Acknowledgements

The research team would like to offer our heartfelt thanks to all of the participants of this study – the new mothers who took time out of their busy lives, caring for their new babies, to complete the survey. Without all of you, this study would not have been the success it has been.

We would like to thank the midwife participants of the focus group who took the time to assist us in the evaluation of the Labour Hopscotch framework.

We wish to thank the board of management of the National Maternity Hospital for their support, in particular the Director of Midwifery and Nursing, Mary Brosnan.

We would like to send equal thanks for the support received from the Head of School, Professor Gerard Fealy, School of Nursing, Midwifery & Health Systems, University College Dublin.

We would like to show our appreciation to all of the members of the Joint Research Network for their support and encouragement and guidance throughout this process.

Most importantly, we continue to remain grateful to the midwives for their ongoing hard work in promoting normal birth in the National Maternity Hospital.

Finally, would like to thank the Nursing & Midwifery Planning & Development Unit (NMPDU) South Dublin, Kildare & Wicklow for funding the project.

Joint Research Network

The Joint Research Network was established in 2007. As part of ongoing development of maternity care services within the National Maternity Hospital (NMH) the Director of Midwifery and Nursing recognised that research links between the NMH and their education partners, University College Dublin, School of Nursing, Midwifery and Health System should be formalised. The Joint Research Network was established to develop a research culture for midwives, student midwives and nurses. The vision and goals of the group were to translate evidence-based midwifery and nursing knowledge into practice. Since 2007, the group has expanded and evolved to include our Ireland East Hospital Group partners.

In response to the increased numbers of interventions reported in the annual NMH audit reports, most specifically the high epidural rates, senior midwifery management in the National Maternity Hospital requested, during a midwifery forum, that midwifery practitioners consider developing and introducing innovations that could reduce the rate of interventions and facilitate normal physiological birth for women. In 2015 a community midwife working within the DOMINO and home birth services in the NMH designed and produced a visual framework entitled *'Labour Hopscotch'.* In order to evaluate the effects of the labour hopscotch on intervention rates, types of birth and maternal control and confidence, the midwife, Sinead Thompson brought the idea of this study to the JRN and together a JRN working group was formed to conduct an output evaluation of the impact of the implementation of the Labour Hopscotch Framework for women during childbirth in the National Maternity Hospital.

Contents

List of Figures

List of Tables

Abstract

Background: In 2018 the national rate of caesarean section in Ireland was 31.2% from a total of 61, 655 births (HealthCare Pricing Office (HPO) Health Service Executive, (HSE), 2018). This year on year increase in caesarean section rates, is reflective of international trends of increasing intervention rates in contemporary maternity care. These changes are occurring in conjunction with international concerns that societal confidence for physiological labour is declining. Nyman (2015) suggests that increased interventions during childbirth pose numerous difficulties for practising midwives supporting normal physiological labour. According to Downe (2016), midwifery knowledge at its best, recognises unique normality and physiological childbirth as well as the formal midwifery evidence-base. In conjunction with increasing intervention rates, epidural rates have continued to rise in the National Maternity Hospital and a concerning rate of 68.4% was recorded in 2017. In response to the aforementioned concerns, a community midwife working within the DOMINO and home birth services designed and produced a framework entitled 'Labour Hopscotch' in 2015 which supports both normal physiological birth and evidence-based midwifery practice

Aims/Objectives: To ascertain the benefits that can be gained for women that use the Labour Hopscotch framework during childbirth. To generate knowledge about women's experiences of the different options offered as part of the hopscotch framework. To gain an understanding of birthing partners perspectives of the framework. To explore midwives' experiences of supporting women during childbirth with the Labour Hopscotch framework. To identify, if the introduction of the Labour Hopscotch framework has influenced women's decision to have an epidural during childbirth. To ascertain the rate of epidurals in the group of women who utilise the Labour Hopscotch and compare to the general population. To identify any improvements necessary to the Labour Hopscotch framework based on women and midwives' perspectives.

Implementation/Methods: The study was conducted over an 18-month period commencing in September 2016, the study design is a mixed-method approach utilising an outcome survey instrument and focus group meetings to obtain data. The survey instrument tool was developed, tested and piloted by the research team. The survey design included several open-ended questions and offered participants an opportunity to provide detailed accounts of their experiences. Following the pilot study, which included 100 participants, an output evaluation survey was conducted with 809 completed responses returned in 2017. Descriptive and inferential statistics were conducted on the data collated. An inductive, data-driven content analysis approach was utilised to interpret the qualitative data obtained. Following the survey, a focus group meeting was held with midwives in 2018 to evaluate their experiences of the processes involved in the current implementation and provision of the Labour Hopscotch framework in the NMH. Content analysis was utilised to interpret the data.

Results/Outcomes: In total 94% of participants stated they found the Labour Hopscotch useful, 72% of participants reported they were confident or very confident to stay home and utilise the Labour Hopscotch to cope with early labour. 79% of women were supported throughout the stages of the Labour Hopscotch framework during childbirth by their birth partner. 40% of participants stated the Labour Hopscotch framework influenced their decision-making around pain relief methods during childbirth. Choice of model of care, type of birth, and age were significantly associated with receiving an epidural. Midwives find the Labour Hopscotch useful as a framework to support women during childbirth.

Glossary of Terms

Active management of labour:

The active management of labour was first developed by Dr K. O' Driscoll in The National Maternity Hospital, Dublin in 1963, as a means of reducing the number of prolonged labours. The protocol aims to keep labour to fewer than 12 hours and operative birth rates to a minimum.

Cuidiú

An Irish voluntary support group established by parents for pregnant women and parents in Ireland.

Domiciliary Birth:

A domiciliary birth is a birth which takes place in the confines of the mother's home and care is provided by a midwife throughout the pregnancy and birth.

HealthCare Pricing Office (HPO)

established in January 2014, to oversee functions all associated with the function of the operation of the HIPE database, including the development and support of the data collection and reporting software, training of coders, data quality, audit, data analysis and reporting and responding to requests for information.

Health Information and Quality Authority (HIQA)

An independent Authority established in May 2007 to drive continuous improvement in Ireland's health and social care services.

Health Service Executive:

Government body responsible for the provision of healthcare and personal social services in Ireland.

Hospital In-Patient Enquiry (HIPE)

The Hospital In-Patient Enquiry (HIPE) scheme is a health information system designed to collect clinical and administrative data on discharges from, and deaths in, acute hospitals in Ireland.

Midwifery-led Care:

Midwifery-led care has been defined as care where midwives are, "in partnership with the woman, the lead professional with responsibility for assessment of her needs, planning her care, referral to other professionals as appropriate, and for ensuring provision of maternity services" (Hatem *et al*., 2008).

National Perinatal Epidemiology Centre (NPEC)

This centre which was set up in 2009 collates and reports national level data on perinatal and maternal morbidity and mortality.

Nursing and Midwifery Board of Ireland (NMBI):

Irish Nursing and Midwifery Board is the statutory body that regulates the nursing and midwifery profession in the Republic of Ireland.

CSTAR

Centre for Support and Training in Analysis and Research University College Dublin Belfield Dublin 4

Chapter One: Background and Introduction

1.1 Introduction

This chapter provides a brief discussion of the background and context to the study. Following this the research questions aims and objectives of the study are presented. Next the conceptual thinking that informed, framed, and underpinned the nature of the inquiry and this research study are discussed in detail. The search strategies and scope of the inquiry are then outlined.

1.2 Background and Context: Contemporary Maternity Services in Ireland

Maternity care has consistently become more medicalised with women in Ireland more likely to experience caesarean section than previously (Brick and Layte, 2011). Similar to international findings, Ireland has seen a decline in the rate of physiological or intervention free birth. The setting for this study, the National Maternity Hospital (NMH) is one of the largest maternity hospitals in Europe The Hospital, is a national referral centre and has an annual birth rate of approximately 9800 births in 2016, 9400 in 2017 and 8434 in 2018. The hospital accounted for just over 13% of the national birth rate of approximately 61, 655 births per annum (HPO, 2018). The hospital had a physiological birth (otherwise known as spontaneous vaginal birth/spontaneous vaginal delivery) rate of 57%, an instrumental rate of 13%, and a caesarean section rate of 28.7% in 2018. The physiological birth rate is higher than the national rate of 53.4 % (HPO, 2018), the caesarean section rate is also lower than the national rate of 31.2% (HPO, 2018).

Although the physiological birth rate is higher than the national average, the number of women who achieved a spontaneous vaginal birth without intervention in the hospital is declining over the last number of years. Indeed, the rate observed in 2018 of 4,942 (57%) from a total of 8671, is significantly lower than the rates recorded in 2012 when, 6.668, representing 66.1% of the total population had a normal physiological birth. The caesarean section rate was 28.7% in 2018, a 1% increase on 2017, and the epidural rate was 57% in 2017. The rates of caesarean section and epidural are increasing annually and reflect the international trend observed of increased medicalisation and interventions associated with of childbirth in the current context. These changes are occurring in conjunction with international concerns that societal confidence for physiological labour is declining.

The National Maternity Hospital supports an ethos of actively promoting physiological birth. The hospital is internationally recognised and accredited for the development of the Active Management of Labour (AML). The package of care provided with the active management of labour is based on the premise that effective uterine action is the key to physiological birth. This approach to

the management of labour introduced in Dublin in 1963 has had a significant influence on both obstetric and midwifery practise internationally. The success of AML in reducing the length of labour for women is apparent as it is now a feature of obstetric care internationally. The National Maternity Hospital also introduced the first piloted Domino and homebirth service in Ireland in 1999. DOMINO stands for Domiciliary IN and OUT and defines a package of midwifery care that includes antenatal, intrapartum care in both hospital and home settings. In addition, women are provided with postnatal care and support in their own homes for a period of 5-7 days. The philosophy of this approach to childbirth is to encourage and support physiological childbirth with minimum interventions. An evaluation of the piloted service was commissioned by the former Women's Health Unit of the Northern Area Health Board under the Chairmanship of Harold Brenner. The findings published in 2001, are known as the Brenner Report. The objectives of the evaluation were three-fold, to assess the viability of the service, to establish the extent to which the aims and objectives of the services were achieved and to examine the main parameters of the outcomes of birth. The evaluation included 240 participants and the findings were extremely positive, maternal and perinatal outcomes in terms of morbidity and mortality were found to be comparable to hospital based obstetric-led services. Satisfaction rates were found to be extremely high, 93% of women who availed of the services reported they were very satisfied. Midwives (n=8) providing the service also reported very high satisfaction rates. Following these positive evaluations from women, their partners and midwives the service was formally established and offered as a midwifery-led service in a specific geographical area, namely south Dublin in 2002. In addition, the service was expanded further in 2008 to include north Wicklow. The driver for this expansion stemmed from a recognition of an increased demand from well-informed women.

Currently, the Domino midwifery team provide an ethos of care that is women-centred and holistic underpinned by the following principles: supporting choice, shared decision-making, and facilitating empowerment for women during pregnancy and childbirth. A central feature of this model of care is the importance of ensuring mutuality and partnership in the relationships between women and midwives. The service was evaluated more recently by Healy *et al*. (2015), who conducted a descriptive survey with postnatal women who were invited to complete a questionnaire 2-8 weeks following birth. A total of 151 women were invited to participate over a three-month period and a response rate of 77% (n=116) was achieved. The evaluation focused on services users' satisfaction with their overall experiences focusing particularly on

the information they received from midwives, antenatal classes, and preparation for childbirth. Additionally, women's views on the following were sought: the first point of contact, continuity of carer, care received during childbirth and the support received following birth during the postnatal period. Satisfaction rates remain high for this model of care with 97% (n=112) of women reporting they were very satisfied with the package of care received. When asked about recommendations to improve the DOMINO and homebirth service, 52 of the 116 (45%) mentioned the provision of hydrotherapy during childbirth, and 35% (n=41) recommended the introduction of a birthing pool facility within the hospital setting. Almost all of the respondents recommended that the service should be expanded upon nationally so that all women had access to DOMINO midwifery services.

International findings, including Cochrane reviews, confirm midwifery-led care and home births are safe options for women (Sandall *et al*., 2016, Hatem *et al.,* 2008, De Jonge *et al.,* 2009, Olsen and Jewell 2000, Olsen 1997, Chamberlain *et al*., 1997, Davies *et al.,* 1996). However, midwifery-led services remain limited in Ireland. Indeed, there has been a lack of commitment or even discussion by health policy makers to support the further development of midwifery-led services (Kennedy, 2012). This is despite the fact that two projects funded by the HSE, namely the KPMG (2008) review of maternity services in the greater Dublin area, and the MIDU study (2009) evaluating and comparing care provided in Irelands two midwifery-led units to obstetric-led care, recommended that midwifery-led services should be developed further. There is also sufficient evidence to suggest that women want midwifery-led services expanded in Ireland (Butler *et al*., 2015, Begley *et al.,* 2011, AIMS Ireland, 2010). In 2015 the Government determined that a programmatic approach, similar to that which was adopted for cancer care services in 2007, was required for maternity services. A robust policy framework was developed in January 2016 with the launch of the first National Maternity Strategy – Creating a Better Future Together, 2016-2026. Two equally important policy documents were published later that year, The National Standards for Bereavement Care Following Pregnancy Loss and Perinatal Death (August 2016) and HIQA's Safer Better Health Standards for Maternity Services (December 2016). The National Women and Infants Health Programme (NWIHP) was founded in 2017 as the implementation body for these important maternity health care policy documents. Several key recommendations that emerged from the national maternity strategy will be implemented over the next ten years as part of the remit of the NWIHP including: ensuring a health and wellbeing approach which underpins both maternity

policy and service delivery; care pathways are clearly defined, evidence-based and publicly available; antenatal care provision encompasses a holistic approach to women's healthcare needs including her physical, social, lifestyle and mental health needs; and women are empowered to make informed decisions about their care, in partnership with their health care professionals, across the trajectory of their care pathway. Central to the aforementioned recommendations is the need for inclusiveness in the delivery of maternity care, that is the need to collaborate and include service users in the development of future maternity care pathways.

1.3 Collaborating with Women Reveals their Desire for Change

There is abundant evidence that women and maternity care professionals want the inconsistencies in terms of choice and accessibility of services addressed (O'Boyle, 2013; AIMS Ireland, 2010; Kennedy, 2010; KPMG, 2008). However, one initiative was undertaken by the HSE (2001) in response to women's concerns about services. As Kennedy (2007) writes:

"A new and innovative woman-centred maternity service has emerged, and for the first time, consumer involvement has become a reality" (p.33).

Public outcry and a demand for local maternity services led to the establishment of a Committee to review maternity services in the region under the Chairmanship of Patrick Kinder. Public submissions were sought and a total of 170 written and 15 oral submissions were received in response. Women repeatedly expressed a lack of confidence with the current maternity services within the North Eastern region. Lack of accessibility to services and lack of communication from service providers were a recurrent theme. The Kinder Report was published in 2001 from the findings of this consultative process and provided a blueprint for a women-centred model of care which delivered women's needs in terms of quality, safety, and accessibility. As a direct consequence of the Kinder report, the first Midwifery-Led Units (MLU) in Ireland were opened in Drogheda and Cavan in 2004. Consumers were also invited to participate in an evaluation of the services provided in these two MLU'S. The HSE, in conjunction with the School of Nursing and Midwifery, Trinity College Dublin, published the findings of this randomised control trial, 'the MIDU study' (2009). The trial compares care in these two MLU's to consultant-led care in the two co-located hospitals; in total 1653 women were recruited in to the trial from 2004 to 2007, of whom 1102 were randomised to midwifery-led care and 551 to consultant-led. The results of this study are important, as it includes an evaluation of a model of care which evolved from initial requests by women in the area. The care in the

Midwifery-Led Unit was evaluated well with 85% (n=938) of women reporting they were satisfied with the care they received in the comparison to 70% (n=386) in the Consultant-Led Unit. The recommendations included that midwifery-led care should be provided nationally and that a broader range of options should be incorporated into the current configuration of services. Although the findings of the MIDU study (2009) are welcomed, there are still many areas of maternity services in the Irish context that need to be evaluated from a user's perspective. The report, however, does clearly illustrate the value of including women in service developments from the onset in order to effectively meet their needs. More recently, McNelis (2013) conducted a qualitative review which evaluated eight women's experiences of care in one of these two midwifery-led units and conclude that women rated highly the homely environment and reduced interventions they experienced in these units. The relationship with midwives was also reported to be enhanced, which the women suggest contributed to their ability to contribute in shared decision-making. Although the numbers are small, the findings are important, as they affirmed the findings from the larger MIDU study (2009).

Internationally, there is a growing recognition amongst maternity policy makers and service providers of two issues: Firstly, the long-term benefits to society from the delivery of quality maternity services and, secondly, the need to ensure that women are central to, or are the focus of, the services provided (Ministry of Health New Zealand, 2012: Care Quality Commission, 2010). What is striking is that, although these same standards are evident in health policy documents in Ireland, they not being applied to measure the quality of maternity services in Ireland. Reviews of the policies and practices that have governed childbirth in Ireland conclude that weak national maternity care policy has stimulated women and professionals to demand the recent changes, most notably, the development of midwifery-led units in Ireland (Mander and Murphy-Lawless, 2013; Kennedy, 2010; Devane *et al*., 2007). A review of maternity services in the greater Dublin area was completed by KPMG (2008). This review included consultation with key stakeholders such as midwives, obstetricians, both nationally and internationally, paediatricians, staff from the Health Service Executive, academic staff from affiliated universities, The Health Information and Quality Authority (HIQA) and General Practitioners. A considerable shortcoming of this review (KPMG 2008) is that consultation did not take place in any format with women or service users directly.

Despite this limitation, the findings of this review do raise some important issues. Firstly, the report suggests that Dublin is somewhat 'out of step' with current best

practice (p.7). The recommendations of the review focus sharply on the issue of choice, suggesting that service user choice in Dublin is limited and falls significantly behind international standards. Of further concern was the inadequacy in obstetric consultant cover, which is provided on a 9-5 basis and not the 24-hour delivery of in-hospital care that is provided in the UK. Indeed, the review considered that *"Currently, we do not believe that this 9-5 cover is a sustainable model"* (p.7). The review suggests the structure of private medical insurance has also played a key role in maintaining consultant-led services. As a result of this, the review suggests that although this dominant obstetric-led model of care provides effective care for women with non-routine clinical conditions, it, in effect, limits the options for the 60% of women who experience a normal pregnancy and birth, whose routine clinical needs could be provided for in a wider range of settings (KPMG, 2008). The findings suggest that women's choice of care is often a function of income, locality and/or private health insurance status rather than their clinical needs. Acknowledging the current international drive to empower midwives and give them greater autonomy, the review group suggests midwives play an equal role in community-led maternity services.

Currently the National Maternity Experience Survey is underway, the first of its kind, a new nationwide survey asking women who have recently given birth about their experiences of Ireland's maternity services — from antenatal care, through labour and birth, to postnatal care. Women who give birth in October (and or November in smaller maternity units) will be invited to participate in the survey. All eligible new mothers will be contacted by post in February or March 2020 and will receive a link to the online survey. The aim of the survey is to learn from the experiences of women to identify where our maternity services are performing well, and where change is needed to improve the quality and safety of care.

1.4 Development of the Labour Hopscotch Framework

In response to the increased numbers of interventions reported particularly epidural rates which was 57% at the time, senior midwifery management in the National Maternity Hospital, encouraged midwifery practitioners to consider developing innovations that could reduce rates of interventions and facilitate normal physiological birth for women. Subsequently one of the community midwives designed and produced a visual framework entitled *'Labour Hopscotch'* that is intended to inform and empower women and their birth partners about measures/steps that could facilitate a physiological birth. The framework was designed as a tool that could be used by women while supported by their birthing

partner during childbirth. In addition, the framework was developed to support midwives as an alternative means of supporting women to achieve a physiological birth. The fundamental principle of the Labour Hopscotch is to inform both women and midwives of the importance of the steps/measures necessary to remain active during labour and in this way possibly reduce interventions such as epidurals. A key benefit of the framework is its transferability, as women can undertake the steps in their home environment and is thus, provided with an opportunity to avoid early admission to the hospital setting. This is important as the setting for early labour is immensely powerful and can be the difference between a fulfilling and a traumatic childbirth experience (Walsh, 2012). A notable benefit is the opportunity the Labour Hopscotch provides for partners to become involved during the birth experience. One of the key benefits of the framework is that it focuses on the important role of the midwife in supporting women in labour and makes the mother-midwife relationship more visible. This is important because there is significant evidence to suggest that in the current configuration of maternity care midwives have little recognition or acknowledgement into either the care they provide or the autonomy of their practise. (Kennedy, 2012; Keating and Fleming, 2009; Devane *et al*., 2007). This results in women during pregnancy and childbirth receiving care that is fragmented and the international evidence highlights that fragmented midwifery care impacts negatively on the mother-midwife relationship (Kirkham, 2010; Hunter, 2008; Walsh, 2006). In addition, this new initiative developed to support women will also contribute to the on-going education of student midwives and was formally incorporated into the midwifery curricula in UCD School of Nursing Midwifery and Health Systems at undergraduate and graduate level in 2016.

"When I was designing Labour Hopscotch I wanted women to realise that they needed to train for labour. I felt they themselves needed to take responsibility for optimal fetal positioning, not the midwives. The midwife's role is to act as coach and mentor for this training schedule. Active birthing needs to be available to all women and their partners, but we must educate and train them correctly, with the right tools and positions. The first draft of Labour Hopscotch was in a ladder format, however I quickly changed my mind as I felt a ladder had to be "climbed" and was a chore, whereas we all "played" hopscotch as children, so this premise sat better for active birthing. The comparison I could make when thinking about Labour Hopscotch was training with my running club. When I started out on my journey as a half marathon runner I was afraid I would not be fit enough to complete the races. My coach encouraged us constantly and consistently. Her training schedules and diet plans helped us weekly to move forward towards achieving our goals. As the weeks passed I was amazed at what my body could achieve. With this came confidence instead of fear. On race day I flew over the finish line and the feeling of euphoria was unimaginable. What I had achieved with guidance and expertise is comparable to what every woman should feel when they achieve a positive birth

experience, with midwifery coaching in the form of Labour Hopscotch !!"

Sinead Thompson
Community Midwife CMM2
Domino Homebirth Scheme NMH

1.5 The Labour Hopscotch

This framework developed from both an understanding of the physiology of labour and midwifery knowledge and expertise gained from many years of supporting women during childbirth. The framework is set out in a systematic manner in conjunction with normal physiological labour and aligns with the normal responses to progression during an active labour (see figure 1 below). The framework is also designed in a manner that ensures the steps can be used antenatally as part of training for an active birth. In addition, this framework was developed to support midwives as a complementary means of supporting women to achieve a physiological birth. The fundamental principle of the Labour Hopscotch is to inform women, their partners and midwives of the importance of the steps necessary to remain active during labour and in this way possibly reduce the rate of epidurals. An appropriate time-frame is provided for each step and is illustrated in a sequential manner that is matched with the progression of labour as demonstrated in figure 1. Women start at the bottom of the hopscotch as they are more active and mobile. As labour progresses, they advance towards the baby's footprints. This is a motivational image for them to visualize and facilitates them to maintain focus during labour. The Labour Hopscotch framework provides women and midwives with a visual depiction of the steps they can undertake to remain active and, in this way, promote optimal fetal positioning which is paramount to achieving a physiological birth. These steps include the use of:

- mobilisation
- positioning
- water-therapy
- non-pharmacological methods of pain relief

Briefly the Labour Hopscotch framework provides women and midwives with a visual depiction of the steps they can undertake to remain active and, in this way, promote optimal fetal positioning which is paramount to achieving a physiological birth. These steps include the use of mobilisation, positioning, water-therapy and non-pharmacological methods of pain relief. An appropriate time-frame is provided for each step and is illustrated in a sequential manner that is matched with the progression of labour as demonstrated in figure 1. Women start at the bottom of the hopscotch as they are more active and mobile. As labour progresses, they advance towards the baby's footprints. This is a motivational image for them to visualize and facilitates them to maintain focus during labour.

To maximise the beneficial effects of the Labour Hopscotch, women need to be

informed of the various steps required from early pregnancy. Because of this the following measures have been undertaken; firstly, the framework is readily available online from the hospital webpage for women to download. Visual images of the framework are also displayed in each area of the hospital. Details are available about the initiative in all of the antenatal care options and midwifery staff are informing women about the framework at the booking appointment. It is currently incorporated into the antenatal education classes with the intention of enabling women to prepare mentally and physically for labour. (Example: They can practice the use of the robozzo scarf, breathing techniques, lunges and squats all of which are important for active birth). In addition, education and training sessions have been provided to the midwifery and other members of the multidisciplinary team about the Labour Hopscotch. Currently the framework is being utilised by women in labour and the feedback is very positive from women, their partners and midwives. A decision was made to promote and evaluate the framework formally to ascertain the outcomes for women. The current evaluation is assessing the usage of the framework; the benefits reported by women and their partners, an assessment of the epidural rate since the framework was introduced.

