, with recommended daily practice	Antenatal stress	Well-designed and well-reported
Study 17 Jallo et al., 2015  USA	Gain an in-depth understanding of the perceptions of GI as a technique for stress management in pregnant African American women	N=36 pregnant African American women (primiparous and multiparous) Recruited between 14-17 weeks of gestation	Qualitative: descriptive phenomenology (a part of a mixed-method study associated with study 15)  <u>Tools:</u> Data collected via daily logs and semi-structured interviews at the completion of 12 weeks GI programme (during pregnancy)	Being relaxed, calm and less stressed because of using the intervention. Benefits in other areas of daily life e.g., sleep quality & relief from physical symptoms such as pain & managing stress.  Environment, physical and mental distractions were identified as barriers to use of the intervention.	A 12-week GI including a CD with 4 recorded 20- min tracks designed and sequenced to influence study variables, with recommended daily practice.	Focused on emotions in pregnancy	The study did not aim to explore women's perceptions of the influence of the intervention on their subsequent childbirth experiences. Data collection & analysis methods well described.

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Study 18 Downe et al., 2015  UK	Establish the effect of antenatal group self-hypnosis on epidural use (SHIP trial)	N=608 nulliparous women	Quantitative: RCT <u>Primary OC:</u> Epidural use <u>Secondary OCs:</u> Associated clinical and 15 psychological outcomes and cost analysis. Questionnaires (a mix of validated tools & study specific questions) were completed at baseline, 36 weeks of gestation, 2 & 6 weeks postnatal. A questionnaire that included questions regarding Satisfaction with labour pain relief, with life, memory of labour pain, psychological wellbeing/morbidity and expectation & experience of fear & anxiety.	Antenatal hypnosis did not significantly reduce intrapartum epidural analgesia use or a range of other clinical and psychological outcomes except fear & anxiety which reached statistical significance between control and intervention groups.	Hypnosis: 2 x 90 minutes sessions & CDs in 3 <sup>rd</sup> trimester	Epidural & associated clinical outcomes  Psychosocial outcomes	The only study conducted in the UK (after 2000) <b>Blinding</b> of the birth practitioners was not attempted. Only 67% of participants returned 2-week postnatal questionnaires.



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Study 19 Finlayson et al., 2015 UK	Explore women's views and experiences of using self-hypnosis as a pain relief method during labour & birth	N 16 primiparous women (participants of SHIP trial (study 13))	Qualitative: 1:1 qualitative interview Random selection of participants from intervention arm of SHIP trial (48 invited- 16 interviewed). Analysed using thematic networks analysis. <u>Tool:</u> -Post-birth qualitative interviews	Changing the feelings of anxiety & fear about childbirth to calmness & confidence Scepticism towards hypnosis changed to a much more positive outlook to it. Found it difficult to incorporate routine practice (listening to CD) to their busy lives Potential shortcoming when using the techniques in clinical settings (Midwives being unprepared for their relaxed appearance) Personal preferences and suggestions on length, timing & number of the sessions. A short introduction to labour physiology was the most often remembered element of the sessions.	Hypnosis: 2 x 90 minutes sessions & CDs in 3 <sup>rd</sup> trimester	Fear Anxiety Confidence Positive outlook	Set out to interview partners but didn't 1/3 <sup>rd</sup> of invitees participated (selection bias)  Some findings in contrast with SHIP trial results.  Authors were contacted and access to the study questionnaires was given.

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Study 20 Streibert et al., 2015  Germany	Compare the change of maternal outlook towards birth between routine antenatal education and hypnoreflexogenous self-hypnosis training for childbirth	N=213 women Parity: not reported	Quantitative: cohort study <u>OCs &amp; Tools:</u> Pre and post training maternal perception on birth was evaluated using Osgood semantic differential questionnaire.	After the midwife led course childbirth was emotionally more negatively scored (displeasure, tarnishing, dimension evaluation [ $p<0.05$ ]), whereas after the hypnosis course childbirth was emotionally more positively evaluated (pleasure, harmony, dimension evaluation [ $p<0.01$ ] and brightness [ $p<0.05$ ]).	Hypnosis: 4 x 2-hr sessions on hypnoreflexogenous self-hypnosis and twice weekly home practice in 3 <sup>rd</sup> trimester	Maternal emotions (in pregnancy)	1 <sup>st</sup> study looking at change in emotional outlook towards birth. Women freely chose their groups (selection bias) Groups were reported as similar at baseline
Study 21 Flynn et al., 2016.  USA	Assess the effect of GI on perceived stress in pregnant adolescents	N=35 pregnant adolescents	Quantitative: quasi-experimental One-way repeated measures (no control group) <u>OCs &amp; Tools:</u> Stress level was measured at baseline, after each session and at the end ( <b>during pregnancy</b> ) using PSM-9	Significant short and long-term stress reduction following use of GI.	GI: 4 x 30-min sessions of instruction & listening to a 12 min recording 1-2 times per week for total of in 4 times		Methods insufficiently reported including the stage of pregnancy when the intervention was delivered.  Lack of control group

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Study 22 Isbir et al., 2016  Turkey	Examine the efficacy of antenatal education including hypnosis on FOC, SE and PTSD	N= 90 nulliparous women with low-risk pregnancy	Quantitative: quasi experimental <u>OCs &amp; Tools:</u> FOC, SE and PTSD using W-DEQ (A&B), CBSEI and Impact of Event Scale-Revised (IES-R) for PTSD	EG had greater SE, perceived support, control in labour, less fear of birth and PTSD. P<0.05	Included hypnosis: 4 x 4-hour weekly sessions (16 hrs total) including Lamaze, Psychoprophylaxis, Active birth, & hypnobirthing between 20-32 weeks.	SE FOC PTSD	Quasi: women chose their groups.  First study investigating the effect of antenatal education on PTSD symptoms.  Groups similar at baseline.
Study 23 Khojasteh et al., 2016  Iran	Compare the effects of massage therapy and guided imagery (and a control group) on the anxiety of nulliparous women <b>during pregnancy.</b>	N= 75 nulliparous pregnant women	Quantitative: RCT three-arm parallel group design (GI, Massage & routine care)  <u>OC &amp; Tools:</u> Anxiety (Pregnancy-related Anxiety Questionnaire) at 22-28 weeks of gestation pre intervention & 6 weeks after intervention	Anxiety reduced significantly in GI group compared with routine care.	Weekly 20-min GI sessions for 6 weeks (with help of a video CD)	Anxiety	The outcomes were examined only during pregnancy and not postnatally

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Study 24 Levett et al., 2016a  Australia	Evaluate the effect of an antenatal integrative medicine education programme (including visualisation) on intrapartum epidural use	N= 176 nulliparous women with low-risk pregnancy	Quantitative: RCT <u>Primary OC:</u> Epidural use <u>Secondary outcomes:</u> A range of associate clinical variables such as mode of birth, augmentation, perineal trauma, etc. Sense of control (Labour Agency Scale: LAS within 72 hrs following birth), postnatal depression at 6 weeks (EPDS)	A significant difference in epidural use was found between 2 groups. Secondary OCs: There was a significant reduction in rate of augmentation and caesarean section, any perineal trauma and length of second stage of labour. No difference between EG & CG found in terms of depression. Personal sense of control during labour was significantly higher in EG compared with CG. different	Included visualisation: a two full-day course including visualisation, breathing techniques, yoga postures, massage techniques, acupressure and facilitated partner support) From 24 to 34 weeks' gestation	Epidural & associated clinical outcomes	The first study considering designated education for birth partners Delivery suite personnel were blinded to study participants' group allocation. The only study interviewing birth partners and Midwives providing intrapartum care Only one educator: reducing the external generalisability LAS was completed by 82% of EG and 62% of CG: possibility of reporting bias in results.

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<p>Study 25</p> <p>Levett et al., 2016b</p> <p>Australia</p>	<p>Gain insight into childbirth experiences following attending a two full-day workshop on a range of complementary therapies.</p>	<p>N=13 nulliparous women and 7 birth partners from the intervention arm of the RCT (Levett et al. 2016a)</p> <p>12 Midwives caring for these women were interviewed too.</p>	<p>Qualitative: qualitative in-depth interviews with women and partners and a focus group with Midwives (a part of a mixed methods study (study 21))</p>	<p>An understanding of childbirth physiology contextualised why &amp; how to use the techniques and evolved their approach to birth from passive acceptance to active involvement in the preparation</p> <p>Understanding of 'normal natural birth' &amp; working for it</p> <p>Change of mindset and restructuring fear of childbirth</p> <p>Providing a toolkit of techniques gave choices &amp; a sense of control</p> <p>Midwives expressed interest in learning the techniques as a serious adjunct to their practice.</p>	<p>Included visualisation: a two full-day course including visualisation, breathing techniques, yoga postures, massage techniques, acupressure and facilitated partner support) From 24 to 34 weeks' gestation</p>	<p>Midwives did not attend the course</p> <p>Discussion: Midwives having previous experiences knowledge of some CAM tools and supporting normal birth enabled them to work as a team with woman and partner</p>	<p>Not clear whether the researcher who delivered the intervention conducted interviews. Authors contacted; no response received.</p> <p>Not clear about intrapartum care: if midwives were blinded, how they work with the couple as a team.</p>

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 26 Kordi et al. 2016  Iran	Determine the effect of guided imagery on maternal-fetal attachment in nulliparous women with unplanned pregnancy	N=67 nulliparous women with unplanned pregnancy	Quantitative: a clinical trial with a pre-test-post-test design <u>OCs &amp; Tools</u> Depression, anxiety, stress (DASS-21) before (week 34) and two weeks after the intervention (week 36).	A statistically significant reduction in anxiety & stress levels was reported in EG but not in CG group. No significant difference was found in depression levels.	One group session of GI, (20 minutes) on maternal role at week 34 followed by GI CDs at home twice a week for two weeks.	Depression Anxiety Stress	A multi-centre study
Study 27 Madden et al. 2016	examine the effectiveness and safety of hypnosis for pain management during labour and childbirth.	N=2954 women	Quantitative: Cochrane Systematic review 9 RCTs	Hypnosis may reduce the overall use of analgesia during labour, but not epidural use.	Hypnosis	Pain management	
Study 28 Beevi et al., 2016  Malaysia	Compare hypnosis and routine care to investigate the impact on physical and psychological symptoms during pregnancy	N=55 primiparous and multiparous women	Quantitative: pre-test, post-test quasi-experiment study <u>OCs &amp; Tools:</u> Depression Anxiety Stress Scale 21 (DASS-21) and a Pregnancy Symptoms Checklist was completed at weeks 16, 20, 28 and 36 of pregnancy.	Stress and anxiety symptoms were significantly reduced for EG, but not for CG. Although mean differences for the depressive symptoms were not significant, the experimental group had lower symptoms at time point 3. The physical symptoms' results showed significant group differences at time point 3, indicating a reduction in the experience of physical symptoms for the EG.	Hypnosis: 4 one to one sessions at 16-20-28-36 weeks	Depression Anxiety Stress	Small sample size Not randomised Participants chose their group Inclusion criteria not stated.

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 29 Beevi et al., 2017  Malaysia	Comparing hypnosis and routine care groups on clinical variables measured during labour and 24 hr postpartum.	N= 55 primiparous and multiparous women	Quantitative: quasi-experiment study <u>OCs:</u> Length of the labour, pain relief used, method of delivery, type of assisted vaginal delivery and self-reported pain (immediately prior to, during and. Immediately after delivery	EG reported higher pain levels but their use of pethidine during labour was significantly lower than the CG. Rest of OCs: insignificant	Hypnosis: 4 one to one sessions at 16-20-28-36 weeks	Labour pain	Small sample size No validated tool used for measuring the pain Not randomised Participants chose their group Inclusion criteria not stated No specific tool reported re self-reported pain.
Study 30 Atis & Rathfisch, 2018  Turkey	Identify the effect of hypnobirthing on childbirth pain and fear.	N= 116 primiparous women with low-risk pregnancy	Quantitative: RCT <u>OCs:</u> Fear & pain <u>Tools:</u> Before the training, (W-DEQ A). After birth: Visual Analog Scale (VAS), (W-DEQ B). and the Postnatal Assessment Form	FOC and perception of labour pain was significantly lower in EG compared with CG. All EG stated that the training had positive effects on their pain, had “helped relaxation”, “gave peace and confidence,” “reduced the feeling of pain,” and “helped to adjust to the environment.”	Hypnosis: 1 x 3-hrs session per week for 4 weeks (12 hours total) between 20-36 weeks. Exercises included one-on-one practice & the researcher stayed with the labouring woman.	FOC Perception of labour pain	Intervention: antenatal & intrapartum. If participants had a caesarean section, received analgesics or anaesthesia to reduce pain, or were induced were excluded from study. EG participants were excluded if they had no support from the researcher during childbirth (47 of 116 women were excluded). It is stated ‘women not informed of group allocation’, not clear how this is possible.

<b>Study, Authors, Year, Country</b>	<b>Research Aim</b>	<b>Sample size &amp; characteristics</b>	<b>Design</b> Outcome measures, data collection tools that relate to the review questions	<b>Key findings –</b> that relate to the review questions	<b>Type &amp; length of intervention</b>	<b>Core concepts addressed</b>	<b>Comments</b>
Study 31 Büleç et al., 2018 Turkey	Analyse the effect of hypnobirthing education given to pregnant women during antenatal period on fear of childbirth	N=51 pregnant women Parity not reported.	Quantitative: case control study (control group vs case group) <u>OCs &amp; Tools:</u> FOC <b>during pregnancy</b> using W-DEQ pre-intervention (> 12 weeks of gestation) and post-intervention (4 weeks later)	A significant reduction in FOC in case group but not control group	Hypnobirthing: one hour a week of for 4 weeks (total of 4 hours)	FOC during pregnancy	The outcome was examined only during pregnancy and not postnatally
Study 32 Hosseini et al., 2018	Examine effective interventions for reducing FOC	N 3984 women	Quantitative: Systematic review- meta-analysis Included 8 RCTs and 2 quasi-randomised trials Included 2 RCTs on hypnosis (Downe et al 2015; Werner et al., 2012)	Hypnosis may reduce FOC.	A range of interventions including hypnosis. Only data regarding hypnosis-based interventions were extracted.	FOC	



Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 33 Nasiri et al., 2018  Iran	Determine the effect of progressive muscle relaxation and guided imagery on stress, anxiety, and depression in pregnant women	N= 66 primiparous & multiparous women	Quantitative: RCT <u>OCs &amp; Tools</u> Stress, anxiety, and depression (DASS-21 & EPDS at 28-36 weeks of gestation (pre- intervention) and 4&7 weeks later)	Stress, anxiety, and depression reduced significantly over time (3 time points) only in intervention group and not in control group	GI & progressive muscle relaxation: 6 x weekly sessions (GI included in the last 4 sessions)	Stress, anxiety, and depression	The outcomes were examined <b>only during pregnancy</b> and not postnatally.
Study 34 Beevi et al., 2019  Malaysia	Determine the effectiveness of a hypnosis intervention in alleviating psychological symptoms (stress, anxiety, and depression) and the symptoms of postpartum depression.	N= 27 nulliparous and multi parous women (who responded postnatally)	Quantitative: quasi-experimental design  <u>OCs &amp; Tools:</u>  Postnatal stress, anxiety, and depression using EPDS & DASS-21 (completed 2 months after birth)	<u>2 months postnatal</u> Reduced postnatal depression & anxiety No significant diff in post-partum stress symptoms Concluded hypnosis may <b>prevent</b> postnatal depression & improve psychological wellbeing	Hypnosis: 4 sessions at 16-20-28 & 36 weeks Length of sessions: not stated	Stress, anxiety, and depression	High attrition rate affected the findings' reliability.

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 35 Boryri et al., 2019  Iran	Compare the effect of muscle relaxation and guided imagery on the happiness and fear of delivery in primiparous women ( <b>during pregnancy</b> ).	N=180 primiparous women	Quantitative: quasi-experimental design included three groups (muscle relaxation, GI & control)  <u>OCs &amp; Tools:</u>  Brislin's and Oxford Questionnaires were used to evaluate the fear of childbirth (FOC) and happiness, respectively at 26-32 weeks of gestation & 4 weeks later	FOC significantly reduced in intervention group but not in control group  Happiness significantly increased in intervention group but not in control group	GI & muscle relaxation: only data regarding GI group were extracted  2 x individual 90-minute training sessions per week for four weeks & CDs	FOC & Happiness	Sampling methods not reported.
Study 36 Kantziari et al., 2019  Greece	Test effectiveness of a stress management programme including GI <b>during pregnancy</b>	N= 63 primiparous women with low-risk pregnancy (due to high attrition rate data 40 were analysed in the study)	Quantitative: quasi-experimental trial <u>OCs &amp; Tools:</u>  Stress, Control, and depressive symptoms using Perceived Stress Scale, Health Locus of Control Scale, and EPDS.	Significantly lowered perceived stress levels and depressive symptoms ( $p < 0.05$ ) and increased the internal locus of control ( $p < .05$ ) in EG, but not in external locus of control.	GI, diaphragmatic breathing. progressive muscle relaxation: an 8-week programme in 2 <sup>nd</sup> trimester and 2 x 20 min CDs 14-18 weeks of gestation,	Stress Control Depression	Small sample size. The sessions (before giving CDs) are not presented in methods. 23 women dropped out and only 40 were analysed. The time of collecting data post-intervention is not reported.

Study, Authors, Year, Country	Research Aim	Sample size & characteristics	Design Outcome measures, data collection tools that relate to the review questions	Key findings – that relate to the review questions	Type & length of intervention	Core concepts addressed	Comments
Study 37 Catsaros & Wendland, 2020	Examines the use and effects of hypnosis-based interventions during pregnancy and childbirth on women's childbirth experience.	N= 2532 women 9 studies/ 9 countries (3 qualitative, 5 quantitative, 1 mixed methods)	Quantitative: Systematic Review (2000-2019)  Included 9 studies <u>OCs:</u> Women's subjective childbirth experience (overall or an aspect such as anxiety or fear).	alleviating anxiety, fear and pain  enhancing sense of control during labour and increased satisfaction  improved women's emotional experiences and outlook towards birth  better childbirth experience overall  more postnatal well-being  fewer birth interventions	Hypnosis	Fear  Anxiety  pain  Childbirth experience  Birth interventions	
Study 38 Çankaya & Şimşek, 2021  Turkey	Investigate the effects of antenatal education on birth fear, depression, anxiety, stress, childbirth self-efficacy, and mode of delivery in primiparous pregnant women.	N=112 Primiparous women	Quantitative: prospective RCT <u>OCs &amp; Tools</u> Vaginal birth FOC (W-DEQ A&B), Anxiety, Stress, Depression (DASS-21) & Childbirth self-efficacy (CBSEL)	Those in the antenatal education group had significantly lower postnatal birth fear, depression, anxiety, and stress symptoms compared to controls ( $p<0.001$ ). More vaginal births occurred in the antenatal education group compared to controls ( $p=0.043$ ).	Included hypnosis: 4 x 4-hour weekly sessions (16 hrs total) including Lamaze, Psychoprophylaxis, Active birth, & hypnobirthing between 20-32 weeks.	FOC Anxiety Stress Depression Self-efficacy Birth mode	Single blinded: women blinded to the training offered. Unclear how this is possible.