A UCD summer scholarship was awarded to a third-year midwifery student who was integral to the success of the data collection process for this study. The student was an active member of the research team and subsequently joined the Joint Research Network group. In total 809 completed questionnaires were returned, of which nearly 80% were received over the duration of the summer scholarship time frame.

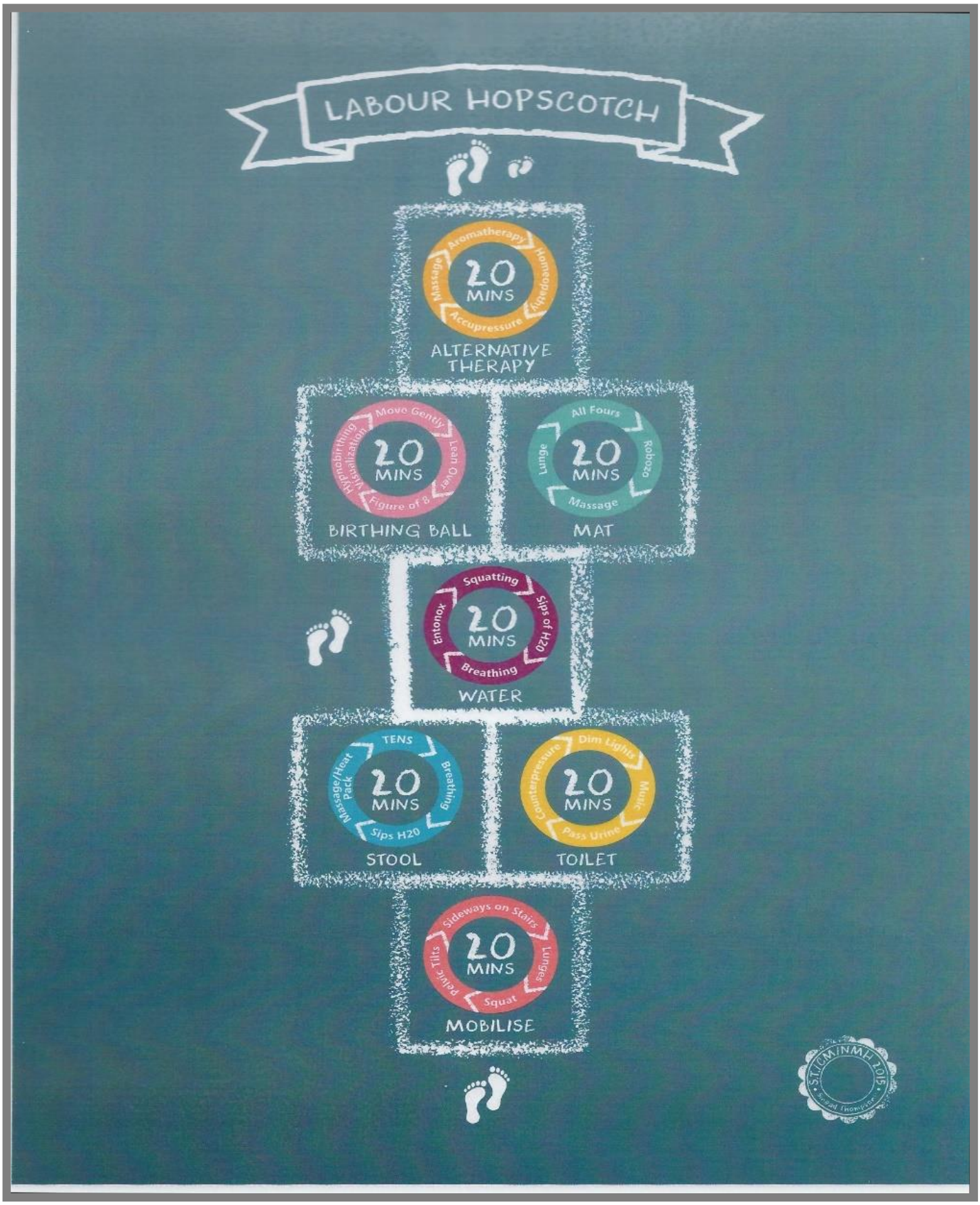


Figure 1: Labour Hopscotch Framework

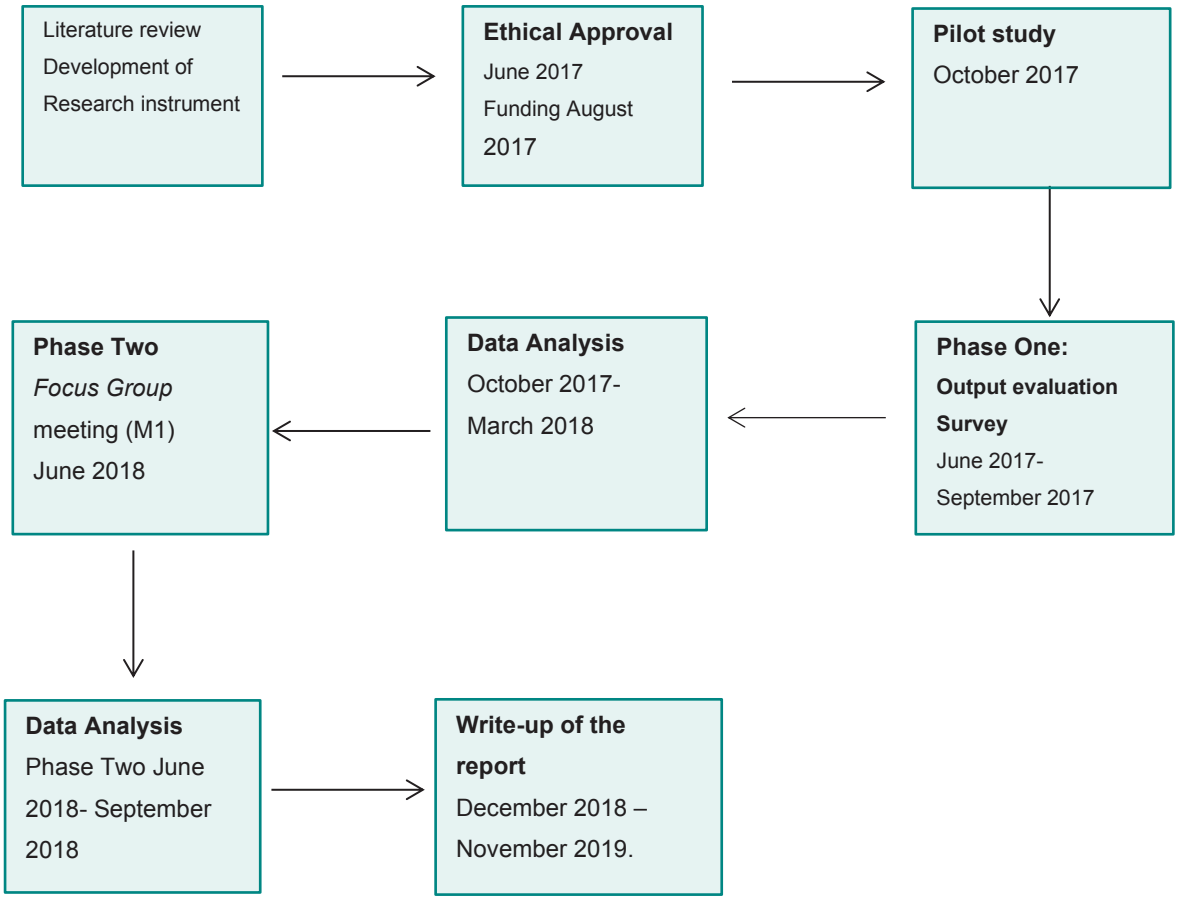


Figure 2: Outline and Timeframe of each Phase of the Study

Chapter Two: Review of the Literature

2.1 Introduction

This chapter will present the findings from a critical review of the literature pertinent to the focus and scope of the study. The main themes presented relate to evidence-based practice around women's birthing experiences internationally, factors related to improving women's birth experiences such as, the effects of mobilising, hydrotherapy and alternative remedies during labour will be outlined. Concepts that influence women's perceptions of their birth experience such as control, choice, continuity of carer, partner involvement and the mother midwife relationship are presented. A review of the literature was undertaken in the following databases: The Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus; Elsevier Science Direct; and Cochrane Database. The keywords 'positive birth'; 'normal birth'; 'mobilising during labour'; 'labour support'; 'water therapy during labour'; 'alternative therapy during labour' and 'positions in labour' were used. The search was limited to the English language only. Data was further supplemented by performing manual searches, including government policies, standards and published books on this topic. Finally, scanning references from retrieved studies, throughout the study, was also performed, using what is described by Greenhalgh and Peacock (2005) as "snowballing".

2.2 Positive Childbirth Experience

Childbirth is a significant event in a woman's life and for the majority of women pregnancy and childbirth are physiological life events (WHO, 2018). A positive birth experience must be seen as a significant end point for all women undergoing childbirth (WHO, 2018). This is due to the impact that a woman's birthing experience can have on her, both physically and psychologically, as well as the impact on wellbeing of her child and family (Maimburg *et al*., 2016; Reisz *et al*., 2015; Waldenstrom *et al.,* 2004). The World Health Organisation (WHO) 2018 published a guideline for intrapartum care, to achieve a positive birth experience. In this guideline, birth is defined as:

> *"one that fulfils or exceeds a woman's prior personal and sociocultural beliefs and expectations, including giving birth to a healthy baby in a care optionally and psychologically safe environment with continuity of practical and emotional support from a birth companion(s) and kind, technically competent care optional staff*" (p.1).

The guideline includes recommendations for supportive birth partners, mobilising and upright positions during labour, and a competent and kind care giver. The available evidence reflects this, as highlighted by Maimburg *et al*. (2016) and Reisz *et al*. (2015) who assert that having a positive birthing experience has a direct

impact on maternal self-confidence, self-esteem and the mother baby relationship and bonding, both in the immediate period following birth and long term. Additionally, the risk of postpartum anxiety is decreased when a woman has a positive perception of her birthing experience (Bell and Anderson, 2016). Also, of note is the finding from women's birth narratives that women experience a sense of empowerment when they perceive they had an experience as positive birth experience (Aune *et al*., 2015). Perception of control, exercising informed choice, shared decision-making and continuity in trusting relationship are common features of positive birth according to the international evidence (O'Brien *et al.,* 2018; Larkin *et al.,* 2012)

Perceptions of control have been demonstrated in numerous studies as a strong predictor of a positive birthing experience – control during interactions with staff, control in ones' own behaviour, and the feeling of physical control during contractions (Larkin *et al*., 2012; Waldenstrom *et al*., 2004; Green & Baston, 2003). Social support has also been identified as an important facet of a woman's birth experience (Green & Baston, 2003). Participants in a qualitative study undertaken in the UK believed that the way a woman views an upcoming birth, mentally, makes a positive difference in her experience of childbirth and promoting these beliefs (Borrelli *et al*., 2018). Previously Whitburn *et al*. (2004) revealed similar findings, suggesting that a woman's state of mind influences her relationship with her body and her pain experience. Informed choice, part of a shared decision-making process between a woman and her care provider, is key to providing optimal care and facilitating the woman to remain in control of her birth (O'Brien *et al*., 2018, Ondeck *et al*., 2014). According to Ondeck *et al.,* (2014) midwives need to believe in the physiological process of birth in order to encourage freedom of movement and offer alternative coping strategies during labour in a supportive and accommodating manner.

2.3 Normal Birth

Promoting birth as a normal life event can be challenging within a healthcare system which views birth as a risky medical event (McAllister, 2014). Normal labour is defined by the WHO 2018 as a pregnancy of more than 37 to less than 42 completed weeks' gestation, with a singleton fetus, vertex presentation, and spontaneous onset (Chambers and Porter, 2001). Chambers and Porter (2001) developed the normal labour measurement tool addressing the priorities for perinatal care outlined by the WHO at the second Perinatal Task Force meeting (2000, sited in Chambers and Porter, 2001). This tool, called the Bologna score, outlined the priorities of care during labour as ensuring that care is de-medicalised, holistic, evidence-based and family-centred. Romano and Lothian (2008) and McAllister (2014) outline six

maternity care practices which are recommended to support normal, physiological birth. These are: allowing labour to start on its own, freedom of movement during labour, continuous labour support, spontaneous pushing in non-supine positions, no separation of mother and baby and no routine interventions. McAllister highlights the importance of promoting physiological birth and convincing mothers and their partners that there is nothing to fear. The more a woman believes that birth is natural, the more natural decisions she makes, and having stronger beliefs that birth is a natural process is associated with less fear of childbirth (Preis *et al*., 2018). While hospital culture influences midwives' practice, it is also possible for midwives to influence others (Thompson *et al*., 2016).

2.4 Negative Childbirth Experience

The evidence suggest that negative birth experiences do occur, for example 67% of women from one Danish study describing their birth experience as positive, five years after birth (Maimburg *et al*., 2016). The remaining 33% were more likely to have had interventions, such as an epidural, continuous monitoring, and instrumental birth. Similar associations were found between negative birthing experiences and interventions in Waldenstrom *et al's* (2004) Swedish study. While there is a naturally gradual increase in stress hormone levels throughout labour, excessive fear or anxiety increases the stress hormones further, resulting in decreased frequency or intensity of contractions, thus disrupting the physiological process of birth (Romano and Lothian, 2008). Complications during childbirth can lead to a fear of childbirth in subsequent pregnancies (Sjogren, 1997). Fear of childbirth is strongly associated with psychological distress, the risk of postnatal depression and the risk of parenting stress (Pazzagli *et al*., 2015). Carlsson et al. (2015) found a correlation between fear of childbirth and low self-efficacy, outlining the importance of promoting self-efficacy, antenatally, to reduce womens' perceptions of labour pain and anxiety. Primiparous women are at a higher risk for a negative childbirth experience, as are multiparous women who previous delivered by elective caesarean section (Waldenstrom *et al*., 2004). Type of birth was also found to have a direct impact on a mothers' subjective birth experience by Reisz et al. (2015). The physical birthing environment can have an effect on women's birthing experiences and their feelings of anxiety, with some women describing their hospital as threatening and unwelcoming (Larkin *et al.*, 2012). Birthing environments, however, can be easily rectified by moving furniture around, dimming lights, lowering curtains and attempting to reduce unnecessary noises.

The most cursory review of the literature exploring choice in the context of Irish maternity services reveals the limitations

that exist (O'Brien *et al*., 2018, Mander and Murphy-Lawless 2013, Kennedy 2010). Choice of place of birth other than a hospital setting is considered to be particularly limited (O'Boyle 2013). It is within this background that this study was undertaken. Despite rhetoric in maternity care policy and documentation highlighting the importance of informed choice and women-centred care successive governments has been accused of failing to take on their responsibilities with regard to supporting womens choice for a more physiological approach to childbirth (Kennedy 2012, Devane *et al*., 2007).

2.5 Labour Pain

Lowe (2002) highlights in her theoretical review that labour pain is highly abstract and subjective and is not simply the transmission of stimuli from nociceptors. Pain is a biological, psychological, and cultural experience that involves emotional and cognitive processes (Gibson, 2014). Some women describe labour pain as a 'positive' and a 'productive' pain, with others describing it in a more negative way, such as 'frustrating' and 'chronic' (Whitburn *et al.,* 2014). The fear-tension-pain syndrome, a concept developed by Grantley Dick-Read in the 1940's, explains the physiology behind how fear can increase pain intensity during labour (Gaskin, 2013). The fear of pain produces true pain through a medium of pathological tension. This tension reaches the uterine muscles preventing complete relaxation and expansion between contractions. Further, the stimulation of the sympathetic nervous system constricts the arterial blood vessels which bring oxygen to the contracting muscles. This syndrome explains the origins of severe pain felt by some women while not felt by others and has led to a discovery of a simple method of avoiding severe pain by avoiding fear, reducing tension, thereby minimising pain (Gaskin, 2013). Two opposing models of maternity care, the midwifery model and the medical model, manage labour pain in different ways (Simpkin and Bolding, 2004), using non-pharmacological and pharmacological methods of pain relief.

2.6 Pharmacological Pain Relief

The medical model aims to eliminate the pain using pharmacological methods, such as epidural, while the midwifery model emphasises the prevention of suffering. Suffering exists when the physical sensation of pain is magnified by negative psychological influences (Simpkin and Bolding, 2004). Epidural has been found to increase the risk of instrumental birth (forceps/ventouse) seven-fold and pethidine has been found to double the likelihood of instrumental birth (Adams *et al*., 2015). Adams *et al*. also found an association between these methods of pain relief and a reduced likelihood of initiating breastfeeding and continuing it for more than six weeks. Simpkin and Bolding (2004) explain that the intention to

eliminate pain with pharmacological pain relief such as epidural can cause more suffering as the woman becomes more powerless and dependent on others for the management of her pain and other aspects of her labour and birth. Additionally, women can have a negative birth experience when their preferred method of pain relief, such as epidural, is ineffective or unavailable (Gibson, 2014). Furthermore, even effective pain relief has not been found to lead to greater satisfaction with a woman's birthing experience (Maimburg *et al*., 2015; Whitburn *et al*., 2004).

2.7 Non-Pharmacological Pain Relief

Simpkin and Bolding (2004) explain that, rather than making the pain disappear, the midwifery model allows the midwife to assist the woman to cope with the pain, build her self-confidence, and maintain a sense of wellbeing. This increases the birthing woman's sense of accomplishment, satisfaction and fulfilment, and reduces suffering even if the pain is significant (Gayeski et al., 2015; Gau *et al.,* 2011; Simpkin and Bolding, 2004). Many factors affect a woman's perception of labour pain, such as the use of coping strategies, the woman's confidence, the physical environment and maternal anxiety (Whitburn *et al*., 2014; Lowe, 2002). Coping strategies which have been found to reduce labour pain are relaxation, distraction, movement, breathing techniques and focusing (Whitburn *et al.,* 2004; Simpkin and Bolding, 2004; Escott *et al*., 2004; Lowe, 2002). Gayeski et al. (2015) assessed the use of non-pharmacological methods of pain relief during labour. Many of the methods which were available in the obstetric centre where the study was conducted were adopted by the healthcare professionals, with the support and participation of the birthing partners. These methods included warm showers, breathing techniques, positions changes, birthing ball, focused attention and massage. The women reported an 88% satisfaction level. The highest levels of satisfaction were reported on the focused attention, the warm showers and the birthing ball. Personal control was found to be the most important factor in the concept of pain relief in a

UK study (McCrea and Wright, 1999). Whereas environmental factors such as lighting, restrictive space for movement, temperature and noise could have the opposite effect, as well as the verbal and non-verbal communication of persons present (Lowe *et al.,* 2002). Once admitted to the labour ward, midwives should work within their capacity to reduce noise levels and interruptions, alter the lighting, offer equipment for music and props such as birthing balls, showers, birthing stools and anything else that will promote calm and mobility.

2.8 Maternal Positions and Mobility

Freedom of movement is of central importance to many birthing women (Hall *et al*., 2018; Gayeski *et al.,* 2015) and highly recommended (Ondeck 2014). Pelvic dimensions vary, according maternal movement such as walking, swaying, lunging and extending the legs (Simpkin & Bolding, 2004). Pelvic dimensions also vary according to maternal position (Simpkin & Bolding, 2004; Michel *et al*., 2002). For example, the saggital outlet and interspinous diameter in the squatting and hand-to-knee positions exceed that of the supine position (Michel *et al.,* 2002). Additionally, semi-reclining on a firm mattress may impair posterior movement of the coccyx and sacrum, whereas side-lying will not (Michel *et al*., 2002). The squatting position was reported by Michel *et al.* (2002) as aiding to stretch the adductor and rotator muscles, again changing the pelvic outlet measurements (Michel *et al.,* 2002). Another position mentioned by Michel et al. (2002) was the dangle position (supported squat or using a birth sling). This position removes all external pressure from the pelvis, leaving the internal pressure exerted by the fetal head unopposed (Michel *et al.,* 2002). Women have noted positive effects from movement in labour (Escott *et al.,* 2004). For example, position changes have been found to reduce pain (Simpkin and Bolding, 2004; Adachi *et al*., 2003) and increase satisfaction (Gayeski *et al.,* 2015). Position changes can also prevent and correct complications of labour, such as poor progress, malposition of the fetus and 'back' labour (Thompson *et al*., 2016; Romano and Lothian, 2008). Using various position changes during the second stage of labour also allows the woman to respond to the fetus' changing position as they descent and rotate through the birth canal (Roman and Lothian, 2008). Michel *et al.* (2002) suggest that maternal movement and position changes, through this encouragement of fetal rotation and descent, improve the odds of a vaginal birth. Indeed, a Cochrane review confirmed this and reported decreased odds of having a caesarean section birth and an epidural when labouring in upright and ambulant positions, compared to recumbent positions and bed care (Lawrence *et al*., 2013). The same review reported that the upright and mobilising cohort reduced their first stage of labour time by a mean of 1hour22minutes.

The hospital environment, such as the bed being central in a birthing room, continuous fetal monitoring and intravenous infusions have been cited as barriers to using non-supine positions during labour (Thompson *et al.,* 2016; Ondeck *et al.,* 2014). The use of non-supine position, as opposed to supine or lithotomy position, for birth reflects the presence of evidence-based practice and indicates the attitude of caregivers (Chambers and Porter, 2001). Midwifery support in encouraging freedom of movement is an integral aspect of midwifery care during labour, as a lack of knowledge among women regarding the use of non-supine positions, and its effect on physiological birth, has been noted by midwives in Thompson et al's Dutch study (2016). Experienced midwives can make a significant contribution by supporting less experienced and less confident midwives to encourage position changes, therefore supporting physiological birth and providing optimal intrapartum care (Thompson *et al*., 2016; Ondeck *et al.,* 2014).

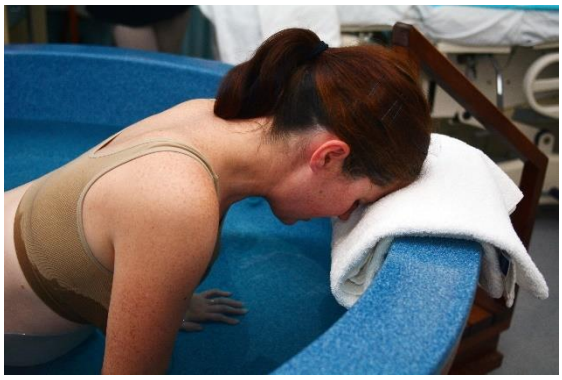
2.9 Relaxation Techniques

Many relaxation techniques are used by women in labour, such as breathing techniques, massage, yoga and music (Smith *et al*., 2018; Cicek *et al*., 2017; Gayeski *et al.,* 2015; Adams *et al*., 2015). Relaxation and breathing techniques are easy to use; don't cause any harm and can be advantageous for many women in labour (Gayeski *et al.,* 2015; Simpkin and Bolding, 2004). A large Cochrane review looked at whether relaxation techniques, such as mentioned above, would help to reduce labour pain and improve women's experiences of labour (Smith *et al*., 2018). Relaxation, yoga and music were all found to reduce the intensity of pain. Some of the trials reviewed in this Cochrane review also reported a greater sense of control, greater satisfaction with pain relief and a greater satisfaction in the birthing experience. A significant reduction in anxiety level has been identified among women trained in breathing techniques, compared to women who had not (Cicek *et al*., 2017).

Additionally, duration of labour has been reported as being lower in women given breathing technique training (Cicek *et al*., 2017). Breathing techniques were also reported as being associated with increased likelihood to breastfeed, as well as a decreased likelihood of the baby being admitted to the neonatal unit for special care (Adams *et al*., 2015). These techniques are recommended for all women, whether they want a natural or a more medicalised birth (Muñoz-Sellés *et al.,* 2013).

2.10 Water Therapy

Water immersion, in batHs and birthing pools, during labour and birth is becoming increasingly popular, in both midwifery-led settings (Cluett *et al*., 2018) and obstetric settings (Barasinski *et al.,* 2018; Gayeski



et al., 2015). A Cochrane review (Cluett *et al*., 2018) found that water immersion may reduce the use of regional analgesia and does not have any negative effects on maternal or neonatal outcomes. The physiology behind water immersion during labour is that it can reduce catecholamine release, increase endorphin release, relax the muscles and promote buoyancy in the water, decreasing the pressure on joints and limbs and allows the freedom of movement (Cluett *et al.,* 2004). Simpkin and Bolding, 2004 found that water immersion during labour reduces the need for regional analgesia and also found an increase in birth satisfaction and feelings of control. Similarly, water therapy using showers has been found to be safe, effective and usually accessible during labour (Stark *et al*., 2011). It is recommended, however, that showers be limited to 30minutes at a time, that the woman continues to drink cold water and that there is adequate ventilation in the shower room (Stark *et al.,* 2011).

2.11 Massage

Massage can have extremely desirable effects on labouring women, such as reducing her perception of pain, distracting her from the pain, reducing her blood pressure and her anxiety levels, as well as improving her mood and feelings of support (Gallo *et al.,* 2013; Simpkin and Bolding, 2004; Chang *et al*., 2002; Field et al., 1997). In some instances, massage simply changes the sensation of pain from sharp

to dull pain (Chang *et al.,* 2002). Many theories have been proposed to explain the mechanism by which massage may reduce pain levels. The tactile stimulation of massage is thought to work either by blocking the pain impulses to the brain or by stimulating local endorphin release and reducing cortisol levels (Chang *et al*., 2002). Massage has been identified by women as an effective coping strategy (Escott *et al.,* 2004). Counter pressure in particular has been studied by Rejeki (2016) who reported a significant reduction in pain after receiving counter pressure. Counter pressure can be easily taught to the birthing partner (Rejeki, 2016). Furthermore, Field *et al.* (1997) reported shorter duration of labour and shorter hospital stay in his massage group of labouring mothers compared to a control group. Other advantages of massage are the ease in initiation, the lack of side effects, the lack of additional costs, and the control women feel by actively managing their own labour pain (Ali & Ahmed, 2018). The effects of massage appear to be beneficial beyond the immediate intrapartum period with women who used massage in Adams et al.'s (2015) study being more likely to continue breastfeeding beyond the initial six weeks postpartum. The authors suggested that this could be associated with increased oxytocin levels and recommend further research with this regard. Birthing partners being taught to apply massage to the birthing woman also increases the satisfaction of the birthing experience for the couple because emotional support is also received (Gallo *et al.,* 2013; Rejeki, 2016; Chang *et al.,* 2002).

2.12 Birthing Ball

The birthing ball is an additional choice to attain comfort and pain relief for labouring women, as well as promoting their sense of control and self-efficacy during the birth process (Kwan *et al.,* 2011, Gau *et al.,* 2011). The birthing ball facilitates the adoption of a different position and has the benefit of the effects of gravity (Taavoni *et al*., 2016). Women using a birthing ball have been found to have significantly less pain than women who do not use a birth ball (Taavoni *et al*., 2016). It has also been suggested that the novelty of the big round ball add an element of play and is therefore a great way to reduce tension and stress (Gau *et al.,* 2011). Gau *et al* (2011) outline the different positions which can be used with the ball: the woman can sit, rocking, forward-back, figure of 8 and side-to-side; she can also stand leaning forward on the

ball, against the ball on the wall; she can also kneel on the floor and lean over the ball, rocking the pelvis; she can also squat, leaning against the ball on the wall. It was also suggested that offering the birth ball is a tangible means of support. Regular ball use in late pregnancy also aids good posture, prevents lower back pain and improves alignment (Watkins, 2001, cited in *Gau et al.*, 2011, p. 298). Further, practicing the use of the birth ball during pregnancy may facilitate self-efficacy during labour, according to Gau *et al.* (2011). Therefore, midwives should offer advice to women early in their pregnancy about the benefits of the use of the birthing ball during pregnancy as well as during labour.

2.13 Alternative Therapies

Alternative therapies are being increasingly used during pregnancy and birth, and as midwives are responsible for looking after women during labour and birth, their knowledge of these is imperative (Taavoni *et al.*, 2016; Muñoz-Sellés *et al.,* 2013; Gau *et al.,* 2011). The main benefits of choosing non-pharmacological methods of pain relief is that they are safe, non-invasive, do not produce the side effects that pharmacological methods produce and they are easily applicable and inexpensive (Santana *et al.,* 2016). Equipment and resources should also be provided in order to be able to offer these therapies to labouring women (Muñoz-Sellés *et al.,* 2013). Some of the most common non-pharmacological therapies are acupuncture, acupressure, aromatherapy and the use of transcutaneous electrical nerve stimulation (TENS).

2.13.1 Acupuncture

Acupuncture, an important and ancient component of traditional Chinese medicine, is believed to initiate, control or accelerate physiologic function, thus heal illness, correct organ malfunction and reduce discomfort (Simpkin and Bolding, 2004). This works by inserting fine needles into the skin at a combination of specific points (channels of life-energy known as “Qi”), followed by heating, rotating or electrically stimulating the needles. Meridians are the patHs through which Qi flows (Ozgoli *et al.*, 2016). For labour pain, placement of the needles depends on the stage of labour, location and degree of pain and level of maternal anxiety, fatigue or tension. Simpkin and Bolding (2004) found three randomised controlled trials assessing the effectiveness of acupuncture on labour pain and all three trials found a significant reduction in labour pain. Furthermore, there are no risks to women who use acupuncture, but it does require extra training for midwives (Simpkin and Bolding, 2004).

2.13.2 Acupressure

Acupressure, also a component of traditional Chinese medicine, is based on the principles of acupuncture (Ozgoli *et al.*,

2016). There are two specific acupuncture points which can be stimulated, through pressure, to reduce labour pain. The first is the main point of the large intestine meridian, the L14 acupoint. This is located on the dorsal of the hand, between the first and second metacarpi (Ozgoli *et al*., 2016). The second is a major point on the bladder meridian, the BL32 acupoint. This is located on the second foramen of the sacrum (Ozgoli *et al.,* 2016). Akbarzadeh *et al.* (2014) assessed the effects of acupressure on BL32 acupoint compared to a control group and found a significant reduction in pain intensity as well as an improvement in the birth outcomes.

2.13.3 Transcutaneous electrical nerve stimulation (TENS)

TENS is a non-pharmacological method of pain relief during labour using electrodes applied to the woman's lower back, with the woman being able to control the intensity and frequency of the low-voltage electrical impulses emitted from the TENS device (Santana *et al*., 2015). Studies have reported a significant reduction in labour pain intensity with the use of TENS (Santana *et al*., 2015; van der Spank *et al.*, 2000). Van der Spank et al. (2000) also reported an increased maternal satisfaction with the use of TENS. Santana et al. (2015) reported a mean time to pharmacological pain relief of five hours later than their control group. A review by Bedwell *et al.* (2011), including 14 studies and over 1200 women found no adverse effects from the use of TENS, and although they did not find a significant difference in satisfaction with pain relief, they did report that women were less likely to report severe pain.

2.13.4 Aromatherapy

As previously mentioned, anxiety and fear are the key elements of the pain cycle. Aromatherapy, which draws on the healing powers of plants, can help to maximise maternal coping mechanisms and control (Burns *et al.,* 2000). There are very few studies evaluating aromatherapy for pain relief in labour. Although a Cochrane review (Smith *et al.,* 2011) found no adverse effects from the use of aromatherapy, the two randomised controlled trials included in the review found no difference in pain intensity. A comprehensive study, however, conducted over an eight-year period (Burns *et al*., 2000) evaluated the use of aromatherapy (Sometimes known as essential oils) during labour for different reasons, such as to enhance labour, nausea and anxiety. A variety of oils were used for the different purposes. Mode of application also varied, such as footbatHs, birthing pools, massage, droplet on palm, clothing or forehead, inhalation via bowl, perineal lavage, all of which can be used in a healthcare setting. Aromatherapy was found to aid in the woman's ability to mobilise, increase maternal control and reduce anxiety. The study was not randomised therefore no comparisons

were made with women not using oils. There was an identification, however that the spontaneous vaginal birth rate was higher than that of the hospital average, and that 14% of the participants used aromatherapy as their only form of pain relief, 37% of which were primigravidas. As the administration of aromatherapy oils is not restricted to mothers with uncomplicated pregnancies, midwives can be enabled to improve their skills over a wide range of conditions, if they were trained in aromatherapy.

2.14 Support and the Importance of Relationships

Communication, kindness and competency are integral to a positive birthing experience for a woman and her partner (Waldenstrom et al., 2004). Continuous support has been shown to reduce the need for interventions such as epidural, caesarean section and instrumental birth (NICE, 2017; Gayeski *et al.,* 2015). The National Institute for Health and Care Excellence (NICE) guideline (2017) for intrapartum care state that one-to-one care during established labour is imperative due to the positive effects mentioned. A Cochrane review reported a reduction in epidural and an increase in maternal satisfaction in the birthing process (Kobayashi *et al.*, 2017). A further Cochrane review reported an increased possibility of vaginal birth, higher 5-minute apgar scores and more positive feelings about childbirth experiences, as well as a reduction in duration of labour and the use of analgesia (Bohren *et al.*, 2017). Regardless of birthplace, when a trusting relationship is formed between a midwife and mother, the mother is more likely to have positive memories of the childbirth experience (Borrelli *et al.*, 2016). A midwife's support and encouragement help to support the physiological process of birth and promote a woman's inner strength (Thompson *et al.*, 2016; Dahlberg *et al.,* 2016; Gayeski *et al.,* 2015). Respecting the physiology of labour means doing less to the woman and instead, simply being with the woman, responding to her emotional and physical needs (Romano and Lothia, 2008). Additionally, encouraging a woman to trust in physiological birth empowers the midwife to promote it (Thompson *et al.,* 2016). Midwives see their role as promoters and protectors of physiology, even when interventions are necessary (Thompson *et al.,* 2016).

A supportive birthing partner has also been shown to calm the mother, increase her feelings of control, and reduce feelings of panic during labour and birth (Aune *et al.*, 2015; Gayeski *et al.,* 2015; Escott *et al.*, 2004; Green & Baston, 2003). A review of the literature about birthing partners, undertaken by Longworth et al. (2015) indicated a number of words to describe roles adopted by birthing partners. Some of these include team-mate, advocate, coach, witness and support (Longworth *et al.*, 2015). While some birthing partners

assume a passive role, many others take on a more active role, providing practical support and comfort measures (Longworth *et al*., 2015). The birthing partner has been referred to as the voice of reason and an advocate while the woman is "away with the fairies" (Borrelli *et al.,* 2018, pp. 42). Partners' attendance in antenatal classes, as well as midwife support has been identified as a facilitator to their active involvement in labour and birth (Longworth *et al*., 2015). Informational support for fathers has also been reported as a significant facilitator (Xue *et al.,* 2018). Poor communication from healthcare professionals and pain medication such as epidural has been identified as a barrier to partners' involvement (Longworth *et al.,* 2015).

2.15 Remaining at Home

Many women feel confident staying at home for as long as possible (Hall *et al*., 2018; Aune *et al.,* 2015). Women use coping strategies such as mentioned above (birthing balls, water therapy, massage and distraction) while at home and appreciate the comfort of being in their own surroundings (Cheyne *et al*., 2007). Hall *et al*. (2018) describe the importance of women feeling that they are in a safe environment in order to promote a positive birthing experience. Staying at home increases the chances of the woman staying more mobile as they are not restricted by space, being monitored or receiving pharmacological pain medication which will reduce mobility as well as the negative effects mentioned above (Simpkin and Bolding, 2004). Additionally, women remain free to eat and drink as labour is taxing and requires nutrition and energy (Roman and Lothia, 2008) and hospital policies restrict eating in labour. Women who present too early to hospital and are informed that they are not in labour, or women who phone the hospital and are told that it is too early to come into the hospital can become very distressed and disappointed by this (Beake *et al*., 2018; Baxter, 2007; Cheyne *et al.,* 2007). Some concerns were raised by Cheyne et al.'s participants regarding the safety of their baby and of themselves in staying at home. Studies have shown anticipation about staying at home by the women and their partners, with many needing reassurance (Nolan & Smith, 2010; Barnett *et al.,* 2008; Cheyne *et al*., 2007). Partners were a key element in women's decision to go into hospital, with many partners getting anxious and distressed at the idea of staying home or being sent back home (Nolan & Smith, 2010; Barnett *et al*., 2008). Women often wish to remain in hospital once they arrive, even if they are not in established labour (Beake *et al*., 2018). Unfortunately, staff shortages and lack of beds in some maternity units prevents midwives from admitting women in latent or early labour, even if the woman is eager to stay (Beake *et al.,* 2018; Larkin *et al.,* 2012). Giving concrete advice, such as eating, resting or taking a shower as well

as being reassuring was suggested by midwives in Eri *et al*.'s study (2011). Being in hospital in the latent phase of labour is commonly associated with the risk of intervention (Baxter, 2007). Admission to a labour ward before 5cm dilated more than doubles the chance of caesarean section (Davey *et al.,* 2013). However, it was highlighted that the strategy of simply keeping women out of hospital to avoid interventions is too much of a simplistic view and that it could contribute to a negative experience for some women (Eri *et al*., 2011). It can be quite difficult to convince women that staying home is best as they are led to believe, by the medical model of care, that their pregnancy requires regular monitoring and interventions (Nolan and Smith 2010). Women can consider time spent at home in the latent phase of labour 'playing a waiting game', feeling anxious and finding it difficult to relax (Nolan & Smith, 2010). Therefore, educating women, antenatally, is crucial. Building women's confidence to stay at home is a critical element of antenatal care as this confidence is lacking in many women (Nolan & Smith, 2010; Cheyne *et al*., 2007).

2.16 Maternal Preparation for Childbirth

The accuracy of expectations about labour and birth has a significant impact on a woman's feelings of control (Green & Baston, 2003). A systematic review by Beake *et al*. (2018) revealed a lack of preparation for birth, particularly with the expectation of the sensation of pain that they would feel and knowing the difference between latent and established labour. Women have highlighted that the latent phase of labour is undervalued (Barnett *et al*., 2008). Antenatally, women require information on what they can do to help themselves get through this latent phase of labour, and when to contact the hospital (Beake *et al*., 2018; Cheyne *et al*., 2007). Although some women are aware that every labour is different and therefore difficult to form accurate expectations (Cheyne *et al*., 2007), they seek reassurance that their feelings are normal and that they can remain at home (Beake *et al.,* 2018; Barnett *et al*., 2008). Some women find an increase in worry when they feel a sense of the unknown (Borrelli *et al*., 2018; Escott *et al*., 2004). Women who have reported to have had a more negative birthing experience have said that there was insufficient time for labour preparation during antenatal check-ups (Waldenstrom *et al*., 2004). This has significant implications for labour and birth as unmet expectations about birth can result in a rapid loss of confidence in the birthing process, specifically longer than anticipated labour duration (Hall *et al.,* 2018). Time appeared to be of great concern to Whitburn *et al's* (2004) participants as they described being concerned about how much time was left in their labour. Preparing for birth can improve the birthing experience.

2.17 Conclusion

This literature review highlighted the evidence promoting coping strategies to foster physiological birth, reduce interventions and improve women's experiences of childbirth. Methods which can be used to promote optimal fetal positioning include mobilising and position changes, the use of water, birthing balls and massage. Alternative therapies, although there is a dearth of randomised controlled trials, have been found to be effective and safe to use during labour and birth. The importance of support from a midwife and birthing partner have been highlighted as having extremely positive effects on a woman's feelings of control and self-efficacy and improves her birthing experience significantly. Midwives have a unique opportunity to promote physiological birth, encourage the use of the coping strategies highlighted in this literature review and support women and their partners to have a more positive childbirth experience. The literature highlighted the need for the improvement of antenatal education to improve women's expectations of the latent phase of labour and helping them to gain confidence in utilising the coping strategies available to them.

> "*The preparation of the mind and body to the natural experience of childbirth are all a sensible part of her education*"
>
> Dick-Read (forwarded by Gaskin), 2013, pp. 28.

Chapter Three: Methods

3.1 Introduction

This chapter begins with a brief presentation of the focus, background and context and rationale for the study. This is followed by a presentation of the aims objectives and research questions that underpin the study. The rationale for the strategy of enquiry and the methods used to conduct this study are then presented. Data collection methods are outlined and the ethical considerations are discussed. Following this the process of data analysis is presented.

3.2 What is the Labour Hopscotch?

This framework, developed from both an understanding of the physiology of labour and extensive experience of supporting women in labour was intended to inform and empower women and their birth partners about the steps that would facilitate a physiological birth (see figure 1 below). In addition, this framework was developed to support midwives as a complementary means of supporting women to achieve a physiological birth. The fundamental principle of the Labour Hopscotch is to inform women, their partners and midwives of the importance of the steps necessary to remain active during labour and in this way possibly reduce the rate of epidurals.

3.3 Focus of the Study

The focus of this study is an output evaluation of the Labour Hopscotch framework including an exploration of the benefits that can be gained for women, their partners and midwives from the introduction of the Labour Hopscotch in the National Maternity Hospital.

3.4 Aims and Objectives

An evaluation of the Labour Hopscotch framework in promoting physiological birth in the National Maternity Hospital.

To ascertain the rate of epidurals in the group of women who utilise the Labour Hopscotch and compare to the general population.

To ascertain the benefits that can be gained for women who use the Labour Hopscotch framework during childbirth.

To generate knowledge about women's experiences of childbirth that adopted the different options described in the hopscotch framework.

To gain an understanding of birthing partners perspectives of using the framework.

To explore midwives' experiences of supporting women during labour with the Labour Hopscotch framework.

To identify any improvements necessary to the Labour Hopscotch framework based on women and midwives' perspectives.

3.5 Research Questions

1. Can the Labour Hopscotch framework empower and inform women and their birth

partners about the steps that will facilitate a physiological birth?

2. Can the Labour Hopscotch framework reduce the rate of interventions, particularly epidurals and facilitate normal physiological birth for women?

3.6 Study Endpoints/ Measurable Outcomes

To establish the usage of the Labour Hopscotch framework.

To clearly define the benefits that women experience both physically and psychologically by including the Labour Hopscotch framework into their birth experience.

To estimate and compare the rates of interventions, particularly epidural for women who use the framework in comparison to women who choose not to use it.

To ascertain midwives' perspectives about the steps of the Labour Hopscotch.

To ascertain life partners experiences of being involved in the birth process, particularly their opinions of the Labour Hopscotch.

3.7 Formulating a Framework for Inquiry

This study requires an approach to inquiry that generates an awareness of the processes, actions and possible barriers women experience when using the Labour Hopscotch during pregnancy and childbirth. Primarily because in order to understand 'how to' support the use of the Labour Hopscotch, requires an understanding of 'the why' in terms of women's everyday life experiences of the Labour Hopscotch framework during pregnancy and childbirth. Consequently, the central tenants required of the inquiry process were that any knowledge generated would be value-laden, context specific, include multiple yet different voices and focus on problem identification and resolution. To address these epistemological requirements comprehensively, a two phased mixed-methods approach was undertaken.

3.8 Study Design

Mixed methods research is viewed as the third methodological movement and as an approach it has much to offer health and social science research. Its emergence was in response to the limitations of the sole use of quantitative or qualitative methods and is now considered by many a legitimate alternative to these two traditions (Doyle *et al.*, 2009). Mixed methods research offers powerful tools for investigating complex processes and systems in health and health care. According to Halcomb (2019), mixed methods research allows researchers to use creativity in integrating qualitative and quantitative elements to best answer the research question. Additionally, the integration of quantitative and qualitative data can dramatically enhance the value of

mixed methods research (Bryman, 2006; Creswell and Plano Clark, 2011). Several advantages can accrue from integrating the two forms of data. The qualitative data can be used to assess the validity of quantitative findings. Quantitative data can also be used to help generate the qualitative sample or explain findings from the qualitative data. Qualitative inquiry can inform development or refinement of quantitative instruments or interventions, or generate hypotheses in the qualitative component for testing in the quantitative component (O'Cathain, Murphy and Nicholls, 2011)

3.8.1 Mixed-Methods Sequential Explanatory Design

A mixed- methods sequential explanatory design was selected as the most appropriate approach to achieve the aims and objectives of the study. According to Clark and Creswell (2008) the sequential explanatory design is the most straightforward of the major six mixed methods designs. It is characterised by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data. Priority is typically given to the quantitative data, and the two methods are integrated during the interpretation phase of the study.

This project was conducted over an 18-month period commencing in September 2016. The mixed method approach adopted consisted of an output survey and focus group meetings for data collection. The first phase of this study, the output survey evaluated women and their life partners experiences of utilising the Labour Hopscotch framework. More specifically the survey was utilised to identify and examine the key factors that lead women to utilise the Labour Hopscotch framework. Additionally, the survey was used to examine if the use of the Labour Hopscotch influences women's decisions regarding the use of epidural for pain management. Part of the evaluation included collating information on aspects of women's decision-making during childbirth that is currently unknown. The results of the survey are intended to inform the ongoing development and implementation of the framework. The results will also inform maternity care professionals and student midwives. Following the output evaluation survey, a focus group meeting was held with midwives to evaluate their experiences of the Labour Hopscotch framework as a support tool for women in labour. One of the aims of the focus group meeting was to ascertain any recommendations for change practising midwives had for the Labour Hopscotch framework. Equally important was seeking their perspectives on the information provided and the processes involved in the current implementation and provision of the Labour Hopscotch framework in the National Maternity Hospital. It was considered important that practicing midwives collaborated in the evaluation process to ensure that any

potential difficulties translating the framework into practice could be identified. Additionally, it was important that the supports that midwives needed to implement the framework were identified.

3.9 Research Instrument

To address the research aims and objectives, the research team developed a survey research instrument see Appendix (1). The overall aim of the survey was to generate knowledge about women's experiences of the different options described in the hopscotch framework. In total twenty-four questions were included in the survey instrument. The first section of the survey instrument sought information about demographics including age, parity, type of care option attended, antenatal education attended. Following this, participants were invited to provide information about their knowledge of the Labour Hopscotch, the perceptions of the quality of the information they received and which they considered the most useful sources of information. Following this, participants were invited to provide information on their experiences of the various steps of the hopscotch they used during childbirth, including which steps were the most and least beneficial. Participant's life partners were also invited to provide their perceptions of the framework.

One of the aims of the survey was to ascertain if the Labour Hopscotch provided women with confidence to attempt a physiological birth. Therefore, participants were asked if they considered the Labour Hopscotch provided them with additional confidence during labour. Participants were also asked if they would stay at home for longer during early labour using the Labour Hopscotch during their next pregnancy. One of the objectives of the study was to identify if using the Labour Hopscotch framework influenced participants decision-making about pain relief. Therefore, participants were asked about the various forms of pain relief they used during labour and, if the Labour Hopscotch influenced their decision-making and choices of pain relief during labour. Participants were also asked if they had encountered any barriers to using each of the steps of the Labour Hopscotch framework. Finally, as part of the design 10 open questions were included to gain rich data about participant's experiences of and recommendations for the Labour Hopscotch framework.

3.10 Pilot Study

There are several reasons for undertaking a pilot study. They help identify potential problems throughout the entire survey procedure and assess whether the project is feasible, realistic and rational from start to finish. Prior to conducting an entire survey, a pilot study can highlight any issues with recruitment, data collection or data analysis. The research instrument was piloted in two ways, firstly the drafted

instrument was circulated to relevant stakeholders for pre-testing. Expert pretesting is important not only for cross checking the substantive aspects of the survey but according to Kim (2011) it can improve the overall style of the instrument as well. Five clinicians were chosen to pre-test the survey instrument because of the breath of their finer knowledge of physiological birth and potential participants for the study. Minor changes were made to some of the wording. Following this the survey instrument was piloted for a month and 100 completed survey instruments were returned. The data was analysed and no difficulties were identified with the raw data once coded and analysed.

3.11 Inclusion Criteria

All women who have a healthy pregnancy and want to attempt to use the steps of the Labour Hopscotch for their childbirth experience.

3.12 Exclusion Criteria

Women under the age of 18 were excluded.

Women who experienced pregnancy loss or neonatal complications were excluded.

Women who have complications that deems they are unsuitable for a normal physiological birth were excluded

Women whose first language, was not English and could not give written informed consent were excluded.

3.13 Sampling

The goal of sampling strategies in survey research is to obtain a sufficient sample that is representative of the population of interest. It is often not feasible to collect data from an entire population of interest (e.g., all individuals who give birth in a given time frame). A large random sample increases the likelihood that the responses from the sample will accurately reflect the entire population. In order to accurately draw conclusions about the population, the sample must include individuals with characteristics similar to the population.

3.14 Sample Size

Statistical advice was sought for this phase of the study from CSTAR UCD. The primary outcomes from this survey are estimation of rates: of women surveyed who opted for epidural anaesthesia, and also of the proportions of reported birthing positions, and of a measure of the confidence that the women surveyed felt about having a “normal” (non-anaesthetised) birth, or of staying at home. A sample size could be estimated to permit the rates to be estimated at a given level of precision, expressed as the width of a 95% confidence interval. Based on the general population size (monthly birth numbers in the NMH), the research group has calculated that in order to obtain a sufficiently representative sample, the survey should to be conducted over a three-month period with a target population of 2400 women. The response rate is

anticipated to be as high as 70%, on the basis of the response rate to a pilot study posed during application of the framework. If it is as low as 50% (conservatively) for a longer, more time-consuming survey, we can expect a sample of 1200 respondents. The expected epidural rate of 70% would be estimated with a precision (95% confidence interval width) of ±2.6%. The worst-case precision with a sample of this size would be ±2.8%. A sample size of 800 was set as the target for this study.

3.15 Data Collection Methods

To maximise the beneficial effects of the use of the Labour Hopscotch, women were informed of the various steps needed from early in their pregnancies at the various antenatal care options and during antenatal classes. To increase the response rate to the survey the following measures were put in place:

Details were made available about the Labour Hopscotch in all of the antenatal care options and midwifery staff informed women about the framework at the booking appointment.

Information on the Labour Hopscotch is incorporated into the antenatal education classes with the intention of enabling women to prepare mentally and physically for labour (example: mothers can practice the use of the robozzo scarf, breathing techniques, lunges and squats all of which are important for active birth).

Visual images of the framework are also displayed in each area of the hospital

The framework is readily available online from the hospital webpage for women to download.