<b>Study, Authors, Year, Country</b>	<b>Research Aim</b>	<b>Sample size &amp; characteristics</b>	<b>Design</b> Outcome measures, data collection tools that relate to the review questions	<b>Key findings – that relate to the review questions</b>	<b>Type &amp; length of intervention</b>	<b>Core concepts addressed</b>	<b>Comments</b>
Study 39 Birner & Grosse, 2021	Examine the current literature on psychological interventions to reduce anxieties and fears during pregnancy and childbirth	N= 8288 women 72 studies 18 countries  pregnant women, with no restriction on age ranges or parity	Quantitative: Systematic Review (2015-2020) Included 72 RCTs  <u>OCs:</u> Fear & anxiety	Reducing effects of GI/Hypnosis on anxieties and fears	A range of interventions, only the data related to GI/Hypnosis were extracted.	Anxiety Fear	
Study 40 Gueguen et al., 2021	Perform TA on qualitative evidence on experience of hypnosis for labour & childbirth Integrate qualitative evidence	N= Not stated Included 13 studies, Included 5 quantitative, 4 qualitative, (and 4 case studies)	Mixed-method: Integrated systematic mixed-method review (Time span: not stated) Not explicit: labour & childbirth experience: Use of epidural & other outcomes	Hypnosis can enable women to turn labour and childbirth into a positive experience. No significance difference in epidural use or other outcomes	Hypnosis	Childbirth experience  Epidural use	

Overall, 40 included papers comprised 7 secondary and 33 primary research papers. The primary research included 27 quantitative, 5 qualitative and 1 mixed-method study. The primary studies included data for 4646 women in total.

(The acronyms used in the chart included, CBSEI: Childbirth Self-Efficacy Inventory, CG: Control Group, FOC: Fear of Childbirth, EPDS: Edinburgh Postnatal Depression Scale, EG: Experiment Group, GI: Guided Imagery, SE: Self-Efficacy, TA: Thematic Analysis, W-DEQ: Wijma Delivery Expectancy/Experience Questionnaire).

**Table II. Mapping the primary research findings to the outcomes of interest in the review**  
(S stands for study, please find the allocated number to each study in Table IV, p. 297)

Quantitative studies												Qualitative studies
<b>Anxiety</b>	S8 (STAI-S) GI	S10 (STAI @baseline) (VAS in labour & post birth)	S15 (STAI)	S18 (a study-specific question)	S16 (STAI) GI	S23 (Pregnancy related Anxiety Questionnaire) GI	S26 (DASS-21) GI	S28 (DASS-21)	S33 (DASS-21) GI	S34 (DASS-21) Postpartum	S38 (DASS-21)	S6 & S19
<b>Stress</b>	S16 (NRSS) GI	S21 (PSM-9)	S26 (DASS-21) GI	S28 (DASS-21)	S36 (Perceived Stress Scale) GI	S33 (DASS-21) GI	S34 (DASS-21) Postpartum	S38 (DASS-21)				S17
<b>FOC- fear</b>	S14 (W-DEQ A&B)	S18 (a study-specific question)	S22 (W-DEQ A&B)	S30 (W-DEQ A&B)	S31 (W-DEQ A)	S35 (Brislin's Questionnaire) GI						S6 & S12 & S19
<b>Depression</b>	S4 (EDPS)	S15 (EDPS)	S24 (EDPS) GI	S26 (DASS-21) GI	S28 (DASS-21)	S36 (EDPS) GI	S33 (DASS-21 & EPDS) GI	S34 (DASS-21 & EPDS) Postpartum	S38 (DASS-21)			
<b>Mental wellbeing</b>	S4 Satisfaction With Life Scale (SWLS), Sense of Coherence Scale (SOC)	S10 (Post-Delivery Wellbeing) GI	S18 (Question satisfaction with life & psychological wellbeing included in a questionnaire)	S35 Happiness (Oxford Questionnaire) GI								
<b>Childbirth Self-confidence/ SE</b>	S4 (Self-Confidence Scale & Generalized Self-Efficacy Scale (GSE))	S22 (CBSEI)	S38 (DASS-21)									

Childbirth experience & satisfaction with childbirth	S4 ○ Perceptions of labour & delivery	S14 ● <sup>1</sup> (W-DI)Q A & B)	S15 ○ (a study-specific question).	S20 ● <sup>1</sup> (Osgood semantic differential questionnaire)						S6 & S19
Sense of control during labour	S36 ● <sup>1</sup> (Health Locus of Control Scale) GI	S24 ● <sup>1</sup> (Labour Agency Scale)								S6 & S19
PTSD (related to CB exp)	S22 ● <sup>1</sup> (IES-R)									
Epidural (& associated clinical outcomes)	S1 ○ Only measured medical interventions, not epidural	S2 ● <sup>1</sup>	S5 ● <sup>1</sup>	S7 ○	S13 ○	S15 ○	S18 ○	S24 ● <sup>1</sup>		
Perceived, self-reported labour pain?	S16 ○ (NRES) GI	S15 ○ Satisfaction with pain relief (a study-specific question)	S18 ○ (a study-specific question)	S29 ● <sup>2</sup> (Self-reported pain scale)	S30 ● <sup>1</sup> (VAS)					S6 & S19 & S25 (GI)

○ No statistically significant difference was found between EG and CG

●<sup>1</sup> The results in EG were significantly better compared with CG

●<sup>2</sup> The results in CG were significantly better compared with CG

**Table III. The studies utilised to address each outcome of interest**

<b>Outcomes of interest to the review</b>	<b>The primary studies that addressed each outcome of interest</b>
<b>Anxiety</b>	(Abbasi et al., 2009; Beevi et al., 2019; Beevi et al., 2016; Cyna et al., 2013; Downe et al., 2015; Finlayson et al., 2015; Gedde-Dahl & Fors, 2012; Jallo et al., 2014; Khojasteh et al., 2016; Kordi et al., 2016; Nasiri et al., 2018; Urech et al., 2010)
<b>Stress</b>	(Beevi et al., 2019; Beevi et al., 2016; Cankaya & Şimşek 2021; Flynn et al., 2016; Kantziari et al., 2019; Jallo et al., 2015; Jallo et al., 2014; Kordi et al., 2016; Nasiri et al., 2018)
<b>FOC- fear</b>	(Abbasi et al., 2009; Atis & Rathfisch, 2018; Boryri et al., 2019; Büllez et al., 2018; Downe et al., 2015; Finlayson et al., 2015; Isbir et al., 2016; Mitchell, 2013; Werner et al., 2013b)
<b>Depression</b>	(Beevi et al., 2019; Beevi et al., 2016; Cankaya & Şimşek, 2021; Cyna et al., 2013; Guse et al., 2006; Kantziari et al., 2019; Kordi et al., 2016; Levett et al., 2016a; Nasiri et al., 2018)
<b>Mental wellbeing</b>	(Boryri et al., 2019; Downe et al., 2015; Gedde-Dahl & Fors, 2012; Guse et al., 2006)
<b>Childbirth self-confidence</b>	(Abbasi et al., 2009; Cankaya & Şimşek, 2021; Finlayson et al., 2015; Guse et al., 2006; Isbir et al., 2016)
<b>Subjective experiences of labour and birth</b>	(Cyna et al., 2013; Guse et al., 2006; Streibert et al., 2015; Werner et al., 2013b)
Sense of control during labour (Merged with childbirth experience)	(Abbasi et al., 2009; Finlayson et al., 2015; Kantziari et al., 2019; Levett et al., 2016a)
PTSD (Merged with childbirth experience)	(Isbir et al., 2016)
<b>Epidural use &amp; associated clinical outcomes</b>	(Cyna et al., 2013; Downe et al., 2015; Fisher et al., 2009; Levett et al., 2016a; Martin et al., 2001; Mehl-Madrona, 2004; VandeVusse et al., 2007; Werner et al., 2013a)
Perceived labour pain (Merged with epidural use)	(Abbasi et al., 2009; Atis & Rathfisch, 2018; Beevi et al., 2017; Cyna et al., 2013; Downe et al., 2015; Finlayson et al., 2015; Gedde-Dahl & Fors, 2012; Levett et al., 2016b)

NB) When presenting findings in text, the data related to ‘Sense of control during labour’ and ‘PTSD’ were merged with ‘Subjective experiences of labour and birth’, and the data related to ‘Perceived labour pain’ was merged with ‘Epidural use & associated clinical outcomes’.

**Table IV. Categories of the included studies**

Study 1 Martin et al. (2001)	Study 11 Sado et al. (2012)	Study 21 Flynn et al. (2016)	Study 31 Bülez et al. (2018)
Study 2 Mehl-Madrona, (2004)	Study 12 Mitchell (2013)	Study 22 Isbir et al. (2016)	Study 32 Hosseini et al. (2018)
Study 3 Smith et al. (2006)	Study 13 Werner et al. (2013a)	Study 23 Khojasteh et al. (2016)	Study 33 Nasiri et al. (2018)
Study 4 Guse et al., (2006)	Study 14 Werner et al. (2013b)	Study 24 Levert et al. (2016a)	Study 34 Beevi et al. (2019)
Study 5 VandeVusse et al. (2007)	Study 15 Cyna et al. (2013)	Study 25 Levert et al., (2016b)	Study 35 Boryri et al. (2019)
Study 6 Abbasi et al. (2009)	Study 16 Jallo et al. (2014)	Study 26 Kordi et al. (2016)	Study 36 Kantziari et al. (2019)
Study 7 Fisher et al. (2009)	Study 17 Jallo et al. (2015)	Study 27 Madden et al. (2016)	Study 37 Catsaros and Wendland (2020)
Study 8 Urech et al. (2010)	Study 18 Downe et al. (2015)	Study 28 Beevi et al. (2016)	Study 38 Çankaya and Şimşek, (2021)
Study 9 Marc et al. (2011)	Study 19 Finlayson et al. (2015)	Study 29 Beevi et al. (2017)	Study 39 Birner and Grosse, (2021)
Study 10 Gedde-Dahl and Fors (2012)	Study 20 Streibert et al. (2015)	Study 30 Atis and Rathfisch, (2018)	Study 40 Gueguen et al. (2021)

- Qualitative studies (primary research)
- Quantitative studies (primary research)
- Systematic reviews



**Exploring the Influence of Antenatal Relaxation Classes (ARC)  
on Childbirth Experiences and Maternal Psychological  
Wellbeing: An Exploratory Mixed-Method Study**

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## Abstract

**Background:** The way pregnant women experience their childbirth continuum has a profound impact on their psychological wellbeing. Research suggests that antenatal education that incorporates relaxation techniques may influence childbirth experiences and maternal psychological wellbeing. The aim of the study will be to explore the influence of a one-off, three-hour session incorporating education on physiology of childbirth and relaxation techniques on childbirth experiences and maternal psychological wellbeing.

**Methodology:** The research will take an exploratory sequential mixed method approach. The initial qualitative phase of the study aims to explore the influence of the antenatal relaxation class on childbirth experiences from women and their birth partners' perspective. A follow up quantitative phase will then examine the generalisability of the salient themes inferred from phase 1 in a larger sample.

**Methods:** In phase 1, a purposive sample of 8-12 women and their birth partners will be recruited to participate in individual/ joint semi-structured in-depth interviews. The collected data will be analysed using descriptive qualitative and thematic analysis. During phase 2, a sample of 108 women will be recruited to assess the impact of the class on psychological wellbeing, with data captured at baseline, compared to post-class and post-birth. The instruments for phase 2 will be selected based on the findings of phase 1.

**Impact:** Findings of the study will have the potential to impact women's and their partners' choices with regard to preparation for childbirth, enhance the future provision of antenatal education and inform maternity policy. The findings of the study may also provide a ground for further research.

**Key words:** relaxation, antenatal education, childbirth experience, psychological wellbeing

## Background

A woman's experience of childbirth has an impact on her psychological wellbeing and is associated with her infant's development (Kenny, Everard, and Khashan 2014). There is an abundance of evidence demonstrating notions of fear, anxiety, and control play crucial roles in the quality of childbirth experiences (Stoll *et al.* 2018, Goodman, Mackey and Tavakoli 2004). Emotions of fear and anxiety appear to negatively correlate with a woman's confidence in her own ability to exercise control over her childbirth experience (Beebe *et al.* 2007, Salomonsson, Bertero and Alehagen. 2013). This confidence has been described as perceived childbirth self-efficacy (CBSE) (Lowe 1993). Some research suggests that

antenatal education that incorporates relaxation techniques such as hypnosis, breathing and visualisation could alleviate fear and anxiety, enhance CBSE and contribute to more positive experiences of childbirth (Rouhe *et al.* 2015, Ip, Tang and Goggins 2009, Bastani *et al.* 2005).

Previous research in the area is relatively consistent in demonstrating the overall positive influence of relaxation training on notions of fear, anxiety and childbirth experiences. A case control study in the US (Mehl-Mandora 2004) on a population of 520 women who were randomly assigned to either a hypnosis intervention or control group demonstrated that anxiety; fear, poor maternal self-identity, and negative beliefs about birth were all alleviated following the use of prenatal hypnosis. Another RCT in Denmark (Werner *et al.* 2013a) on a sample of 1222 women, that offered three one-hour hypnosis sessions to the intervention group reported better childbirth experiences and lower childbirth fear for the intervention group. These findings are in line with the most recent RCT in the field which was carried out by Levett *et al.* (2016a) in Australia with 176 women. Levett *et al.* 2016 found a significant increase in women's feelings of agency following a two-day workshop on complementary therapies including breathing and visualisation techniques (Levett *et al.* 2016a).

Further evidence for the positive impact of interventions comes from an RCT conducted on 110 Iranian primigravida women by Bastani *et al.* (2004) who reported a significant reduction in anxiety and perceived stress in those who attended applied antenatal relaxation training. Ip *et al.* (2009); who conducted a single blinded RCT with 133 Chinese first-time pregnant women, found that self-efficacy was enhanced whilst perceived anxiety in labour was reduced in women who attended an educational programme including two 90-minute sessions comprising breathing and relaxation techniques.

The SHIP trial (Downe *et al.* 2015) was an RCT recently conducted in the UK on a sample of 608 low risk primiparous women. Similar to the aforementioned studies, the SHIP trial found that women in the intervention group demonstrated a greater reduction in anxiety and fear levels following two 90-minute hypnosis sessions.

Methodological limitations in some of the aforementioned studies included small sample sizes, and high dropout rates (perhaps due to offering several short sessions) which restricted generalisability of the findings and lowered the study validity (Horner, Rew and Torres 2007, Moher, Dulberg and Wells 1994). Another issue impacting the validity of the RCTs in the field is the fact that; due to the nature of such interventions, double blinding is impossible and single blinding of childbirth practitioners is not easily applicable which can increase the

chance of co-interventions and bias. Thus, questions could be raised about appropriateness of RCTs for evaluating the impact of this kind of intervention (Finlayson 2015).

In addition, RCTs are limited in providing information on how the taught techniques are used by women during childbirth continuum, in what ways the intervention influences childbirth experiences, or what contextual factors may help or hinder the use and effectiveness of the techniques. Furthering knowledge in this area may contribute to the design of educational interventions that are more likely to be effective. Qualitative studies in the field are needed to reveal the areas that are currently being overlooked by quantitative outcome measures and to enhance our understanding of why and how antenatal relaxation training influences women's experiences of childbirth.

To date, very few qualitative interview studies have been published in the field including a small Iranian study (Abbasi *et al.* 2009) of six women, a study in the UK (Finlayson *et al.* 2016) that recruited 16 women from the intervention arm of SHIP trial (Downe *et al.* 2016), and an Australian study (Levett *et al.* 2016b) where 13 women and 7 partners participated. Although the interventions in these studies differed in terms of approach, length and frequency, the participants consistently reported feeling calmer, less fearful, and anxious about the upcoming birth following the interventions. Experiencing an increased sense of confidence and agency as well as satisfaction with childbirth experience were the most common themes reported following birth in these studies.

Despite published research being relatively consistent in demonstrating the positive influence of relaxation training on maternal psychological wellbeing, a paucity of research in the context of the UK appears to be a barrier to implementing relaxation training in routine antenatal education within NHS maternity services. A recent service evaluation (Tabib and Crowther 2018) of a single 3-hour antenatal relaxation class (ARC), offered as an initiative at a Scottish NIIS trust, examined the experiences of 503 women attending ARC. The evaluation reported women felt confident and not fearful towards birth and that they had creatively used the learned techniques during pregnancy, childbirth and beyond. However, it is still unclear how or why this occurs, whether this is long lasting and whether this has a significant impact on their mental wellbeing. As a result, the current study aims to further explore the influence of ARC on childbirth experiences and maternal psychological wellbeing in the context of UK maternity services using a mixed method approach. The study strives to gain a deeper understanding of how and why ARC influences women's perceptions,

concerns, anxieties and fears regarding the upcoming birth, their perceived CBSE and overall psychological wellbeing<sup>17</sup>.

### **Research aims**

With the focus of maternal policy being on women's experiences of childbirth and perinatal mental health (Scottish government 2017, National Maternity Review 2016); the study aims to:

- a. explore the influence of ARC on childbirth experiences.
- b. assess the influence of ARC on maternal psychological wellbeing.

### **Research questions**

1. What are women and birth partners' views and perceptions regarding the influence of ARC on their childbirth experiences?
2. What is the influence of ARC on maternal psychological wellbeing?