Prior to the onset of the study information days about the Labour Hopscotch were provided to midwives supporting women during labour to ensure they were fully informed of the steps involved in the framework.

3.15.1 Informed consent

Throughout the duration of the study written information was provided to women at the antenatal care options and classes. Participants who expressed an interest in using the Labour Hopscotch were invited to take part in the survey See Appendix (2). Once written and verbal information was provided written consent was gained by the midwife looking after the woman in labour, see Appendix (3) for consent form. Birthing partners that were involved in the study were also provided with written and verbal information and completed written consent. Following labour each woman that utilised the Labour Hopscotch Framework during her childbirth experience was offered the opportunity to complete an evaluation form prior to discharge from the hospital. See Appendix (1).

3.15.2 Data Collection: Focus Group Meeting

One of the aims of the study was to ascertain midwives' and student midwives' perceptions of the Labour Hopscotch framework. The intention was to seek their experiences and accounts of supporting women to use the framework, including any difficulties that emerged during the stages/steps of the framework and also to ascertain if they had any recommendations/solutions for the smooth translation of the framework into midwifery practice. To achieve this, practising midwives and student midwives were invited to attend a focus group meeting. Social science researchers in general and qualitative researchers, in particular, often rely on focus groups to collect data from multiple individuals simultaneously. Focus groups are less threatening to many research participants, and this environment is helpful for participants to discuss issues that are relevant to them. The research question and research design ultimately guide how a focus group is constructed. The key feature of focus groups is the active interaction among participants to explore their views and opinions. In this respect, focus groups are distinct from other methods such as Delphi groups, nominal groups, brainstorming, and consensus panels, which seek to determine a consensus between participants (Jayasekara 2011). Compared with other data collection methods, it can be concluded that the real strength of focus groups is not simply in exploring what participants have to say, but in providing insights into the sources of complex behaviours and motivations. Traditionally, focus group research is "a way of collecting qualitative data, which essentially involves engaging a small number of people in an informal group discussion (or discussions), 'focused' around a particular topic or set of issues. Well-designed focus groups usually last between 1 and 2 hours and consist of between 6 and 12 participants where perceptions, ideas, opinions, and thoughts are explored. Focus group discussions are the most appropriate method for the purposeful use of interaction to generate meaningful opinions, suggestions, and feedback. Focus groups are not only used to gain new knowledge or evaluate services and programs but also to seek opinions, values, and beliefs in a collective context. In particular, the focus group provides a means of listening to the perspective of key stakeholders and learning from their experiences of the phenomenon (Halcomb *et al.*, 2007). Powell *et al.*, (1996) argue that focus groups are particularly useful when current knowledge about a phenomenon is inadequate and expansion is important. This was the case in this study.

Information about the study was provided to midwives and student midwives at the research site. See Appendix (4). Midwives who expressed an interest in taking part in

the study completed written consent and signed a confidentiality agreement prior to the onset of the meeting. The meeting was held at time that suited practising midwives, and supports were offered by midwifery management to facilitate practitioners attend the meeting. In total eight midwives took part in the focus group meeting. The focus group meeting lasted just under 2 hours, a topic guide was used based on the findings from the survey results. The meeting was transcribed verbatim by one of the research team (JD) and participants were provided with a copy for their records. The transcript was reviewed by the team prior to data analysis.

3.16 Data Analysis Method

The study generated a comprehensive mix of quantitative and qualitative data. Together documentary quantitative and qualitative data were used to provide evidence for the outcome evaluation of the introduction of the Labour Hopscotch framework.

3.16.1 Quantitative data analysis

Statistical analysis of the data was performed using SPSS. The typical sequence of analysis was descriptive analysis, followed by hypothesis testing using inferential statistics.

3.16.2 Qualitative data

Qualitative research is a generic term that refers to a group of methods, and ways of collecting and analysing data that are interpretative or explanatory in nature and focus on meaning. Qualitative approaches share a similar goal in that they seek to arrive at an understanding of a particular phenomenon from the perspective of those experiencing it. Therefore, the researcher needs to determine which research approach can answer their research questions. Data collection is undertaken in the natural setting, such as a care option, hospital or a participant's home because qualitative methods seek to describe, explore and understand phenomena from the perspective of the individual or group.

Qualitative content analysis is one of several qualitative methods currently available for analysing data and interpreting its meaning. As a research method, it represents a systematic and objective means of describing and quantifying phenomena. Qualitative content analysis can be used in either an inductive or a deductive way. Both inductive and deductive content analysis processes involve three main phases: preparation, organization, and reporting of results. The preparation phase consists of collecting suitable data for content analysis, making sense of the data, and selecting the unit of analysis. In the inductive approach, the organization phase includes open coding, creating categories, and abstraction

As planned the data analysis for the focus group meetings were analysed using qualitative content analysis. The software

package NVIVO 9 was used to support the data analysis process. The transcript was transcribed by a member of the research team to maximise the level of engagement with the data. The transcript was read several times before the data was coded and notes were made on the original transcripts of the themes and similarities that were identified. Prior to coding, the audio recording of the meeting was also listened to several times.

An inductive, data-driven content analysis approach was adopted to interpret the data (Guerin, 2013; Hsieh & Shannon, 2005). At the initial stage, two researchers read and became familiar with the data set. The primary researcher coded information that is relevant to the research question. The second researcher was invited to check all the coding. Any disagreements were discussed. Barbour (2001) suggests that the involvement of multiple coders, and the discussion generated by potential disagreement helps to reduce personal bias and to obtain greater insights from the data.

A coding frame was developed and was generated in a manner that was both concept-and data-driven. The approach recommended by Mayring (2010) and Schreier (2012) was adhered to when generating the coding frame. This involved structuring the coding frame in a manner that focused on key aspects of the data that were relevant to the focus of the research and the research question. Firstly, concepts from the topic guide from the focus group meeting were used to generate and structure the coding frame. The topic guide was developed from the findings of the survey conducted with postnatal women during the first phase of this study. Secondly, themes (in-vivo codes) emerging from the discussion generated at the focus group meeting were added to the coding frame. The method selected to code the data was open coding. The transcript was read line by line to identify what was said in the data. Words, phrases and statements that were identified to have the same theme were grouped together. As a new concept or theme was identified it was coded as a node. Once all the data were coded the features in the software package NVIVO 9 was used to visually display the major categories that were coded. All the nodes were then reviewed again and similar nodes were coded together as a theme or subtheme and the relationship between themes and subthemes were examined and sorted into categories. During this process some sub-themes were amalgamated together and renamed as a theme. Some themes were reviewed and changed to subthemes. Some themes and subthemes were moved to a different category that was considered more relevant. This process was conducted several times to ensure that: 1) all the relevant data was coded: and 2) there was no duplication of themes amongst the different categories. The original transcripts were also used during this process to

ensure none of the relevant data had been lost during the coding process. The codes and categories were refined and finalized after discussion.

3.17. Ethical Considerations

Ethical approval was sought and granted by the research ethics committee of the research site prior to the commencement of the study. The research instrument was reviewed by the committee and no amendments were suggested. A number of guiding ethical principles govern research including, respect for persons, privacy and confidentiality, justice, risks and validity of research (Berg *et al*., 2001). All of these elements of ethical research were upheld at all times throughout this study. This study was conducted using the principles set out in the regulations of the Nuremburg Code (1964), The Declaration of Helsinki (1964, 2000). During the dissemination of findings from the study all participants will remain anonymous.

3.18. Summary and Conclusion

This chapter has outlined the aims, methodological approach and epistemological underpinnings of this study. Mixed-methods was presented as the most appropriate approach to achieve the aims and objectives of the study. A two phased study was planned. The first phase sought to generate further knowledge and report women's experiences of using the Labour Hopscotch framework by giving women the opportunity to provide feedback on their experiences of using the Labour Hopscotch framework as a supportive tool for women during labour. Following this the intention in the second phase was to collaborate with midwives and ascertain their perceptions of the Labour Hopscotch framework and identify any changes that were necessary.

Chapter Four: Results

4.1 Introduction

The chapter presents the quantitative findings from the first phase of the study, namely the findings from the output evaluation of the Labour Hopscotch survey. The survey was conducted over a three-month period in 2017 and in total 809 participants responded to the survey. Participants, who were over the age of 18, could provide written informed consent and who had no significant maternal or neonatal morbidity were invited to participate. Firstly, the demographics are presented followed by the findings from descriptive statistics undertaken. Finally, inferential statistics conducted to answer the research questions, aims and objectives are provided. Following an initial exploration, of the data, testing for associations between relevant characteristics such as age range, parity, type of birth, and type of care option were undertaken.

4.2 Sample Characteristics

Demographic information and obstetric history were obtained in the survey of women.

4.2.1 Age Range

Of the 809 women who responded to the survey, the age ranged from 18-44 with the vast majority (73%) being aged between 31-40, which is representative of the general population attending the hospital and slightly higher than the national average age of 31.1 years (CSO 2018). Almost 40% of women attending the NMH for maternity care in 2018 were over the age of 35 (NMH 2019). The age range also reflects the national trend over the last decade where the rate of first-time mothers over the age of 30 has increased (HPO 2016). See table 1 for further details:

Table 1: Age Range of participant's

Categories of Age	Hopscotch Study n=809		Hospital Population* n=8433		National Population** n=61,655	
18-24	40	(5.0)	441	(5.23)	5,106	(8.3)
25-30	154	(19.0)	1010	(12.0)	11,129	(18.1)
31-35	364	(45.0)	3099	(36.7)	22,263	(36.1)
36-39	227	(28.0)	3102	(36.8)	17,973	(29.2)
40+	24	(3.0)	725	(8.6)	3,881	(6.3)
*** NMH Clinical Report 2017**						
**** Perinatal Statistics Report, 2016**						

4.2.2 Care Package

Participants had five choices in terms of packages of care to attend and the majority attended public obstetric-led care (35%). This percentage of women receiving care in public obstetric-led service is reflective of the population attending the hospital but significantly lower than the national average of 81.0% (HPO, 2018) for further details see figure 3 below.

4.2.3 Parity

For the majority of women this was their first birth (47%), again this reflects the population attending the hospital, but is higher than the national average of 38.5% (HPO 2018, CSO 2018). The rate of multiparity was also higher than the national average. In total, 17% had three or more previous births compared to the national average of 9.1% and 4% of participants had four or more births. See table 2 for further details.

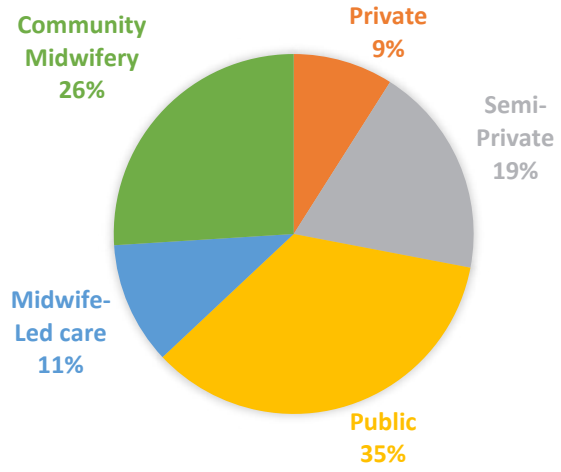


Figure 3: Choice of Care Package

Table 2: Parity

Parity	Hopscotch Study n=809		Hospital Population n=8433		National Population n=61,655	
1	381	(47.0)	3708	(44.0)	24459	(38.2)
2	291	(36.0)	2966	(35.2)	22369	(34.9)
3	105	(13.0)			11476	(17.9)
≥4	32	(4.0)			5035	(7.9)

4.2.4 Rate of Induction

The rate of induction of labour (29%) was similar to the general population in the research site and consistent with national rates of induction which range from 35.8% to 19.7% across maternity units in Ireland.

4.2.5 Antenatal Classes

In total nearly 58% of women attended antenatal classes, which again is higher than the national average of 50% (HPO, 2018). See Table 4 for more details.

Table 3: Labour onset

Variable	Valid N	N (%)
Spontaneous	**797**	579 (72.6
Induced		218 (27.4

Table 4: Attended antenatal classes

Variable	Valid N	n (%)
Attended antenatal classes	808	467 (57.8

Table 5: Partners Involved with the Labour Hopscotch Framework during labour

Variable	Valid N	n (%)
Birth Partner Supported Use of Hopscotch	759	598 (78.8

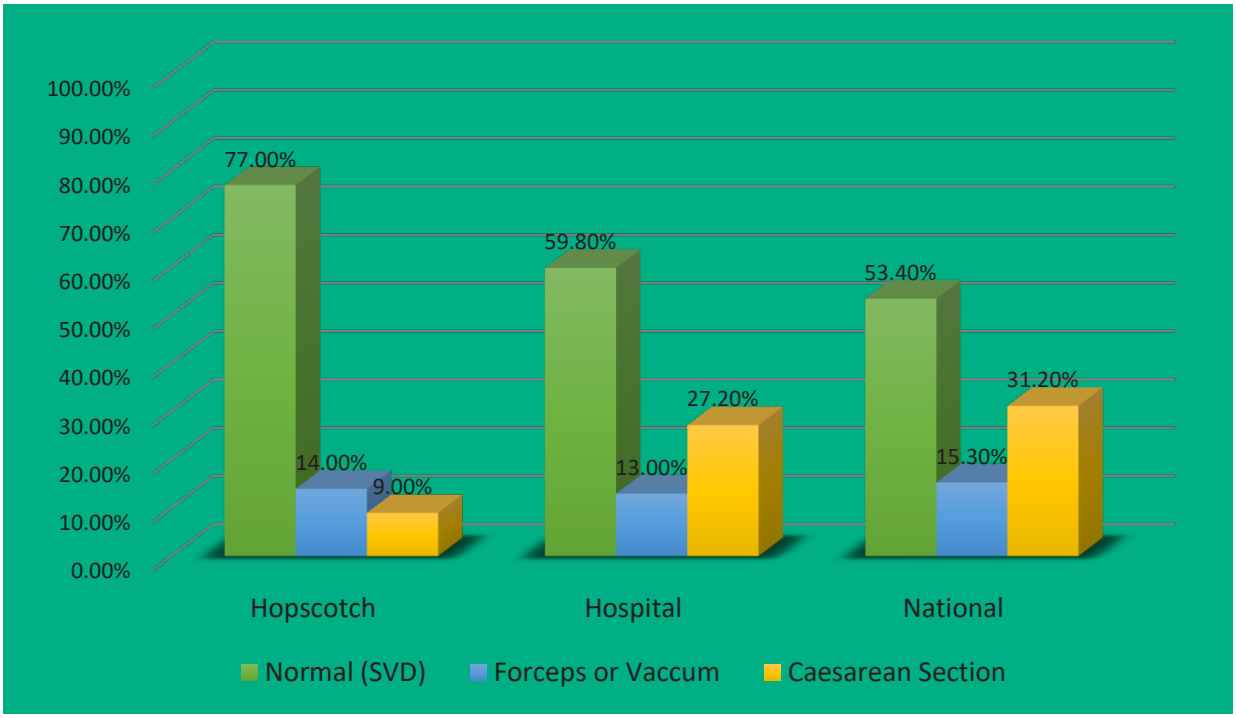


Figure 4: Type of Birth

4.2.6 Type of birth

The vast majority of participants had a physiological birth (77%) which was higher than that reflected in the general population, which was 57% (NMH, 2018) and considerably higher than the national rate of 55.2%. This difference, is also mirrored in the intervention rate as the caesarean section rate of 9% is considerably lower than the rate of the general population attending the hospital (29%) and the national average of 31.9% (HPO, 2018). The rate of instrumental birth was similar to the national rate of 15% (HPO 2018). See figure 4 for further details.

4.3 Partner Involvement

One of the aims of the study was to ascertain if birth partners were actively involved in supporting women during the steps of the Labour Hopscotch framework. In total 759 participants responded to this question giving a response rate of 94%. In total 79% of birth partners were supportive of the use of the Labour Hopscotch and recommended its usage in labour see table 5 above for details.

4.4 Information Received about the Labour Hopscotch Framework

Over 80% (n=657) of participants knew about the Labour Hopscotch framework prior to attending the hospital in labour. For the vast majority of participants, they learnt about the framework when attending for care either in the antenatal care options or

the antenatal ward. One third of participants said they received information about the Labour Hopscotch when attending antenatal classes at the hospital. Midwives were the primary source of information about the Labour Hopscotch with 70% of participants stating they received information about Labour

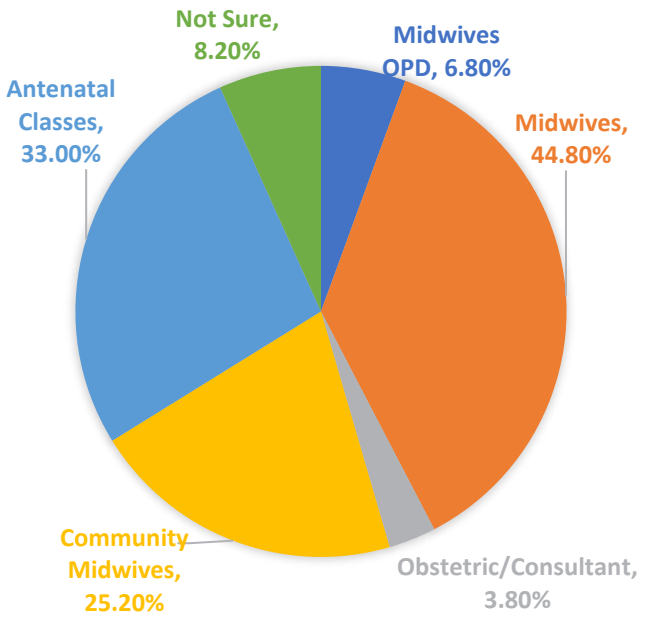


Figure 5: Received most information about Labour Hopscotch from whom

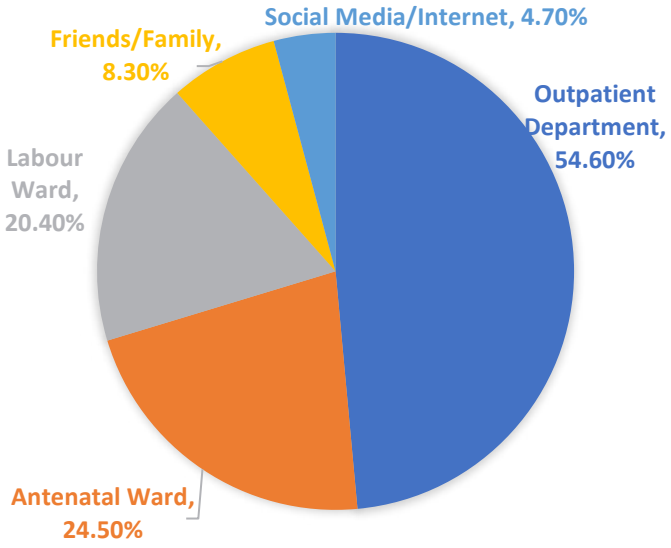


Figure 6: Heard about Labour Hopscotch from where

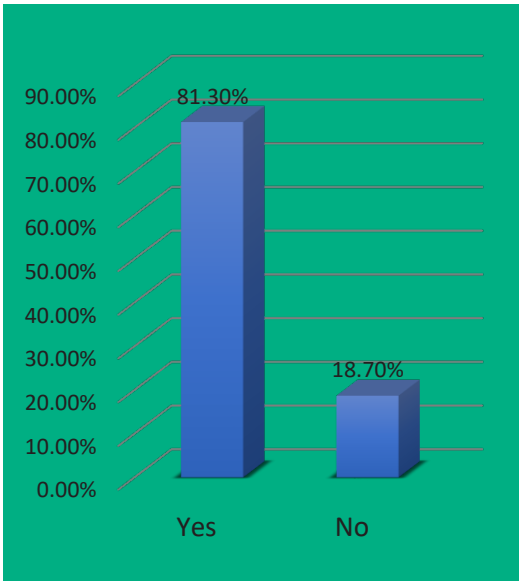


Figure 7: Knowledge of the Labour Hopscotch prior to labour:

Hopscotch from midwives in the hospital or the community midwives. Finally, 12% of participants heard about the Labour Hopscotch through friends and family or online see figures 5-7 for further details.

Participants were invited to provide feedback about the quality of the information they received about the Labour Hopscotch. There was a 100% response rate to this question. In total 90% (n=657) reported the information as good, very good, or excellent. The remaining 10% (n=77) described the information as fair, poor, or indicated they were unsure how to answer. Of the 77 women who responded negatively, over 75% (n=58) attended obstetric-led care. This cohort of women were also less likely to know about the Labour Hopscotch before labour commenced (54%). This is significantly lower than the total population who responded to the

survey, in total 81% (n=657) of the participants knew about the Labour Hopscotch prior to using it. See table 6 below for further details. Participants were asked about the '*ease of use*' of the framework. A majority, 94.1% (n=722) of participants from 767 returned responses reported they found the steps of the Labour Hopscotch easy to follow. However, when asked 40% (n=315) from a total of 786 returned responses suggesting they would have liked more information about the framework earlier during their pregnancy. Just over a quarter (n=187) of participant's who responded (n=786) suggested they would have liked more information on how to use the steps from a midwife during labour. See table 7 for more details.

Table 6: Participants who rated Hopscotch information as Fair, Poor, or Not Sure based on option for care

Variable (n=777)	n(%)
Care option Attended	
Private	16 (20.8)
Semi-Private	19 (24.7)
Public (Obstetric-led)	24 (31.2)
Midwives Care option	9 (11.7))
Community Midwives	9 (11.7)

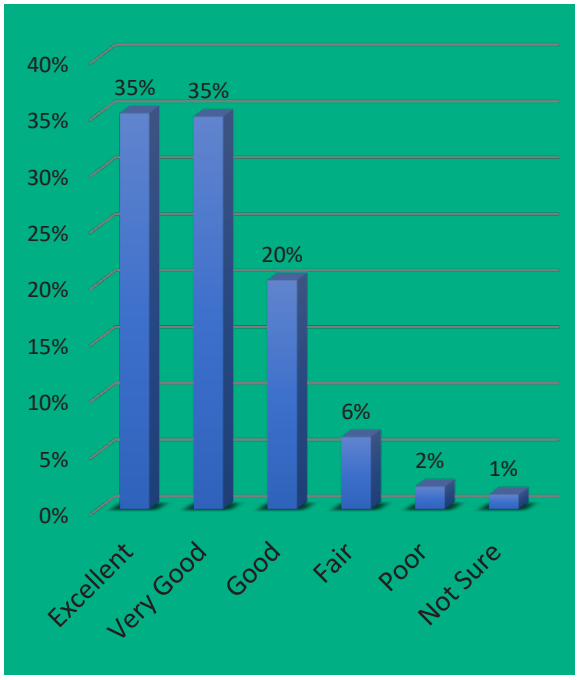


Figure 8: Rating the information received about Labour Hopscotch

Table 7: Information received about Labour Hopscotch

Variable	Valid N	n (%)
Steps of Hopscotch Easy to Follow	767	722 (94.1)
Would have liked more information about Hopscotch during Pregnancy	786	315 (40.1)
Would have liked more information about how to use Hopscotch steps from midwife during your labour	777	187 (24.1)

4.5 The Labour Hopscotch Framework: The Most and Least Beneficial Steps

Participants were asked which of the steps they found most useful. In total 803 responded to this question giving a

response rate of 99%. Mobilising was found to be the most beneficial by 80% of participants, followed by the birthing ball (56%), and finally hydro/water therapy (41%). The least beneficial was the mat (24%) followed by alternative therapies (23%) and the toilet (19.1). See figure 7 for further details. It is worth noting that alternative therapies are not provided by the clinical site and women who wanted to use them had to arrange these supports themselves.

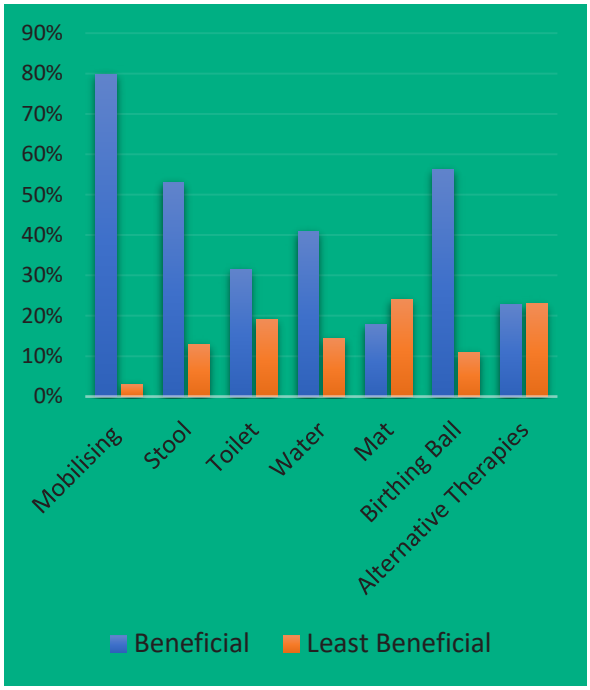


Figure 9: Rating of Labour Hopscotch steps

4.5.1 Pain relief used during labour

Participants were asked about the methods of pain relief they used in labour. The most frequently cited was gas and air (Entonox) (68%) followed by epidural (39%), this was substantially lower than the epidural rate of 57% in 2017 for women attending the clinical site. Of note was the finding that following the introduction of the choice of the Labour Hopscotch Framework to all women attending for care, in 2017, the rate of epidural in the hospital dropped to 52% in 2018. The least common forms of pain relief were the birthing pool and homeopathy; however, a birthing pool is currently not available in the setting for this study and this form of pain relief/support was only available to participants who had a home birth with the community midwives.

Table 8: Pain relief used during labour

Variable	n (%)
Gas and Air	545 (67.5)
Epidural	311 (38.5)
Shower	215 (26.6)
Pool	12 (1.5)
Pethidine	65 (8.0)
Tens Machine	157 (19.4)
Hypnobirthing	79 (9.8)
Homeopathy	24 (3.0)
None	94 (11.6)
Other	164 (20.3)

4.5.2 Labour Hopscotch and its influence on decision-making for pain relief methods

Participants were asked if the Labour Hopscotch had influenced their chosen method of pain relief and 40% (n=309) of participants reported it had influenced their decision-making about pain relief. Women over the age of thirty, having their first baby

and who had a physiological birth were more likely to suggest the Labour Hopscotch influenced their decisions about the type of pain relief they received. See table 9 for further details.

Table 9: Did the Labour Hopscotch influence decision-making for pain relief methods ?

Variable (n=309)	n (%)
Age Group	
18-24	19 (6.1)
25-30	70 (22.7)
31-35	146 (47.2)
36-40	69 (22.3)
41-44	5 (1.6)
Parity	
One	161 (52.3)
Two	111 (35.9)
Three	27 (8.8)
Four or more	9 (2.9)
Care option	
Private	25 (8.1)
Semi-Private	54 (17.5)
Public (Obstetric-led)	90 (29.1)
Midwives Care option	42 (13.6)
Community Midwifery	98 (31.7)
Type of Birth	
Physiological	259 (83.8)
Forceps or Vacuum	35 (11.3)
Caesarean Section	15 (4.9)

4.6 Barriers to using Labour Hopscotch

Participants were asked if they had considered whether barriers existed to the use of the Labour Hopscotch. Over a third of women mentioned there were barriers to using the Labour Hopscotch in the NMH hospital. Women over the age of 30, having their first baby and who had received public obstetric-led care were most likely to consider barriers existed to the use of the Labour Hopscotch. See table 10 below for further details.

Table 10: Are there barriers to using the Labour Hopscotch Framework?

Variable (N=275)	n (%)
Age Group	
18-24	12 (4.4)
25-30	47 (17.1)
31-35	128 (46.5)
36-40	73 (26.5)
41-44	15 (5.5)
Parity	
One	155 (56.4)
Two	90 (32.7)
Three	24 (8.7)
Four or more	5 (1.8)
Care option	
Private	29 (10.5)
Semi-Private	55 (20.0)
Public (Obstetric-led)	83 (30.2)
Midwives Care option	35 (12.7)
Community Midwifery	73 (26.5)
Type of Birth	
Physiological	209 (76.0)
Forceps or Vacuum	49 (17.8)
Caesarean Section	17 (6.2)

4.7 Options for Pain Relief During Labour

4.7.1 Rate of epidural and influencing factors

One of the aims of the study was to ascertain if the use of the Labour Hopscotch could reduce the rate of epidural which at the time was 57% in 2017 (excluding women who gave birth by elective caesarean section). We therefore collated data about the rate of epidural recorded within the sample of participants. The epidural rate within the sample of 809 participants was considerably lower at 39%. A logistic regression model was constructed to assess which characteristics were associated with choosing an epidural by participants. Use of an epidural (0 = no epidural, 1 = epidural used) was modelled by parity, care option, type of birth, and age using binary logistic regression at the 5% significance level. See Table 11.1 in appendix 5 for further details.

Of these aforementioned characteristics, care option, type of birth, and age were statistically significant (p=0.05) in terms of participants decision to opt for an epidural. This model is significant and correctly predicts use of epidural in 67.8% of cases. Care option, type of birth and age were significantly associated with receiving an epidural. Participants attending obstetric-led care were significantly more likely to receive an epidural than participants who chose to attend the community midwifery scheme. Those attending private obstetric-led care had the highest probability of receiving an epidural for childbirth, followed by semi-private, and public obstetric-led care. Participants who attended the community midwives were the least likely group to choose an epidural for pain-relief childbirth.

Type of delivery was also significant. In terms of type of birth, participants who had an instrumental (forceps or vacuum) birth were the most likely group to receive an epidural for childbirth. Participants who had a physiological birth were the group least likely to receive an epidural. Age was also a significant factor, with participants aged 41-44 most likely to opt for an epidural. Participants in this age group were twice as likely to have an epidural as those participants aged 25-40.

Parity, in itself, was not significant, however when we examined/cross tabulated parity with age, there was a significant difference. Participants over the age of 35 having their first baby were more likely to have an epidural than younger, first-time mothers. See table 11.2 in appendix 6 for further details.

Further analysis and explorations were conducted on the data. We examined the data for parity, although parity in itself was not a significant factor when combined with other characteristics such as chosen option for care, significance was found.

Cross tabulations were performed for first-time mothers and a significant association in the proportions of participants receiving an epidural based on the model of care they attended was found (chi-squared = 11.27, p = 0.024). In total, 22 (56%) of the first-time mothers (primiparous women) who attended private obstetric-led care decided to have an epidural, whereas 48 (34%) of first-time mothers who attend a public obstetric-led care, and 10 (8%) of first-time mothers women who attended the community midwives opted for an epidural. For multigravida, a similar pattern emerged, with significant associations found in the proportions of participants who had one or more previous births decided to have an epidural (chi-squared = 43.45, p < 0.001). Eighteen (52%) of the participants attending private obstetric-led care decided to have an epidural, with 78 (57%) participants attending public obstetric-led care and 33 (37%) participants attending the community midwives decided to opt for an epidural. See appendix 7: Table 11.4 for further details.

4.7.2 Hydrotherapy during labour

Participants had two options in terms of hydrotherapy, all participants had access to hydrotherapy in the form of the shower, and those attending the community midwives had access to the use of a birth pool/bath for pain relief during labour. A cross tabulation was conducted exploring parity / care option and use of the shower as pain relief. See table 11.4 in appendices for further details. For primiparous women, seven (17.5%) in private care received shower pain relief, 22 (15.3%) in public obstetric-led care received shower pain relief and 35 (28%) in community midwives care received shower pain relief. There was a significant difference in the proportions that received shower pain relief by care option (chi-squared = 16.63, p = 0.002). For multiparous women, six (18%) of the women in private care option received shower pain relief, 35 (26%) of the women in public obstetric-led care option received shower pain relief, and 43 (48%) of the women in the community midwives care option received shower pain relief.

For primiparous women, there was a significant association between women who received pool pain relief by care option (chi-squared = 9.78, p = 0.044). Of the multiparous women, no participants in semi-private, public, or midwives' care option received pool pain relief. One woman of the 40 attending private care option received pool pain relief, and 8 (6%) of the 124 women in community midwives received pool pain relief. In total, 3% of the primiparous women in community midwives care received pool pain relief, while no participants in other care options received pool pain relief. For those of parity >1, there is a significant difference in the proportions of women that received pool pain relief by care option (chi-square = 17.03, p = 0.002).

4.7.3 Pain Relief option: Hypnobirthing

For primiparous mothers, there was no significant association in the proportions of participants using hypnobirthing by care option (chi-squared = 9.50, p = 0.050). For those of para 2 or more, there was a significant association in the proportions of participants using hypnobirthing by care option (chi-squared = 13.01, p = 0.011). Of multiparous women, three (9%) in private care used hypnobirthing pain relief, twelve (9%) in public care used hypnobirthing pain relief, and 18 (20%) of women in community midwives care used hypnobirthing pain relief. See table 12.5 below for further details

Some of the participants chose not to have pain relief. The numbers involved are small and no statistical associations were found based on parity or care option attended. See table 11.6 in the appendices for further details.

4.8 Confidence to Stay Home in Early Labour Using Labour Hopscotch

One of the objectives of the study was to explore the factors associated with reported confidence by participants to stay at home during early labour. For ease of interpretation, the four categories in the Confident variable ('not very confident', 'somewhat confident', 'confident' and 'very confident') were grouped as follows to create the new variable: Confident Binary with two categories, so that binary logistic regression could be used. Confident Binary was modelled by parity, care option, type of birth, and age using logistic regression at the 5% significance level. The reference level is the last level of categorical variables.

Original Category	**New Category**
Not very confident (0)	Less confident (0)
Somewhat confident (1)	Less confident (0)
Confident (2)	More confident (1)
Very confident (3)	More confident (1)

There was a 100% (n=809) response rate to this question and 72% (n=582) of participants reported that they were confident or very confident to stay home during the early stages of labour using the Labour Hopscotch framework.

Logistic regression was performed to model the level of confidence, and the model correctly predicts confidence in staying at home during early labour in 73.8% of cases with care option, type of birth, and age group significantly associated with confidence.

Participants attending private or public obstetric-led care were significantly less likely to report feeling confident to stay at home in early labour compared with participants attending the community midwifery-led care package. Participants attending the community midwives for care were five times more likely to report feeling confident to stay at home in early

pregnancy compared to those attending for private obstetric–led care and over one and a half times as likely to be confident compared to those attending for public obstetric-led care. Type of birth was also a significant fact with participants who had a physiological birth more than twice as likely to report feeling confident to stay home compared to participants who have a Caesarean section. Age was also a factor; participants aged 25-35 years were more than three times as likely to report feeling confident to stay home during early labour as those aged 41-44 years. See table 12 in appendix 11 for further details.

4.9 Steps of Labour Hopscotch Helped Confidence to Cope with Labour

One of the objectives of the study was to assess if the Labour Hopscotch assisted women to cope with labour. To assess this, confidence to cope with labour was recoded into a new variable: '*Cope Binary*' as follows: Cope Binary was modelled by parity, care option, type of birth, and age using logistic regression at the 5% significance level. The reference level is the last level of categorical variables.

Original Category	**New Category**
Unsure (0)	Less confident (0)
No, not at all confident (1)	Less confident (0)
Felt somewhat confident (2)	Less confident (0)
Yes, felt very confident (3)	More confident (1)

From a total of 809 responses, nearly half 49% (n=396) of participants reported that the steps in the Labour Hopscotch framework contributed towards their confidence levels to cope with labour. The model correctly predicts confidence in staying at home during early labour in 60.1% of cases. Parity, care option and type of birth were also significantly associated with a participants reported confidence to cope with their labour. In terms of parity, first-time mothers were significantly less likely to report that the steps in the Labour Hopscotch helped their confidence to cope with labour than participants of parity 4.

Participant's care option during pregnancy was also significant; participants who opted to attend the community midwives were the most likely group to report that that the steps in the Labour Hopscotch contributed towards their confidence levels to cope with labour. This group of participants was more than twice as likely to report feeling the Labour Hopscotch helped with their confidence in coping with labour compared to participants attending private obstetric led care. Type of birth was also significant, participants who had a physiological birth were most likely to report that the steps in the Labour Hopscotch helped with their confidence levels to cope with labour. This group were more than twice as likely as those participants who had a caesarean section. See table 14 below for further details.

4.10 Most Beneficial Steps of Labour Hopscotch

As part of the evaluation, participants were requested to report which steps of the Labour Hopscotch were the most and least beneficial for them. Due to the number of steps and the nature of the variables, chi-squared tests were performed to identify significant associations between the most beneficial steps of the Labour Hopscotch framework based on age, parity, care option, and type of birth.

A significant association was found between mobilising and type of birth (chi-squared = 12.205, p = 0.002, df = 2, n = 803). Of the 641 participants who identified mobilising as being the most beneficial, 500 (78%) had a physiological birth, while 96 (14%) had a forceps/vacuum birth and 45 (7%) had a caesarean section. There was a significant association between birth stool and parity (chi-squared = 19.939, p < 0.001, df = 3, n = 799). Two hundred nineteen (58%) of first time mothers found the birthing stool to be most beneficial, approximately half (158/286) of participants of parity=2 found stool to be beneficial, and only 36% of the 100 participants of (parity = 3) found the stool to be a helpful step.

There was a significant association between water and type of birth (chi-squared = 7.287, p = 0.026, df = 2, n = 800). Of the 615 participants who had a physiological birth, 265 (43%) found water to be most beneficial, whereas 43 (37%) of participants with forceps/vacuum found water beneficial and only 19 (27%) of participants with a caesarean section found water helpful. There was a significant association between water and care option (chi-squared = 58.827, p < 0.001, df = 4, n = 800). While 128 (62%) of the participants being looked after by the community midwives found water helpful, only 82 (29%) participants in public care found water helpful. A significant association was found between the birthing ball and parity (chi-square = 29.506, p < 0.001, df = 3, n = 799). Of participants (parity=1), 246 (65%) found a birthing ball most beneficial, whereas 151 (53%) participants (parity=2) found it helpful, 42 (42%) participants of (parity=3) found it helpful, and 11 (32%) participants of (parity=4) found it helpful.

Chapter Five: Output Evaluation Findings - Qualitative

5.1 Introduction

The following chapter reports the qualitative data from the survey which sought to evaluate the Labour Hopscotch framework from both women and their birthing partner's perspectives. This chapter presents the findings obtained from the open-ended questions offered to participants who completed the survey. These questions sought more in-depth information from participants about their experiences of using the Labour Hopscotch, the quality of the information they received and if they felt the information provided prepared them sufficiently to use the Labour Hopscotch. Information about possible benefits they gained, barriers they encountered and the quality of the information they received about Labour Hopscotch was also sought. The perspectives of the birth partner were also sought, and they were invited to comment on their perceptions of the Labour Hopscotch framework. Participants were offered the opportunity to provide more detail on possible barriers they encountered while using the Labour Hopscotch. Finally an option was provided to participants to make any further comments they wished.

5.2 Data Analysis Method

A large volume of rich data was obtained, as described in chapter three. Inductive, data-driven content analysis approach was utilised to interpret the data (Guerin, 2013; Hsieh & Shannon, 2005). At the initial stage, two researchers read and became familiarised with the data set. The primary researcher coded the data relevant to the research question and overall aims and objectives of the study. A coding framework was continuously developed during the coding, and 'constant comparison' was employed to merge similar codes. Depending on the complexity of the data, broader categories (i.e. parent code/themes) were constructed to cluster codes when needed. A second researcher was invited the check all coding. Any disagreements were discussed. The codes and categories were refined and finalized after discussion.

5.3 Findings

The results are presented in question format, beginning with participant's responses to a question that sought their opinions about the usability of steps of the Labour Hopscotch Framework and invited comments on possible recommendations.

5.3.1 Did you find steps of the Labour Hopscotch framework easy to follow? Do you have any suggestions for changing the colour or presentation of the steps of the Labour Hopscotch?

In total 42 responses were received to this question out of 809 participants. Ten participants found the steps of the Labour Hopscotch easy to follow, and made no recommendations for change. Twelve participants reported they had difficulties using the steps of the framework and made suggestions for change. The vast majority of these related to the layout and format of the framework. The most common suggestion, raised by nine participants, was to include more information and explanation about the steps of the Labour Hopscotch framework.

Inherent within each of the 12 detailed responses was a belief that the information provided on the actual visual poster of the Labour Hopscotch was insufficient to assist them to use each of the steps. Each of the 12 women who made this suggestion stated that the poster of the Labour Hopscotch was all the informational support they had access to, to assist them to undertake each of the steps during the birth of their baby. Throughout their responses was a common theme, they had expected more information from different sources to assist them to use the framework, such as verbally from midwives and additional written and visual information within the hospital. Each of the 12 respondents suggested there was a

need for clearer explanations on the overall structure and individual steps of the framework. These responses below portrays the aforementioned comments clearly:

"I looked for more information but couldn't find it, I thought we would get additional information from the midwife with me in labour or even a pdf version of the framework for me to use and that someone would go through each step but it didn't happen

"I was not 100% clear on the steps and did not find additional information in the booklet from the community midwives; I would have liked more information on how to do each step,"

A theme that emerged was that some participants found the actual visual format and presentation of the Labour Hopscotch framework somewhat confusing. A frequent feature of these comments was that other formats might be more useful, such as active learning in the format of

video's or YouTube presentations. One participant suggested that the Labour Hopscotch included too many steps in each section which added to her confusion.

5.3.2 Would you have liked more information about the Labour Hopscotch framework during your pregnancy?

In total, 46 responses were received to this question, and nearly one quarter of the comments (n=11) related to participants' positive experiences with the Labour Hopscotch framework. For example, three participants were satisfied with the current presentation of the Labour Hopscotch framework and thought the booklets looked '*excellent*', and the framework was '*very clear*' and '*very straightforward*'. Eight participants considered the Labour Hopscotch framework very useful, suggesting it helped them stay active throughout the labour and it also kept their mind focused on positive actions rather than contractions and anxiety as highlighted in the statements below:

"I found that Active labour reminds you of different positions you could use and Changing position and moving frequently enabled me to get from 1cm-8cm in 2 hrs, because my mind was focused on keeping active and it was a great way to keep focused and keep mind off contractions"

"I found the Labour Hopscotch kept a structure for me while at home in labour, it was really useful as it distracts from panic and keeps you going…"

The remaining comments were mainly suggestions relating to the introduction and presentation of Labour Hopscotch. Seven participants stated that they were not aware or hear anything about the Labour Hopscotch before they attended the hospital in labour. Each of these respondents suggested they would recommend that information about the Labour Hopscotch is introduced to women at an earlier stage, for instance, from GP or routine antenatal visits as highlighted in the statement below:

"I did not hear about it antenatally I would have liked early information. You need to hear about it during antenatal appts and pre labour maybe from gp or from whoever you attend antenatally"

Participants described how they had envisaged that they would like to see more information or communications about Labour Hopscotch around the hospital/and

in the antenatal clinics. Seven respondents recommended that more materials, especially printed materials (e.g. '*handouts*', '*manual or sheet*') should be produced and distributed via different channels, such as '*NMH booklet*', '*hospital pack*', '*magazine',* etc. In relation to content, a key point raised by participants was to include more detailed breakdown on steps, and videos could be helpful on this aspect as highlighted in the following statements:

"I think there is a clear need for additional information in the chart please, for example a clear breakdown of each step, short video clip of examples"

"I should have asked more questions re lunges and duration of steps what would have helped was practical demos or videos"

Two participants considered more formal education, such as '*more structured introduction*' or '*classes*' could be helpful.

"I could not have domino care and therefore I would have liked a whole Labour Hopscotch class that would really be great so you can learn about each of the steps before labour"

5.3.4 Did you find the Labour Hopscotch framework useful?

There were 46 responses received to the above question and most of the comments were very positive. A key theme that emerged was that Labour Hopscotch

framework was an excellent and useful preparation tool for childbirth. Several participants stated that they used it before labour: to visualize the natural labour process, to plan and practice steps or positions in advance, and even to proactively induce the labour by themselves in certain situations (e.g. SROM, overdue). Participants reported that, with the Labour Hopscotch, they could manage to spend a longer time at home, in a more comfortable and familiar environment for them as highlighted in the statements below:

"It helped me visualize the labour process, I found it an excellent preparation tool, and I could practice it before labour so was able to access the tool easily"

"Used many of the positions before labour which helped when in labour kept me at home until contractions more regular"

Another recurring theme that emerged was that the Labour Hopscotch gave participants a structure and a variety of activities to manage the first stage of labour. These activities, with clear time frames, helped them focus, and made time pass quicker.

"I found that I used it as a guide to help me focus and use suggestions every 20 minutes it offered variety and choices of what to do next"

"Labour Hopscotch is amazing while in the antenatal ward instead of sitting around I lots to do, it provided me with a plan and distractions"

Participants frequently provided scenarios and accounts about how they used the Labour Hopscotch as a guiding framework to complete physical activities during the labour. By following the Labour Hopscotch, they kept moving around and changing postures, and they expressed that they gained many benefits staying active physically, as indicated in the statements below:

"Labour Hopscotch is just so healthy it felt like workout through labour changing positions and easing pressure on certain areas, kept mind and pelvis floor relaxed"

"I knew movement was the best way to get baby out, I am certain that the lunges really helped me during my labour and it helped me go from 1cm-10cm in an hour really found it great"

In addition, participants considered the Labour Hopscotch an effective 'pain management tool'. The variety of activities empowered participants to cope with pain throughout labour.

"I found the Labour Hopscotch extremely helpful coping with pain"

"I like being active and helped distract me from pain"

"I found it really distracted my mind during labour moving through contraction the variety got me through the worst of the pain. For example the movement with the ball, and the shower, were so helpful when I was in the pain"

Participants also relayed accounts of how the Labour Hopscotch had supported them psychologically, with regards to self-confidence and mind control during their labour. For example, ten participants suggested that the Labour Hopscotch made them feel '*confident*', '*very useful*' and '*very empowered*' to progress in

labour. And the Labour Hopscotch successfully helped them to *'keep mind relaxed'* and stay calm as indicated in the following statements:

"I felt greater confidence without pain relief due to the Labour Hopscotch, I think its empowering for women you know it makes you feel more useful"

"Felt like I was helping to progress labour with gravity to get my baby out so useful to have many suggestions to try at home, felt very empowered, it really took attention away from panic and fear, I felt very calm using it"

Several participants relayed accounts that depicted what they saw as the role of the midwife; they provided detailed accounts of their positive experience of having a midwife throughout labour, giving directions on the various activities of the Labour Hopscotch and providing continuous support. Two participants perceived that speaking to a midwife would be more beneficial, than just reading the material about Labour Hopscotch, partly because '*all labours are different*' and a midwife is able to provide individualized guidance.

Inherent in the detailed descriptions participants provided was an impression that midwives' help can increase the effectiveness of the Labour Hopscotch. This was most notable when labour had progressed into a more active phase. A common thread in participant's accounts

was that midwives' guidance would be more important than anything else as indicated in the following statements.

"One of the most important things for me was the coaching through labour by midwives, midwives didn't force me just reminded me"

"Good distraction during natural birth, with assistance of amazing midwife"

5.3.4 Do you feel that steps helped your confidence to cope with your labour?

The responses to this question indicate various times that the Labour Hopscotch was used, therefore the findings are presented accordingly beginning with before labour.

Before the labour

Several participants (n=7) suggested that the Labour Hopscotch helped them get better prepared for the childbirth,

suggesting they gained 'how-to' knowledge beforehand and could prepare and get what they needed to do for each of the various steps. As a result, their confidence had increased as highlighted below

"It really made me prepared before labour; you know it stimulated me to get tools like tens and the birthing ball"

"Because of Labour Hopscotch, I was prepared, and knew the positions to help me progress, and because I got it early I confident with the plan and strategies on how to cope, this was all due to preparation with the Labour Hopscotch, so I was confident going into labour"

Early labour

Several participants also provided details of how the steps of the Labour Hopscotch had helped during the pre/early labour phase, especially when the woman was at home with limited access to external support. The Labour Hopscotch framework enabled self-help: two participants reported that the Labour Hopscotch empowered them to achieve a successful homebirth.

"It helped at home in pre-labour, using the Labour Hopscotch gave me the confidence to pass my long hours of labour at home. I did not feel the need to rush NMH"

"When the pain started, I was walking and using the birthing stool, I laboured at home at night on my own, I really feel I was able to have homebirth because of it"

A recurring theme described by participants was that Labour Hopscotch increased participants' confidence to stay at home. However, another theme that emerged was that reported confidence levels were dependent on the progress of the labour as indicated in the following statement:

"I very confident at home for a day and half, I less confident as time went on and active labour had not established".