### **Intervention: antenatal relaxation class (ARC); an initiative in NHS Grampian**

ARC is a single 3-hour childbirth preparation class locally known as the "antenatal relaxation class" offered to pregnant women and their birth partners by the NIIS at a tertiary maternity hospital in Northeast Scotland. Midwives trained in relaxation techniques deliver regular classes to a maximum of 16 participants in each session. ARC is supplementary to routine antenatal classes. An outline of ARC is presented in Appendix 1 (Figure 1). Women are informed about ARC in an antenatal leaflet given to all women during pregnancy with instructions about how to book a session should they choose to do so. Some women who have expressed a higher level of anxiety or apprehension regarding childbirth are actively advised to attend by their community midwives, obstetricians, or prenatal mental health team. Most women attend in the third trimester of pregnancy. Craig *et al.* (2008) highlight the importance of the interventions being grounded in theory, therefore ARC is informed by self-efficacy theory presented by Bandura first (1977). Childbirth self-efficacy is defined as the belief in one's own capacity to cope with childbirth (Lowe 1993). Bandura (1977) suggests four origins for SE including performance of accomplishments, vicarious experiences, verbal persuasion, and physiological/emotional status. ARC aims to enhance these four origins respectively by:

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<sup>17</sup> Psychological wellbeing is defined as a combination of feeling good and functioning effectively and incorporates the emotions such as contentment, interest, engagement, confidence, and affection (Huppert 2009). Psychological wellbeing in this study is examined by measuring parameters of fear, anxiety, self-efficacy, and mental wellbeing.

- practising techniques of relaxation using different exercises
- educating women about the theory on physiology of childbirth and sharing experiences
- using empowering language, affirmations and metaphors
- exploring physiological and emotional reactions to the performed exercises

Due to the impact of Covid-19 the face-to-face antenatal relaxation classes were halted in March 2020 and resumed as an online class in January 2021.

### Methodology

The research will take an exploratory sequential mixed method approach. The purpose of using a mixed method approach is to collect and integrate both qualitative and quantitative data in order to add additional insight that is beyond the information provided by either qualitative or quantitative data alone (Creswell and Creswell 2017). This approach is believed to lead to complementary strengths and non-overlapping weaknesses of both paradigms (Johnson and Onwuegbuzie 2004). The initial qualitative approach intends to describe how and why ARC influences childbirth experiences and inductively generate hypotheses. Out of such hypotheses those that are relevant to psychological properties of maternal psychological wellbeing will be tested through the follow up quantitative research in terms of their generalisability in a larger sample (Figure 2). The mixed method approach, based on a pragmatic world view, enables fitting together the insight provided by both qualitative and quantitative research into a workable solution. According to pragmatic world view, methodology should be chosen for its aptness for answering the research question rather than because of any pre-existing philosophical commitment (Glogowska 2015).

The **study setting** is a tertiary hospital in Northeast Scotland with over 5,000 births per annum.

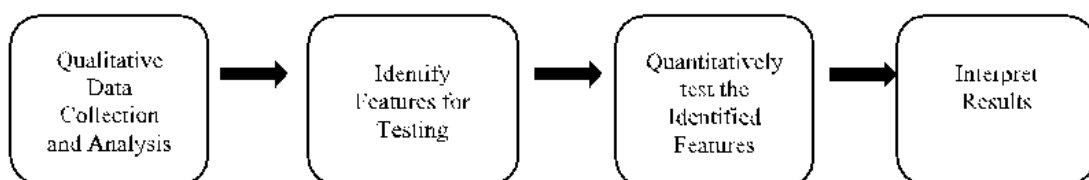


Figure 2. Exploratory sequential mixed method approach

## **Phase 1. Exploration of Women and their Birth Partners' Perspectives on the Influence of ARC on their Childbirth Experiences**

A descriptive approach is the methodology of choice for the qualitative element of the study as it provides the necessary freedom to allow the data to guide the enquiry without being restricted to a theoretical framework (Sandelowski 2000). This suits an enquiry that is more complex than exploring one single phenomenon.

### **Recruitment**

will be recruited from those attending ARC. Women interested in attending ARC are registered on a database system in NIS Grampian computer system. Following obtaining necessary ethical approvals, one week prior to the class the midwife facilitating ARC will access this database and Patient Management system (PMS) to identify potentially eligible participants. She will then send them a letter of invitation signed by NHSG Head of Midwifery, along with an information sheet by post. At the end of the class, women and their partners will be reminded of the study. The researcher will be present at this point to answer any questions they may have about the study. Potential participants will then be issued with a written consent form to sign and return to the researcher at a convenient time using a prepaid envelope or email.

Inclusion criteria for women includes ability to read, write and understand English, being over the age of 16, receiving midwifery led care in pregnancy, and attending ARC. Women will be excluded if they have current severe mental health problems, or do not meet the inclusion criteria. Birth partners will be included if they are aged over 16, able to understand, read and write English. Birth partners will be excluded if they do not meet the inclusion criteria. The eligibility of participants will be assessed against the inclusion criteria before recruitment to the study. Although receiving midwifery led care in pregnancy at the time of recruitment is one of the inclusion criteria, if women's care pathway changes after recruitment, they will not be excluded from the study. Participants will be asked to contact the researcher following birth; they will be informed that three reminder text messages at 3, 6, and 12 weeks following their due date will be sent to them. If the participants do not contact the researcher after birth and do not respond to the reminder text messages, it will be assumed that they have chosen to withdraw from the study. The participants could choose between the hospital, University, a public place or their home as the options for the interview place. To manage the impact of Covid-19, during the pandemic the interviews are conducted only over the phone. The revised PIS, reflecting this change of approach, will be sent to the participants.

In-depth interviews suit the study aim that is exploratory in nature and examining in-detail personal experiences of childbirth. The individual (or joint) interviews as opposed to focus groups can create a research space in which the interviewee feels more comfortable to provide a range of details and insights about the phenomenon in question (Morris 2015).

An interview may take place at any time, from within a few hours of childbirth up to 6 months following birth, depending on the participants' personal wishes and circumstances. Reviewing published literature showed that there is no evidence to determine an optimal time for performing post-birth interviews (Waldenström 2003). The suggested time frame of six months is based on informal discussion with women attending ARC about their convenience and availability.

### **Sampling**

Between 8-12 pregnant women and their birth partners will be recruited. The sample size was guided by the information power model presented by Malterud, Siersma and Guassora (2016) and the preliminary analysis of six previously conducted interviews. Maximum variation sampling will be used to recruit a population of participants that is as heterogeneous as possible in terms of age, ethnicity, educational level and parity (Gerrish and Lacy 2010). This approach will better inform the gathered data and suits the selected methodology (Sandelowky 2000). The birth partners, irrespective of their attendance at ARC, will be invited to participate.

### **Data collection**

The participants' experiences of attending ARC and their use of the introduced techniques during childbirth continuum will be explored via individual or joint (in-depth semi-structure) interviews depending on the participants' preferences. In-depth interviews are appropriate as the study seeks to gather detailed information and understand a more complete picture of what happened and why (Boyce and Neale 2006). To this point, six interviews have been conducted with 6 women and 3 partners during a preparatory phase. The gathered data from these interviews, have informed the development of the current topic guide (presented in Appendix 2). The interviews will be audio recorded and transcribed verbatim.

**Data analysis and storage:** The qualitative data will be analysed using thematic analysis (TA) that is a method for systematically identifying and organising qualitative data into patterns of meanings or themes and offers clear guidelines and flexibility (Braun and Clarke 2006). TA is a way of identifying what is common and making sense of those commonalities (Braun,



Clarke and Terry 2014). The participants' confidentiality will be maintained by changing their names to pseudonyms and any identifiable data will be deleted as soon as possible. The interview recordings will be destroyed once transcribed. The paper-based document such as completed consent forms will be stored securely in a locked drawer for ten years, then will be destroyed and deleted. The electronic data will be password protected within the University computer system.

## **Phase 2. Exploring the Influence of ARC on Maternal Psychological Wellbeing**

The quantitative paradigm reflects the need to assess the impact of ARC on psychological wellbeing, with data captured at baseline, post-class and post-birth. Phase 2 will employ a longitudinal approach to assess the emerged hypotheses from phase 1 that are relevant to maternal psychological wellbeing and to determine if these themes can be generalised to a larger sample. To date, based on the preliminary analysis of six conducted interviews with 6 women and 3 birth partners the following hypotheses have been developed.

1. attending ARC will enhance women's childbirth self-efficacy.
2. attending ARC will reduce women's fear of childbirth.
3. attending ARC will reduce women's state and trait anxiety.
4. attending ARC will enhance women's mental wellbeing.

The development of phase 2 will be an ongoing process until the qualitative data has been fully analysed.

## **Recruitment**

Similar to the process in phase 1, one week prior to the class, the midwife facilitating ARC will identify all women on the ARC register on NHSG databased system and will send them an invitation, participant information letter, consent form and baseline questionnaires via email. The participants will be invited to contact the researcher via phone or email to ask any questions they may have regarding the study. In addition, the researcher will be present at the class to explain what the research entails and answer any questions prior to the class. The baseline questionnaire is expected to be completed either at home or at the class before the session begins. For those interested in taking part, the completed consent forms and baseline self-rating questionnaire will be collected before the class starts. The recruitment for this phase will start

after completion of data collection in phase 1, therefore the participants of phase 1 will not be recruited in phase 2.

Post-class questionnaires will be sent to the participants via email or text message two weeks post-class. A text reminder will also be sent three days after sending the questionnaires.

The timing of collecting data post-birth was selected in view of Wijma, Wijma and Zar's (1998) finding that fear of childbirth (W-DEQ B) differed significantly between a few days and 4 weeks following birth being significantly higher in the first few days post-birth. Although it is preferable to collect the data from all women at exactly four weeks post-birth, it is predicted that a 4-week window (between 4 to 8 weeks after birth) may reduce attrition rate by providing flexibility and time for women to settle into their new roles.

A text message will be sent on the woman's due date as a notice that she will receive the post-birth questionnaires in few weeks. The purpose of this early text is to identify the women who may have had a premature birth, so that they receive the questionnaires no later than 4-8 weeks post-birth. The questionnaires along with a text message will be sent to the women four weeks following their due date. If no response is received maximum of two other text reminders will be sent at 6 and 8 weeks post due date. If a woman does not respond after 8 weeks post due date, it will be assumed that she has opted to withdraw from the study.

The data collection process for Phase 2 is presented in figure 4. Completing the questionnaires at each point is expected to take no more than 20 minutes. Inclusion criteria for this phase include ability to read, write and give consent in English, being over the age of 16, and attending ARC. Women will be excluded if they have current severe mental health problems or do not meet the inclusion criteria. A pilot will be conducted to ensure practicability of the method for this phase. Five to ten women will be recruited into the pilot. If the pilot reveals no changes are required, the collected data from the pilot will be included in the main study, otherwise the methods will be modified accordingly.

Sampling: Power calculations using G\*Power 3.0.10 indicates a sample size of 57 is required to detect treatment effects, assuming power = 0.95, significance set to 0.05, and an effect size of  $d = 0.4$  based on similar research (Ross *et al.* 2017). Considering the attrition rate of 50% from a previous study on the same population in the same setting a total number of 108 is estimated to be sufficient. A consecutive sample of women attending ARC will be invited to participate in Phase 2 (Bourne 2017).

Data collection: Based on the collected data to this point, the independent variable will be time (baseline, post-class, and post-birth) and the dependent variables will be state and trait anxiety,

FOC, CBSE and mental wellbeing. The Six-item State-Trait Anxiety Inventory (STAI-6), Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ A&B), Childbirth Self-Efficacy Inventory (CBSEI), Warwick Edinburgh Mental Well-Being Scale (WEMWBS), and Study Specific Questionnaires (SSQ) will be used for data collection at each time point in Phase 2 (Table 1). These measures will be reviewed after full analysis of the data collected in phase 1. Where preliminary analysis indicates a relationship between parity, demographic factors, birth mode or infant outcomes with any of the dependent variables, these factors will be controlled for during the analysis.

Table 1. Instruments used at each time point in phase 2

Baseline	Two weeks post-class	4-8 weeks post-birth
STAI-6	STAI-6	STAI-6
CBSEI	CBSEI	-----
WEMWBS	WEMWBS	WEMWBS
W-DEQ A	W-DEQ A	W-DEQ B
SSQ1	SSQ2	SSQ3

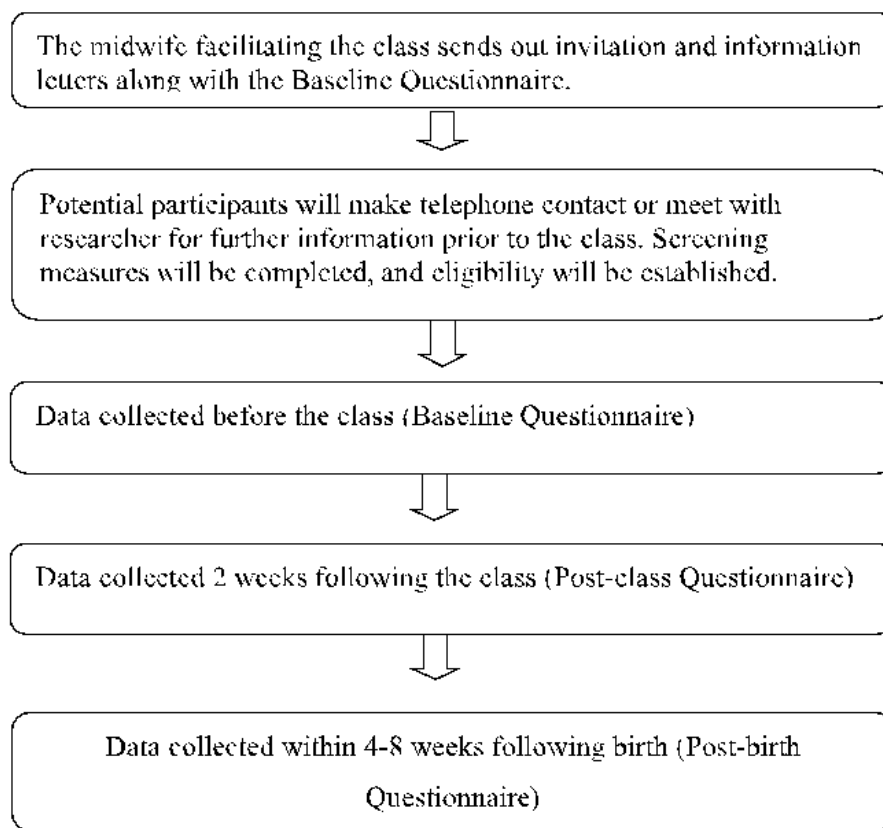


Figure 4. flow chart of data collection in phase 2

## Instruments

**STAI-6:** The full-form STAI (Spielberger et al., 1983) consists of 40 statements describing various emotional states, twenty of these statements require the subjects to describe their emotional reactions in terms of anxiety at a particular moment or period in time (state anxiety). The other 20 items require the subjects to describe how they generally feel, and their general response to situations perceived as threatening (trait anxiety). Statements are scored on a 4-point scale of increasing intensity, from not at all to very much so (with scores of 1–4 respectively). The STAI is a reliable and valid self-report measure that can be used in pregnant women (Grant, McMahon and Austin 2008). The Cronbach's alpha analyses for these measurements for state and trait anxiety are high; at least 0.92 for both scales (Bogaerts *et al.* 2013). Considering the study intention on measuring a variety of parameters, to avoid introducing an exhaustive number of questions, a six-item short form of STAI (Marteau and Bekker 1992) will be employed. Acceptable reliability and validity of the instrument among

the population of pregnant women has been obtained and it produced scores similar to those obtained using the full form (Marteau *et al.* 1992). Although a threshold point for high anxiety has not been properly defined, most studies consider a score above 40 as being highly anxious (Grant, McMahon, and Austin 2008).

**W-DEQ:** The W-DEQ (Wijma, Wijma and Zar *et al.* 1998), version A (W-DEQ A) and version B (W-DEQ B) will be used to measure FOC. This instrument is a well-validated tool with Cronbach's alpha of 0.92 (Carlsson *et al.* 2015). W-DEQ A measures fear, confidence, and expectations concerning the upcoming childbirth in pregnancy and W-DEQ B evaluates the same aspects of the actual childbirth experience after birth (Wijma, Wijma and Zar 1998). Both versions A and B include 33 items with items ranging from 0 (extremely) to 5 (not at all). The maximum score is 165 and minimum score is zero. The cut-off points beyond 85 is considered to indicate severe FOC (Wijma, Wijma, and Zar 1998, Carlsson, Ziegert and Nissen. 2015). For women who undergo a planned caesarean section and do not experience labour, a modified 20-item version of W-DEQ B (Ryding *et al.* 1998) will be provided.

**CBSEI:** This Inventory developed by Lowe (1993) is a positively worded, self-report instrument including 62-items in its original form which assesses outcome expectancy and self-efficacy expectancy in active and second stage of labour based on Bandura's self-efficacy theory (Bandura 1997). The instrument is shown to be a reliable and valid instrument with high internal consistency with Cronbach's alpha of 0.90 (Carlsson, Ziegert and Nissen 2015). It has been used in multiple studies for pregnant women population (Drummond and Rickwood 1997, Bastani 2005, Ip *et al.* 2009). In this study, a modified short and validated form of CBSEI (Gao, Ip and Sun 2011) will be used that comprises two sub-scales of outcome expectancy and self-efficacy expectancy in active stage of labour, with 15 elements each. The items on the scales range from 1 to 10. Higher scores indicate a higher degree of CBSE with maximum scores being set to 160.

**WEMWBS:** This is a measure covering subjective well-being and psychological functioning that includes 14 positively worded items related to feelings and functioning (Tennant *et al.* 2007, Stewart-Brown *et al.* 2011). The scale is scored by summing responses to each item answered on a 1 to 5 Likert scale. WEMWBS showed good content validity and Cronbach's alpha was measured in both student and general populations with scores of 0.89 and 0.91, respectively (Tennant *et al.* 2007). It has been used for pregnant women population (Ross 2017). The minimum scale score is 14 and the maximum is 70. The scale is not designed to

identify individuals with exceptionally high or low positive mental health, so no 'cut off' has been developed (Stewart-Brown and Janmohamed 2008).