One particular thing participants' liked about the Labour Hopscotch was it offered a variety of options and positions. It gave participants ideas and participants could always find a position that fitted their individual needs best, and decided their own way of using it (e.g. repeating *or* changing, following the steps *or* mixing and matching) as indicated below:

"I felt there was always more options if I was tiring of one position I mixed and

matched some stages. More focused on mobility sections"

"I followed framework and found things I would not have thought of before if one did not suit, variety of options, and repeating if necessary)

Many participants (n=42) provided detailed accounts of what steps from the Labour Hopscotch that they actually used, and the benefits they gained for instance: good focus was a recurring theme, distraction from contraction/anxiety was also a common thread throughout these descriptions as was having pharmalogical-drug free labour. Finally, participants relayed how the steps helped with labour progression and on promoting the physiology of physiological birth as indicated in the following statements:

"The Labour Hopscotch took attention away from length of time I was in labour, and how long I had to go, I just focused on every 20 minutes, this really helped me focus on positions to encourage baby's head into pelvis, time went faster, it was a great distraction and help me cope with a drug free labour"

"Helped me focus on positions to encourage baby's head into pelvis"

"Didn't know about it 3 yrs. ago, said I'd give it a go this time, and it helped getting baby down"

"Got me very far into labour which was great"

5.3.5 Did your birth partner become involved and support you to use the steps of the Labour Hopscotch?

5.3.5.1 Involvement

In total 207 participants responded to this question and almost all comments were from those who indicated 'yes' to the question. Participants acknowledge that the Labour Hopscotch promoted the involvement of their partner during childbirth. Such involvement was very beneficial to both of them, not only because it supported the birthing process, but also because it nourished the relationship. For instance, it added intimacy and made childbirth a shared experience as indicated in the following sentences:

"Continuous involvement in a supporting role, allowed him provide tangible physical and emotional support"

"Entire process promoted and facilitated the involvement of partner"

It seemed that the Labour Hopscotch supported and strengthened the mother

/partner relationship during the labour proves as indicated in the following two statements

"Being involved in, helped with intimacy of experience, brought use closer"

"He felt part of whole experience and useful, made experience more personal and empowering"

5.3.5.2 Knowledge and mental preparation

The Labour Hopscotch was also reported to benefit the birthing partner by providing additional supportive knowledge and guidance. This was seen as most important for those partners who had never experienced childbirth. Within the respondent's accounts were rich descriptions of the manner in which the Labour Hopscotch assisted birthing partners to know what to prepare in advance, what process or steps to follow, what options to suggest, and how to offer support practically as indicated below:

"Husband knew from classes and set up a room at home for me with all the stages done out for labour"

"Gave clear instructions to my partner He understood how to support practically"

The how-to knowledge from the Labour Hopscotch also generated psychological benefits on the partners. For instance, many participants stated that the Labour Hopscotch made their partners feel '*useful*', being '*able to help and contribute to labour processes*' and '*more confident'*. In addition, one participant mentioned that the Labour Hopscotch allowed her partner to relax.

5.4.6.3 Coaching and assistance

Participants suggested that, during labour, the Labour Hopscotch gave their partner a 'coaching' job: the partners '*kept them going on the hopscotch*', offered instructions on what to do next, encouraged and prompted them to complete steps, and timed each step as indicated below:

"Husband was very in favour of Labour Hopscotch and coached me throughout he found it useful to have a job and telling me what to do next"

"My partner really found it good he liked it for providing him a role he found it helped him provide support and encouragement, liked the timing and he encouraged me to complete each step"

Participants described particular steps and activities their partner helped them with. The activities included stool, showers, acupressure, counter pressure, TENS, water pool, toilet, breathing, lower back heat pack, massage, squats, lunges and mobilizing, almost covering the full spectrum of the framework. Participants described the effects of the Labour Hopscotch framework on the birthing process as *'Useful to have a job and telling me what to do next'* as indicated in the following statements:

"Counter pressure and acupressure worked, husband and midwife laboured with me"

"Able to assist me move positions into pool and onto toilet, helped with squats going up and down stairs on the stool"

When doing these activities, the partners offered physical and/or emotional support when needed, especially in terms of '*mobilising*' so that the women did not '*get stuck in one position*'.

Two participants mentioned that their partners felt confident because they already knew the process from the previous experience.

5.3.6 Were there barriers to using the steps of the Labour Hopscotch regarding the facilities available in the NMH?

Regarding the facilities in the NMH, the most salient issue participants reported were related to hydrotherapy (e.g. pool and

shower). In total, 13 participants complained there was a lack of pools and water therapy at NMH. A belief underlying these comments was that water was very essential, because it could relax the body, reduce the pain and speed up the labour as indicated in the following statements:

"More birthing pools will be useful as I found water therapy excellent"

"Disappointed that no pool at NMH, had a waterbirth on first and if pool available wouldn't have needed epidural"

"Pool would be great, water essential for me to relax and speed up my labour"

Additionally, 11 participants made a mix of positive and negative comments regarding shower and toilets. Among them, four participants stated that they got '*fantastic*' shower experience. It is not clear where they had the shower, except one participant clearly saying that she '*got room 9 fortunately*', which is one of two rooms in the delivery ward with an en-suite shower

facility. Other participants were calling for more showers and toilets, especially en-suite bathrooms. There were also complaints about the temperature.

"There is an urgent need for more showers and toilets"

"Toilet not suitable for labouring all rooms, should be ensuite"

Another recurring theme was about the room, space and equipment. Several participants perceived that there was not enough space in the antenatal ward and the delivery room, and they felt restricted in what they could do and where they could go.

"Unit 3 (antenatal ward) does not have enough floor space for mats and positioning its very restrictive"

"Delivery room very small so was restricted more, but not easily fixed"

Participants also felt that there should be more equipment in place (e.g. mats, bars, and birthing balls), and the music equipment should work properly.

"No available equipment in annex room bar mat"

"No birthing ball available"

"Music equipment device broken"

Several participants briefly mentioned other issues that arose which were perceived by participants as creating barriers to the overall success of the Labour Hopscotch, including '*no alternative therapy, such as acupuncture, reiki*' and the malfunction of the mobile monitoring.

"Fetal monitoring loss of contact"

"Need mobile monitor in unit 3"

"Mobile monitoring wasn't recording in shower"

Some participants did not describe barriers but rather elaborated on their positive experience with the facilities. They were very grateful that, in their experiences, all facilities were available when needed. Three participants suggested that they fortunately got the best equipped birthing room – Room 9...

"Extremely lucky to be able to avail of facilities"

"Room 9 great and back stairs for lunges"

"Got room 9 fortunately shower amazing"

5.3.7 Please use the space below to write any comments that you wish about the Labour Hopscotch

Participants were invited to offer any further comments and suggestions about the Labour Hopscotch and in total 44 responses were received. In general, these comments were very positive: Common words and adjectives contained in the responses were: '*amazing*', '*excellent*', '*fantastic*', '*great', 'valuable'* and *'helpful'*, which appeared many times. Many participants perceived that the Labour Hopscotch is a useful tool for childbirth (from early preparation, to pre labour and then active labour). They gained very positive experiences from using it as indicated in some of the responses below:

"I found it fantastic and we both focused on it in preparation for labour, as also excellent in pre-labour after induction"

"Hugely beneficial, I don't think I could have coped only on gas and air, the regular change in positions helped"

"Very grateful for experience of using hopscotch and for excellent experience"

"Really loved the hopscotch system great for me and my partner to follow"

A recurring theme was that the Labour Hopscotch kept them busy and focused. Such focus helped them stay '*calm*'. Several other participants elaborated on how the Labour Hopscotch had helped them cope with the pain and reduced the need for medication (especially epidural). It

is worth noting that the shower/hydrotherapy seemed very important for pain management as indicated in the following statements:

"Everything I need was in the room, the shower was amazing. Labour Hopscotch reduces the need for medication, takes your mind away pain"

"Without HS, I would have got too exhausted in the bed and got epidural"

"Hopscotch helped me have a drug-free birth. Didn't use this on first baby and ended up with epidural"

"Epidural on first, this more intense Labour Hopscotch helped getting by hard bit, shower and room 9"

5.3.8 Promoting Labour Hopscotch

Inherent within all responses was the importance attributed to their belief that that Labour Hopscotch should be promoted widely and made available to all women nationally and internationally. Many

participants suggested that the Labour Hopscotch should be targeted to reach a much wider population such as '*all women*'. A key theme that emerged from participants responses was that GPs, and healthcare professionals in other hospitals should be informed about the benefits of the Labour Hopscotch the Labour Hopscotch should also be promoted internationally. Such were the beliefs of the participants, as they suggested there was a need to actively promote and market the Labour Hopscotch, including improved online information. Suggestions were made that more printed materials could be disseminated through different channels as indicated in the following statements:

"… all women need to know before labour; therefore, GPs need information on it to ensure women know about it from the start"

"…I hope IT moves to international use it is so good, women really benefit from it, and all of us who used it here really rate it"

"More handouts from admission to ward, and in each area of the hospital are needed so everyone is aware as all mothers should have access to it, it is so worthwhile, it should be explained and pushed more"

5.3.9 Facilities

A few participants were calling for better facilities to support the use of the Labour Hopscotch framework, in particular, pools and showers.

"All room need pool/shower. Expand use of hopscotch"

"More ensuite rooms"

"Pools needed"

Chapter Six: Focus Group Findings

6.1 Introduction

Following the output evaluation survey, a focus group meeting was held with midwives and student midwives to evaluate their experiences of the Labour Hopscotch framework. The intention of the focus group was also to ascertain any recommendations for change to the Labour Hopscotch framework and the processes involved in the current implementation and provision of the Labour Hopscotch framework in the National Maternity Hospital. It was considered important that practicing midwives collaborated in the evaluation process to ensure that any potential difficulties with translating the framework into practice could be identified. Additionally, it was essential that the supports that midwives needed to implement the framework were identified.

6.2 Demographic Characteristics of Sample

The demographic characteristics of the midwives and student midwife who participated in the focus group are presented in table 14. All participants were female. The years of experience varied widely, with one midwife having 35 years' experience, and one midwife only having qualified 10 months prior to the focus group and one participant was in her final year of her 4 year BSc Midwifery program. All except one participant had used the Labour Hopscotch while looking after women in established labour or in the antenatal ward. One midwife had only started working at the research site and so had not used the framework yet. The highest level of education for 6 of the participants was BSc, with the student midwife not yet qualified.

Table 14: Demographics characteristics of focus group participants

Variable		n(%)
Profession	Staff midwife	7(87.5)
	Student midwife	1(12.5)
Area of practice	Community midwife	1(12.5)
	Delivery ward	6(75)
	Antenatal ward	1(12.5)
Age profile	20-29	5(62.5)
	30-39	2(25)
	40-49	0(0)
	50-59	1(12.5)
Years' experience	minimum	0
	maximum	35
Trained in Ireland	Yes	7(87.5)
	No	1(12.5)
Trained in NMH	Yes	5(62.5)
	No	3(37.5)

6.3 Implementation of Labour Hopscotch

Midwife participants reflected on their actual use of the Labour Hopscotch framework. The time and energy they spent on the introduction of Labour Hopscotch depended on the type of the care that the woman was enrolled in. Midwives provided women with an A5-size Labour Hopscotch cards from the beginning of hospital admission and 'go through the basics of what the framework entailed. For those enrolled in the one-to-one care scheme (i.e. Domino), midwives would be able to elaborate more on the Labour Hopscotch, even at the antenatal stage.

Amy: *Now we don't go through this in detail, we don't have one to one care, so I would hand them out the basics, I would show them, demonstrate myself, … and again it's a different story if you have one on one care on the labour ward, but we can't go into detail, into too much detail a lot of times.*

Brenda: So those sixty women get an extraordinary one to one experience at the care option, for a fifteen-minute care option appointment, and a, 'you know how you're going to feed your baby, you know about the Labour Hopscotch …', so we have more time…

It is worth noting, that some participants saw doctors ask the women to do Labour Hopscotch after induction. However, this totally depended on the doctor's personal interest in physiological birth, which was not part of their medical role.

According to participants, different positions in the Labour Hopscotch framework were not equally used, with some steps more used than others. Midwives tended to use the birthing ball, stool and mobilizing, while massage and aromatherapy were least used. Midwives played a role to help women to make adjustments and find the best-working positions. For instance, a midwife noticed that a woman did not have strong knees, so she asked that woman to change positions straight away.

Researcher: *what positions do you tend to use, hence all my questions about the lunging?*

Kim*: The ball, the stool and all fours would be mainly like what I'd. And then send them walking.*

Brenda: *…anything that the mother says, 'this is too uncomfortable', so we obviously change straight away. You know, try it and then change straight away, you know,' I don't like this', okay, change it, 'come on, back up on your hands and knees', whatever worked.*

6.4 Midwives' Observation on Women's' Actual Use of Labour Hopscotch

Midwife participants found that the Labour Hopscotch had inspired many women to take their own initiatives at the pre-labour stage before coming to the hospital. Several women came in with the Labour Hopscotch printed out haven accessed the information by themselves.

Researcher*: From your experience, are they actually using it and do they find it helpful, based on what they've told you?*

***Shelley**: I think for early labour they do, like antenatally, a lot of them have said they've tried it at home or they're doing different things and that, kind of, kept them going before they've come in,*

***Amy:** And I've seen women coming in with it actually. Not a lot but a few.*

***Researcher:** Would it be 10%, would you say?*

***Amy:** More more like 40%*

In the hospital, after the launch of Labour Hopscotch, midwife participants had witnessed more women using the stairs and doing lunges in hospital – a phenomenon that was never that popular before.

***Laverne:** Yeah, and there's been so many more people out on that stairs recently*

***Amy:** I've never seen so many people lunging in (research site) before.*

All laugh

6.5 Perceived Value of the Labour Hopscotch

Participants described the Labour Hopscotch framework as 'a circuit in a gym', 'a rough guideline' and a collection of 'ideas'. They thought the core concept behind the framework was 'moving' and 'staying active'. For them, there was nothing new (just 're-invented the wheel'), but it provided a more official and attractive communication of physiological birth to people who were not familiar with it. One participant suggested that, the Labour Hopscotch framework is a creative way of communication which reminded midwives about the creativity associated with their profession (i.e. creating life).

***Brenda**: If you ever do a circuit in a gym or a circuit ….so that idea that this is what we do, we're always moving, and so you have a choice to do this or this or this*

***Kim**: I don't think it matters what type of lunge that they do, like if they're lunging, they're moving, which is, like, the idea behind it.*

***Amy**: initially, I thought my gosh, it's like it's nothing new, the Labour Hopscotch. It's normal… but actually it is good because it makes it official and it's like, there you go, there's a copy and it's on the wall, it gives it value, through that.*

The Labour Hopscotch framework gave midwives, especially new/student midwives, more awareness of different options for natural birth, 'reassurance on how to help' and it increased their confidence. Some midwives were not sure if their confidence had changed as a result of the Labour Hopscotch framework.

***Shelley**: This gives you a bit of confidence … it just gives junior midwives or student midwives a little bit more, like, a role, in early labour, that maybe they wouldn't have had before… without that piece of paper or poster in front of you, you've no definite, 'this is what I should be doing'.*

***Samantha**: Or 'I'm definitely allowed do this'*

***Shelley**: Or 'I'm allowed. This isn't wrong'.*

Participants also discussed the benefits of Labour Hopscotch for women during labour. Midwives considered the Labour Hopscotch framework could help women to get into established labour (even after induction) more quickly, and to better cope with contractions and labour. Midwives relayed accounts from their experiences that the Labour Hopscotch framework was great for involving birthing partners, which was good for both the women and their partners. The participants suggested that women would feel less fear and relaxed and get physical support from their partner through doing the Labour Hopscotch together. The birthing partner was enabled to take a more active part/role in the birthing process, rather than 'being left off at the side'. Midwives suggested the Labour Hopscotch gave partners permission, as such, to touch the labouring woman and take initiatives. This was noted to generate a more positive birth experience for the couples involved as indicated in the conversation below:

***Samantha**: The fact that dad is so included with the hopscotch there's less fear and, you know, it's making the woman more relaxed and obviously there's less adrenaline … so it's everything, the big cycle, and how she's feeling emotionally, physically, everything. It's all helping and I think because the two of them are working together to do it.*

***Shelley:** I sent her just a picture of it [Labour Hopscotch] and she was like 'oh, thanks so much, Richie loves it'. The husband. Not even her …. I think men are just so out of the loop when it comes to labour, that it just gives them.*

***Samantha:** It's involvement*

***Shelley:** It's viewed positively on their birth experience, do you know as a pair, as*

***Brenda:** A team*

6.6 Midwives Perceptions of The Labour Hopscotch Framework Content and Layout

Midwives provided detailed and insightful feedback when asked about the content and layout of the Labour Hopscotch framework. Participants first acknowledged that the Labour Hopscotch framework was 'good' and 'pretty self-explanatory', the allocated time for each step (i.e. 20 minutes) was perfect, and the framework was very 'visual attractive' and beautiful (e.g. baby's little feet coming out as a result of the labour). During the conversations that ensued, participants raised a few issues regarding the content and layout of the framework visual.

A recurring belief of the midwives present at the focus group was that certain terms in the Labour Hopscotch framework were not self-explanatory enough. These terms were considered to be either unfamiliar to women and even to some midwives (e.g. aromatherapy, counter pressure), or can mean different things to different people and cause confusions (e.g. lunge, massage). Midwives tried to offer oral explanations or physical demonstrations.

***Amy**: … I wouldn't go into aromatherapy, because I don't know what that means*

***Brenda:** The misunderstanding about a lunge. And mean what is a lunge? You know when you lunge, you can be like 'no no no this is what a lunge is' and demonstrating the lunges. 'Coz sometimes words make a difference. Some people don't know what aromatherapy is. And they're like, 'what have you got for aromatherapy?'*

***Shelley**: Like massage and counter pressure, that's all that written on it. It could mean anything. Like massage could mean a full body massage, or, like just?*

***Kim**: I don't think Dad's get the counter pressure thing. I do show them that.*

***Shelley**: yeh, I show them that when they ask.*

***Kim**: They don't really get it*

Another issue was the '20-minute' time split was universal for all positions. However, twenty minutes can be 'taxing' on the knees depending on how good the mothers' knees are. And sitting on the toilet for twenty minutes were not easy to achieve because of toilet availability.

***Samantha:** Facilities I think here can be a problem. Sitting on the toilet for twenty minutes. I know that sounds crazy, but, again, it's not always available. You can't do that in every room.*

One participant contributed a suggestion that the Labour Hopscotch should include 'rest'. In her practice, she encouraged mothers to take a rest between activities.

***Brenda:** And I know one of my colleagues has said one of the things that isn't in the hopscotch is rest …… mattress or a pillow between your knees and snuggle you into your pillow, and you rest and you stretch out the small of your back and you breath with the surges and you just let yourself sink into the mattress for twenty minutes ……. I use that. We've just got to say look, 'give yourself twenty minutes off now'.*

In relation to the layout and formatting, one participant heard a partner complaining about the small font size. Another woman suggested that the framework visual 'should be in a circuit, like not a hopscotch line, but a circle', but the midwife was not in agreement with that.

6.7 Barriers to Implementing Positions/Steps in the Labour Hopscotch

6.7.1 Facilities, availability and space

To facilitate the integration of the Labour Hopscotch midwives were asked their perspectives on possible barriers that they

considered existed and could impede the implementation of the Labour Hopscotch framework. Each of the midwives suggested that the main barrier they had experienced as inadequate space and lack of facilities. Participants stated that women in established labour were not permitted to leave the delivery ward, which meant the labour ward corridor and back stairs were the only space they could use for walking up and down. In the antenatal ward, women were not permitted to use birthing balls, partly because there was not enough space for that. Midwives found this to be a particular barrier to utilising the Labour Hopscotch framework as indicated in the conversation below:

***Carol**: … stairs wise, there's no-where else in delivery ward for them, because you can't bring them outside delivery.*

***Shelley**: Yeah, 'because we can only use the corridors just for walking. There is no-where else, I was on the ward, and she was going up and down sideways, … that was the only thing that was working for her.*

***Amy**: …But then the space issue as well, but, em. Yeah, they're not allowed to have them [birthing balls] on the ward, and unit 3 just does not have the space for each of the steps.*

Participants also reported facility issues in relation to pools, showers, and toilets. They believed that it would be great to have bath-tubs or pools, and more toilets and showers accessible to women. They were not satisfied with the current condition of showers and toilets, and used negative adjectives, such as 'shocking', 'small', 'dangerous', 'horrible', and 'dull and dreary', to describe these facilities. And they had tried to make them more birth-friendly (e.g. dull the lights down) as indicated in the following conversation:

***Amy:** It's shocking.*

***Researcher:** shocking?*

***Shelley:** Yeah, and they're not nice showers, they're very small, and like, actually, they're dangerous, because if she gets too warm.*

***Brenda:** It's quite inaccessible actually.*

***Samantha:** Facilities I think here can be a problem. Sitting on the toilet for twenty minutes. I know that sounds crazy, but, again, it's not always available. You can't do that in every room. And yes, there is the toilets out in the hallway, but, like, it's very hard for a woman to go and sit in a...*

***Amy:** And they're horrible, yeah.*

***Samantha:** And they're not nice and they don't look nice. They're dull and dreary.*

In contrast with the general impression that participants wished to see improvement of facilities, one participant who was previously trained in Germany provided a different perspective. Back in Germany, there were beautiful and well-equipped labour rooms; however, from her perspective the good facilities "didn't make such a huge big difference".

6.7.2 Policies and permissions

Participants suggested they needed further clarity around which stairs women could use for going up and down. The 'staff only' sign on the door could be a barrier to accessing the back stairs, the only stairs that women could safely use (the main stairs would be too busy). However, participants stated the visual prompt (i.e. 'hopscotch square' sign on stairs) was very helpful − it '*validated*' the permission and successfully increased the use of stairs as indicated in the conversation below:

***Shelley**: It says 'staff only' on the door, so they're probably afraid to go out there, and you don't want them going up and down the main stairs where it's really busy.*

***Researcher:** So, is that a barrier then? … for women, that staff only sign, that maybe we should consider taking it down.*

***All**: Yes*

***Laverne**: Absolutely, yeah*

***Shelley:** Because, even I was like, 'oh, I don't know if I'm allowed on these stairs, like I'm not sure', but the fact that the hopscotch square was on the stairs, I was like, 'well they wouldn't put that there if they can't use it'.*

***Shelley**: Like, there's a square at the back stairs of delivery, and it has, like 'stairs, 20 minutes', and it's just, they put it beside the stairs to do that.*

***Laverne**: Yeh, and there's been so many more people out on that stairs recently.*

According to participants, birthing balls were not allowed in the antenatal ward because of safety concerns and lack of space. They perceived that such policy was a '*shame*' and it contradicted the promotion of birthing balls on the Labour Hopscotch framework.

***Amy**: we would, in (antenatal ward), the balls are not allowed anymore. A lot of women are asking for them, but they're not allowed.*

***Researcher:** Even when they bring their own.*

***Amy**: yes, but sure some don't have it [birthing ball]. Most of them don't. But then the space issue as well.*

***Researcher**: Would you consider that a barrier then, to Labour Hopscotch?*

***Amy**: Of course. If it says birthing ball, you don't have it.*

***Carol**: Especially they're wrecked and they're so tired and they want to do something that's good but then, …. a ball would still be good to rest but still be doing something.*

6.7.3 Explanation and demonstration

As discussed by women and their partners in chapters five and six, some positions (e.g. lunge, massage and counter pressure) were not self-explanatory to participants. Midwives reported similar experiences and suggested that visual and new media-based communication could be introduced. For instance, putting those 'lunge' pictures back up on the wall, making sure the pictures are big enough in the

booklets. Inspired by the Nike Training Club mobile application, midwives suggested the development of video clips with visual demonstrations and oral instructions. In addition, they recommended the inclusion of Labour Hopscotch framework education videos in the television at the outpatient-department as indicated in the conversation below:

***Laverne**: there's different types of lunges*

***Brenda:** They're in the booklet but they are very small.*

***Amy:** you know the Nike training club… it's running app, it gives you ideas, it gives you a workout. … Anyway, there are clips of the actual exercise you are doing and then thirty seconds and you hear a voice doing it, but it gives you exactly how you do it accurately, one after the next.*

***Samantha:** I think it would be very important, it would have to be a pregnant woman, ideally, someone in early labour*

***Amy:** Yeh, exactly, somebody talking in the back, yeh*

All agreeing verbally

6.7.4 Tiredness

A participant suggested that tiredness can be a barrier to the engagements with Labour Hopscotch framework. For instance, a midwife's energy could be low if after a long day or on a night duty. In that case, they would try to get the birthing partner involved. Tiredness was also an issue for women. At some stage they may get too tired to engage with any activities.

***Brenda**: There was a big honeymoon period push push [push the Labour Hopscotch framework], and then we were like, 'oh, gosh, are we still doing that, have we not got the 800 yet'? and so on, which is understandable in research terms, and listen, my energy for this is flagged*

***Brenda**: But the physicality of it is also sometimes a barrier. And I think that staff tiredness is a, it can be a barrier. Or mother tiredness, where a mother says 'you can't really ask me to get off this chair again or to sit on that toilet again' or you know, whatever, so that sets a tiredness*

6.7.5 Individual differences and pre-assumptions

Participants described several personal factors which they considered may influence women's engagement with Labour Hopscotch framework, such as previous birthing experience and obesity. Primigravida's were perceived to be more open to the Labour Hopscotch framework than multigravidas by Midwives. Midwives stated that women tended to read a lot and attend the antenatal classes when it's their

first baby, and they would probably have learned about active birthing. Whereas, those who had baby before would stick to what 'worked fine the last time', and did not have the same degree of motivation to learn new things as indicated in the conversation below:

Shelley: *I think first-time mothers are more likely to try it - Labour Hopscotch.*

All nod

Shelley: *I think one: They [multigravidas] are not aware of it, and maybe also that they did this the last time, and they're gonna do it again. Like it worked fine the last time. So, the last time I got an epidural and I had my baby and it was fine, so why change it. D'ya know.*

Researcher: *I see a lot of head nodding.*

Shelley: *Especially if the last time they were in, they were induced, epidural, oxytocin. They think that's what labour is, is in the bed and they didn't even know you could be in labour and walk around or use a ball.*

Midwives acknowledged that they themselves could become a barrier to promoting Labour Hopscotch framework to multigravidas, because they could easily make the assumptions that these women would labour quickly, and they were less likely to end with epidural as highlighted in the conversation below:

Samantha*: As midwives though, we can be barriers for multips getting involved in the hopscotch as well. 'Coz I think, maybe this isn't all the time. But we know, like, a second-time mother, a para one especially, you're like, 'she'll probably fly it', like, so you're less inclined to be, like, do you want to get out of the bed …*

4,5,6 agree

Samantha*: And she might not have time for an epidural.*

Brenda: *Oh, god*

One participant believed that the Labour Hopscotch framework was equally valuable to primigravidas and multigravidas, especially for the pre-labour stage.