**SSQ:** This aims to collect basic pregnant women's demographics and ensure participants' eligibility for the study at the baseline; to investigate women's evaluation of the ARC post-class, and to gather basic information regarding childbirth experiences post-birth. This information is essential to the interpretation of the results. In addition, some questions in SSQ will examine the women's perspective of ARC influence on their experiences approaching and during childbirth. Open ended questions in SSQ intend to allow participants to freely provide a summary account of their experiences in their own words. Such accounts may provide information around the context of the experiences and further inform the interpretation of the data.

### **Data analysis**

Statistical analysis will be performed using SPSS. One-way repeated measures ANOVA will be used to measure the within group variance and analyse the effect of time (pre, post-class and post-birth) on FOC, state and trait anxiety and mental wellbeing. Since CBSE is only being measured at two time points, paired samples t-test will be used to analyse the difference between CBSE at time point pre and post-class. At this point parametric tests are considered to be appropriate, however if data exploration reveals that the distribution is not normal then the non-parametric equivalents of the proposed statistical tests will be used (Friedman test and Wilcoxon signed-rank *test*).

### **Originality**

The study seems to be the first in the context of the UK maternity services that assesses the association of antenatal relaxation training with FOC, state and trait anxiety, CBSE, and mental wellbeing collectively. Moreover, to the best of our knowledge, the study is the first study in the UK that directly explores birth partners' perspectives with regard to women's use of relaxation techniques during childbirth. The approach of study that intends to quantitatively test the parameters emerged from qualitative data is novel. Such qualitative accounts are likely to identify the parameters that are really important to the participants as opposed to previous mixed method studies in the field where the hypothesis and outcome measures were established by the research teams and measured before collecting qualitative data from those who received the intervention (Downen *et al.* 2015, Finlayson *et al.* 2015, Levett *et al.* 2016a&b). The study is also original in terms of the proposed intervention. The

intervention being a single session reduces attrition rate, and its briefness can make it more affordable for maternity settings. The fact that the intervention is grounded in theory and its high degree of fidelity may also enhance its replicability.

### **Impact**

Findings of the study will enhance our understanding of the influence of ARC on childbirth experience, anxiety, FOC, CBSE and mental wellbeing both in the short term (post-class) and longer term (post-birth). Such understanding has the potential to enhance the future provision of antenatal education and inform maternity policy. The findings will also contribute to the development of targeted educational interventions for specific sub-groups such as women with high anxiety and FOC. Moreover, the gained insight will inform the education and practice of midwives and will provide a ground for further research. The research strengthens the existing knowledge base of the influence of antenatal relaxation classes on childbirth experiences and has wide ranging implications for improved health, social and economic outcomes for both women and maternity care services.

### **Rigour**

Andrew and Halcomb (2009) suggest application of the term validity instead of rigour in mixed method research. In this study, to enhance the rigour various validation strategies have been employed including the use of different perspectives and methods. Documenting a clear audit trail of the researcher's decision making throughout the project, use of expert critique during different stages of the study and employing reliable and validated questionnaires intends to improve rigour (Creswell and Creswell 2017). Recruiting a larger sample to account for attrition is another strategy to increase the study validity.

### **Ethics**

The study will be conducted in accordance with the principles of good clinical practice (GCP) and Data Protection Act (2018). The researcher has attended GCP training. In addition to Sponsorship approval, ethical approval from Research Integrity committee at Edinburgh Napier University, NHS National Research Ethics Service (NRES), and the NHS Research and Development (NIIS R&D) will be obtained prior to the commencement of the study in order to protect participants' interest. Easy to understand information sheets regarding the study and

what is involved will be provided for the participants. If the participants express interest, a phone consultation or meeting will be arranged to answer any questions or concerns regarding the study. If participants become distressed during interview, a distress protocol will be followed (Appendix 3). The participants will be informed that they are free not to answer any questions and to terminate the interview at any time. Women and partners participating in the study will be informed that their GP will be notified of their participation in the study. If there are any areas of concerns that indicate the participant or baby may require further support or care, the participants will be encouraged to contact their GP or/and perinatal mental health service and their GP will be notified of this. Due to GP practices and perinatal mental health service not being available during weekends, no interviews will be arranged on Friday afternoons or evenings. When there are delays between signing the consent form and the interview, the researcher will revisit the information sheet with the participant prior to commencing the interview process to ensure the participant's consent is still valid. The participants will be informed that if they choose their home as the interview location, their home address and contact details will be shared with a third party as part of the "researcher's safety protocol" (Appendix 4). As the standardised questionnaires employed in the study are not used for clinical diagnosis, no threshold is considered to indicate the need for referral to health professionals, however in case of any concerns regarding the participants' wellbeing based on the information provided in the questionnaires, the researcher will encourage the woman to contact her GP.

Anonymity and confidentiality will be guaranteed to protect participants' personal data. The participants' confidentiality will be maintained by changing their names to pseudonyms and any identifiable data will be deleted. The paper-based information obtained in the study will be scanned, saved and password protected on V drive in Edinburgh Napier University computer system. Then, the paper-based information will be destroyed. The electronic data will be saved for 10 years and then deleted. Apart from the chief researcher and her first supervisor, and potentially a professional transcriber who has a data sharing agreement with Edinburgh Napier University, no one will have access to the personal or identifiable data of the participants. Although the transcriber will not have access to the personal data of the participants, names might be identifiable in the recorded audios.

Obtaining written informed consent from the participants is required to safeguard the participants. In the information sheet, it will be highlighted that participation is entirely voluntary and taking part or refusal to take part will not affect the care they received or their participation in ARC. They will be informed that they may withdraw from the study at any



point prior to the completion of data collection, should they wish without giving a reason. The participants in the study could choose to receive a summary of the findings of the study on completion of the thesis.

## References

- Abbasi, M. *et al.*, 2009. The effect of hypnosis on pain relief during labor and childbirth in Iranian pregnant women. *International Journal of Clinical & Experimental Hypnosis*, 57(2), pp. 174-183
- Andrew, S. and Halcomb, E.L., 2009. *Mixed methods research for nursing and the health sciences*. John Wiley & Sons.
- Bandura, A., 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2), pp.191-215.
- Bastani, F., *et al.* 2004. Effect of relaxation training based on the synthesizing of the preceede model with the health belief model and the self-efficacy theory on anxiety and pregnancy outcomes among pregnant women. *Theses for PhD Degree of Tarbiat Modares University*.
- Bastani, F. *et al.* 2005. A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *Journal of midwifery & women's health*, 50(4), pp. e36-e40.
- Beebe, K.R. *et al.* 2007. The effects of childbirth self-efficacy and anxiety during pregnancy on prehospitalization labor. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 36(5), pp.410-418.
- Bogaerts, A.F.L. *et al.*, 2013. Effects of lifestyle intervention in obese pregnant women on gestational weight gain and mental health: a randomized controlled trial. *International Journal of Obesity*, 37(6), pp.814-912.
- Bourne, V., 2017. *Starting on methods and statistics for psychology a hands-on guide to doing research*. Glasgow. Oxford University press.
- Boyce, C. and Neale, P., 2006. *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input*. Pathfinder International Watertown, MA.
- Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), pp.77-101.
- Braun, V., Clarke, V. and Terry, G., 2014. Thematic analysis. *Qual Res Clin Health Psychol*, 24, pp.95-114.
- Carlsson, M., Ziegert, K. and Nissen, E., 2014. Psychometric properties of the Swedish childbirth self-efficacy inventory (Swe-CBSEI). *BMC pregnancy and childbirth*, 14(1), p.1.

Carlsson, M., Ziegert, K. and Nissen, E., 2015. The relationship between childbirth self-efficacy and aspects of well-being, birth interventions and birth outcomes. *Midwifery*, 31(10), pp.1000-1007.

Craig, P., *et al.*, 2008. Developing and evaluating complex interventions: the new Medical Research Council guidance. *Bmj*, 337, p.a1655.

Creswell, J.W. and Creswell, J.D., 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

*Data Protection Act. 2018.c.12.*

Downe, S. *et al.*, 2015. Self-hypnosis for intrapartum pain management in pregnant nulliparous women: a randomised controlled trial of clinical effectiveness. *BJOG: An International Journal of Obstetrics & Gynaecology*, 122(9), pp. 1226-1234.

Drummond, J. and Rickwood, D., 1997. Childbirth confidence: validating the childbirth self-efficacy inventory (CBSEI) in an Australian sample. *Journal of Advanced Nursing*, 26(3). pp.613-622.

Finlayson, K., *et al.* 2015b. Unexpected consequences: women's experiences of a self-hypnosis intervention to help with pain relief during labour. *BMC Pregnancy & Childbirth*, 15(1), pp. 1-9.

Gao, L.L., Ip, W.Y. and Sun, K., 2011. Validation of the short form of the chinese childbirth self-efficacy inventory in Mainland China. *Research in nursing & health*, 34(1), pp.49-59.

Gattuso, S.M., and Fitzgerald T.E., 2001. Coping with gastrointestinal endoscopy: self-efficacy enhancement and coping style. *Journal of Consulting and Clinical Psychology*, 60(1), 133–139.

Gerrish, K. and Lacey, A., 2010. *The research process in nursing*. John Wiley & Sons.

Glogowska, M., 2015. Paradigms, pragmatism and possibilities: mixed-methods research in speech and language therapy. *International journal of language & communication disorders*, pp.1-10.

Goodman, P., Mackey, M.C. and Tavakoli, A.S., 2004. Factors related to childbirth satisfaction. *Journal of advanced nursing*, 46(2), pp.212-219.

Grant, K.A., McMahon, C. and Austin, M.P., 2008. Maternal anxiety during the transition to parenthood: a prospective study. *Journal of affective disorders*, 108(1-2), pp.101-111.

- Horner, S., Rew, L. and Torres, R., 2006. Enhancing intervention fidelity: a means of strengthening study impact. *Journal for Specialists in Pediatric Nursing*, 11(2), pp.80-89.
- Ip, W.Y., Tang, C.S. and Goggins, W.B., 2009. An educational intervention to improve women's ability to cope with childbirth. *Journal of clinical nursing*, 18(15), pp.2125-2135.
- Johnson, R.B. and Onwuegbuzie, A.J., 2004. Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), pp.14-26.
- Kenny, L.C., Everard, C. and Khashan, A.S., 2014. Maternal Stress and in Utero Programming. In *Hormones, Intrauterine Health and Programming* (pp. 41-55). Springer, Cham.
- Levett, K.M. *et al.*, 2016a. Complementary therapies for labour and birth study: a randomised controlled trial of antenatal integrative medicine for pain management in labour. *BMJ open*, 6(7), pp. e010691-2015-010691
- Levett, K.M. *et al.*, 2016b. The Complementary Therapies for Labour and Birth Study Making sense of labour and birth—experiences of women, partners and midwives of a complementary medicine antenatal education course. *Midwifery*, 40. pp 124-131.
- Lowe, N.K., 1993. Maternal confidence for labor: Development of the childbirth self-efficacy inventory. *Research in nursing & health*, 16(2), pp.141-149.
- Malterud, K., Siersma, V.D. and Guassora, A.D., 2016. Sample size in qualitative interview studies: guided by information power. *Qualitative health research*, 26(13), pp.1753-1760.
- Marteau, T.M., and Bekker, H., 1992. The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology*, 1992 (31), pp. 301-306.
- Marteau, T.M. *et al.* 1992. Psychological models in predicting uptake of prenatal screening. *Psychology and Health*, 6(1-2), pp.13-22.
- Mehl-Madrona, L.E., 2004. Hypnosis to facilitate uncomplicated birth. *American Journal of Clinical Hypnosis*, 46(4), pp. 299-312
- Moher, D., Dulberg, C.S. and Wells, G.A., 1994. Statistical power, sample size, and their reporting in randomized controlled trials. *Jama*, 272(2), pp.122-124.
- Morris, A., 2015. *A practical introduction to in-depth interviewing*. Sage.
- National Maternity Review. (2016). *BETTER BIRTHS, Improving outcomes of maternity services in England*. [online] Available at: <https://www.england.nhs.uk/wp->

content/uploads/2016/02/national-maternity-review-report.pdf [Accessed 15 Mar. 2018].

Ross, V., 2017. Evaluating effectiveness of antenatal cognitive behavioural based treatment for anxiety and stress. *Thesis for PDP. The University of Edinburgh*

Rouhe, H. *et al.*, 2015. Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience—a randomised controlled trial. *Journal of psychosomatic obstetrics & gynecology*, 36(1), pp.1-9.

Ryding, E. *et al.*, 1998. Fear of childbirth during pregnancy may increase the risk of emergency cesarean section. *Acta obstetrica et gynecologica Scandinavica*, 77(5), pp.542-547.

Salomonsson, B., Bertero, C. and Alehagen, S., 2013. Self-Efficacy in Pregnant Women with Severe Fear of Childbirth. *JOG.NN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42(2), pp. 191-202.

Sandelowski, M., 2000. Whatever happened to qualitative description? *Research in nursing & health*, 23(4), pp.334-340.

Scottish Government. 2017. *The Best Start: A Five-year Forward Plan for Maternity and Neonatal Care in Scotland*. Scottish Government

Spielberger, C.D., 1983. Manual for the State-Trait Anxiety Inventory STAI (form Y) (" self-evaluation questionnaire").

Stewart-Brown, S. and Janmohamed, K., 2008. Warwick-Edinburgh mental well-being scale. *User guide. Version, 1*.

Stewart-Brown, S.L. *et al.*, 2011. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a valid and reliable tool for measuring mental well-being in diverse populations and projects. *J Epidemiol Community Health*, 65 (Suppl 2), pp. A38-A39.

Stoll, K. *et al.*, 2018. A systematic review of nonpharmacological prenatal interventions for pregnancy-specific anxiety and fear of childbirth. *Birth*, 45(1), pp.7-18.

Tabib, M. and Crowther, S., 2018. Service Evaluation of Relaxation Workshops for Pregnant Women. *The Journal of Perinatal Education*, 27(1), pp.10-19.

Tennant, R., *et al.*, 2007. The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of life Outcomes*, 5(1), p.63.

Werner, A. *et al.*, 2013a. Self-hypnosis for coping with labour pain: a randomised controlled trial. *BJOG: An International Journal of Obstetrics & Gynaecology*, 120(3), pp. 346-353.

Werner, A. *et al.*, 2013b. Antenatal Hypnosis Training and Childbirth Experience: A Randomized Controlled Trial. *Birth*, 40(4), pp. 272-280.

Wijma, K., Wijma, B. and Zar, M., 1998. Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*, 19(2), pp.84-97.

## Appendix 5. Phase 1 Data Collection Documents

### LETTER OF INVITATION TO PARTICIPATE IN THE STUDY (For women and birth partners-Phase 1)



Mo Tabib  
Midwifery Lecturer  
PhD student  
School of Nursing and Midwifery  
Faculty of Health and Social Care  
Robert Gordon University  
Garthdee Campus  
Aberdeen  
AB10 7QG  
Tel: 144 (0) 1224 262633  
Mobile: 07726138788  
email: m.tabib@rgu.ac.uk

Date:

Dear

I am inviting you to participate in research that I am conducting as part of my PhD study. It aims to explore the experience of childbirth and maternal psychological wellbeing following attendance at an antenatal relaxation class. The study involves one interview with you after birth.

I attach a participant information sheet for you to read. It explains the process of the study, the purpose and your contribution if you wish to participate.

If you have any questions after reading this information, please do not hesitate to contact me via phone, text messages or email. If I do not receive any contact from you within 3 weeks following attendance at the antenatal relaxation class, I will assume you do not wish to participate in the study and will not contact you again.

Kind regards

Mo Tabib

Mrs Jane Raitt  
Head of Midwifery at NHS Grampian  
University

Professor Caroline Hollins-Martin  
Professor of Maternal Health at Edinburgh Napier

.....  
Mrs Jane Raitt

Caroline Hollins-Martin

**Research Participant Information Sheet for women**  
(Phase 1)



**Date Information Sheet Produced**

16/08/2019

**Project title:** *'Exploring the influence of Antenatal Relaxation Classes on Childbirth Experiences and Maternal Psychological Wellbeing'*

My name is Mo Tabib. I am a midwife and a lecturer at Robert Gordon University. I would like to invite you to participate in research that I am conducting as part of my PhD study.

**What is the purpose of this research?**

This study aims to explore experiences of childbirth following attendance at an antenatal relaxation class. The study intends to recruit pregnant women who have participated in a relaxation class and plan to labour and birth in a midwife led unit or at home. The information collected from this study will be used in writing a thesis, academic publications, and presentations in the future to add to existing knowledge and inform women's choices and professional practices.

**How was I identified and why am I being invited to participate in this research?**

You have been contacted as you are pregnant and have opted to attend an antenatal relaxation class. You are being invited to participate in the study as your experience of childbirth is recognised to be very valuable for the purpose of this study.

The criteria for being selected to participate are:

- You are currently planning to labour and birth in Midwife-led unit or at home
- You are aged over 16 years.
- You are able to give consent in English, understand, read and write English.
- You are planning to attend a three-hour antenatal relaxation class during the third trimester of pregnancy.
- You have not been under the researcher's care in the past or present.
- You are not in the process of a complaint proceeding against the NHS provider or NHS employees.



- You are not experiencing mental health problems that require medication.

### **Do I have to take part?**

No, your participation is entirely voluntarily, and you may withdraw from the study without giving any reason before your identifiable information has been removed from the study. Whether you choose to participate or not, the care you receive or your participation in the relaxation class will not be affected in any way.

### **What will happen to me if I take part?**

If you agree to participate, you can contact me via phone, text messages, or email to notify me and I will get back to you as soon as possible to arrange either a phone consultation or face to face meeting at a convenient time and place to discuss the research and answer any questions you may have. You will be asked to notify me of the birth of your baby, and a convenient time and place will be arranged for a one-to-one interview that will last for 1-2 hours. The options for the interview location will be the hospital, the university, a public place or your home. If you choose your home as the interview location, your home address and contact details will be shared with a third party as part of the "researcher's safety protocol". Due to the impact of Covid-19, during the pandemic the interviews will take place over the phone. In case your birth partner takes part in the study too, you and your birth partner will be interviewed jointly. If you do not contact me, I will send you three text messages at 3, 6, and 12 weeks following your due date. If you do not get back to me after receiving the text messages, I will assume that you have chosen to withdraw from the study, and I will not contact you again. The interview will be in a conversational style with open questions. Prior to commencing the interview process I will revisit the information sheet with you and will ask for your verbal consent. The questions will relate to your experience of attendance at the antenatal relaxation class and the following experience of labour and birth of your baby. The interview will be audio recorded and then written down for the study.

### **What are the discomforts and risks?**

There are not any anticipated discomforts or risks in participating in this study, however I recognise and acknowledge that relaying an experience of something as personal as childbirth could potentially cause discomforts.

### **How will these discomforts be alleviated?**

Firstly, during the interview you are free not to answer any questions and to terminate the interview at any time. If you consent to take part in the study, your GP will be informed of your participation. In case of any discomforts relating to exploring the experience of childbirth, you

will be advised to contact your GP or/and perinatal mental health services. If you experience high levels of emotional distress during the interview, the interview will be discontinued and the researcher who is an experienced health professional will provide immediate support. If necessary, your GP will be informed with your consent, and you will be encouraged to contact your GP and/or perinatal mental health service. Following this, you will be encouraged to contact the researcher, or she will follow you with a courtesy call in a few days, if you consent.

**How will my privacy be protected?**

Your confidentiality will be maintained by changing your name to a pseudonym (a false name that you can choose) in any written documents. I will also change any details that could identify you. The information obtained in the study will be stored securely in Edinburgh Napier University computer system for 10 years, then will be destroyed and deleted. However, if there are any areas of concerns that you or your baby may require further support or care, your GP will be contacted and informed of this, with your consent. If during the interview it becomes apparent that you have been subjected to poor practice; based on circumstances and with your consent, the researcher may need to share this information with her academic supervisor or the Head of Midwifery at NHS Grampian and seek advice from them.

**What are the costs of participating in the study?**

Other than your time commitment to the initial meeting or phone consultation, and interview there will be no costs. It is anticipated that no more than 1-2 hours of your time will be required.

**What opportunity do I have to consider this invitation?**

You can contact me as soon as you have read the information sheet. I would expect to be notified of your interest in participation within 3 weeks from attending the antenatal relaxation class. If you do not let me know that you wish to participate within three weeks, I will assume you do not want to participate, and I will make no further contact.

**How do I agree to participate in this research?**

Following your telephone consultation or face to face meeting when we will discuss the study and I can answer any questions you may have; you will sign, date, and return the provided consent form in the prepaid envelop if you agree to participate. You will then be asked to contact me following the birth of your baby so that I can arrange a convenient time and place for the interview.

**Will I receive feedback on the results of this research?**

If you would like a summary of the final report at the end of the study, one will be sent to you, via post to your home address, on completion of the thesis. If you would like to receive a final report of the study, you could indicate this in the consent form.

## **What do I do if I have concerns about this research?**

If you have any concerns about the nature of this project or the conduct of the study, you should ask to speak to the researcher who will do her best to answer your questions. If you have outstanding questions or concerns or wish to complain formally, you can do this by contacting the Project Supervisor Professor Caroline Hollins-Martin

([C.HollinsMartin@napier.ac.uk](mailto:C.HollinsMartin@napier.ac.uk), 0131 455 3560) or Mrs Jane Raitt the Head of Midwifery at NHS Grampian ([jane.raitt@nhs.net](mailto:jane.raitt@nhs.net), 01224 455 5350)

**Thank you very much for taking the time to read this information sheet and for considering taking part in the study. If you would like to take part in this research, please contact me so that I could provide further information and answer any questions you may have.**

### **Researcher contact details**

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### **Project Supervisor**

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### **Independent advisor**

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**Research Participant Information Sheet for birth partners\***  
(Phase 1)



\*A birth partner is a person that a pregnant woman would choose to accompany her during labour and birth. A birth partner could be father of the baby, the same sex partner, a relative or a friend.

**Date Information Sheet Produced:**

16/08/2019

**Project title:**

*‘Exploring the influence of Antenatal Relaxation classes on Childbirth Experiences and Maternal Psychological Wellbeing’*

My name is Mo Tabib. I am a midwife and a lecturer at Robert Gordon University. I would like to invite you to participate in a research study which I am conducting as part of my PhD thesis.

**What is the purpose of this research?**

This study aims to explore experiences of childbirth following attendance at a relaxation class. The study intends to recruit birth partners of women who attended an antenatal relaxation class and plan to labour and birth in a midwife led unit or at home. The results from this study may be used in academic publications, and presentations in the future to add to the knowledge and inform both women’s choices and professional practices.

**How was I identified and why am I being invited to participate in this research?**

You have been contacted as we assume you will be a birth partner to a woman who has opted to take part in an antenatal relaxation class.

You are being invited to participate in an antenatal relaxation class with your partner. Your experience of accompanying her during labour and birth is recognised to be very valuable to the purpose of this study.

The criteria for being selected to participate are:

- Your partner has chosen to participate in the study.
- You are planning to be present during labour and birth.
- You are able to give consent in English, understand, read and write English.
- You are aged over 16 years.

**Do I have to take part?**

No, your participation is entirely voluntarily, and you may withdraw from the study without giving any reason before your identifiable information has been removed from the study. Whether you choose to participate or not, the care you or/and your partner receives or your participation in the relaxation class will not be affected in any way.

**What will happen to me if I take part?**

If you agree to participate, you can contact me via phone, text messages, or email to notify me and I will get back to you as soon as possible to arrange either a phone consultation or face to face meeting with you at a convenient time and place to further discuss the process of the research and answer any questions you may have. You will be asked to notify me of the birth, and then a convenient time and place will be arranged for a joint interview with you and your partner. The interview is expected to last for 1-2 hours. The options for the interview location will be the hospital, the university, a public place or your home, if you choose your home as the interview location, your home address and contact details will be shared with a third party as part of the "researcher's safety protocol". Due to the impact of Covid-19, during the pandemic the interviews will take place over the phone. If you and your partner do not contact me after the birth, I will send your partner three text messages at 3, 6, and 12 weeks following the due date. If you and your partner do not get back to me after receiving the text messages, I will assume that you have chosen to withdraw from the study and will not contact you further. The interview will be in a conversational style with open questions to direct the enquiry. Prior to commencing the interview process the researcher will revisit the information sheet with you and will ask for your verbal consent. You and your partner will be interviewed jointly. The questions will relate to your experience of attending labour and birth particularly relating to your feelings during the experience. The interview will be audio recorded and then written down for the study.

**What are the discomforts and risks?**

There are not any anticipated discomforts or risks in participating in this study. however I recognise and acknowledge that relaying an experience of something as personal as childbirth could potentially cause discomforts.

**How will these discomforts be alleviated?**

Firstly, during the interview you are free not to answer any questions and to terminate the interview at any time. If you consent to take part in the study, your GP will be informed of your participation. In case of any discomforts relating to exploring the experience of childbirth, if you wish, your referral to your GP will be facilitated. If you experience high level of emotional

distress during the interview, the interview will be discontinued and the researcher who is an experienced health professional will provide immediate support. If necessary, your GP will be informed with your consent, and you will be encouraged to contact your GP. Following this, you will be encouraged to contact the researcher, or she will follow you with a courtesy call in a few days, if you consent.

**How will my privacy be protected?**

Your confidentiality will be maintained by changing your name to a pseudonym (a false name that you can choose) in my thesis. I will also change the details that could identify you. The information obtained in the study will be stored securely in Edinburgh Napier University computer system for 10 years, then will be destroyed and deleted. If during the interview it becomes apparent that you have been subjected to poor practice; based on circumstances and with your consent, the researcher may need to share this information with her academic supervisor or the head of midwifery at NHS Grampian and seek advice from them.

**What are the costs of participating in the study?**

Other than your time commitment to the initial meeting or phone consultation, and interview there will be no costs. It is anticipated that no more than 3 hours of your time will be required.

**What opportunity do I have to consider this invitation?**

You can contact me as soon as you have read the information sheet. I would expect to be notified of your interest in participation within 3 weeks from attending the antenatal relaxation class. If you do not indicate to me that you wish to participate in this time, I will assume you do not want to participate, and I will make no further contact.

**How do I agree to participate in this research?**

Once you have had your phone consultation or face to face meeting when I will further discuss the study and will answer any questions you may have. if you agree to participate, you will sign, date, and return the provided consent form in the prepaid envelop. You will be then asked to contact me following the birth so that I could arrange a convenient time and place with you for the interview.

**Will I receive feedback on the results of this research?**

If you would like; a summary of the final report at the end of the study will be sent to you on completion of the thesis. If you would like to receive a final report of the study, you could indicate this in the consent form.

**What do I do if I have concerns about this research?**

If you have any concerns about the nature of this project or the conduct of the study, you should ask to speak to the researcher who will do her best to answer your questions. If you

remain unhappy and wish to complain formally, you can do this by contacting the Project Supervisor Professor Caroline Hollins-Martin ([C.HollinsMartin@napier.ac.uk](mailto:C.HollinsMartin@napier.ac.uk), 0131 455 3560) or Mrs Jane Raitt the Head of Midwifery at NHS Grampian ([jane.raitt@nhs.net](mailto:jane.raitt@nhs.net), 01224 455 5350)

**Thank you very much for taking the time to read this information sheet and for considering taking part in the study. If you would like to take part in this research, please contact me so that I could provide further information and answer any questions you may have.**

**Researcher contact details**

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**Project Supervisor**

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Email:[g.norris@napier.ac.uk](mailto:g.norris@napier.ac.uk)

# Confidentiality Information: GDPR



Edinburgh Napier University is the sponsor for this study based in the UK. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. Edinburgh Napier University will keep identifiable information about you for 10 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting the Research and Innovation Office at [rdm@napier.ac.uk](mailto:rdm@napier.ac.uk)

NHS Grampian will collect information from you for this research study in accordance with our instructions.

NHS Grampian will use your name and contact details to contact you about the research study, and make sure that relevant information about the study is recorded for your care, and to oversee the quality of the study. Individuals from Edinburgh Napier University and regulatory organisations may look at your research records to check the accuracy of the research study. NHS Grampian will pass these details to Edinburgh Napier University along with the information collected from you. The only people in Edinburgh Napier University who will have access to information that identifies you will be people who need to contact you to arrange an interview as part of the study data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your name or contact details.

When you agree to take part in a research study, the information about your health and care may be provided to researchers running other research studies in this organisation and in other organisations. These organisations may be universities, NIIS organisations or companies involved in health and care research in this country or abroad. Your information will only be used by organisations and researchers to conduct research in accordance with the UK Policy Framework for Health and Social Care Research.

This information will not identify you and will not be combined with other information in a way that could identify you. The information will only be used for the purpose of health and care research and cannot be used to contact you or to affect your care. It will not be used to make decisions about future services available to you, such as insurance.



**PARTICIPANT CONSENT FORM**  
(For women and birth partners- Phase 1)

**Title of Project: *'Exploring the influence of Antenatal Relaxation Classes on Women's  
Childbirth Experiences and Maternal Psychological Wellbeing'***

Name of Researcher: Mo Tabib  
**Please initial boxes**

1. I confirm that I have read and understand the participant information sheet dated 16/08/2019 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time prior to the completion of data collection, without giving any reason.
3. I agree to have my interview recorded for use in the research project by the research team.
4. I agree to be contacted by the researcher via reminder text messages at 3, 6, and 12 weeks following the due date.
5. I agree my GP to be informed of my participation in the study.
6. I agree to take part in the above study.
7. I would like a summary of the final report at the end of the study to be sent to my home address via post or email.

Please provide your date of birth: .....

Please provide your due date: .....

Please provide your mobile phone number: .....

Please provide your home or email address, if you would like to receive a summary of the final report:

.....

Please provide your General Practitioner's contact details:

.....

**Participant:**

-----	-----	-----
Name	Date	Signature

**Researcher:**

-----	-----	-----
Name	Date	Signature

## Interview Schedule

The interviews with women and their birth partners aim to broadly examine their perspectives on the influence of attending ARC on their emotions and experiences of childbirth.

### Study topic guide: Semi-structured in-depth interviews

#### Pre-interview:

- Explain the purpose of the background and the project.
- Ensure the woman and her birth partner know their right not to participate, not to answer the questions, and terminate the interview.
- Explain what is involved in participating.
- Explain what will be done with the information they provide.
- Explain their GP will be informed of their participation.
- Explain if they have been subjected to poor practice, with their consent the Head of Midwifery at NHS Grampian will be informed of this.
- Clarify their contribution is valuable, irrespective of the quality of their experiences.
- Give assurances about anonymity and confidentiality.
- Give assurances that her participation would not affect the care they receive.
- Give them an opportunity to ask questions.
- Ensure consent obtained for audio recording the interview.
- Revisit the consent form.

#### Interview questions

1. Can you tell me about your labour and birth?
2. Can you tell me about your experience of the antenatal relaxation class?

And a series of supplementary, follow up questions will be used, if necessary, as follows:

- What caused you to attend the class? What were your expectations?
- What part/s of the class did you find useful or not useful?

- How do you think the class could be improved?
- Did anything change for you as the result of attending the class? If so, what was it? If so, what do you think caused this change?
- How did you feel immediately after the class?
- How did you feel towards your childbirth immediately after the class?
- What techniques (if any) did you practice during pregnancy? Can you tell me how often you practiced?
- Where did you practice?
- What was the purpose of practice for you?
- How were you feeling about labour and birth before attending ARC?
- How were you feeling about labour and birth following the class?
- What caused that change? (if the feeling had changed)
- Can you describe the moment of practicing your techniques? Can you tell me what you were thinking and how you were feeling then?
- Did you share your experience of the class with your partner/s? If so, what was the aim of such sharing?
- Can you tell me about your experience when labour started?
- Did you use any of the techniques during labour?
- What influenced the use of relaxation techniques? What helped or hindered the use of the techniques?
- What pain reliefs did you use?
- How did your labour progress?
- What was your experience of labour pain?
- How did the care you received, influenced the use of relaxation techniques?
- When you think on your labour and birth of your baby how do you feel now?
- How would you describe your overall experience of late pregnancy and childbirth?
- For what purposes have you used the relaxation techniques?
- Is there any comments or recommendation you would like to make?
- Is there anything else you want to tell me about before we end the interview?

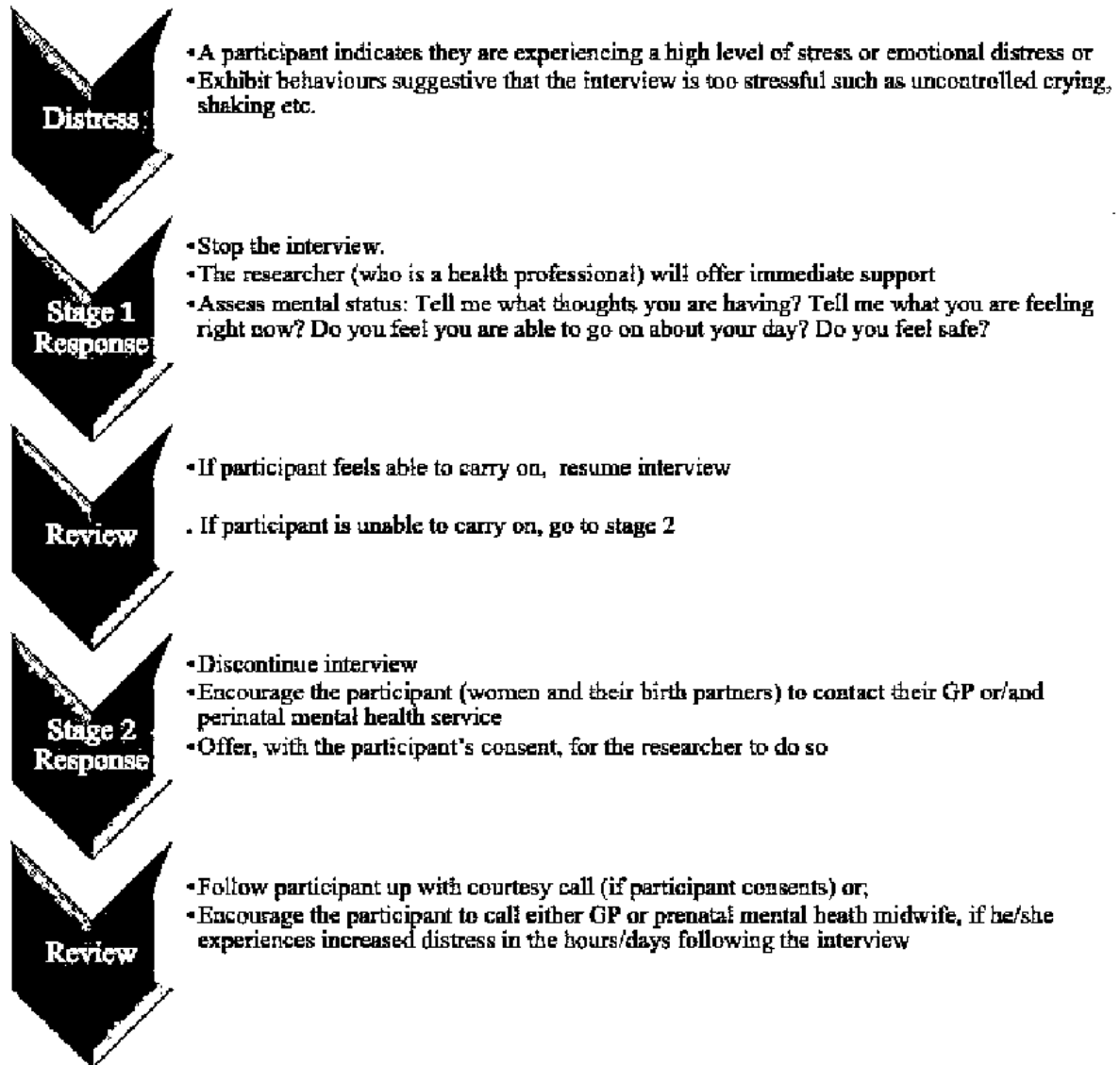
The interviewer will respond to what the participants bring up and will explore things that are of relevance as they arise by using phrases such as; 'can you tell me more about this?', 'what was going on in your head then?', 'in what way?', 'how did you know that?', 'how did that help?', 'what do you mean by this?'

**Ending interview:**

- Thank the participants for their time.
- Ask if they have any questions.
- Give further reassurances about anonymity and confidentiality.
- Ask if the participants would like to receive a summary of the study findings.

## Distress protocol for phase 1

The protocol for managing distress in the context of a research interview (Modified from: Draucker, Martsolf and Poole (2009))



### Reference

Draucker, C.B., Martsolf, D.S., & Poole, C., (2009). Developing distress protocols for research on sensitive topics. *Archives of psychiatric nursing*, 23(5), 343-350.