Amy: *Antenatally, I don't think it makes a difference if they're second or first-time mothers, according to them and I heard a second-time mother saying 'oh, that's amazing, it's brilliant, and she went through it and it really helped her, but she still wanted her epidural in labour……So, antenatally, it's really good, because our pain relief options.*

Another individual or personal factor was women's fitness and weight. Midwives perceived that physically it would be difficult for unfit or overweight/obese women to follow an active birth.

6.8 Suggestions on the Promotion of Labour Hopscotch

6.8.1 Promoting early awareness of Labour Hopscotch

According to participants, at the antenatal stage, the education and promotion of the Labour Hopscotch framework covered only a segment of women. If the woman did not

attend the midwife care option or the antenatal classes, it was very likely that the first time they heard about the Labour Hopscotch was when they arrived at the hospital in labour.

***Kim**: like, if you're not going to a midwife led care option, if you're only going to the doctors, they realistically don't discuss your labour.*

***Samantha:** Not everybody goes to classes, unfortunately.*

***Amy:** No, I totally agree.*

***Samantha:** And they don't listen in classes all the time either.*

***Amy:** No, 100%,*

Midwives believed that it would be very beneficial if women were aware of the Labour Hopscotch framework before the labour. Early awareness would help the women establish the right expectation about labour, i.e. it is 'hard', 'taxing' and it needs efforts. These women would be more open to Labour Hopscotch when they came to labour. If women knew about Labour Hopscotch framework beforehand, they could take their own initiative at the early labour stage as highlighted in the following conversation:

***Shelley**: To trying it. Where, say the women that never heard of it before, they just, kind of, want their epidural, and there's no, kind, talking to them. It's just a personal preference as well.*

***Researcher:** And do you think if they'd heard about it, antenatally, they would?*

***Shelley**: Yeah, their minds would be a bit open. I think not all of them, but maybe 50% of that 50%, maybe, would be a bit more open to it if they knew the, kind of, evidence behind it.*

***Brenda:** It's the expectation, reality. The expectation of what will labour be like, and the reality of labour is such a shock ……, if you at least have exposure to the framework that is Labour Hopscotch at home, or beforehand, and you've maybe done forty minutes of contractions at home and, obviously the car journey, or however you're getting to the hospital, think right, … We had a primigravida lady in who did two circuits of the hopscotch. I think it would have taken her, maybe, five hours, and she was fully dilated when she came into the hospital.*

Midwives suggested that communications of the positive outcomes that can be resulted from Labour Hopscotch framework could be helpful. Solid evidence and real stories can be used to showcase the benefits of Labour Hopscotch framework, and thus increase the uptake and improve the implementation of the Labour Hopscotch framework.

***Brenda:** I suppose, maybe awareness of outcomes, …. like, we have some really good stories on the team for a lady who had a homebirth eight days ago, and things had stalled a bit, and perhaps there was a bit too much sedentary behaviour, and then another midwife came on, and then the re-initiative of, 'okay, let's get off the chair', and move along and then an hour and a half later we have a baby. So, that actual…*

***Shelley**: You're saying that the second-time mothers are going to go and I didn't do that the last time, I won't do it this time. You can say, 'well, since then we've research and we've found that 80% of women have found it really useful, so then they might go, 'oh, okay'.*

***Samantha:** Give it a shot*

6.8.2 Digital technologies – mobile app

Midwives suggested that the hospital could develop a Labour Hopscotch mobile application. Similar to Nike's Training Club application, it could give instructions, timing and video demonstrations to assist the women to follow Labour Hopscotch. The participants believed the mobile app idea would fit with the current social phenomenon ("*it is a media world now*"), and it will particularly benefit early labour at home and the involvement of male birthing partners, who were usually more into IT than women.

***Brenda:** Or we need a hopscotch app.*

2 and 5 nods

***Researcher**: Why the app?*

***Samantha**: Being aware of what it is. Before she's even in labour*

***Shelley**: And being able to do it at home. 'Coz usually the Dads have a contraction app anyway, so they have another app, 'coz Dad's love apps, to do the counter pressure and do the positions.*

***Samantha**: And it gives them something to as well, so you're involving them.*

***Shelley**: Give them something to do.*

***Brenda**: People love apps. I had a patient who said to me 'the app told me to come in'.*

6.9 Student Midwife Education in relation to Labour Hopscotch

Midwives made suggestions and recommendations about introducing the Labour Hopscotch framework from the start of the education program, plus refresher sessions on a yearly basis, so that new students would be able to practice and carry on throughout the years of their studies as indicated in the following conversation:

Shelley: It really does give students a feeling that they can do something, especially in first year when you know nothing.

Samantha: See, no point doing it at the end 'coz you've seen it, you've worked it. Whereas at the very start when you can't do anything, you'll have a little bit of confidence that you can be like, 'I can do this with her'.

Carol: And if you do it from the start, you're probably more likely to carry it on, … Whereas for me to start when I've had, like four years, I'm not doing it as much.

Shelley: Like, if you were to do it in first year and never do it again, then I think you could do a refresher. Probably no harm in doing it every year, like two hours every year, or a lab, kind of. Even to go through the more technical stuff.

Samantha: Even to do the hopscotch itself. Do a full round

of it with the group, like, so you know what the women are feeling and what they're actually doing and physically doing it with them, like.

Participants also thought it would be necessary to have a 'mandatory' Labour Hopscotch framework study day (e.g. four hours) for the current midwives in the hospital, because they might not have gotten any formal Labour Hopscotch training when they were undertaking their midwifery programme.

Chapter Seven: Discussion

7.1 Introduction

The study set out to evaluate the outcomes of the introduction of the Labour Hopscotch framework in the National Maternity Hospital, focusing on women and their birth partner's experiences of using the Labour Hopscotch framework. Decision-making around pain relief methods and the possible influences of the Labour Hopscotch on the birthing experience was also considered important and is reported here. The study also set out to explore midwives' perceptions of using the Labour Hopscotch framework, focusing particularly on outcomes for midwifery practice and the mother-midwife relationship. The findings are discussed in this chapter with reference to the findings from international evidence and current thinking in relation to midwifery practice.

7.2 Perceptions of Information Provision

7.2.1 Quality and Accessibility:

One of the aims of the study was to evaluate mothers' perceptions of the amount, accessibility and quality of the information they received about the Labour Hopscotch. In midwifery, ensuring women are offered informed choices is considered a central concept of woman-focused care (Kirkham, 2010). Woman-centred care puts individual women at the heart of the care provided, with an expectation that a woman is emotionally and practically supported throughout pregnancy, childbirth and the postnatal period (Deery and Kirkham, 2006). The findings revealed that women were very well informed about the Labour Hopscotch. Over 80% (n=657) of participants knew about the Labour Hopscotch framework prior to attending the hospital in labour. This is important because individuals who are well informed are better equipped to make choices about their healthcare and have improved access to services (O'Boyle, 2013; Jomeen, 2010; Philips, 2009). The provision of appropriate information on which women can base their childbirth decisions is central to this approach.

As found in similar studies exploring women's experiences of receiving information during childbirth in labour (O'Brien *et al*., 2018; Larkin *et al.,* 2012) midwives were the primary source of information, with 70% of participants stating they received information about Labour Hopscotch from midwives in the hospital or the community midwives. One third of participants said they received information about the Labour Hopscotch when attending antenatal classes at the hospital. In relation to preparation and education, higher proportions of women attending midwifery–led and public obstetric are care reported they received education about the Labour Hopscotch framework during pregnancy to prepare them for labour. Women attending for community midwifery care reported higher satisfaction rates with the information they

received about the Labour Hopscotch than any other group. Women attending private obstetric care were the least satisfied with the information they received and were less likely to report feeling confident to use the framework in early labour as a result. This is significant because there are important correlations between being informed during pregnancy and feeling confident during labour in the literature. Informed choice, part of a shared decision-making process between a woman and her care provider, is key to providing optimal care and facilitating the woman to remain in control of her birth (O'Brien *et al*., 2018, Ondeck *et al.,* 2014). Preparing for birth can improve the birthing experience.

7.2.2 A need for more information

As discussed by Carolan (2007), access to large volumes of information does not always equate to understanding and comprehension for women during pregnancy and childbirth. Irrespective of their literacy skills and education level, most people require some degree of help to understand health care information because of what is termed as 'medical jargon' (Gazmararian *et al*., 2005). What is required to facilitate understanding, as outlined by Jepson *et al*. (2005), is the provision of adequate, high quality, relevant, information, of all the consequences of making a specific choice. The findings of this study revealed that although satisfaction levels with the information received was high, more information was required to ensure all service users understood each of the components/steps of the Labour Hopscotch. In fact, a significant number of participants (40%, n=315) would have liked more information about the framework earlier during their pregnancy. The vast majority of these had attended obstetric-led care. Just over a quarter of participant's suggested they would have liked more information on how to use the steps from a midwife during labour. As found in previous research in Ireland by O'Brien *et al.* (2018), Healy *et al*. (2015), Larkin *et al*. (2012) women want information earlier in pregnancy. Participants recommended that information about the Labour Hopscotch particularly the benefits and the steps to undertake are introduced. For instance, at the initial booking appointment from the GP or the chosen antenatal care option. These are important findings and need to be acknowledged as a systematic review by Beake *et al*. (2018) revealed what women report a lack of preparation for birth, particularly in terms of the deficits in knowledge and inaccuracies in expectations around the type of pain that they would experience. Beake *et al*. (2018) also found that women report significant lack of preparation and knowledge about the differences between latent and established labour, this caused considerable difficulties for them. This is not a new finding as previously Barnett *et al*., (2008) highlighted that women consider

that the latent phase of labour is undervalued. The findings of this study support these findings and suggest that antenatally, women require information on what they can do to help themselves get through the latent phase of labour, and when to contact the hospital.

Women who have reported to have had a more negative birthing experience have said that there was insufficient time for labour preparation during antenatal check-ups (Waldenstrom *et al*., 2004). This has significant implications for labour and birth as unmet expectations about birth can result in a rapid loss of confidence in the birthing process, specifically longer than anticipated labour duration (Hall *et al*., 2018). Perceptions of control have been demonstrated in a number of studies as a strong predictor of a positive birthing experience – control during interactions with staff, control in ones' own behaviour, and the feeling of physical control during contractions (Larkin *et al.,* 2012; Waldenstrom *et al.,* 2004; Green & Baston, 2003). Participants in a qualitative study in the UK believed that the way a woman views an upcoming birth, mentally, makes a positive difference in her experience of childbirth and promoting these beliefs (Borrelli *et al.,* 2018). Whitburn *et al.* (2004) furthers this, suggesting that a woman's state of mind influences her relationship with her body and her pain experience. The findings of this study supported this, a key theme that emerged was that Labour Hopscotch framework was an excellent and useful preparation tool for childbirth. The findings revealed that participants used the Labour Hopscotch before labour: to visualize the natural labour process and to plan and practice steps or positions in advance. Central to women's experiences was the fact that the information and preparation they received provided them with the confidence to stay active throughout the labour, and kept their mind focused on positive actions rather than contractions and anxiety.

7.3 Benefits of the Labour Hopscotch

Participants were asked which of the steps they found most useful and in total 803 responded to this question giving a response rate of 99%. Mobilising was found to be the most beneficial by 80% of participants, followed by the birthing ball (56%) and water therapy (41%). The least beneficial was the mat (24%), followed by alternative therapies (23%) and the toilet. The finding that mobilisation was considered most beneficial is not surprising as the benefits of maternal movement and position changes to facilitate labour progress have been discussed in the literature for decades. However, recent routine interventions such as amniotomy, induction, fetal monitoring, and epidural anaesthesia, as well as an increase in maternal obesity, have made position changes during labour challenging. A reduction in the mobility or lack of maternal

changes in position throughout labour can contribute to dystocia and increase the risk of caesarean birth for failure to progress or descend (Zwilling 2010). The Labour Hopscotch promotes mobilisation and can assist in physiological labour as suggested by Ondeck *et al*. (2014). Midwives need to be supported to facilitate the physiological process of birth in order to encourage freedom of movement and offer alternative coping strategies during labour in a supportive and accommodating manner.

The benefits of the birthing ball were highlighted in the findings of this study as significant and although widely used during labour the degree of international evidence reporting the benefits of the birthing ball are sparse. In terms of its physical benefits, the birth ball promotes optimal positioning and pain reduction during uterine contractions while eliciting non-habitual movement (Simkin 1991, Watkins 2001). Ling Gau (2011) conducted a randomized control trial with 188 participants exploring the use of the birthing ball during labour and found it promoted self-efficacy and physiological birth. Similar to the findings in this study women who remained active and used the birthing ball were less likely to avail of an epidural during labour. According to Ling Gau (2011) women who used the birthing ball had shorter labours and were less likely to have an epidural. The association between the use of a birthing ball and decreased rates of analgesia was also reported previously by Chang and Gau (2006), Perez (2000) and Simkin (1995).

Water immersion during labour and birth is increasingly popular and is becoming widely accepted across many countries, and particularly in midwifery-led care settings. However, water immersion was the least common form of pain relief in this study as a birthing pool is currently not available in the setting for this study and this form of pain relief/support was only available to participants who had a home birth with the community midwives. As a result, when reporting the barriers they experienced to using the Labour Hopscotch, regarding the facilities in the NMH, the most salient issue participants reported were related to hydrotherapy (e.g. pool and shower). A key finding was participant's dissatisfaction with the lack of birthing pool facilities and water/hydrotherapy at the NMH. A key theme that emerged was that water was very essential for labour because it could relax the body, reduce pain and speed up labour. The finding that women want access to birthing pools at this site was reported previously by Healy *et al*. (2015) when evaluating the services provided by the community midwives as part of the Domino Scheme. However, despite the growing demand for hydrotherapy, there are concerns around neonatal water inhalation, increased requirement for admission to neonatal intensive care unit (NICU), maternal and/or neonatal infection,

and obstetric anal sphincter injuries (OASIS). However, participants in the study attending the community midwives did have access to full water immersion and all remaining participants had access to a shower during labour. Therapeutic showering is a non-pharmacologic comfort measure used during labour but is not tested empirically. However, the findings within this study support its use as water therapy was considered very beneficial by (41%) of participants, suggesting that that it helped them cope with labour pains. Similar findings were reported recently by Ulfsdottir *et al*. (2018) who found that the immersion in warm water provided women with conditions that helped them to cope and feel confident during labour and birth. A recent Cochrane review by Cluett *et al*. (2018) found that labouring in water may reduce the number of women having an epidural. Giving birth in water did not appear to affect type of birth, or the number of women having a serious perineal tear. Entering a warm shower for its therapeutic effects is a comfort measure used internationally during labour (Simkin and Bond 2004).

7.4 Coping with Labour

As part of the study, an objective was to assess if the Labour Hopscotch assisted women to cope with labour and assess if women reported that it provided additional confidence to cope with labour. The findings were extremely positive in total nearly half of 49% (n=396) participants reported that the steps in the Labour Hopscotch helped their confidence to cope with labour. A key finding was that the Labour Hopscotch helped participants cope with pain and reduced the need for pain relief, the finding that the rate of epidural was 39% compared to 70% (NMH, 2018) for the general population at the time the study was undertaken supports this finding.

A large Cochrane review examined whether relaxation techniques, such as those included in the Labour Hopscotch, would help to reduce labour pain and improve women's experiences of labour (Smith *et al*., 2018). Relaxation, yoga and music were all found to reduce the intensity of pain. A significant reduction in anxiety level has been identified among women trained in breathing techniques, compared to women who had not (Cicek *et al*., 2017). Additionally, duration of labour has been reported as being lower in women given breathing technique training (Cicek *et al*., 2017). These findings highlight the benefits that can be gained by introducing midwifery interventions and practices to assist women cope with labour without the use of regional analgesia. A key finding from this study was the fact that participants relayed detailed accounts of how the Labour Hopscotch had supported them psychologically, with regards to self-confidence and maintaining control during their labour. Participant's option for care during pregnancy was significant;

participants who opted to attend the community midwives were the most likely group to report that that the steps in the Labour Hopscotch helped their confidence to cope with labour. This group of participants were more than twice as likely to report feeling the Labour Hopscotch helped with their confidence in coping with labour compared to participants attending private obstetric care, this is important and highlights the value of midwifery-led care. The psychological benefits for women attending midwifery care have been reported elsewhere (Sandall *et al*., 2016)

7.5 The Role of the Midwife and the Mother-Midwife Relationship

Although participants were not directly asked about relationships and role of the midwife, a central and key theme that emerged was the important role of the midwife, the importance of the mother-midwife relationship and continuity of carer to the success of the Labour Hopscotch framework. Also, inherent in the findings of this study was the visibility of the important role of midwife within the implementation of the Labour Hopscotch framework. Threaded throughout the accounts of participants was an impression that midwives' availability and the quality of support received influenced the effectiveness of the Labour Hopscotch. This was most notable when labour had progressed into a more active phase. A common theme throughout the findings was that the time spent with midwives, and the subsequent relationships developed, was important to the overall satisfaction of using the Labour Hopscotch. This is an important finding, and supports international evidence around the importance of quality mother- midwife relationships to enhance positive birthing experiences. The midwife-mother relationship is a focal point of much of midwifery research and debate and authors such Hunter *et al*., (2008), Kirkham (2010) and Freeman *et al*. (2004) assert that the quality of this relationship is fundamental to the quality of maternity care women receive. These assertions are well supported in midwifery literature, and the general consensus is that the relationship midwives develop with women has the capacity to enhance and increase confidence, promote shared decision-making and empower women to make choices (Kirkham 2010, 2002; Parratt, 2010; Walsh, 2007; Kennedy *et al.,* 2004; Parratt and Fahy, 2004; Kennedy, 1995). This proclamation is further supported in the findings of this study as women's narratives revealed that 'the relationship' or 'connection' they developed with their maternity care professional was a significant factor that contributed to their satisfaction with and their ability to use the Labour Hopscotch during labour. In addition, this finding supports suggestions by Guilliand and Pairman (1995) that informed choice is an important indicator of

the strength of the working relationship between a woman and her midwife.

Another important finding was the manner in which environmental factors influenced the amount and quality of informational support maternity care professionals shared about the Labour Hopscotch. With the exception of those attending the community midwives through the Domino scheme, few women had regular opportunities to engage in lengthy discussions about the Labour Hopscotch particularly in early pregnancy. Similar to the findings reported by Rollans *et al*., (2013), Boyle (2013), McCourt (2006), Macleod and Weaver (2002), Stapleton *et al*. (2000), the recurring theme of a lack of time was a significant factor. Time constraints were identified by women and participating midwives in this study, to be a significant factor hindering information sharing about the Labour Hopscotch. Therefore, support for the implementation of the Labour Hopscotch maybe determined, not only by women and maternity care professionals, but rather by 'the system'. This finding builds on what is already known about how 'systems of maternity care' contribute to women's dissatisfaction with the informational and emotional support they receive from maternity care professionals (McKenna and Symon 2014, Jomeen 2012, Madi and Crow 2003, O'Cathain *et al*., 2002). This finding supports Hunter's (2010) assertion that westernised maternity care militates against relationship formation and continuity of carer. That said, the findings from this study reveal that the implementation of the Labour Hopscotch provided significant benefits to women, their birth partners and midwives who reported that it supported them and afforded them opportunities to 'be a midwife with women again'. Participating midwives reported that the implementation of the Labour Hopscotch meant they had more space and time to provide the relational aspects of midwifery care to women. Previous research has characterised midwives practising in the Irish context as demonstrating the traits of an oppressed group (Begley, 1997; Hyde and Roche-Reid, 2004; Keating and Fleming, 2007). The findings of this study suggest that midwives felt empowered, this is important as the responses of midwives in this study emulates of those by midwives in studies conducted by Boyle (2013), Mathews *et al*. (2006) and Kirkham (1999) and supports Kirkham's (1999) assertion that:

"If midwifery practice is to empower women then midwives must experience empowerment themselves" (p.738)

7.6 Remaining at Home

One of the objectives of the study was to explore the factors associated with reported confidence by participants to stay at home during early labour. A total of 73.8% of participants reported that they

were confident or very confident to stay home during the early stages of labour using the Labour Hopscotch framework. Women attending private or public obstetric care were significantly less likely to report feeling confident to stay at home in early labour compared with participants attending community midwives. Participants attending the community midwives for care were five times more likely to report feeling confident to stay at home in early pregnancy compared to those attending for private obstetric-led care and over one and a half times as likely to be confident compared to those attending for public obstetric-led care. Age was also a factor; participants aged 25-35 years were more than three times as likely to report feeling confident to stay home during early labour as those aged 41-44 years. This is not a new finding in Ireland, there is evidence to suggest that older mothers have an enhanced sense of anxiety and higher expectations in terms of the quality of the services they desire (Carolan-Olay and Barry, 2014).

Many women feel confident staying at home for as long as possible (Hall *et al*., 2018; Aunt *et al.,* 2015). Women use coping strategies such as mentioned above (birthing balls, water therapy, massage and distraction) while at home and appreciate the comfort of being in their own surroundings (Cheyne *et al*., 2007). Building women's confidence to stay at home is a critical element of antenatal care as this confidence is lacking in many women (Nolan & Smith, 2010; Cheyne *et al*., 2007). Offering encouragement by using confidence-building language and phrases and recognising and promoting women's capability to achieve physiological childbirth were believed to be practices that promote maternal confidence.

7.7 Involvement of the Partner

During the antenatal period, there are many opportunities for healthcare professionals to include and involve fathers. Despite this, healthcare professionals are slow to include and involve fathers/birthing partners in the antenatal period (Lloyd et al., 2019). Poor communication from healthcare professionals and pain medication such as epidural has been identified as a barrier to partners' involvement during childbirth (Longworth et al., 2015). One of the aims of

the study was to ascertain if birth partners were actively involved in supporting women during the steps of the Labour Hopscotch framework. In total 759 participants responded and 79% of birth partners were supportive of the use of the Labour Hopscotch and recommended its usage in labour. Findings from this study revealed that the Labour Hopscotch was really useful for partners and participants reported that the Labour Hopscotch promoted the involvement of their partner during childbirth. Such involvement was very beneficial to both of them, not only because it supported the child birthing process, but also because using the Labour Hopscotch together added intimacy and nourished their relationship. This is important, because the international evidence revels that a supportive birthing partner has also been shown to calm the mother, increase her feelings of control, and reduce feelings of panic during labour and birth (Aunt et al., 2015; Gayeski et al., 2015; Escott et al., 2004; Green & Baston, 2003). The Labour Hopscotch was also reported to have positive effects on the psychological wellbeing of the birthing partner. This is a key finding because finding and supports a recent systematic review exploring paternal anxiety which revealed that paternal anxiety is significant during the process of labour where fathers are expected to be a strong calm companion, which can be challenging and an emotionally over- whelming experience (Lloyd et al., 2019). A recurrent theme in the literature is that birth partners experience feelings of helplessness, powerlessness and frustration which intensifies their anxiety (Johansson et al., 2013). Participants in the study reported that the how-to knowledge gained from using the Labour Hopscotch generated psychological benefits for their partners. For instance, many participants stated that the Labour Hopscotch made their partners feel 'useful', 'better able to help and contribute to labour process' and 'more confident'. In addition, an important theme to emerge was that the Labour Hopscotch was found to help birthing partner's to relax because it gave them a coaching role and they focuses less on their own anxieties of childbirth. This is an important finding and strengthens the argument for including birth partners in physiological birth frameworks, such as the Labour Hopscotch.

7.8 Decision-Making Around Pain Relief

Factors frequently mentioned as being important for women's experiences of childbirth are pain and a sense of control (Larkin *et al.,* 2009). Being in control and involved in decision-making promotes a sense of empowerment following birth (O'Brien *et al.,* 2018). Participants were asked if the Labour Hopscotch had influenced their chosen method of pain relief and 40% (n=309) of participants reported it had influenced their decision-making about pain relief. Women over the

age of thirty, having their first baby and who had a physiological birth were most likely to suggest the Labour Hopscotch influenced their decisions about the type of pain relief they opted for. Many factors affect a woman's perception of labour pain, such as the use of coping strategies, the woman's confidence, the physical environment and maternal anxiety (Whitburn *et al*., 2014; Lowe, 2002). Coping strategies which have been found to reduce labour pain are relaxation, distraction, movement, breathing techniques and focusing (Whitburn *et al.,* 2004; Simkin and Bolding, 2004; Escott *et al.,* 2004; Lowe, 2002). Gayeski *et al.* (2015) assessed the use of non-pharmacological methods of pain relief during labour. Many of the methods which were available in the obstetric centre where the study was conducted were adopted by the healthcare professionals, with the support and participation of the birthing partners. These methods included warm showers, breathing techniques, positions changes, birthing ball, focused attention and massage. The women reported an 88% satisfaction level. The highest levels of satisfaction were reported on the focused attention, the warm showers and the birthing ball.