### **Researcher's safety protocol (Phase 1)**

The hospital, the university, the participants' home, or a public place are the options offered to the participants for the interview location. If the participants choose for the interview to take place in their homes the following points will be adhered to by the researcher:

- When conducting interviews in participants' homes the researcher will inform a colleague and/or a family member of the place, time and contact details. Texts will be sent before and after data collection in these contexts. The colleague or family member will be informed of the estimated duration of interview time and when to expect the 'after' interview confirmation call.
- When visiting participants in their homes the researcher will act in culturally and socially sensitive ways, remembering that she is a guest and that it is the participants who are doing the researcher a favour by agreeing to participate and share their homes.
- If the researcher needs further time in a participant's home than scheduled then a call or text to the colleague or husband will be made to confirm new time for checking in.
- If no contact eventuates at the agreed time and in the agreed manner the colleague or family member will attempt to call the researcher on her mobile phone. If there is no direct answer then leave a message, if no response within 10 minutes of attempting contact and no further contact has been made then the colleague/family member can escalate the potential 'at risk' situation and call the police with details of the schedule, addresses and contact details.

## Confidentiality Agreement for the professional transcriber (Phase 1)

Transcriptionist

I, \_\_\_\_\_ transcriptionist, agree to maintain full confidentiality in regard to any and all audiotapes and documentations received from (researcher's name) related to his/her research study on the researcher study titled "*Exploring the influence of Antenatal Relaxation Classes on Childbirth Experiences and Maternal Psychological Wellbeing*". Furthermore, I agree:

1. To hold in strictest confidence the identification of any individual that may be inadvertently revealed during the transcription of audio-taped interviews, or in any associated documents.
2. To not make copies of any audiotapes or computerized titles of the transcribed interviews texts, unless specifically requested to do so by the researcher, Mo Tabib.
3. To store all study-related audiotapes and materials in a safe, secure location as long as they are in my possession.
4. To return all audiotapes and study-related materials to Mo Tabib in a complete and timely manner.
5. To delete all electronic files containing study-related documents from my computer hard drive and any back-up devices.

I am aware that I can be held legally responsible for any breach of this confidentiality agreement, and for any harm incurred by individuals if I disclose identifiable information contained in the audiotapes and/or files to which I will have access.

Transcriber's name (printed) \_\_\_\_\_

Transcriber's signature \_\_\_\_\_

Date \_\_\_\_\_



## Appendix 6. Snapshots of Phase 1 data analysis process

choices with techniques

of midwifery in a... space (attitude toward home & hospital... making sense...  
 environment) direct influence of the press, conservative social attitude of health professionals viewing childbirth as normal as opposed to the current social/professional attitude  
 childbirth partner's concerns & confidence... routine AN Classes expectations of ARC (future...  
 attending view on health professional attitudes importance of confirmation from health

634 P1 - Which, medication shouldn't be the norm for childbirth, I don't think, I do it, 100% It's needed,  
 635 obviously for, for some women, you know, you need to have interventions, safety...  
 636 - Yes, yeah, you need to...yeah.  
 637 P1 - ...everything like that but, I, but that should be the, the, you know if something goes wrong  
 638 mind set, as opposed to the, okay, I'm going to, about to go into labour, I need to have  
 639 painkiller, need to have medication, you know, I need this to be fixed, you know but, that's,  
 640 but, I mean that's changing society's views...  
 641 I - Of course, yeah.  
 642 P1 - ...which is, is a little bit trickier, erm, but yeah, no, the, yeah, the whole, the whole antenatal  
 643 class is just geared towards, it needs to be treated and this is how we will treat it, it's not  
 644 about, you know, these are things you can do yourself, you know, you can do this relaxation,  
 645 this is how to do it and this is the reason why it works, There was, there was never anything  
 646 about how, why it works.  
 647 P2 - I think, well, it was more just a kind of we... and then about that... sorry... couple  
 648 of years talking about it. More... for a lot of people, the... about it... something...  
 649 Emma... that they can be kind of... the... said, the... way  
 650 was... and... was... by... challenge... who know... and...  
 651 P1 - Yeah.  
 652 P2 - ...you know, I did...  
 653 P1 - You...  
 654 P2 - ...  
 655 P1 - I know I... wonder how different my experience would be if I never went to you... class...  
 656 I... think so?  
 657 P1 - Yeah, oh absolutely, absolutely, I mean, I'm pretty stubborn in that I you don't wanted to have  
 658 gas and air you know, I didn't want any medicines, I knew that but... we didn't have had the  
 659 the understanding and tools to relax and to know why, why will it, helping to relax the labour  
 660 work and so, you know, it would've... to, you know, medications and their potential  
 661 interventions, I don't know, you don't know how it would go but, yeah, I don't, it... but...  
 662 it... would've... without a doubt it would've been very different, I would say.  
 663 P2 - So much different, yeah.  
 664 P1 - Yeah.  
 665 P1 - I think I probably wouldn't have had a home birth the second time and...  
 666 P2 - Yeah, I would...  
 667 P2 - (55:55)  
 668 P2 - you... your... in the hospital... the... the... would be a home  
 669 birth.  
 670 I - So you had that from the very beginning and that mind set...  
 671 P1 - I had the home birth from the start.  
 672 I - ...but you needed maybe that reassurance that actually I can do it no problem, you know.

17

Louise & James

a. An example page of colour coded transcripts






Lara & Frank (interview 1)


British, prim, MSc in engineering, para 1, uncomplicated pregnancy. Attended the class on her own but shared the content

with the partner. Highly anxious person as she describes herself. Labour started naturally at home, was 7 cm when admitted to the hospital. Complications arose during labour and had a forceps delivery under spinal in the theatre.

From fear to confidence 'Switch in mindset'	Getting into the zone (factors altering the use and effectiveness of ARC)	Positive reflection /outlook to the experience Coping ability
<p>I: you were not worried that you were having contractions, you had your bath, you know, what, what caused you to feel okay although you had the contractions?</p> <p>because I kind of rehearsed it, you know, I had like it my mind, I'd already thought about what I'll do and, you know, like having a bath felt like I was a bit more control of the situation, I kind of knew this would help (ARC include rehearsing of the contractions along with use of the techniques)</p> <p>So what was your preparation for all this things, can you tell</p>	<p>being in bed wasn't able to, to sort of get into the relaxation, I was sort of anxious but in the bath, I felt much more relaxed and I also felt like having the video was disturbing him whereas in the bathroom I felt like I could play it and it was all fine. I didn't have to worry about earphones and I felt much more relaxed.</p> <p>I wasn't really doing the visual that I thought I would. I did loads of practice in the lead up, I was listening to the videos.</p> <p>I thought I was going to be all about pictures in my head but actually in the end I was just</p>	<p>it was the Monday night and we just literally went to bed, we didn't even phone the hospital. I was like, I felt quite okay about it all, and then in the morning I phoned. (highly anxious person, but felt okay; feelings of I know what's going on)</p> <p>I was like 'I'm really tired now, I want to go back to sleep' and you were like, you picked up my phone to check the contractions and you were like 'no, we need to go to the hospital'. (j: this was after having the contractions for about four hours, and she felt safe to go back to bed)</p> <p>We were in the room for</p>

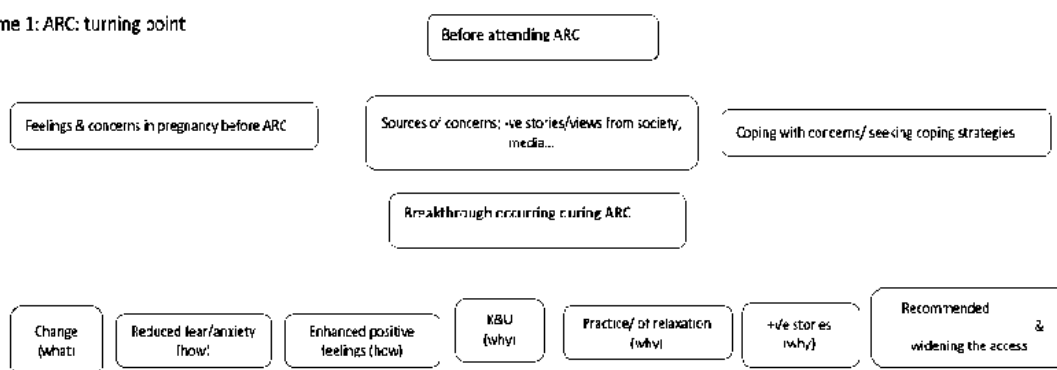
- c. An example of grouping the excerpts under the relevant themes/sub-themes in tables along with the field notes

Themes	Subthemes	Codes	Follow up in phase 2	
<b>Theme 1: Turning point</b> [Learned optimism Learned hopefulness Sense of coherence (see the world/CB as something that is manageable, understandable, and meaningful) Resourcefulness Empowerment linked to health]	<b>a) Before attending ARC</b>	Feelings & concerns in pregnancy before ARC	Y (directly addressing RQ)	
		Sources of concerns	N	
		Coping with concerns/ seeking coping strategies (Lazarus)	N	
	<b>b) Changes occurring in ARC</b> ;Breakthrough/ shift/change of attitude towards pregnancy and CB in class Resourceful-empowered—will to meaning-wellbeing-coping-locus of control-resilience-action competence-optimism-hopefulness-sense of coherence-connectedness to child-emotional intelligence : awareness	<b>c) Recommendations</b>	Change (what)	Y (directly addressing RQ)
			Reduced fear/anxiety (how)	Y (directly addressing RQ)
			Enhanced positive feelings (how) (in general)/WELLBEING, towards CB, W-DEQ & SF )	Y (directly addressing RQ)
			Enhanced K&U (why)	N
			Experiential evidence (why): a new experience +ve stories (why)	N
			Timing-length-revision sessions	N
	<b>Theme 2: Inner resource</b> [Resilience; not complaining- coping with pain and worries:]	<b>a) Calmness in pregnancy</b>	Purpose/effect of practice	N ??? add
			Home practice	Y (background info)
			Technique	Y (background info)
<b>b) Calmness during CB</b>		Frequency of practice	N	
		Initial response to labour/CB	Y (directly addressing RQ)	
		Techniques in labour Management of pain Advance labour and birth (use/effect)	Y (directly addressing RQ)	
<b>Theme 3: Space for relaxation</b>    Originality of data)	<b>a) Protectors and disruptors of the space in CB</b>	Environment	N	
		Light	N	
		Privacy	N	
		Position/ freedom of movement	N	
		Midwife	N	
		Partners	N	
	<b>b) Role of partners</b>	Partner's fears/anxieties (As the space protectors- feelings are contagious)	N	
		Observations of changes	N	
		Sharing with partner	N	
		Engagement	N	

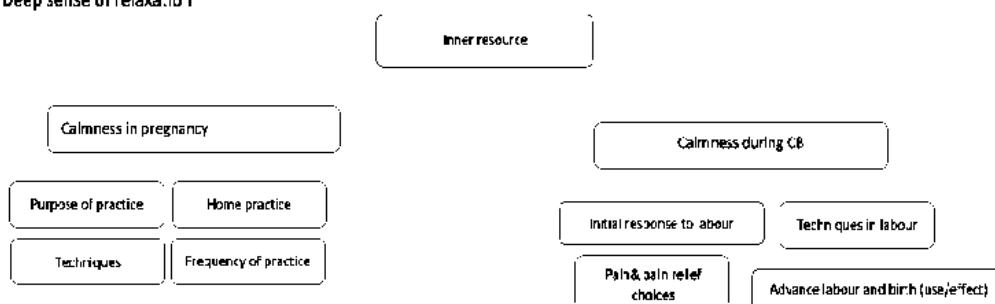
<b>Theme 4- Wellbeing (subjective wellbeing: physical-emotional-psychological)</b>  [subjective wellbeing] (? Considering parent edu for early years in pregnancy??)	<b>a) Positive reflection of ARC</b>	Partner as barrier/facilitator	N
		Access for partners	N
	<b>b) Positive perception of CR exp</b>	Positive reflection on the experience of attending ARC	Y (directly addressing RQ)
		Flipping -ve to +ve? Positive perceptions of staff? (look at data again) My ability feeling +ve/ confident (SE) in CB?	Y (directly addressing RQ)
	<b>c) Beyond birth</b>	Breast feeding/ Early PN	N
		Stress reduction/ life skill	N
		Transitioning to new role as parents	N

d. An example of allocating codes to subthemes and themes

Theme 1: ARC: turning point

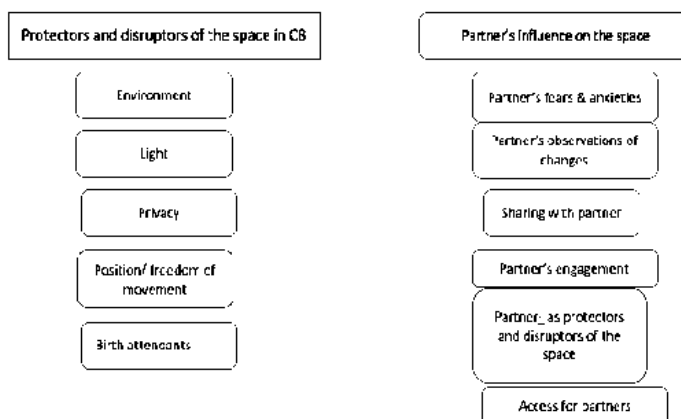


Theme 2- Deep sense of relaxation

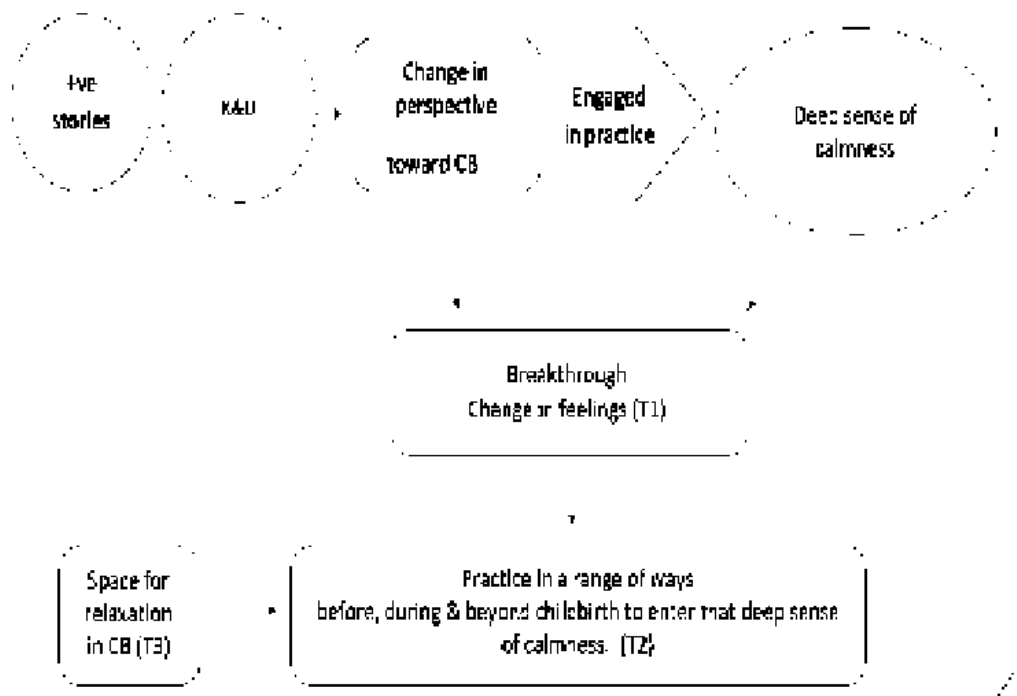


Space for relaxation

Theme 3:



e. An example of grouping the identified codes under relevant themes



f. An example of drawings of schematic diagrams/mind maps

## Appendix 7. Phase 2 Data Collection Documents

### LETTER OF INVITATION TO PARTICIPATE IN THE STUDY (For women- phase 2)

Edinburgh Napier  
UNIVERSITY

Mo Tabib  
Midwifery Lecturer  
PhD student  
School of Nursing and Midwifery  
Faculty of Health and Social Care  
Robert Gordon University  
Garthdee Campus  
Aberdeen  
AB10 7QG  
Tel: +44 (0) 1224 262633  
email: m.tabib@rgu.ac.uk  
Mob: 07726138788  
Date: ...08/01/2021.....

Dear

This is an invitation to participate in research that I am conducting as part of my PhD study. The study aims to explore the experience of childbirth and maternal psychological wellbeing following attending an antenatal relaxation class. Your participation involves completing a set of questionnaires at three time points i.e., before the class, two weeks after the class and 4-8 weeks following birth.

I attach a participant information sheet for you to read. It explains the process of the study, the purpose and your contribution if you wish to participate.

If you have any questions after reading this information, please do not hesitate to contact me via phone, text messages or email. If I do not receive any contact from you before attending the antenatal relaxation class, I will assume you do not wish to participate in the study and will not contact you again.

Kind regards

Mo Tabib

Mrs Jane Raitt  
Head of Midwifery at NHS Grampian  
University

Professor Caroline Hollins-Martin  
Professor of Maternal Health at Edinburgh Napier

.....*J Raitt*.....

*Caroline Hollins-Martin*

**Research Participant Information Sheet for women**  
(Phase 2)



**Date Information Sheet Produced**

06/01/2021

**Project title:** *'Exploring the influence of Antenatal Relaxation Classes on Childbirth Experiences and Maternal Psychological Wellbeing'*

My name is Mo Tabib. I am a midwife and lecturer at Robert Gordon University. I would like to invite you to participate in research which I am conducting as part of my PhD study.

**What is the purpose of this research?**

I am interested in the experiences of childbirth and the potential influence of antenatal relaxation classes on maternal psychological wellbeing. This study aims to explore this using self-reported questionnaires. The study intends to recruit pregnant women who attend antenatal relaxation classes offered at a specialist maternity Hospital in North-East Scotland. The information collected from this study will be used in writing a thesis, academic publications, and presentations in the future to add to existing knowledge and inform women's choices and professional practices.

**How was I identified and why am I being invited to participate in this research?**

You have been contacted as you are pregnant and are planning to attend an antenatal relaxation class. You are being invited to participate in the study as your experience of childbirth is very valuable for the purpose of this study.

The criteria for being selected to participate are:

- You are aged over 16 years.
- You are able to give consent in English, understand, read and write English.
- You are planning to attend a three-hour antenatal relaxation class during the third trimester of pregnancy.
- You are not having mental health problems that require taking any prescribed medication.



**Do I have to take part?**

No, your participation is entirely voluntarily, and you may withdraw from the study without giving any reason before your identifiable information has been removed from the study. Whether you choose to participate or not, the care you receive or your participation in the relaxation class will not be affected in any way.

**What will happen to me if I take part?**

If you agree to participate, you can contact me via phone, text messages, or email and I will get back to you as soon as possible to arrange either a phone consultation or a virtual meeting with you at a convenient time to further discuss the research and answer any questions you may have. I will attend the beginning of the relaxation class to answer any questions you may have. If you agree to participate, you will be asked to complete a set of short questionnaires at three time points; before the class, two weeks after the class and four to eight weeks after birth. You will also receive one text reminders two weeks after class, on your due date and four weeks after your due date. If after sending you the post-birth questionnaires and the first text reminder, I do not hear back from you, I will send you maximum of another two text reminders at 6 and 8 weeks following your due date. If you do not respond, I will assume that you have chosen to withdraw from the study, and I will not contact you again. The purpose of the text message on your due date is to ask you to notify the researcher in case you have given birth earlier than expected, so that you receive the last questionnaire set within the time limits of 4-8 weeks after birth.

The questionnaires would include questions about your experience of attendance at the antenatal relaxation class and your childbirth experience, your emotional wellbeing and feelings of control, fear and anxiety. In total, completing each set of questionnaires is expected to take not more than 20 minutes.

**What are the discomforts and risks?**

There are not any anticipated discomforts or risks in participating in this study, however I recognise and acknowledge that relaying an experience of something as personal as childbirth could potentially cause discomforts.

**How will these discomforts be alleviated?**

If you consent to take part in the study, your GP will be informed of your participation. If the information you provide indicates any concerning issues about your mental wellbeing, this will be shared with you and your GP. Furthermore, if you reveal information which is concerning

or highlights risk to yourself or others, that information will have to be passed on to your GP. In this case, you will be informed that this is being done.

**How will my privacy be protected?**

Your confidentiality will be maintained by removing your identifiable information from the questionnaires and allocating a unique number to your completed questionnaires instead. All information collected about you during the course of the research will be stored securely in Edinburgh Napier University computer system for 10 years, then will be destroyed and deleted. The data will be made unidentifiable, and you will not be identifiable in any reports or publications arising from the project.

**What are the costs of participating in the study?**

Other than your time commitment to the initial meeting or phone consultation and filling out the questionnaires there will be no costs. It is anticipated that overall no more than 2 hours of your time will be required.

**What opportunity do I have to consider this invitation?**

You can contact me as soon as you have read the information sheet. I would expect to be notified of your interest in participation prior to the antenatal relaxation class. I will also be present at the beginning of the relaxation class if you wish to approach me. If you do not let me know that you wish to participate before the class starts, I will assume you do not want to participate, and I will make no further contact.

**How do I agree to participate in this research?**

Along with this information sheet you have received a link for the questionnaires, by clicking on the link you can give consent and complete the questionnaires. Alternatively, if you prefer, you can first contact me to ask for a phone consultation or virtual meeting when we can discuss the study and answer any questions you may have.

**Will I receive feedback on the results of this research?**

If you would like a summary of the final report at the end of the study, one will be sent to you; via email. If you would like to receive a final report of the study, you could indicate this in the consent form.

**What do I do if I have concerns about this research?**

If you have any concerns about the nature of this project or the conduct of the study, *you should ask to speak to the researcher who will do her best to answer your questions. If you*

*have outstanding questions or concerns or wish to complain formally, you can do this by contacting the Project Supervisor Professor Caroline Hollins-Martine*

*([C.HollinsMartin@napier.ac.uk](mailto:C.HollinsMartin@napier.ac.uk), 131 455 3560) or Mrs Jane Raitt the Chief Midwife at NHS Grampian ([jane.raitt@nhs.net](mailto:jane.raitt@nhs.net), 01224 455 5350)*

**Thank you very much for taking the time to read this information sheet and for considering taking part in the study. If you would like to take part in this research, please complete the pre-class questionnaires using the provided link; or if you prefer, first contact me so that I could provide further information and answer any questions you may have.**

**Researcher contact details**

Mo Tabib (sm)  
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School of Nursing and Midwifery  
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Aberdeen  
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Mobile: 07726138788  
Email: [m.tabib@rgu.ac.uk](mailto:m.tabib@rgu.ac.uk)

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EH11 4BN  
Tel: +44 (0)131455 5356  
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## Online Surveys (pre-class, post-class and post-birth)

### Pre-class Survey

#### ARC Pre-class questionnaires

##### Consent form

Thank you for agreeing to take part in this study which aims to explore the experience of childbirth and maternal psychological wellbeing following attending an antenatal relaxation class. To start please confirm if you agree with the following statements:

1. I am over 16 years old, can understand, read and write in English. I am in the last three months of my pregnancy and don't have any mental health issues requiring prescribed medication.

Yes

2. I have read and understand the information including privacy in participant information sheet dated 16/08/2019. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

Yes

3. I understand that my participation is voluntary and that I am free to withdraw at any time prior to the completion of data collection, without giving any reason.

Yes

4. I agree to complete a set of questionnaires at three time points, prior to the antenatal relaxation class, 2 weeks after the class and 4-8 weeks after the birth of my baby.

Yes

5. I agree to be contacted by the researcher via text messages at the following time points; two weeks after the class, on my due date and up to maximum three times within 4-8 weeks following my due date.

Yes

6. I agree to my GP being informed of my participation in the study if needed.

Yes

7. Please provide your GP Surgery name:

## ARC Pre-class questionnaires

1. How do you plan to give birth to your baby (s)?

Vaginal  C-Section  Not sure

2. If C-Section is planned, what is the reason for it?

Not applicable

3. Where is your planned place of birth?

Midwife Unit in AMH (Aberdeen Maternity Hospital)

Labour ward in AMH

Operational theatre in AMH

Birth unit/centre

Home

Not sure

Other

4. Do you plan to use epidural anaesthesia during labour?

Not applicable

Yes  No  Not sure

## ARC Pre-class questionnaires

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

1. I've been feeling optimistic about the future  
 None of the time    Rarely    Some of the time    Often    All of the time
2. I've been feeling useful  
 None of the time    Rarely    Some of the time    Often    All of the time
3. I've been feeling relaxed  
 None of the time    Rarely    Some of the time    Often    All of the time
4. I've been feeling interested in other people  
 None of the time    Rarely    Some of the time    Often    All of the time
5. I've had energy to spare  
 None of the time    Rarely    Some of the time    Often    All of the time
6. I've been dealing with problems well  
 None of the time    Rarely    Some of the time    Often    All of the time
7. I've been thinking clearly  
 None of the time    Rarely    Some of the time    Often    All of the time
8. I've been feeling good about myself  
 None of the time    Rarely    Some of the time    Often    All of the time
9. I've been feeling close to other people  
 None of the time    Rarely    Some of time    Often    All of the time
10. I've been feeling confident  
 None of the time    Rarely    Some of the time    Often    All of the time
11. I've been able to make up my own mind about things  
 None of the time    Rarely    Some of the time    Often    All of the time
12. I've been feeling loved  
 None of the time    Rarely    Some of the time    Often    All of the time
13. I've been interested in new things  
 None of the time    Rarely    Some of the time    Often    All of the time
14. I've been feeling cheerful  
 None of the time    Rarely    Some of the time    Often    All of the time

## ARC Pre-class questionnaires

Think about how you imagine labour will be and feel when you are having contractions 5 minutes apart or less. For each of the following behaviours, indicate how helpful the behaviour could be in helping you to cope with labour by selecting a number between 1 (not at all helpful) and 10 (very helpful).

**1. I think during labour, it would be helpful to:**

	Not at all helpful							Very helpful		
	1	2	3	4	5	6	7	8	9	10
Relax my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get ready for each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use breathing during labour contractions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself in control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about relaxing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on an object in the room to distract myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on thinking about the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be fully aware of each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think positively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No: think about the pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tell myself that I can do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about others in my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate in getting through one contraction at a time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listen to encouragement from the person helping me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ARC Pre-class questionnaires

Think about how you imagine labour will be and feel when you are having contractions 5 minutes apart or less. For each behaviour, indicate how certain you are of your ability to use the behaviour to help you to cope with labour by selecting a number between 1, (not at all sure) and 10 (very sure).

**1. I am certain that during labour, I will be able to:**

	Not at all sure							Completely sure		
	1	2	3	4	5	6	7	8	9	10
Relax my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get ready for each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use breathing during labour contractions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself in control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about relaxing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on an object in the room to distract myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on thinking about the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be fully aware of each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think positively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not think about the pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tell myself that I can do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about others in my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate in getting through one contraction at a time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listen to encouragement from the person helping me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## ARC Pre-class questionnaires

**INSTRUCTION** This questionnaire is about feelings and thoughts women may have at the prospect of labour and birth. The answers to each question appear as a scale from 0 to 5. The outermost answers (0 and 5 respectively) correspond to the opposite extremes of a certain feeling or thought. Please complete each question by selecting the number belonging to the answer which most closely corresponds to how you imagine your labour and birth will be. Please answer how you imagine your labour and birth will be - not the way you hope it will be.

**1. How do you think your labour and birth will turn out as a whole?**

	Extremely		Not at all			
	0	1	2	3	4	5
Fantastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**2. How do you think you will feel in general during the labour and birth?**

	Extremely		Not at all			
	0	1	2	3	4	5
Lonely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deserted (isolated)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desolate (unhappy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Glad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abandoned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**3. What do you think you will feel during the labour and birth?**

	Extremely		Not at all			
	0	1	2	3	4	5
Panic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hopelessness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Longing for the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**4. What do you think will happen when labour is most intense?**

	Totally		Not at all			
	0	1	2	3	4	5
I will behave badly (e.g. being unreasonable or rude to others)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will allow my body to take control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will lose control of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. How do you imagine it will feel the very moment you give birth to the baby?

	Totally			Not at all		
	0	1	2	3	4	5
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As it should be	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dangerous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Have you, during the last month, had fantasies about the labour and birth for example ..

	Never		Very often			
	0	1	2	3	4	5
...fantasies that your child will die during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... fantasies that your child will be injured during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ARC Pre-class questionnaires

1. A number of statements that people have used to describe themselves are given below. Read each statement and then select the number that describes how you feel right now, that is, at this moment. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe your present feeling best.

*Right now...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. A number of statements that people have used to describe themselves are given below. Read each statement and then select the appropriate number that describes how you generally feel. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

*Generally...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ARC Pre-class questionnaires

### Demographics

1. Tell us about you

First name

Last name

Email

Phone 1

2. What date is your baby due to be born?

3. How many weeks pregnant are you now?

4. How old are you?

5. What is your highest educational attainment?

- Secondary school
- Further education at college
- 1st level degree
- Master's degree
- Doctorate
- Others

6. What is your employment status?

- Full-time employment
- Part-time employment
- Student
- Unemployed
- Others

7. What is your marital status?

- Married
- Single
- Domestic partnership

8. What is your ethnicity?

- White British
- Other White background
- Black
- Asian
- Mixed race
- Others

9. Number of previous births?

- None

- One
- Two or more

10. Would you like to receive a summary of the study findings when they are available?

- Yes
- No

11. I agree to take part in this study.

- Yes

Thank you for your participation and taking time to complete the questionnaires.

Mo Tabib

Phone: 07726138788

Email: [m.tabib@rgu.ac.uk](mailto:m.tabib@rgu.ac.uk)

## Post-class Survey

### ARC Post-class Questionnaires

1. How do you plan to give birth to your baby (s)?

- Vaginal  C-Section  Not sure

2. If C-Section is planned, what is the reason for it?

- Not applicable

3. Where is your planned place of birth?

- Midwife Unit in AMH (Aberdeen Maternity Hospital)  
 Labour ward in AMH  
 Operational theatre in AMH  
 Birth unit/centre  
 Home  
 Not sure  
 Other

4. Do you plan to use epidural anaesthetics during labour?

- Yes  No  Not sure

5. How do you think the relaxation class has influenced your experience of pregnancy?

- Very positively  Positively  No influence  Negatively  Very negatively

6. After attending the antenatal relaxation class, have you used any of the techniques introduced in the class?

- Yes  No

7. If you have used the relaxation techniques in pregnancy, for what purposes did you use them? (you can select more than one answer)

- Not applicable  
 Better sleep  
 Alleviate pain and discomfort  
 Alleviate fear and anxiety  
 Deal with stress  
 Before appointments  
 Feel calm and relaxed  
 Feel positive  
 Prepare for labour and birth  
 Other

8. Can you, in your own words, briefly tell us in what way the class has influenced you, if any?

## ARC Post-class Questionnaires

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

1. I've been feeling optimistic about the future  
 None of the time    Rarely    Some of the time    Often    All of the time
2. I've been feeling useful  
 None of the time    Rarely    Some of the time    Often    All of the time
3. I've been feeling relaxed  
 None of the time    Rarely    Some of the time    Often    All of the time
4. I've been feeling interested in other people  
 None of the time    Rarely    Some of the time    Often    All of the time
5. I've had energy to spare  
 None of the time    Rarely    Some of the time    Often    All of the time
6. I've been dealing with problems well  
 None of the time    Rarely    Some of the time    Often    All of the time
7. I've been thinking clearly  
 None of the time    Rarely    Some of the time    Often    All of the time
8. I've been feeling good about myself  
 None of the time    Rarely    Some of the time    Often    All of the time
9. I've been feeling close to other people  
 None of the time    Rarely    Some of time    Often    All of the time
10. I've been feeling confident  
 None of the time    Rarely    Some of the time    Often    All of the time
11. I've been able to make up my own mind about things  
 None of the time    Rarely    Some of the time    Often    All of the time
12. I've been feeling loved  
 None of the time    Rarely    Some of the time    Often    All of the time
13. I've been interested in new things  
 None of the time    Rarely    Some of the time    Often    All of the time
14. I've been feeling cheerful  
 None of the time    Rarely    Some of the time    Often    All of the time

## ARC Post-class Questionnaires

Think about how you imagine labour will be and feel when you are having contractions 5 minutes apart or less. For each of the following behaviours, indicate how helpful the behaviour could be in helping you to cope with labour by selecting a number between 1 (not at all helpful) and 10 (very helpful).

**1. I think during labour, it would be helpful to:**

	Not at all helpful				Very helpful					
	1	2	3	4	5	6	7	8	9	10
Relax my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get ready for each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use breathing during labour contractions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself in control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about relaxing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on an object in the room to distract myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on thinking about the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be fully aware of each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think positively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not think about the pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tell myself that I can do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about others in my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate in getting through one contraction at a time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listen to encouragement from the person helping me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## ARC Post-class Questionnaires

Think about how you imagine labour will be and feel when you are having contractions 5 minutes apart or less. For each behaviour, indicate how certain you are of your ability to use the behaviour to help you to cope with labour by selecting a number between 1, (not at all sure) and 10 (very sure).

**1. I am certain that during labour, I will be able to:**

	Not at all sure							Completely sure		
	1	2	3	4	5	6	7	8	9	10
Relax my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get ready for each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use breathing during labour contractions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself in control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about relaxing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on an object in the room to distract myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep myself calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate on thinking about the baby	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Be fully aware of each contraction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think positively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not think about the pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tell myself that I can do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Think about others in my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concentrate in getting through one contraction at a time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listen to encouragement from the person helping me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ARC Post-class Questionnaires

**INSTRUCTION:** This questionnaire is about feelings and thoughts women may have at the prospect of labour and birth. The answers to each question appear as a scale from 0 to 5. The outermost answers (0 and 5 respectively) correspond to the opposite extremes of a certain feeling or thought. Please complete each question by selecting the number belonging to the answer which most closely corresponds to how you imagine your labour and birth will be. Please answer how you imagine your labour and birth will be - not the way you hope it will be.

1. How do you think your labour and birth will turn out as a whole?

	Extremely				Not at all	
	0	1	2	3	4	5
Fantastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. How do you think you will feel in general during the labour and birth?

	Extremely				Not at all	
	0	1	2	3	4	5
Lonely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deserted (isolated)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desolate (unhappy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Glad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abandoned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. What do you think you will feel during the labour and birth?

	Extremely				Not at all	
	0	1	2	3	4	5
Panic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hopelessness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Longing for the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. What do you think will happen when labour is most intense?

	Totally			Not at all		
	0	1	2	3	4	5
I will behave badly (e.g. being unreasonable or rude to others)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will allow my body to take control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will lose control of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. How do you imagine it will feel the very moment you give birth to the baby?

	Totally			Not at all		
	0	1	2	3	4	5
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As it should be	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dangerous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Have you, during the last month, had fantasies about the labour and birth for example...

	Never			Very often		
	0	1	2	3	4	5
...fantasies that your child will die during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... fantasies that your child will be injured during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## ARC Post-class Questionnaires

1. A number of statements that people have used to describe themselves are given below. Read each statement and then select the number that describes how you feel right now, that is, at this moment. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe your present feeling best.

*Right now...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. A number of statements that people have used to describe themselves are given below. Read each statement and then select the appropriate number that describes how you generally feel. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

*Generally...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for your participation and taking time to complete this questionnaire.