7.9 Epidural Rates

One of the aims of the study was to ascertain if the use of the Labour Hopscotch could reduce the rate of epidural which at the time was 57% in 2017 and subsequently reduced to 52% in 2018 for women attending for maternity care at the research site. The epidural rate within the sample of 809 participants over a three-month period in 2017 was considerably lower at 39%. This is an important finding and suggests that the Labour Hopscotch can reduce the rate of regional analgesia. The finding that 40% of participants suggested that the Labour Hopscotch influenced their decisions around pain relief are also important and add to the argument that midwifery practices can reduce women's choices for regional analgesia. Similar findings were found in a large Cochrane review by Sandall *et al.* (2016) which included 15 studies and data collated from 17,674 women receiving midwifery-led care. The findings emphasised the benefits of midwifery-led care revealing that women were less likely to receive regional analgesia, such as epidural, undergo interventions such as instrumental or operative deliveries and were more likely to experience a spontaneous vaginal birth. These findings were also reported in the current study, with operative deliveries and regional analgesia rates significantly lower than that of the general population. International findings, including Cochrane reviews, confirm midwifery-led care and home birth are safe options for women (Hatem *et al*., 2008, De Jong *et al.,* 2009, Olsen and Jewell 2000, Olsen 1997, Chamberlain *et al*., 1997, Davies *et al.,* 1996). However, midwifery-led services remain limited in Ireland. This is despite the fact that two projects funded by the HSE,

namely the KPMG (2008) review of maternity services in the greater Dublin area, and the MIDU study (2009) evaluating and comparing care provided in Irelands two midwifery-led units to obstetric-led care, recommended that midwifery-led services should be developed further. The findings of this study support the need to develop midwifery care and midwifery practices further as participants attending private obstetric-led care had the highest probability of deciding to have an epidural for childbirth, followed by semi-private, and public obstetric-led care, Participants who attended the community midwives were the least likely group to decide to have an epidural for childbirth.

7.10 Caesarean Section Rates

Similar to international findings, Ireland has seen a decline in the rate of physiological or intervention-free birth. There was a corresponding increase in the number of women delivered by caesarean section from 19 % in 2008 to 28.9% in 2018 in the research site. Maternity care has consistently become more medicalised, with women in Ireland more likely to experience caesarean section than previously (Brick and Layte, 2011). This increase corresponds to similar increases noted internationally (Betrán *et al*., 2007). As part of the study, data was collated on type of birth, from the total sample of 809 women, the caesarean section rate was 9%, which is significantly lower than the rate of 29% at the time of the study for the general population attending the hospital. Although we cannot categorically state that the Labour Hopscotch reduces the rate of caesarean section as this was not within the scope or aims or objectives of the study, the finding is still significant and warrants discussion. Nearly half (47%) of the participants were first-time mothers, 73% were over the age of 30 and the vast majority attended obstetric led care, (63%), being a first-time mother is one of the known to increase the likelihood of a caesarean section, however the findings revealed that first- time mothers were not more likely to have a caesarean section in this study. Age is also considered to be a risk factor for caesarean section, with older mothers more likely to undergo caesarean section, however the findings of this study did not reflect that. The differences noted in intervention rates were also mirrored in the rates of normal physiological birth, the physiological birth rate of 77% was also significantly higher than the national average of 55.2%, and 70% in the National Maternity Hospital in 2017.

7.11 Barriers to the Implementation of the Labour Hopscotch framework

Participants were asked if they had considered barriers existed to the use of the Labour Hopscotch. Over a third of women described barriers they

experienced when using the Labour Hopscotch. The findings revealed that women over the age of 30, having their first baby and public obstetric-led care most likely to consider barriers existed to the use of the Labour Hopscotch. Much of the perceived barriers experienced by women, their birth partners and midwives related to infrastructure, and lack of facilities in space and were not related to interpersonal or cultural barriers. The powerful narratives women provided of their experiences which highlighted they felt supported by maternity care professionals to use the Labour Hopscotch supports this suggestion. Participating midwives suggested that much of the difficulties women experience stems from the lack of investment by policy makers for maternity services. Midwives were just as dissatisfied with the infrastructural deficits that existed as women and their birthing partners. A recurring theme was the lack of a birthing pool to support the use of hydrotherapy during labour. The culture of the birthing unit in which midwives provide care influences perception of barriers to the use of hydrotherapy in labour. Providing hydrotherapy requires a supportive environment, adequate midwifery policies and staffing, and collaborative relationships among healthcare professionals. The findings of this study suggest that participating midwives were supportive of the introduction of hydrotherapy, and the findings also support the findings of a previously reported study by Healy *et al.* (2015) that women want the choice of hydrotherapy for labour and consider it a useful and important choice for pain relief.

7.12 Midwives Perceptions

Midwives welcomed the introduction of the Labour Hopscotch, suggesting it inspired women to take initiatives and have an active role in their birthing experience. Early labour is a time of considerable uncertainty and it can be a very anxious time for women. Women may not know what to expect and they may need and seek reassurance about whether labour has started and when to attend the hospital (Butler, 2017). Midwives suggested the Labour Hopscotch was an excellent resource for women in early labour. Midwives also reported encouraging women to stay at home for as long as possible in early labour in order to avoid the interventions associated with hospital. Cheyne and Hundley (2009) suggest the hospital environment is fraught with competing priorities, time pressures and heightened emotions mean that involvement in decision-making can be difficult for women. These finding's emphasise, the importance of women having a supportive birth environment and midwives described how they were able to adapt a hospital birthing space to facilitate physiological birth through the use of the Labour Hopscotch. Midwives indicated that it is the responsibility of the midwife to protect the birth space, regardless of where the birth takes place. A key theme running

throughout midwives' accounts was one-to-one care and the importance of the relationship between the woman and her midwife and of the midwife working with the woman from early in labour towards achieving a physiological birth. Women experiencing midwifery-led continuity of care are also more likely to experience a spontaneous labour and birth without the need for analgesia (Homer *et al.,* 2017; Sandal *et al.,* 2016). In addition, women are more likely to feel in control during their labour, and satisfaction with care and with birth experience is improved (Sandall et al., 2016). Midwives perceived that the Labour Hopscotch supported women to feel more in control of their birthing experience by offering women more choice.

7.13 Conclusion

Internationally, midwifery philosophy is underpinned by an assumption that maternity care should be woman-centred. The implementation of Labour Hopscotch framework enables midwives to fulfil this philosophy. While rates of physiological birth decline in the general population, intervention and caesarean rates continue to rise (Peters *et al*., 2018) despite evidence of the benefits of physiological birth for both mother and baby, and evidence of potential harm imposed by unnecessary obstetric intervention (Miller et al 2016). There needs to be a stronger emphasis on promoting and protecting physiological birth. The Labour Hopscotch Framework is a midwifery package of care with a philosophy embedded in the inherent normality of childbirth and the natural ability of women to achieve this. The findings have revealed that when used in conjunction with midwifery-led care it can reduce interventions such as epidurals and caesarean sections, increase confidence to stay at home in early labour, and to cope during childbirth, increase rates of physiological childbirth, improve psychological wellbeing and partner participation during childbirth. Trusting supportive midwifery relationships are at the heart of the Labour Hopscotch, as evidenced in the findings. The Labour Hopscotch enhances the contribution of midwives, makes their role more visible and facilitates midwives to be *'truely present'* to support women to remain active during childbirth.

7.14 Recommendations

Steps need to be undertaken to ensure women have access to the facilities they need that support physiological birth.

Water immersion should be available to women as an approach to pain relief during childbirth.

Women need to be provided with detailed information in early pregnancy of the steps they can undertake that support physiological birth.

The Labour Hopscotch framework should be embedded into routine midwifery care, nationally.

Women's perceptions of their childbirth experiences need to be ascertained, collated and incorporated into the development of future maternity care policy and services.

Midwives need to be supported to develop the type of relationships necessary to ensure women can make informed decisions around pain relief during childbirth.

7.15 Limitations

This study was undertaken in one maternity unit in urban Ireland and that needs to be considered as a limitation.

The participants in the study had access to both midwifery–led care including home-birth and obstetric led packages of care that are not available in other units. Because women had access to greater choices their perceptions may not reflect those from women from a national perspective.

Appendices and References

Appendices

Appendix 1 Survey Tool Labour Hopscotch

An Output Evaluation of the Labour Hopscotch Framework

Please tick the response that best fits how you feel or felt about the issue, or provide a written response where required.

1. **What clinic did you attend for your pregnancy?**
   Private ☐ Semi-Private ☐ Public (Obstetric-led) ☐ Midwives Clinic ☐ Community midwifery ☐

2. **Age**
   18-24 ☐ 25-30 ☐ 31-35 ☐ 36- 40 ☐ 41- 44 ☐ 45-50 ☐ 51-55 ☐

3. **How many births have you had?**
   One ☐ Two ☐ Three ☐ Four or more ☐

4. **How many pregnancies have you had**
   One ☐ Two ☐ Three ☐ Four or more ☐

5. **What type of birth did you have on this pregnancy?**
   Please tick each one that is relevant

   Normal ☐ **Forceps** ☐
   Vacuum ☐ **Caesarean section** ☐

6. **If this is not your first baby what type of births did you have previously?**
   Normal birth ☐ Forceps or vacuum ☐ Caesarean section ☐
   Other ☐ Please specify_____

7. **Did your labour start naturally or were you induced on this pregnancy?**
   I started labour naturally ☐ I was induced ☐

8. **Did you attend antenatal classes during this pregnancy?**
   Yes ☐ No ☐

1. **Did you know about the Labour Hopscotch Framework prior to your labour?**
   Yes ☐ No ☐

2. **Where did you hear about the Labour Hopscotch framework?**

   Outpatient Department ☐ Antenatal ward ☐ Labour ward ☐
   Friends/ family ☐ Social Media/ Internet ☐

3. **Did you feel confident to stay at home in early labour using the labour Hopscotch framework?**

   Very confident ☐ Confident ☐ Somewhat confident ☐ Not very confident ☐

4. **Where did you get most the information about the labour Hopscotch Framework?**
   Please tick all that apply
   Midwives OPD ☐ Midwives ☐ Obstetric/Consultant ☐
   Community midwives ☐ Antenatal Classes ☐ Not sure ☐

5. **How would you rate the information you received about the labour hopscotch framework?**
   Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Not sure ☐

6. **Did you find the steps of the Labour Hopscotch framework easy to follow?**
   Yes ☐ No ☐

   If no, do you have any suggestions for changing the colour or presentation of the steps of the labour hopscotch, please use to box below to provide details:

1. **Would you have liked more information about the labour hopscotch framework during your pregnancy?**

   Yes ☐ No ☐

   If yes *please specify* _____

   _____

   _____

2. **Did you find the labour Hopscotch Framework useful?**

   Yes ☐ No ☐

   *Please specify*_____

   _____

   _____

3. **Do you feel that the steps helped your confidence to cope with your labour?**

   Yes I felt very confident ☐ I felt somewhat confident ☐ No not at all ☐ Unsure ☐

   Please comment in the box below if you would like to expand on your experiences during labour:

18. **Would you have liked more information about how to use the steps from your midwife during your labour experience?**

    Yes ☐ No ☐

What steps of the hopscotch did you find least and most useful during your childbirth experiences? *Please tick as relevant*

	Most Beneficial	Least Beneficial
Mobilising	☐	☐
Stool	☐	☐
Toilet	☐	☐
Water	☐	☐
Mat	☐	☐
Birthing Ball	☐	☐
Alternative Therapies	☐	☐

20. Did your birth partner become involved and support you to use the steps of the labour hopscotch?

Yes ☐ No ☐

21. Please indicate below the most beneficial aspect of the framework for your birthing partner?

22. What type of pain relief did you avail of during labour?
Please indicate from the following choices:

Gas and air ☐ Epidural ☐ Shower ☐ Pool ☐ Pethidine ☐ Tens machine ☐
Hypnobirthing ☐ Homeopathy ☐ None ☐ Other ☐

23. Did the steps of the labour hopscotch influence your decisions about the type of pain relief you had?
Yes ☐ No ☐

24. Where there any barriers to using the steps of the labour hopscotch, regarding the facilities available in the National Maternity Hospital?

Yes ☐ No ☐

If no, please specify

25. **Please use the space below to write any comments that you wish about the Labour Hopscotch.**

Thank you for your time and cooperation.

Appendix 2 Participant Information Leaflet

The National Maternity Hospital
Founded in 1894

UCD DUBLIN UCD Midwifery

An Output Evaluation of the Labour Hopscotch Framework

Purpose.

The purpose of this study is to evaluate the Labour Hopscotch framework.

Why was I invited?

As a midwife involved in the provision of care to women during labour you have been asked to consider participating in the study.

Do I have to take part?

This is a voluntary study: you are under no obligation to participate. You are free to withdraw at any time, without giving a reason.

What will happen if I agree to take part?

You will become a member of a focus group. I anticipate that this may involve you meeting on at least two occasions.

What are the possible disadvantages of taking part?

I appreciate that taking part in the meetings will add to your work load. The meetings will be held at a time that facilitates the midwives taking part in this study.

Confidentiality

It is important that confidentiality amongst the group members taking part in the focus group meetings is maintained. Members of the group may discuss both sensitive and personal information about supporting women during childbirth. I will ask all members of the group to sign a consent form prior to each meeting which will include a confidentiality clause. As with

An Output Evaluation of the Labour Hopscotch Framework

Purpose.

The purpose of this study is to evaluate the steps of the arbour hopscotch developed by one of the community midwives. This study will examine women's opinions of the information they receive and factors that influence their abilities to use the various steps during childbirth in Ireland. The study also aims to explore midwives' opinions of women's abilities to achieve an active and physiological birth when using the steps in the framework.

Why was I invited?

As a mother who has recently expressed a desire to use the Labour Hopscotch you have been asked to consider participating in the study.

Do I have to take part?

This is a voluntary study: you are under no obligation to participate. You are free to withdraw at any time, without giving a reason.

What are the possible disadvantages of taking part?

We appreciate that completing the evaluation form will take up about 20 minutes of your time otherwise there are no possible disadvantages.

Confidentiality

It is important that confidentiality is maintained, all of the data from the survey will be anonymised

What will happen to the results of the research?

They will be presented locally, nationally, and internationally. Locally they will be presented to women, their partners, midwives, midwife educators, obstetricians, policy makers and other

healthcare professionals. Nationally and internationally they will be published and presented at relevant conferences and journals for healthcare professionals involved in midwifery and obstetrics.

Funding of this research project?

This study was funded by the NMPDU (HSE).

Ethical approval

This study has been reviewed, and passed, by the Research Ethics Committee in June 2017

Further information.

You can obtain further information from a:

Sinead Thompson Community Midwives National Maternity hospital Tel: (01) 637 3177

Dr Denise O'Brien Midwifery Lecturer, School of Nursing, Midwifery & Health Systems, University College Dublin, Belfield, Dublin 4.denise.obrien@ucd.ie 01-7166496

Appendix 3 Consent Form

The National Maternity Hospital
Founded in 1894

UCD DUBLIN UCD Midwifery

A study to evaluate the outcomes from the implementation of the Labour Hopscotch at the National Maternity Hospital"

Consent Form

Please circle as appropriate

Have you read the information letter/information leaflet? YES/NO

Have you had an opportunity to ask questions and discuss the study? YES/NO

Have you received satisfactory answers to all your questions? YES/NO

Have you received enough information about the study? YES/NO

Do you understand that you are free to withdraw from the study?

- ✓ **At any time**
- ✓ **Without having to give a reason for withdrawing**

YES/NO

I …….. agree to take part in this study.

…… Witness Date and time …….

Name of Researcher:

Project lead: Sinead Thompson Community Midwives National Maternity hospital Tel: (01) 637 3177

Appendix 4 Information leaflet for midwives

The National Maternity Hospital
Founded in 1894

UCD DUBLIN UCD Midwifery

An Output Evaluation of the Labour Hopscotch Framework

Purpose.

The purpose of this study is to evaluate the Labour Hopscotch framework.

Why was I invited?

As a midwife involved in the provision of care to women during labour you have been asked to consider participating in the study.

Do I have to take part?

This is a voluntary study: you are under no obligation to participate. You are free to withdraw at any time, without giving a reason.

What will happen if I agree to take part?

You will become a member of a focus group. I anticipate that this may involve you meeting on at least two occasions.

What are the possible disadvantages of taking part?

I appreciate that taking part in the meetings will add to your work load. The meetings will be held at a time that facilitates the midwives taking part in this study.

Confidentiality

It is important that confidentiality amongst the group members taking part in the focus group meetings is maintained. Members of the group may discuss both sensitive and personal information about supporting women during childbirth. I will ask all members of the group to sign a consent form prior to each meeting which will include a confidentiality clause. As with

What are the possible disadvantages of taking part?

I appreciate that taking part in the meetings will add to your work load. The meetings will be held at a time that facilitates the midwives taking part in this study.

Confidentiality

It is important that confidentiality amongst the group members taking part in the focus group meetings is maintained. Members of the group may discuss both sensitive and personal information about supporting women during childbirth. I will ask all members of the group to sign a consent form prior to each meeting which will include a confidentiality clause. As with the data collected from women during the survey, all of the data from the focus group meetings will be recorded and anonymised.

What will happen to the results of the research?

They will be presented locally, nationally, and internationally. Locally they will be presented to women, their partners, midwives, midwife educators, obstetricians, policy makers and other healthcare professionals. Nationally and internationally they will be published and presented at relevant conferences and journals for healthcare professionals involved in midwifery and obstetrics.

Ethical approval

This study has been reviewed, and passed, by the Research Ethics Committee in the National Maternity Dublin.

Further information.

You can obtain further information from

Sinead Thompson Community Midwife National Maternity Hospital

Dr Denise O'Brien Midwifery Lecturer, School of Nursing, Midwifery & Health Systems, University College Dublin, Belfield, Dublin 4.

denise.obrien@ucd.ie 7166496

Appendix 5 **Table 11.1: Rate of epidural for pain-relief based on parity; care option; type of birth; age**

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Parity/Birth Number (control = 4)			13.310	3	0.004			
1	0.100	0.313	0.101	1	0.751	1.105	0.598	2.041
2	-0.512	0.323	2.513	1	0.113	0.599	0.318	1.129
3	-0.530	0.363	2.132	1	0.144	0.589	0.289	1.199
Care option (control = Community midwives)			28.071	4	0.000			
Private	1.335	0.297	20.219	1	0.000	3.802	2.124	6.805
Semi-Private	0.892	0.239	13.916	1	0.000	2.440	1.527	3.900
Public (Obs-led)	0.852	0.214	15.861	1	0.000	2.343	1.541	3.563
Midwives Care option	0.733	0.290	6.412	1	0.011	2.082	1.180	3.672
Type of birth (control = caesarean section)			47.935	2	0.000			
Physiological	-0.502	0.251	3.979	1	0.046	0.606	0.370	0.991
Forceps/Vacuum	1.219	0.329	13.697	1	0.000	3.383	1.774	6.449
Age Group (control = age group 41-44)			6.831	4	0.145			
18-24	-0.606	0.488	1.541	1	0.214	0.545	0.209	1.420
25-30	-0.782	0.382	4.188	1	0.041	0.457	0.216	0.968
31-35	-0.684	0.342	4.006	1	0.045	0.505	0.258	0.986
36-40	-0.874	0.344	6.458	1	0.011	0.417	0.213	0.819

Appendix 6: Table 11.2: Crosstabulation of Age and Parity

Age Group						Total
		18-24	**25-30**	**31-35**	**36-40**	**41-44**	
Birth Number	1	30	102	159	76	14	381
	2	10	44	136	94	6	290
	3	2	9	48	36	7	102
	4	0	2	17	15	0	34
Total		**42**	**157**	**360**	**221**	**27**	**807**

Appendix 7: Table 11.4: Rate of epidural based on option of care attended

Parity			Type of Pain relief - Epidural		Total (n)
			No (n)	Yes (n)	
1	Care option	Private	17	22	39
		semi-private	48	21	69
		Public (obstetric-led)	95	48	143
		midwives care option	34	17	51
		community midwives	114	10	124
	Total		**308**	**118**	**426**
2 or more	Care option	Private	16	18	34
		semi-private	36	47	83
		Public (obstetric-led)	58	78	136
		midwives care option	21	17	38
		community midwives	57	33	90
	Total		**188**	**193**	**381**

Appendix 8: Table 11.3 Shower/Hydrotherapy as a pain relief option based on parity; care option attended

Parity			Type of pain Relief - shower		Total
			no	yes	
1	**Care option**	Private	33	7	40
		semi-private	57	12	69
		Public (obstetric-led)	121	22	143
		midwives care option	37	14	51
		community midwives	89	35	124
	Total		**337**	**90**	**427**
2 or more	Care option	Private	28	6	34
		semi-private	57	26	83
		Public (obstetric-led)	101	35	136
		midwives care option	23	15	38
		community midwives	47	43	90
	Total		**256**	**125**	**381**

Appendix 9: Table 11.5: Hypnobirthing as a pain relief option based on parity and option of care attended

Parity			type of pain relief - hypnobirthing		Total
			no	**yes**	
1	Care option	Private	40	0	40
		semi-private	69	0	69
		Public (obstetric-led)	143	0	143
		midwives care option	49	2	51
		community midwives	114	9	123
	Total		415	11	426
2 or more	Care option	Private	34	0	34
		semi-private	83	0	83
		Public (obstetric-led)	133	3	136
		midwives care option	38	0	38
		community midwives	80	10	90
	Total		368	13	381

Appendix 10: Table 11.6: decision to have no pain relief based on parity and care option

Parity			type of pain relief - none		**Total**
			no	**yes**	
1	Care option	Private	34	6	40
		semi-private	62	7	69
		Public (obstetric-led)	114	29	143
		midwives care option	44	7	51
		community midwives	102	22	124
	Total		**356**	**71**	**427**
2 or more	Care option	Private	34	0	34
		semi-private	77	6	83
		Public (obstetric-led)	129	7	136
		midwives care option	33	5	38
		community midwives	85	5	90
	Total		**358**	**23**	**381**

Appendix 11: Table 12: Variables in logistic regression equation Confident Binary +/Parity +/Care option +/Type of birth +/Age

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Parity (control = parity 4)			0.713	3	0.870			
1	-0.296	0.392	0.568	1	0.451	0.744	0.345	1.605
2	-0.319	0.399	0.640	1	0.424	0.727	0.332	1.589
3	-0.214	0.446	0.230	1	0.631	0.808	0.337	1.934
Care option (control = Community midwives)			26.661	4	0.000			
Private	-1.654	0.323	26.216	1	0.000	0.191	0.102	0.360
Semi-Private	-0.361	0.268	1.808	1	0.179	0.697	0.412	1.179
Public (Obs-led)	-0.465	0.235	3.912	1	0.048	0.628	0.396	0.996
Midwives Care	-0.396	0.320	1.533	1	0.216	0.673	0.360	1.260
Type of birth (control = caesarean section)			10.307	2	0.006			
Physiological	0.834	0.284	8.640	1	0.003	2.303	1.321	4.018
Forceps/Vacuum	0.398	0.345	1.329	1	0.249	1.488	0.757	2.927
Age Group (control = age group 41-44)			16.118	4	0.003			
18-24	0.220	0.533	0.171	1	0.680	1.246	0.438	3.542
25-30	1.136	0.441	6.640	1	0.010	3.114	1.312	7.389
31-35	1.192	0.404	8.704	1	0.003	3.294	1.492	7.272
36-40	0.842	0.405	4.310	1	0.038	2.320	1.048	5.136

Appendix 12: Table 13: Variable in the logistic regression equation Cope Binary ~ Parity + Care option + Birth Type + Age

Variable		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Parity				9.443	3	0.024			
	1	-0.989	0.348	8.057	1	0.005	0.372	0.188	0.736
	2	-0.682	0.351	3.763	1	0.052	0.506	0.254	1.007
	3	-0.669	0.388	2.972	1	0.085	0.512	0.240	1.096
Care option				15.015	4	0.005			
	Private	-0.792	0.302	6.881	1	0.009	0.453	0.251	0.819
	Semi-Private	-0.495	0.222	4.984	1	0.026	0.610	0.395	0.941
	Public (Obs-led)	-0.674	0.196	11.785	1	0.001	0.510	0.347	0.749
	Midwives Care option	-0.570	0.266	4.583	1	0.032	0.565	0.335	0.953
Birth Type				10.785	2	0.005			
	Normal	0.958	0.295	10.558	1	0.001	2.606	1.462	4.643
	Forceps/Vacuum	0.758	0.346	4.785	1	0.029	2.133	1.082	4.205
Age Group				6.086	4	0.193			
	18-24	0.569	0.498	1.301	1	0.254	1.766	0.665	4.691
	25-30	0.486	0.405	1.437	1	0.231	1.626	0.735	3.598
	31-35	0.479	0.369	1.686	1	0.194	1.614	0.783	3.327
	36-40	0.076	0.374	0.041	1	0.839	1.079	0.518	2.247

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