Mo Tabib

Midwifery Lecturer PhD student

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## Post-birth Survey

### ARC Post-birth Questionnaires

1. When was your baby born?
  
2. Where did you give birth?
  - Midwife Unit in AMH (Aberdeen Maternity Hospital)
  - Labour ward in AMH
  - Operational theatre in AMH
  - Birth unit/centre
  - Home
  - Other
  
3. How did you give birth?
  - Vaginally/spontaneously
  - Vaginally using forceps or ventouse
  - Via C-Section
  
4. If you underwent a C-Section, what was the reason for it?
  - Not applicable
  
5. How did your labour start?
  - Spontaneously/naturally
  - Induced
  - I did not experience labour (planned C-Section)
  
6. If your labour started at home, how many hours did you stay at home for, before going to the hospital/unit?
  - Not applicable
  
7. If you gave birth at home, how many hours did you labour for, before giving birth to your baby?
  - Not applicable
  
8. If your labour started at home, how many centimetres was your cervix dilated when you were admitted to the hospital/unit?
  - Not applicable
  
9. Did you have an epidural during labour?
  - Not applicable
  - Yes
  - No
  
10. If you had an epidural, how many centimetres was your cervix dilated when you received the epidural?
  - Not applicable
  
11. Did you use any of the techniques introduced in the antenatal relaxation class during labour or birth?
  - Yes
  - No

12. Which of the following techniques did you use during your labour/birth, if any? (You can select more than one answer)

- Not applicable
- Breathing techniques and focusing on my breath
- Counting up or down
- Visualisation
- Positive thinking (affirmations)
- Hypnosis
- Being upright and moving about
- Listening to music
- Immersion in water
- Massage
- Other

13. Did you use any of the techniques introduced in the antenatal relaxation class during pregnancy?

- Yes  No

14. If you have used the relaxation techniques in pregnancy, for what purposes did you use them? (you can select more than one answer)

- Not applicable
- Better sleep
- Alleviate pain and discomfort
- Alleviate fear and anxiety
- Deal with stress
- Before appointments
- Feel calm and relaxed
- Feel positive
- Prepare for labour and birth
- Other

15. How do you think the relaxation class influenced your experience of pregnancy?

- Very positively  Positively  No influence  Negatively  Very negatively

16. How do you think attending the relaxation class influenced your experience of childbirth?

- Very positively  Positively  No change  Negatively  Very negatively

17. How would you describe your overall experience of childbirth?

- Very positive  Positive  Neither positive nor negative  Negative  Very negative

18. Can you, in your own words, briefly tell us how the relaxation class influenced your experiences of pregnancy and/ or childbirth, if any?

## ARC Post-birth Questionnaires

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

1. I've been feeling optimistic about the future  
 None of the time    Rarely    Some of the time    Often    All of the time
2. I've been feeling useful  
 None of the time    Rarely    Some of the time    Often    All of the time
3. I've been feeling relaxed  
 None of the time    Rarely    Some of the time    Often    All of the time
4. I've been feeling interested in other people  
 None of the time    Rarely    Some of the time    Often    All of the time
5. I've had energy to spare  
 None of the time    Rarely    Some of the time    Often    All of the time
6. I've been dealing with problems well  
 None of the time    Rarely    Some of the time    Often    All of the time
7. I've been thinking clearly  
 None of the time    Rarely    Some of the time    Often    All of the time
8. I've been feeling good about myself  
 None of the time    Rarely    Some of the time    Often    All of the time
9. I've been feeling close to other people  
 None of the time    Rarely    Some of time    Often    All of the time
10. I've been feeling confident  
 None of the time    Rarely    Some of the time    Often    All of the time
11. I've been able to make up my own mind about things  
 None of the time    Rarely    Some of the time    Often    All of the time
12. I've been feeling loved  
 None of the time    Rarely    Some of the time    Often    All of the time
13. I've been interested in new things  
 None of the time    Rarely    Some of the time    Often    All of the time
14. I've been feeling cheerful  
 None of the time    Rarely    Some of the time    Often    All of the time

## ARC Post-birth Questionnaires

INSTRUCTION: This questionnaire is about feelings and thoughts women may have after childbirth. The answers to each question appear as a scale from 0 to 5. The outermost answers (0 and 5 respectively) correspond to the opposite extremes of a certain feeling or thought. Please complete each question by selecting the number belonging to the answer which most closely corresponds to how you now think your labour and birth was. Please answer how you now think your birth was - not the way you wish it would have been. If you had a planned C-Section and did not experience labour, you can still answer the questions (interpret the words 'labour and birth' as 'childbirth') and only question 4 may not be applicable to your experience.

**1. How did you experience your labour and birth as a whole?**

	Extremely				Not at all	
	0	1	2	3	4	5
Fantastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frightful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**2. How did you feel in general during the labour and birth?**

	Extremely				Not at all	
	0	1	2	3	4	5
Lonely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deserted (isolated)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desolate (unhappy)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Glad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abandoned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**3. What did you feel during the labour and birth?**

	Extremely			Not at all		
	0	1	2	3	4	5
Panic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hopelessness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Longing for the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



4. What happened when the labour was most intense?

Not applicable

	Totally		Not at all			
	0	1	2	3	4	5
I behaved badly (e.g. being unreasonable and rude to others)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I allowed my body to take control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lost control of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. How was the very moment you gave birth to the baby?

	Totally			Not at all		
	0	1	2	3	4	5
Enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As it should be	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dangerous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Had you, during the labour and birth, fantasies like for example...

	Never		Very often			
	0	1	2	3	4	5
...fantasies that your child would die during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... fantasies that your child would be injured during labour/ birth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1. A number of statements that people have used to describe themselves are given below. Read each statement and then select the number that describes how you feel right now, that is, at this moment. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe your present feeling best.

*Right now...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. A number of statements that people have used to describe themselves are given below. Read each statement and then select the appropriate number that describes how you generally feel. There is no right or wrong answer. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

*Generally...*

	Almost never	Sometimes	Frequently	Almost always
...I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for your participation and taking time to complete this questionnaire.

Mo Tabib

Midwifery lecturer-PhD student

Phone: 07726138786

## **Appendix 8. Ethical approval and amendments**

The doctoral study was initially sponsored by Robert Gordon University (RGU) in the period between October 2015 to September 2018, and the ethical approval was obtained from the School of Nursing and Midwifery Ethics Review Panel (SERP) at the University, as well as NIIS National Research Ethics Service (NRES), and the host NIIS Research and Development (NHS R&D), prior to the commencement of research-related activities. The pilot study for Phase 1 was undertaken during this time.

### **Amendment 1**

In September 2018, due to personal circumstances the study was paused and resumed in September 2019 at Edinburgh Napier University to follow the principal supervisor of the study who had changed institutions. Therefore, the study sponsorship was transferred to Edinburgh Napier University which required an amendment in the study protocol. The amended protocol (Appendix 4) was submitted to and approved by the Research Integrity Committee at Edinburgh Napier University, NHS National Research Ethics Service (NRES), and the NHS Grampian Research and Development (NHS R&D), prior to resuming data collection for Phase 1.

### **Amendment 2**

Due to the sequential nature of the mixed methods study, Phase 2 was not fully developed until the qualitative data in Phase 1 were collected and analysed. Hence, the ethical approval for Phase 2 was finalised immediately prior to commencing data collection for this Phase.

### **Amendment 3**

Following the Covid-19 outbreak in March 2020, the research protocol was again amended to adhere to the social distancing rules and HRA recommendations. These amendments included:

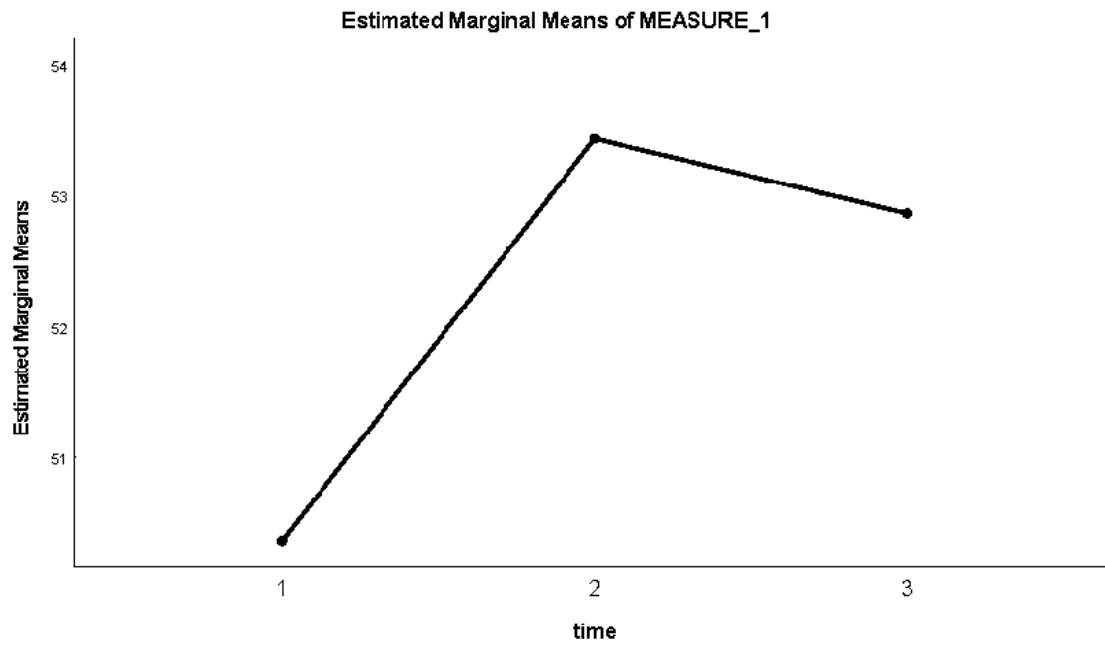
- (a) Change in data collection approach in Phase 1, from face-to-face interviews to audio/video phone calls. This allowed the remaining interviews (10 out of 17) to be conducted remotely.
  
- (b) Change in the method of communication with the participants in Phase 2. To adhere to HRA recommendations, the decision was made by the research team for all communications with the participants to take place online. Therefore, the invite letter, PIS, and consent form along with pre-class survey were sent to the participants via email. The consent form was converted to an online version and integrated in pre-class survey.

These amendments were approved by the Research Integrity Committee at Edinburgh Napier University, NIIS National Research Ethics Service (NRES), and the NIIS Grampian Research and Development (NHSG R&D).

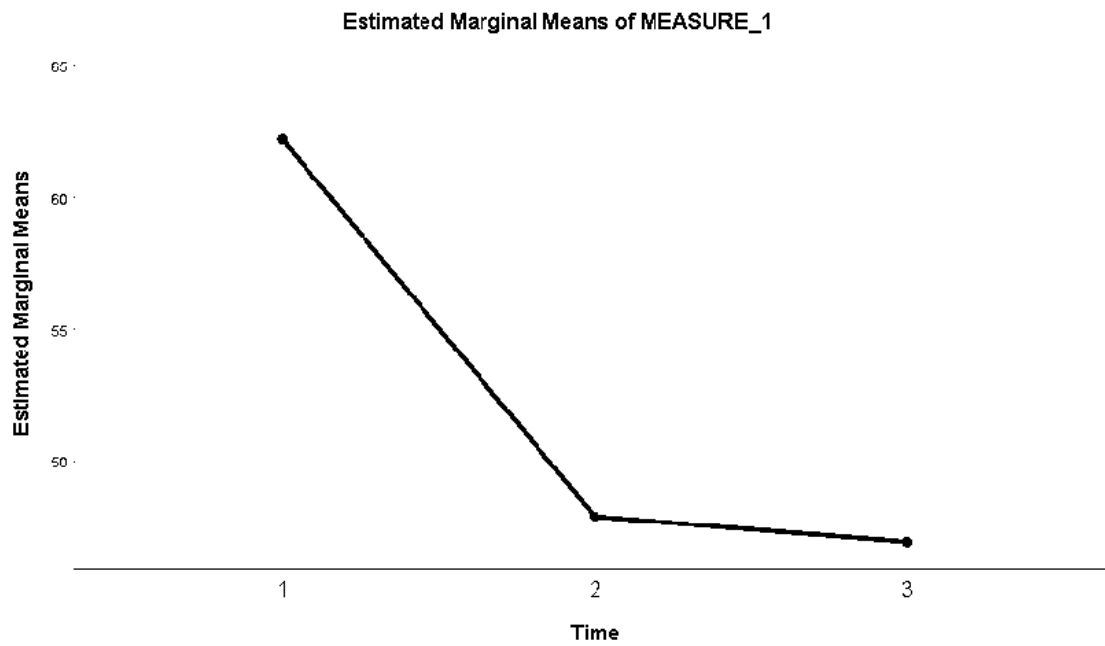
After completion of the study, the researcher submitted a final report to the research ethics committee containing a summary of the study findings and conclusions (WMA 2013).

## Appendix 9. Phase 2 results: Graphs and Codebook

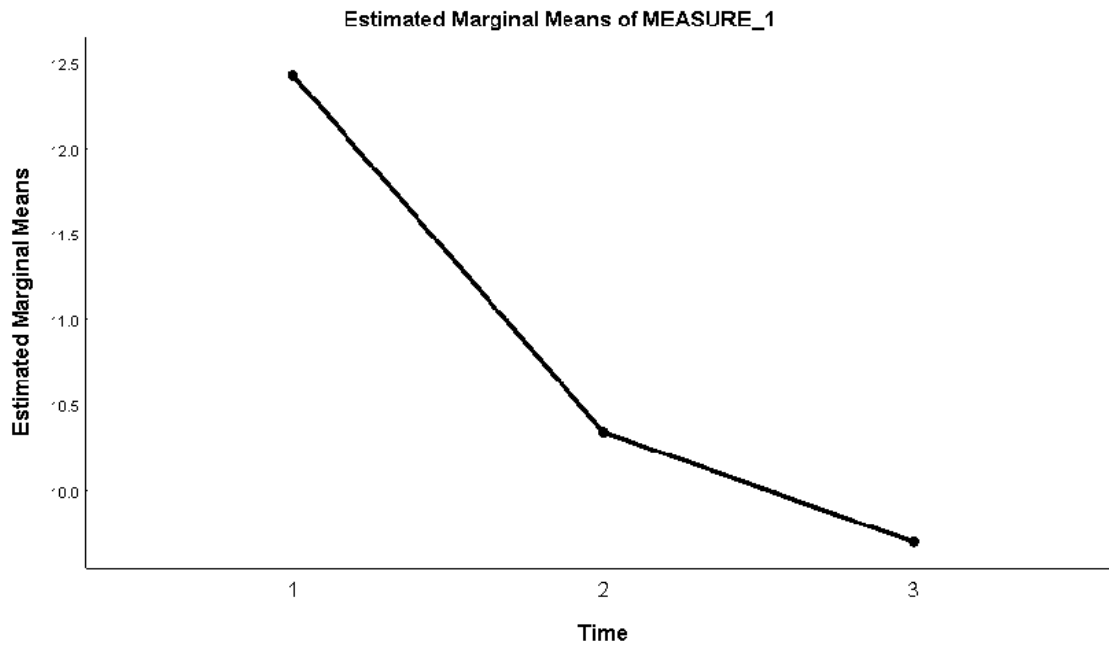
Graphs illustrating changes in mean scores of the selected psychological parameters



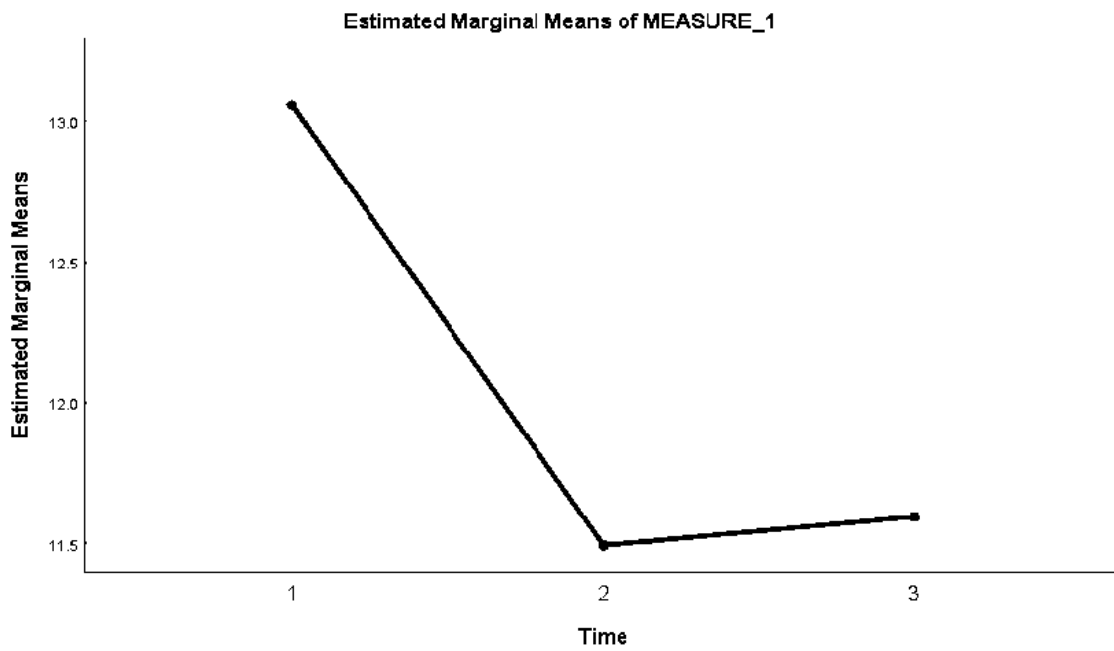
a. WEMWBS (Mental wellbeing)



b. W-DEQ (Fear of childbirth)



**c. State anxiety**



**d. Trait anxiety**

**Phase 2: Mapping 194 references generated from qualitative accounts in the surveys (through NVivo) to the pre-organised codes**

<b>1: ARC turning point (93)</b>	1a. Pre-class emotions towards childbirth (0)	1a.1. Fear	Fear/anxiety (0) Societal views portrayed in the media, the negative birth stories narrated by friends and family (1) Information presented by health professionals. (0)
		1a.2. Factors contributing to fear	Reduced Fear and anxiety (20) Increased confidence (34) Increased in feelings of positivity (17)
	1b. Changes occurred during and immediately after ARC (4)	1b.1. Positive change of emotions: Fear-Confidence Seesaw	Understanding the childbirth physiology (18) Positive stories narrated in class (1) Practice of relaxation exercises (2)
		1b.2. Factors contributing to change	Clam & positive (9) Pain (0) Insomnia (4) Bonding with baby (0) Mental preparation for labour (2) Medical procedures in pregnancy (2) Panic attack (0) Anxiety (3) Labour pain (22) Medical procedures in childbirth (10) Positive childbirth perceptions (27)
<b>2: Inner resource (88)</b>	2a. Inner resource in pregnancy (20)		Transitioning to parenthood (2) Breastfeeding (0) Stress management (1) Physical surroundings (0) Clinical picture (7) Midwife (2) Birth partner (4)
	2b. Inner resource in childbirth (4+ 59)		
	2c. Inner resource beyond birth (2+3)		
<b>3: Space for relaxation (13)</b>			

NB) Theme 3 (unlike themes 1 and 2) did not have subthemes or categories.